

Creative Economy

Toshiaki Tachibanaki *Editor*

Advances in Happiness Research

A Comparative Perspective

 Springer

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Preface

Recent years have seen a blossoming of happiness studies across diverse academic disciplines. It is now recognised that the accumulation of wealth over the past decades in developed countries has not necessarily made people happier. Accordingly, economists have wondered whether this is a universal phenomenon and examined the causes and sources of happiness, while psychologists have investigated the mechanisms of subjective feelings. Researchers in other fields, too, have explored the relationship between happiness and conditions of employment, family, and health.

This edited volume aims to contribute to the literature on happiness by compiling studies based on cross-national research and conducted in diverse academic disciplines. The book is distinctive in a number of ways. It contains both theoretical and empirical analyses and investigates the relationships between the causes of happiness and economic behaviour concerning employment, consumption, and saving. Most notably, this book is one of the first works in this subject area to analyse microdata collected in Europe, the United States, and Japan with information on respondents' attributes and their economic behaviour, as well as one of the first to measure inter-temporal happiness by principal factor analysis. Furthermore, the book breaks new ground with a few papers on the relationship between the arts and culture and happiness, an area that has so far remained underexplored in the existing research.

It is known that the causes and levels of happiness encountered in developed countries and developing countries are different. This book focuses specifically on developed countries and investigates the causes of happiness found to be significant. We are particularly interested in the following three issues related to happiness, which many of the papers in this book address directly. The first is the relationship between economic inequality and happiness felt by people in developed countries. As a recent publication by Piketty (*Capital in the twenty-first century*) has shown, in developed countries the degree of income inequality is sharply increasing, and the distribution of wealth is becoming more and more skewed. We might wonder, for example, whether unhappiness is more common in people living in a country with

greater inequality. An important question then follows: Should the government try to reduce inequality via its economic and other policies to increase happiness?

Our second area of interest is working conditions, since nearly all people of working age spend about a third of each day working to receive wages and income to sustain their economic livelihood. It would be ideal if people felt happy from work, as it takes up so much of their time. We therefore pose the following questions. What working conditions—such as employment status (full-time or part-time), wages, working hours, and work–life balance—are satisfactory from a worker’s point of view? Furthermore, what are the effects of employers’ policies on employment and wages?

Our third area of interest is a little unusual in happiness research: leisure. Leisure is important for people in developed countries because they tend to have more free time and disposable income, affording them the opportunity for various activities outside the home and work, such as participating in sports or the arts. In this book, we are limited to an investigation of the arts and culture within the broadly defined area of leisure on happiness, but we hope that the relevant chapters highlight the importance of this area and encourage further research in the future.

In addition to the above three major areas of inquiry, the book includes more specific subjects: inter-temporal measurement of happiness, the Easterlin paradox, suicide, and immigration, among others. Overall, the research findings in this book shed new light on various aspects of happiness and suggest public policies for a number of areas, such as employment, family, social welfare, urban and regional planning, and culture. We hope readers will be pleasantly surprised with the variety and diversity of approaches to happiness research presented here.

The research project on which this book is based was initiated by the Life Risk Research Center and the Center for the Study of the Creative Economy of Doshisha University. The centres have organised two international conferences, one in Kyoto in 2013 and the other in Paris in 2014. L’École des Hautes Études en Sciences Sociales (EHESS), in Paris, and Keio University, in Tokyo, generously provided financial support for these conferences, and EHESS provided the venue and helped with logistics for the Paris conference. We are very grateful to these institutions for enabling these fruitful endeavours. Many of the papers contained in this book were presented at these conferences, and the subsequent comments and discussions enabled all contributors to make substantial revisions. We thank the members of the book’s editorial board—Bruno Frey, Victor Ginsburgh, Nobuko Kawashima, Sebastien Lechevalier, Werner Pascha, Aki Tsuchiya, and Tadashi Yagi—for their valuable advice and suggestions, as well as their comments on individual chapters. Their efforts have contributed greatly to improving the quality of this volume.

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Contributors

Ian Bache is a professor of politics at the University of Sheffield. He has published widely on governance and public policy, including *Multi-level Governance and Climate Change: Carbon Management in the Transport Sector* (Bache, I., Bartle, I., Flinders, M., and Marsden, G.) (2014, forthcoming, Rowman and Littlefield; Bache, I. and Andreou, G. (eds.) (2011); *Cohesion Policy and Multi-level Governance in South East Europe* (Routledge; Bache, I., George, S., and Bulmer, S. (2011)); *Politics in the European Union*, 3rd edition, OUP (Bache, I. (2008)); *Europeanization and Multi-level Governance: Cohesion Policy in the European Union and Britain* (Rowman and Littlefield; Bache, I., and Jordan, A. (eds.) (2006)); *The Europeanization of British Politics* (Palgrave Macmillan; Bache, I., and Flinders, M. (eds.) (2004)); and *Multi-level Governance*, OUP. He is currently a convenor of the UK Economic and Social Research Council's seminar series on The Politics of Wellbeing and his publications in this field include 'Measuring quality of life for public policy: an idea whose time has come? Agenda-setting dynamics in the European Union' (Bache, I. (2013)), *Journal of European Public Policy* 20(1):21–38, and 'An idea whose time has come? Explaining the rise of well-being in British politics' (Bache, I. and Reardon, L. (2013)), *Political Studies* 61: 898–914.

Dimitris Ballas is a senior lecturer in the Department of Geography at the University of Sheffield and deputy director of the University of Sheffield Research Centre for Health and Well-being in Public Policy (CWIPP). He is an economist by training (1996, University of Macedonia, Thessaloniki, Greece) and also has a master of arts degree (with distinction) in geographical information systems (1997, University of Leeds, UK) and a Ph.D. in geography (2001, University of Leeds, UK). He has significant experience and expertise in the use of geoinformatics and GIS in the social sciences and especially in the development and application of spatial microsimulation models. His current research interests include economic geography, social and spatial inequalities, social justice, exploring geographies of happiness and well-being, and socio-economic applications of GIS. He has co-authored and coedited five books, and he has published widely on applications of GIS and spatial modelling on a wide range of subjects including local labour

market policies, social policy, spatial planning, health, rural policy analysis, and human cartography. His most recent work includes a book entitled *The Social Atlas of Europe* published in June 2014 (Policy Press, Bristol).

Andrew E. Clark holds a Ph.D. from the London School of Economics. He is currently a CNRS research professor at the Paris School of Economics (PSE) and previously held posts at Dartmouth, Essex, CEPREMAP, DELTA, the OECD, and the University of Orléans. His work has largely focussed on the interface between psychology, sociology, and economics, in particular, using job and life satisfaction scores, and other psychological indices, as proxy measures of utility. One particular research question has been that of relative utility or comparisons (to others like you, to others in the same household, and to yourself in the past), finding evidence of such comparisons with respect to both income and unemployment. This work has spilled over into theoretical and empirical work on following behaviour and learning from others' actions. Recent work has involved collaboration with psychologists to map out habituation to life events (such as job loss, marriage, and divorce) using long-run panel data. In addition to his Paris position, he holds research associate positions at the London School of Economics, IZA (Bonn), and Kingston University. He is on the editorial board of ten journals and has acted as referee for over 160 different journals across the social sciences.

Conchita D'Ambrosio is a professor of economics at Université du Luxembourg. She is an economist, with a Ph.D. from New York University (2000). Her research interests have revolved around the study of individual and social well-being and the proposal of various measures that are able to capture its different aspects. She has published in *Economica*, *Economics Letters*, *International Economic Review*, *Review of Economics and Statistics*, *Social Choice and Welfare*, and *Review of Income and Wealth*, among other academic journals. She has been member of the editorial board of the *Review of Income and Wealth* since 2001 and editor of the same journal since 2007. She joined the editorial board of the *Journal of Economic Inequality* in 2013.

Danny Dorling is the Halford Mackinder Professor of geography at the University of Oxford. He grew up in Oxford and went to university in Newcastle upon Tyne. He has worked in Newcastle, Bristol, Leeds, Sheffield, and New Zealand. With a group of colleagues, he helped create the website www.worldmapper.org which shows who has most and least in the world. Much of Danny's work is available open access (see www.dannydorling.org). His work concerns issues of housing, health, employment, education, and poverty. His recent books include *Unequal Health* and *Population Ten Billion* (both published in 2013); in 2014 *The Social Atlas of Europe* (with Dimitris Ballas and Ben Hennig), *All That Is Solid*, and *Inequality and the 1 %*; and in 2015 *Injustice: Why Social Inequality Still Persists*.

Marcel Erlinghagen (1971), is a professor for sociology at the University of Duisburg-Essen (Germany). In addition he is research professor at the German

Institute for Economic Research (DIW) in Berlin. Erlinghagen is a labour market and economic sociologist, and his research is especially characterised by its interdisciplinary theoretical orientation. He has a broad methodological knowledge in the field of quantitative empirical sociological and economic research. Besides his research on labour market mobility, job security, and volunteering, he particularly investigates in determinants and development of migration. Selected publications include 'Self-perceived job insecurity across Europe over time: does changing context matter?' (with Christiane Lübke), *Journal of European Social Policy* 24: 319–336 (2014); 'Nowhere better than here? The subjective well-being of German emigrants and remigrants', *Comparative Population Studies* 36: 899–926 (2011); 'Volunteering after retirement. Evidence from German panel data', *European Societies* 12: 603–625 (2010); 'Unemployment as an institutional construct? Structural differences in non-employment in selected European countries and the United States' (with Matthias Knuth), *Journal of Social Policy* 39: 71–94 (2010); and 'Self-perceived job insecurity and social context. A multi-level analysis of 17 European countries' *European Sociological Review* 24: 183–197 (2008).

Bruno S. Frey University of Basel and CREMA (Center for Research in Economics, Management and the Arts (Switzerland). Bruno Frey studied economics at the universities of Basel (Switzerland) and Cambridge (UK) and obtained his Ph.D. in economics (1965) and habilitation (1969) at the University of Basel. He was associate professor at the University of Basel (1969–2006), professor of economics at the University of Constance (1970–1977) and at the University of Zurich (1977–2012), and distinguished professor of behavioural science at the Warwick Business School at the University of Warwick, UK (2010–2013). Since 2014 he is a senior professor at the Zeppelin University. He has received honorary doctorates in economics from the universities of St. Gallen (Switzerland, 1998) and Goeteborg (Sweden, 1998), the Free University of Brussels (Belgium, 2009), the University of Aix-en-Provence/Marseille (France, 2010), and the University of Innsbruck (Austria, 2011). He is author of numerous articles in professional journals and books, including *Happiness and Economics* (with Alois Stutzer, 2002), *Economics and Psychology* (coedited with Alois Stutzer, 2007), and *Happiness: A Revolution in Economics* (2008). His main research activity is the application of economics in noneconomic fields such as politics, art, history, conflict, and the extension of the model of human behaviour by integrating psychological and sociological elements.

Jana Gallus holds a Ph.D. in economics from the University of Zurich, where she was supervised by Professor Bruno S. Frey. Her main research interests lie in the economic analysis of nonmonetary incentives, in particular awards and prizes, as well as in the economics of happiness. She holds a double master's degree in finance and in international affairs and governance from Sciences Po Paris (France) and the University of St. Gallen (Switzerland). She completed her bachelor studies at Sciences Po Paris and the University of California, Santa Barbara (USA), and was a scholarship holder of the German National Merit Foundation during her studies.

Kazumasa Hanaoka is an assistant professor in the International Research Institute of Disaster Science (IRIDeS) at Tohoku University, Japan. His primary research interests focus around the application of spatial microsimulation and statistical analysis using large-scale population microdata in the field of disaster science, land use modelling, consumer behaviour, income inequality, immigration, etc. Before joining the IRIDeS, he earned his Ph.D. in geography at Ritsumeikan University. He visited the University of Sheffield as a visiting research fellow in 2012.

Tomoya Hanibuchi is an associate professor at the School of International Liberal Studies, Chukyo University, Japan. He obtained his Ph.D. in geography from Kyoto University in 2007. He specialised in health geography and social epidemiology and has published articles on neighbourhood environment and health. His recent works include ‘Does walkable mean sociable? Neighborhood determinants of social capital among older adults in Japan’ (co-authored with Kondo K, Nakaya T, Shirai K, Hirai H, Kawachi I. *Health & Place*, 2012) and *Health and Society in East Asia* (co-authored with Iwai N. Nakanishiya Shuppan, 2014).

Yoshio Itaba is professor in the Faculty of Economics at Doshisha University. He holds a Ph.D. in economics awarded from Doshisha University. His research field includes economic analysis of decentralisation and policy evaluation. Some of his current publications are ‘What do people think about basic income in Japan?’ in *Basic Income in Japan*, Vanderborght and Yamamori (eds.) (2014), *Poverty and Social Security System—Basic Income and Negative Income Tax* (2011) (in Japanese), and *Sports Economics and Policy* (2011) (in Japanese).

Akiko Kamesaka is a professor at the School of Business Administration, Aoyama Gakuin University in Tokyo, Japan. She is also a visiting research fellow at the Economic and Social Research Institute, Cabinet Office, Government of Japan, and a temporary member of the Council on Customs, Tariff, Foreign Exchange and Other Transactions in Japan. She has worked as an accountant at a large accounting firm in Tokyo and has studied at the University of Tokyo Graduate School of Economics. She has served as a member of the Osaka City Council, Kyoto City Council, and several other institutions. Her interests include analysis on well-being, worldview, and investor behaviour, and she has many publications in economics and finance. She received the Ibbotson Associates Japan Research Award at the Asia-Pacific Finance Association/Pacific-Basin Financial Management Society/Financial Management Association International joint conference for her research on investor behaviour in Japan. She currently works on several household panel data sets constructed in Japan and analyses the changes in Japanese people’s subjective well-being. She was invited to speak at a panel on subjective well-being and sustainability at the 4th OECD World Forum and has presented her work at many other large conferences and meetings.

Takato Kasai is an assistant professor of the Faculty of Economics, Doshisha University. He was a research fellow at the Life Risk Research Center, Doshisha

University. His research field is history of economic thought and history of economic theory, especially Karl Polanyi's welfare theory. He received his Ph.D. in economics from Doshisha University, 2015. He has published papers on both history of economic thought and labour economics, in Japanese, which include 'A criticism of 'nineteenth-century civilization' and 'double movement' by Karl Polanyi: economic liberalism and social policy', *Doshisha Economic Review* 65(1):321–347 (Takato Kasai, 2013) and 'Measures to promote the use of female workers' abilities and corporate performance: analysis of small and medium-sized firms in Osaka Prefecture', *Doshisha Policy Study* 15(1): 85–97 (Akira Kawaguchi and Takato Kasai (2013)).

Akira Kawaguchi is a professor at the Faculty of Policy Studies and the Graduate School of Policy and Management of Doshisha University, Kyoto, Japan. His main research interest includes gender gap in economic status, work–life balance, Japanese employment system, and harassment at workplace. He has published papers on labour economics and behavioural economics, which include 'Deregulation and labour earnings: three motor carrier industries in Japan' *Labour Economics* 18(4): 441–452 (Akira Kawaguchi and Keizo Mizuno, 2011); 'Internal labor markets and gender equality: evidence from Japanese micro data' (1990–2009), *Journal of the Japanese and International Economies* (Akira Kawaguchi, 2015 forthcoming); and 'Older sisters and younger brothers: the impact of siblings on preference for competition', *Personality and Individual Differences* (Hiroko Okudaira et al., 2015 forthcoming).

Nobuko Kawashima is a professor at the Faculty of Economics, Doshisha University in Kyoto, Japan, teaching cultural economics and cultural policy. Prior to the appointment at Doshisha, she was a research fellow at the Centre for Cultural Policy Studies, the University of Warwick in England, from 1995 to 1999, where she received her Ph.D. in cultural policy in 1999. She holds an M.Sc. in social policy and administration and L.L.M., both from the London School of Economics. She has written widely on cultural policy and management, including issues of copyright, drawing on theories from cultural economics, public administration, law, and sociology. She has published many articles and books both in English and in Japanese. Her recent papers in the English language include 'Copyright as an incentive system for creativity? The case of contemporary visual arts' (K. Thomas and J. Chan (eds.)), *Handbook of Research on Creativity*, Edward Elgar, 2013, and 'Corporate support for the arts in Japan: Beyond emulation of western models', *International Journal of Cultural Policy*, 2012. She is currently president of the Japan Association for Cultural Economics. Internationally, she has served the Scientific Committee of the International Conference on Cultural Policy Research since 2000.

Florian Kohlbacher is an associate professor of Marketing and Innovation in the International Business School Suzhou (IBSS) at Xi'an Jiaotong-Liverpool University (XJTLU). Before joining IBSS, he was a senior research fellow and

head of the Business and Economics Section at the DIJ in Tokyo, Japan, where he lived for 11 years. Florian holds both a master's degree and a doctorate from the Vienna University of Economics and Business (WU Vienna), and his professional experience covers both industry and academia. He is also a visiting professor at the Institute for Technology and Innovation Management, Hamburg University of Technology (TUHH); a research fellow at the Sloan Center on Aging & Work, Boston College; and an adjunct fellow at the Institute of Contemporary Asian Studies (ICAS) at Temple University Japan Campus. Florian is an internationally recognised expert on ageing and business, and his research interests include consumer behaviour, marketing strategy, innovation management, sustainability, and happiness economics. Among many international publications, he is coeditor of *The Silver Market Phenomenon: Marketing and Innovation in the Aging Society*, 2nd edition 2011, Springer, and author of *International Marketing in the Network Economy: A Knowledge-Based Approach*, 2007, Palgrave.

Susumu Kuwahara M.Phil., is a director of the Economic and Social Research Institute, Cabinet Office, Government of Japan. Born in Osaka, Japan, he joined the Economic Planning Agency (now Cabinet Office), in 1989, after graduating from the Department of Economics, University of Tokyo. He received his M.Phil. degree from the University of Warwick in 1997. Since then he held a number of positions focused on economic analysis and measurement of well-being including associate professor of the National Graduate Institute for Policy Studies and senior research fellow of ESRI (Cabinet Office). His research interests include well-being measurement, social costs of economic fluctuations, and economic forecasting. His recent works include 'On the relation between the measurement of well-being and medium-term economic forecast', Medium-Term Economic Forecast 2013–2025, Japan Center for Economic Research (2014) (in Japanese); 'Emotion and consumer confidence: a preliminary study' (co-authoring with Yoichi Sekizawa) *Journal of Behavioral Economics and Finance* Vol. 5 (2012) (in Japanese); and 'Economic analysis on business cycles and suicide rate—An approach from corporate behavior', GRIPS Discussion Paper 10–19 (2010).

Álvaro Martínez-Pérez is lecturer in International and Comparative Social Research Methods at the Department of Sociological Studies (University of Sheffield). Previously, he has been research associate in the Management School and the Faculty of Social Sciences at the same university. Before joining the University of Sheffield, he worked as research fellow at the Universitat de Barcelona and the Research Institute for the Evaluation of Public Policies (IRVAPP, Fondazione Bruno Kessler). He is a quantitative sociologist with overarching research interests in social stratification and inequalities in gender and family, education, labour market, informal economy, migration, and political participation. He has published on these topics in sociology, political science, and business and management peer-reviewed journals and edited books and research and policy reports. His research interests include family sociology, economics of the family, social stratification, electoral behaviour, and management. He has specialised in econometric and quantitative

methods for the analysis of large-scale and complex data sets. He has published on these topics on several articles, monographs, and book chapters.

Colin R. McKenzie was educated at the Australian National University and has held full-time teaching positions at the Australian National University, Osaka University, and Keio University. His current research focuses on: the role of underwriters in the Japanese bond market; why young adults live with their parents; the effect of changes in working hours and retirement on cognitive ability; and the effect of the gender of children on their parent's participation in the labour market. He has published in the *Economic Journal*, *The Review of Economics and Statistics*, *Econometric Reviews*, the *Journal of Time Series Analysis*, and the *Journal of Banking and Finance* and is currently the managing editor of the *Asian Economic Policy Review* and an associate editor of the *Asian Economic Journal*.

Toshiya Murai M.D, Ph.D., is director and professor of the Department of Psychiatry, Graduate School of Medicine, Kyoto University. Born in Osaka, Japan, in 1996, Dr. Murai graduated from the Faculty of Medicine, Kyoto University, in 1991, and earned his Ph.D. degree at Kyoto University in 1998. Since 2009, he has been in the current position. Dr. Murai's research interests include general psychiatry, neuropsychology, neuroimaging, as well as the intersection between psychiatry and philosophy. His recent works include 'Thalamocortical disconnection within the orbitofrontal region associated with cortical thinning in schizophrenia' (co-authored with M. Kubota et al.), *JAMA Psychiatry* (2013) and 'Global association between cortical thinning and white matter integrity reduction in schizophrenia' (co-authored with A. Sasamoto et al.), *Schizophrenia Bulletin* (2014).

Tomoki Nakaya is a professor of geography at the College of Letters and codirector of the Institute of Disaster Mitigation for Urban Cultural Heritage at Ritsumeikan University in Japan. He was educated as geographer in the Department of Geography, Faculty of Science, at the Tokyo Metropolitan University and obtained his Ph.D. from the university in 1997. He specialised in spatial statistics and mathematical modelling in human geography with special interest in geography inequalities of health.

Louise Reardon focuses research on understanding and analysing governance and public policy processes, drawing insights from two policy areas, well-being, and transport. Louise is interested in different understandings of well-being, the role of well-being in public policy, and well-being impacts. Louise has previously published on the rise of the well-being agenda, the role government should play in the agenda, and on the links between transport policy and well-being. Louise's Ph.D. research also looked at the impact different understandings of well-being and quality of life have played in local transport planning in the UK. Louise is currently research fellow in governance and transport policy at the Institute for Transport Studies, University of Leeds in the UK.

Kei Sakata is professor in the College of Economics at Ritsumeikan University. He holds a Ph.D. in economics awarded from the Osaka School of International Public Policy at Osaka University. His research field lies mainly in labour economics, family economics, and applied econometrics including retirement and cognitive functioning and the effects of future ageing care on the current fertility and labour supply of married women. His recent work includes ‘Occupation, retirement and cognitive functioning’ (2014) and ‘Does the definition of retirement matter in estimating the effects of retirement on cognitive functioning?’ (2013).

Sayaka Sakoda is a graduate of the Faculty of Economics, Doshisha University. She is a research fellow at the Life Risk Research Center, Doshisha University, Ph.D. research fellow at La Fondation France Japon de l'EHESS, and visiting fellow at École des hautes études en sciences sociales. She has co-authored the book *Inequal Society in Married Couples* (2013) (in Japanese) with Toshiaki Tachibanaki.

Toshiyuki Shirakawa has completed the course of Graduate School of Social Studies at Doshisha University. He attends at the Graduate School of Human Sciences, Osaka University, as a research fellow at the Japan Society for the Promotion of Science. His research interests are social stratification and social mobility and inequality of educational opportunity. He is the author of the paper, ‘Educational expectations and gender in contemporary Japanese high schools: analyzing interaction effects between school type and educational level’, *Journal of Educational Sociology* (2011) (in Japanese).

Lasse Steiner was a Ph.D. student at the Department of Economics of the University of Zurich and a postdoctoral fellow at the University of California at Berkeley. He was a scholarship holder of the Swiss National Science Foundation and the Candoc scholarship of the University of Zurich. His research focuses on cultural economics, e.g. world heritage, museum pricing, job satisfaction of artists, and the relation of arts and happiness in general. Other publications comprise topics from happiness research, political economy, and decision-making mechanism in society.

Toshiaki Tachibanaki is a professor in the Faculty of Economics at Doshisha University and the director of the Life Risk Research Center. He holds a Ph.D. in economics, awarded by the Johns Hopkins University in 1973. He has held teaching and research positions at INSEE, OECD, Osaka University, Kyoto University, Stanford University, University of Essex, and London School of Economics. He has also served as a director of research groups in the Economic Planning Agency, Bank of Japan, Ministry for Posts and Telecommunication, Ministry of Finance, and Ministry of International Trade and Industry. His research interests cover labour economics, public and financial economics, applied econometrics, economic theory, and the Japanese economy. He is the author of many books including those written in English such as *Capital and Labour in Japan: The Functions of Two Factor Markets* (2012); *The New Paradox for Japanese Women: Greater Choice, Greater Inequality* (2010); and *Confronting Income Inequality in Japan*:

A Comparative Analysis of Causes, Consequences, and Reform (2009). He has published extensively in journals such as *International Economic Review*, *Review of Economics and Statistics*, *Journal of Public Economics*, *Nihon Rodo Kyokai Zasshi*, *European Economic Review*, and *Financial Review*.

Teruyuki Tamura is a postdoctoral fellow of the School of Economics and Management at Kochi University of Technology in Japan. His research interests include the study of subject well-being, job satisfaction, poverty, and suicide. He has published papers such as ‘Investor response to a natural disaster: evidence from Japan’s 2011 earthquake’ (co-authored with M. Hood, A. Kamesaka, and J. Nofsinger; *Pacific-Basin Finance Journal*, 2013) and ‘Rising aspirations dampen satisfaction’ (co-authored with A. E. Clark and A. Kamesaka; *Education Economics*, 2015).

Tim Tiefenbach is a Senior Research Fellow and Head of the Business and Economics Section at the German Institute for Japanese Studies (DIJ). He holds a master’s degree in philosophy and economics from the University of Bayreuth and a doctoral degree in economics from the same institution. He is an expert in the field of subjective well-being, with a special focus on well-being in Japan. In his research projects, he uses large-scale survey data to analyze happiness and other subjective variables from the viewpoint of economics. Although most of his research revolves around determinants of happiness, he has also written on social capital, social isolation, and civil society. He has published in reputed academic journals in the disciplines of economics and psychology (*Journal of Population Economics*, *Journal of Economic Psychology*, *Personality and Individual Differences*, *Journal of Happiness Studies*).

Helena Tunstall is a postdoctoral research associate in the Centre for Research on Environment, Society and Health at the University of Edinburgh. Her research focuses upon social and spatial inequalities in health and well-being both within and between countries. Her recent work has assessed the relationship between migration, neighbourhood change, and individual and area health outcomes.

Kunio Urakawa is an associate professor in the Faculty of Economics at Kyushu University. He holds a Ph.D. in economics from Kyoto University. His research interests are economics of redistribution and poverty. He has published *Study on Poverty*, University of Tokyo Press (in Japanese) with Professor Toshiaki Tachibanaki. His recent academic articles include ‘The association between perceived income inequality and subjective well-being: evidence from a social survey in Japan’, *Social Indicators Research*, in press, 2014 (with Prof. Oshio, T.); ‘Neighbourhood satisfaction, self-rated health, and psychological attributes: a multilevel analysis in Japan’, *Journal of Environmental Psychology* 32(4): 410–417, 2012 (with Prof. Oshio, T.); ‘The welfare impact of marginal consumption tax reforms on young households in Japan’, *Keizaigaku Kenkyu*, *Kyushu University* 78 (5–6): 89–106, 2012; ‘Comparing marginal commodity tax reforms in Japan and Korea’,

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Tadashi Yagi is a professor of the Faculty of Economics at Doshisha University. He holds a Ph.D. in economics, awarded by Nagoya University in 1996. His research areas are wide-ranging, including public economics, human resources management, income distribution, welfare economics, and cultural economics. He has written many papers in refereed academic journals and chapters in edited volumes. Recent works include ‘The Income security system in Japanese traditional performing arts: a strategy for utilising the nation’s traditional arts resources’ (co-authored with C. Takashima and Y. Ushi), *Journal of Modern Auditing and Accounting* (2013), and ‘Economic growth and the riskiness of investment in firm-specific skills’ (co-authored with Taichi Maki and Koichi Yotsuya), *European Economic Review* (2005).

Katsuhiko Yonezaki is a research fellow of Life Risk Research Center, Doshisha University, and also a researcher at the Institute of Transportation Economics, Japan. His main research area is game theory. His publications include ‘Does ICT promote the private provision of local public goods?’ (with Y. Shiozu, Koya Kimura, K. Shimohara), Human interface and the management of information. Information and interaction design (16th International Conference, HCI International 2014 Proceedings), Part I, pp.629–640, 2014; ‘Incentive structure of participation in community activity’ (with Y. Shiozu, K. Shimohara), Human Interface and the Management of Information. Information and Interaction Design (15th International Conference, HCI International 2013 Proceedings), Part I, pp. 259–268, 2013; and ‘Fragmented society and provision of meeting places to foster social preferences’ (with H. Imai), *Kyoto Economic Review*, 78(2): 115–126, 2009.

Chapter 1

Introduction

Tadashi Yagi

With the increased understanding that wealth accumulation over recent decades in advanced countries has not necessarily made people happier, economists have asked to what extent this phenomenon is universal and examined the causes and sources of happiness, while psychologists have investigated mechanisms of subjective feelings. Researchers from other academic disciplines have also explored the relationship between happiness and employment conditions, family and health.

This edited volume makes a contribution to the literature by bringing together a number of pieces of work based on cross-national research from diverse academic disciplines. The book has many aspects: it contains both theoretical and empirical analyses, investigates the relationship between the causes of happiness and economic behavior, and suggests policy implications. We believe it is distinctive in being one of the first studies in this subject area that analyses micro data collected in Europe, US and Japan with information on respondents' attributes and their economic behavior. The data has made it possible for us to identify those factors that affect happiness by decomposing subjective happiness into positive and negative happiness. In addition, the micro data enables us to analyze the effect of institutional and economic environments such as working conditions on happiness by examining agents' behavior. Furthermore, the theoretical analysis in this volume provides us with a justification for the measures used for capturing inequality and happiness. As is noted in the Preface, the interdisciplinary approach adopted in this volume came about from a collaborative research project between five institutions of higher education in France, the UK, Germany, Switzerland, Belgium, and Japan that lasted for 2 years.

T. Yagi (✉)
Faculty of Economics, Doshisha University, Kyoto, Japan
e-mail: tyagi@mail.doshisha.ac.jp

Part I, Issues in Happiness Research—Concepts, Measurement and Interpretation, is composed of five chapters that form the foundation on which further happiness research can be based. We have greatly benefited from the involvement of Bruno Frey, one of the most distinguished scholars in the economics of happiness, in this project. Rather than starting with a data-driven or issue-focused paper, the book starts with a contribution by Frey and his colleague Gallus in Chap. 2 who discuss the significance of happiness research for public policy. Set within the political/policy context, ‘happiness’, according to them, should be measured by the use of subjective well-being of individuals. This approach is interestingly different from that taken in mainstream economics, which relies on objective indicators. One important message Frey and Gallus deliver is that governments should not try to maximize happiness, as any obsession with this maximization would induce them to manipulate measurement, distort policy orientation as a result, and invite strategic behavior by citizens in response. To conclude, they argue that governments should not *directly* aim to increase the happiness of individuals but provide conditions where people can choose their own ways that lead to their happiness. This may be a discussion typical of libertarian scientists, but the chapter presents detailed, convincing arguments to support it.

Chapter 3 follows the discussion on policy with a valuable contribution from political scientists. The authors Bache and Reardon discuss the appropriate role for government in elevating the happiness of people as a policy goal, resonating with the argument in the preceding Chap. 2 of this book. Defining happiness as a ‘wicked’ problem, they reflect on empirical developments in the UK where the term ‘well-being’ frequently appears in policy documents and speeches. They suggest that it is important not to overstate the nature, extent and pace of change taking place. Change in overall government policy requires a fundamental redefinition of what matters, measurement indicators and the concrete policies that follow from them. Happiness or subjective well-being is one of the concepts like sustainability that might work as meta-frames for policy, but the chapter notes the difficulty of confirming today the coherence and power of these to sustain a significant policy process.

D’Ambrosio in Chap. 4 presents a remarkable discussion on the measurement of individual well-being, namely, regarding its inter-temporal aspect. As she argues, traditional economic modeling has not taken into account the fact that individual well-being depends on both one’s own life course as well as comparisons with other people. The chapter reviews the alternative indices and measurements that try to reflect people’s past experiences and their reference to others in their self-assessment of happiness, and offers some guidance to the recent developments in the literature on happiness, suggesting future research issues for a better understanding of individual well-being.

In Chap. 5, Tiefenbach and Kohlbacher make a contribution to advancing happiness research by arguing for the importance of disaggregating life-satisfaction or happiness into different domains (such as health, income, family etc.) and their importance to the concept of happiness (‘domain importance’). The chapter shows, using the 2010 National Survey on Lifestyle Preferences commissioned by the Japanese Cabinet Office, the significance of domain importance for the

level of overall happiness. The authors also argue that different domain importance configurations affect even the most basic standard control variables, providing a warning to researchers and policy makers regarding the interpretation of data obtained in happiness research.

In Chap. 6, Clark, one of the most prolific established authors in the economics of happiness, probes the two behavioral explanations of the Easterlin Paradox, namely, the effect of social comparisons and adaptation to higher levels of income over time. The chapter reviews the relevant literature and underlines areas where our knowledge is lacking despite the remarkable growth in work on well-being over the past two decades.

Part II is focused on the relationship between income inequality, employment and happiness. It is widely understood that employment has a significant impact on the state of happiness as it is a major source of income for the majority of people, while security in employment can lessen the anxiety about life that is generally felt by the less wealthy. More importantly, work is important for self-actualization and enhancing the meaning of life.

Chapter 7 by Tachibanaki and Sakoda draws on survey findings from the U.S., the U.K., France, Germany, and Japan, the countries at the core of our collaborative research project. One of the most fascinating findings is that in all the countries surveyed, the relationship with a spouse is the most important determinant of happiness for both men and women. In addition, marriage and family stability are found to produce greater happiness in people's lives. Apart from a number of interesting individual findings, one notable contribution of this chapter to the literature is its focus on inequality. As Tachibanaki is an expert on economic inequality, the paper investigates the relationship between happiness and inequality by using people's evaluation of happiness and considers the subjective aspect of inequality by adding "the sense of inequality" as one of the subjective inequality variables.

Chapter 8 by Ballas et al. continues this focus on income inequality and happiness, with a focus on Japan and Britain, and also includes the issue of social cohesion. Building on recent work in the "Spirit Level" by Pickett and Wilkinson, they examine the proposition that Japan is a more equitable and thus socially-cohesive society than is any other industrialized country, including Britain. The conclusion they reach confirms that in the Spirit Level, but the authors underline some gaps to be filled by research in order to provide more sophistication to the general assumption. An interesting argument made in this chapter is that income inequality at the national level can be seen as a proxy for the psycho-social well-being of the whole populations. We here refrain from suggesting how this point of view compares to the discussions in the preceding chapters, but readers are invited to contrast them and explore the following chapters with this issue in mind.

In Chap. 9, Yagi et al. examine the differences in happiness of individuals with different work contracts (i.e., full-time and part-time workers) by comparing data from five countries (Japan, the US, the UK, France, and Germany). Firstly, the authors examine the structure of the labor market in each country by job status and then theoretically incorporate the possibility of cooperation between

‘regular workers’ and ‘non-regular workers’. Secondly, they analyze the effects of employment status on happiness in detail using micro-data. They then compare the mechanisms through which happiness is affected by employment status in five countries by drawing on the international survey on happiness on which this whole project is based.

In Chap. 10, Shirakawa considers the effects of employment opportunities on the level of happiness (subjective well-being) and compares Germany and Japan in this context. He discusses the recent employment environment in these two countries, and constructs hypotheses relating to the mechanisms that affect the happiness of individuals in the labor market. Quantitative data is analyzed to unveil how labor-market integration, i.e. the opportunity to obtain a job and job stability in the two countries, influences happiness. The chapter presents some policy implications.

Over-work is a typical issue not only for family and personal life but also for the efficiency of work itself in many countries. Kawaguchi and Kasai in Chap. 11 compare the effects of paid and unpaid overtime work on stress, earnings, and happiness. Applying a mediation analysis to Japanese data reveals the following: (1) Working time does not cause much stress as long as it is paid; (2) unpaid overtime work significantly increases stress; and (3) stress has a negative effect and earnings a positive effect on happiness. They also find differences between the sexes as follows: (1) female workers’ ‘unpaid overtime work’ is, in fact, compensated; (2) an effect of unpaid overtime work on stress is larger for women than men; and (3) the total effect of unpaid overtime work on happiness is negative, and is larger for women than men. Thus whether workers recognize overtime work as paid or unpaid work has a decisive influence on stress and happiness. This obviously has implications for managers of companies and other organizations.

After covering income and jobs in the preceding two parts, Part III turns to various societal issues, such as family, emigration and the Arts that cast new light on the factors that affect the state of happiness and advance research in happiness.

In Chap. 12, Sakata and McKenzie take up the increasingly wide-spread practice of co-residency of parents and their young, adult, unmarried children in Japan. The authors find that co-residence for parents with their young adult children reduces both the level of life satisfaction and marital satisfaction of Japanese parents. What is interesting as an interpretation and implication of the data findings in this chapter is that co-residency plays a similar role to social security. With the rapidly-aging population in Japan, the big problem of supporting the elderly may seem to coincide with a traditional solution of co-residency across the generations whereby the younger help the elderly. However, the authors suggest that this informal social security mechanism works to support low-income adults at the expense of the material and life satisfaction of their parents, so that this may well be a labor-market issue rather than care for the elderly.

Chapter 13 focuses on the issue of emigration, a phenomenon that is expected to spread increasingly among the highly-skilled and professional in advanced countries in today’s globalizing world. The author Erlinghagen investigates the development of individual life satisfaction before emigration from Germany under a life course perspective using longitudinal data from the German Socio Economic

Panel (SOEP). The chapter reveals a significant fall in life satisfaction between 3 and 2 years before the final emigration event. Contrary to the intuition of the author, this overall pattern can also be observed in almost all analyzed sub-groups across gender, education, age and ethnic origin. We expect the author and others to develop more research of a dynamic nature relating happiness and the course of emigration (preparation, actual moving and post-emigration).

In Chap. 14, Itaba focuses on the relationship between happiness (at the micro-level) and city size (at the regional-level). This issue is very relevant today, as globalization has intensified competition between cities to attract high value-added industries and professional or highly-skilled workers who contribute to economic development in these areas. Large cities however have both benefits and costs, which trade-off against each other, and thus may not necessarily be attractive to the kinds of industries and individuals that local policy-makers seek. The author does not find any relationship between happiness and city size measured in Japan using an internet survey conducted in 2011, but does show some causal relationship by using a different modeling technique. The chapter goes on to identify the mechanism by which large cities positively affect happiness, which has policy implications for policy-makers of cities of all sizes.

In Chap. 15, Martínez-Pérez investigates the impact of childcare policies on the life satisfaction of families with dependent children. The focus of the inquiry lies in the comparison of families living in ‘old’ family arrangements (couples with dependent children) versus those living in new family arrangements (lone mothers and fathers with dependent children). This chapter offers novel evidence on the relationship between family structure and life satisfaction in the context of increasing fluidity of the family structure as a result of the changing process of coupledness and the importance of marital instability and divorce risks.

Chapter 16 touches on a daunting topic: suicide. Despite the importance of the issue, because of its sensitivity, large-scale, individual level data has remained unavailable in Japan, a country that has one of the highest rates of suicide among OECD countries. Kuwahara et al. take an alternative route to present a data-supported theory that might be adopted in installing an effective program for suicide prevention by government. The authors consider the risk factors driving Japanese people to commit suicide by the use of a Japanese internet survey data collected in 2012 by the Economic and Social Research Institute (ESRI) of the Cabinet Office of Japan. The survey includes one question to construct what they call “suicidal ideation.” They find a correlation between “suicidal ideation” and subjective well-being, suggesting that the latter seems to have some predictive power regarding suicide risk.

Chapters 17 and 18 turn to the area of the Arts and culture, an area that has so far received little attention in research on happiness and in cultural economics. In Chap. 16, Kawashima casts doubt on the simplistic assumption that cultural policy should try to justify itself by arguing that culture and the Arts contribute to individual happiness. She discusses this issue by examining the pernicious role played by ‘Culture’ in creating and institutionalizing differences and inequality between different groups of people in society. The chapter suggests that rather than

devising ways of measuring the value of culture on its own and in association with other policy purposes (including the enhancement of happiness), cultural policy should insist that culture be seen as an integral part of the whole economic and social system, and as indispensable infrastructure for economic development and social sustainability. The chapter thus breaks a new ground in cultural economics, where the valuation of culture has been a hotly-debated topic for a number of years.

The next chapter also concerns cultural economics. In Chap. 18, Steiner pays attention to a paradox in the artistic labor market: Artists work more, earn less and run a greater risk of becoming unemployed than other workers. This has attracted much attention from cultural economists, who have suggested that individuals who are prone to take risks enter this labor market, or pointed out the stardom phenomenon as a contributory factor. Another, more recent, explanation has been that artists derive high job satisfaction. This proposition obviously has relevance to happiness research, and is the topic of this chapter. Steiner argues that the increased job satisfaction of artists is related not only to the creative nature of the work and its outcome, but also to procedural characteristics, especially having autonomy in choosing working hours and place of work. This argument seems to have implications for business management and public policy in employment, echoing some of the considerations proposed in Part II.

To conclude this introductory chapter, research on happiness needs to be related to that on the creative economy, the series title under which this edited volume is published. One of the important issues in the field of the creative economy is the determinants of the market value of creative activities, such as innovation. Market value is higher when the new products or services enhance consumer happiness, while innovation is more appreciated when it improves societal well-being. It can thus be argued that the ultimate objective of the creative economy is to contribute to the well-being of society, which in turn sustains the economy. In this respect, the first task we need to tackle is the need for a better understanding of the nature of happiness and the identification of the factors that affect it. It is our hope that the following chapters will help us in this task. As noted above, these contributions are of various natures with diverse disciplinary approaches, but shed light on many important issues that have so far received insufficient attention and will help the readers interested in happiness research navigate through the vast, existing literature.

Part I
**Issues in Happiness Research—Concepts,
Measurement and Interpretation**

Chapter 2

Happiness: Research and Policy Considerations

Bruno S. Frey and Jana Gallus

1 On the State of Happiness Research

Some years ago, not even social science professionals knew about the modern, empirically orientated research on happiness. The situation has changed dramatically since then. Happiness research belongs to the hottest subjects not only in economics but far beyond. This fact is revealed by the great interest young scholars pay to the new subject.

Happiness research has been covered by a substantial number of survey articles (e.g. Frey and Stutzer 2002a; Dolan et al. 2008; Stutzer and Frey 2010; MacKerron 2012); books (e.g. Frey and Stutzer 2002b; Layard 2005; Gilbert 2006; Diener and Biswas-Diener 2008; Frey 2008; Easterlin 2010; Graham 2011); and collections of articles (e.g. Kahneman et al. 1999; Easterlin 2002; Frey and Stutzer 2013). As some of these contributions are quite recent and examine the subject well, there is no need to provide yet another overview of happiness research in this book. Let it suffice to outline five reasons that shall show why it is still a fascinating field and well worthwhile to be pursued:

1. Happiness research goes far beyond standard economics as it is still included in most textbooks and even scientific treatises. While the subject has recently received great prominence, it is not yet accepted by the more conservative branch of economics.

B.S. Frey (✉)

CREW (Center for Research in Economics and Well-Being) University of Basel, Basel, Switzerland

CREMA – Center for Research in Economics, Management and the Arts, Zurich, Switzerland
e-mail: bruno.frey@econ.uzh.ch

J. Gallus

Kennedy School, Harvard University, Cambridge, MA, USA

2. Happiness research is based on a skillful use of survey methods. The task is to capture the subjective well-being of individuals. This approach firstly contrasts to standard economics, which focuses on objective measures of what is considered individual “well-being”, such as income. Secondly, the survey approach also contrasts to the recent surge of laboratory experiments, which seek to find evidence on human behavior under controlled, and therefore often contrived, conditions.
3. Happiness research has become politically most relevant. This is illustrated by the statements made by the governments of France, the United Kingdom and China, which claim to be pursuing the happiness of their respective populations (see, for instance, the Sarkozy Report by Stiglitz et al. 2009). More recently, the United Nations have engaged in an effort to develop practical rules and approaches for the pursuit of this goal (Diener 2005; Royal Government of Bhutan 2012).
4. Happiness research is one of the only truly interdisciplinary endeavors. It has been championed by social psychologists, in particular Ed Diener (1984). Economists were even earlier (van Praag 1968; Easterlin 1974). Sociologists and political scientists are also very active in the field (e.g. Lane 2000).
5. There are many open and little explored issues in happiness research waiting for adequate and stimulating analyses. Examples are:
 - The causality issue, in particular between income and happiness. People with higher incomes are clearly happier but happier people are also able to gain a higher income. It is difficult to empirically distinguish the strength of the effect of income on happiness, and that of happiness on income.
 - The measurement of happiness. There are three major types of subjective well-being: affective or short run; life satisfaction, where an overall assessment of one’s life is considered; and the most fundamental concept of eudaimonia, which refers to a “good life”. The refinement of the tools that allow measuring these different dimensions of happiness is an ongoing process.
 - The determinants of happiness, many of which are not yet well explored. This applies in particular to how consumption influences subjective well-being. It is known that psychological factors such as the inability to correctly predict the utility derived from future consumption and limited self-control have a considerable impact on well-being.
 - The effects of war and civil unrest on people’s well-being. Little is known about these, although it is intuitively obvious that deadly strife strongly reduces happiness (Frey 2011a, 2012).
 - The policy implications. While happiness research has provided us with valuable insights of what makes people satisfied with their lives, it remains open in what way this knowledge can and should be used for policy purposes (e.g. Frey and Stutzer 2006, 2010, 2012; Frey 2011b; Frey and Gallus 2012, 2013),

For reasons of space, this text focuses on one of these issues, namely the use of the results gained from happiness research for public policy.

2 Happiness Policy

There are two levels at which policy decisions are taken, as pointed out by the constitutional point of view (Buchanan and Tullock 1962; Frey 1983; Mueller 1996): In the current politico-economic process decisions are taken within given rules of the game. At the constitutional level these rules as such are determined. Happiness research can affect public policy at both levels.

2.1 *Happiness Research Within Given Rules of the Game*

Happiness research is directly relevant for public policy due to the new instruments, which allow for the measurement of individuals' preferences and welfare. As a consequence, political competition in the current politico-economic process is intensified. Politicians, bureaucrats and members of interest groups are interested in the results of happiness research as they hope to strengthen their position in the competition for votes or in the bargaining about government policies. They have a stake in the knowledge that is gained about the value to individuals of certain public goods or public bads.

2.1.1 How Individuals Value Public Goods

Providing public goods is a basic function of government. Government agencies are increasingly required by law to provide cost-benefit analyses of government programs. The benefits from public goods are difficult to capture since they are not traded on economic markets. A number of different approaches for the evaluation of public goods have been developed (Freeman 2003). Two kinds of valuation methods have mainly been used:

Revealed preference methods. The behavior of individuals is employed to infer the value they attribute to public goods by examining their market transactions in private goods. Examples are the hedonic market approach and the travel cost approach.

Stated preference methods. Individuals are directly asked to attribute a value to a particular public good. The most important method is contingent valuation.

Based on happiness research, a new and promising method emerges: The “*Life Satisfaction Approach*” (see Frey et al. 2010). Reported subjective well-being is a proxy measure for individual welfare with which public goods can be directly evaluated. The marginal utility of public goods or the disutility of public bads is estimated by identifying the effect of public goods or public bads on happiness. This approach avoids major problems inherent in the other evaluation methods. The contingent valuation method often faces the problem that the questions asked are perceived to be hypothetical and unfamiliar to the respondents. They may also fail to adequately consider the effect of their budget constraints and of substitutive

goods. Superficial answers are likely to result (Kahneman and Knetsch 1992). The respondents may also answer strategically in order to support the provision of a public good or to prevent that of a public bad. The Life Satisfaction Approach is not affected by these problems. The respondents need only state their own life satisfaction with some degree of precision (Kahneman and Sugden 2005; Dolan and Metcalfe 2008). Thus, the Life Satisfaction Approach has for instance been used to value airport noise nuisance (van Praag and Baarsma 2005), terrorism (Frey et al. 2009), droughts (Carroll et al. 2009), air pollution (Welsch 2006; Luechinger 2009) and flood hazards (Luechinger and Raschky 2009). To our knowledge, there are no such studies on public goods rather than on public bads. The Life Satisfaction Approach is likely to become a widely used empirical method that will help inform the political process.

2.1.2 Aggregate Happiness Indicators as Complements to GNP

National happiness indicators have increasingly been used to complement the most commonly employed measure of a country's degree of development and prosperity, namely the Gross National Product (GNP). France, the United Kingdom, Australia and several other nations now engage in producing national indicators of well-being. The European Social Survey provides comparative information on a wide range of aspects of subjective well-being (Huppert et al. 2009).

Aggregate happiness indicators have several interesting qualities in comparison to traditional measures of economic activity (see also Frey and Stutzer 2010):

- Happiness measures combine *non-material* aspects of human well-being in the form of social relations, autonomy, and self-determination. These play no role in the standard national accounts.
- Happiness measures include *outcome* aspects of components inadequately included in the national product via input measures. This holds in particular with respect to government activity in which GNP is measured by the costs of material and of labor.
- Measures of happiness consider *subjectively* evaluated outcomes and are thus in line with the fundamental methodological approach of economics.

In sum, aggregate happiness indicators provide new and complementary information about preference satisfaction. This information will become a relevant input for the political discourse.

2.2 *Happiness Research in the Design of the Rules of the Game*

The results of happiness research help to inform the public about the institutions that are most amenable to their own life satisfaction. Concerning the stage where the rules of the game are set, research has shown the important role of direct demo-

cratic decision making in citizens' well-being (Frey and Stutzer 2000), the effect of mandatory retirement and mandatory schooling on happiness (Charles 2004; Oreopoulos 2007), the consequences of social work norms and birth control rights on women's well-being (Pezzini 2005; Lalive and Stutzer 2010), and the relation between working time regulation and people's subjective well-being (Alesina et al. 2005).

3 Maximization of Happiness by Government?

3.1 *Supporting Arguments for Happiness Maximization*

Standard microeconomics remains fundamentally marked by the ordinalist revolution. Individual welfare is taken to be measurable only in an ordinal, but not in a cardinal way. Interpersonal comparisons of utility are thought to be impossible. Here the countermovement of happiness research sets in. Both cardinality and interpersonal comparability may be less of a problem on a practical level than on a theoretical one (Kahneman et al. 2004: 432). For many applications, milder assumptions suffice. An important example is the valuation of public goods and public bads, based on the Life Satisfaction Approach discussed above. Life satisfaction scores are reported on an ordinal scale. Using adequate statistical techniques, like ordered probit or ordered logit estimates, the ordinal information is sufficient to measure the value of public goods and to compare their marginal utility to the marginal utility of income. This allows us to calculate compensating surplus. The Life Satisfaction Approach does not require interpersonal comparability at the level of the individual to evaluate public goods. It suffices that the specific response frames of individuals do not systematically vary over space or over time between different groups exposed to different levels of a public good.

If cardinal measurement and interpersonal comparisons of happiness are considered to be possible, it may be claimed that one or more social welfare functions exist which could be used to derive policies for democratic governments. An unweighted sum of individual cardinal welfare or happiness could be considered 'democratic' as it attributes equal weight to each person.

National happiness as a proxy for social welfare meets an old dream in economics. Bentham (1789) and later on Edgeworth (1881) suggested that maximizing social welfare should be the ultimate goal of economic policy. This idea was introduced into modern economics by Tinbergen (1956) and Theil (1964). In the recent literature, the notion that national happiness should be a guideline for policy has been championed by Layard in his influential book "Happiness" (2005). The proposal seems to support the idea of social welfare maximization. However, for a number of important reasons, the presumed "socially optimal" values for the various determinants of happiness should not be used as policy targets to be pursued by democratic governments.

3.2 *Objections to Happiness Maximization*

Classical welfare economics, shaped by Robbins (1938) and Hicks and Allen (1934), has for a long time raised fundamental arguments against the use of the concept of aggregate social welfare instead of individual welfare. The two most important and partially interconnected (Sen 1970) objections to the concept of aggregate social welfare are, first, the impossibility of cardinal measurement and of interpersonal comparisons of *individual* welfare and, second, the impossibility theorem relating to *aggregate* or *social* welfare.

Based on the arguments and the evidence presented above, it becomes evident that the first reason is not valid for reported subjective well-being. There is indeed a satisfactory empirical approximation to individual welfare. In contrast, the impossibility of aggregating individual preferences to a social welfare function under non-dictatorial conditions remains fundamental. Arrow (1951) and the subsequent field of “Social Choice” have mathematically proved that, given a number of “reasonable” conditions, no social welfare function exists. Individual orderings of outcomes cannot in general be ranked consistently, except in a dictatorship. This impossibility result has proved to be robust to modifications of the assumptions (Sen 1970, 1999; Slesnick 1998). Hammond (1991: 220–21) concludes: “There is no way we can use empirical observations on their own to produce an ethically satisfactory cardinalization, let alone an ethically satisfactory social welfare ordering”. Empirical observations are not sufficient to produce an acceptable social welfare function in a democracy. It is essential to consider additional aspects. Measuring individual welfare in terms of happiness does not solve the fundamental impossibility result. The social welfare maximization approach disregards political institutions and processes. It corresponds to the “benevolent dictator” view rejected by Constitutional Political Economy (Buchanan and Tullock 1962; Frey 1983; Brennan and Buchanan 1986; Mueller 1996, 2003; Vanberg 2005). A “socially optimal” policy cannot be imposed from above, i.e. by maximizing an *aggregate* social welfare function. Democracy is characterized by constitutionally designed rules and institutions. These allow citizens to reveal their preferences, while politicians (the government) are given an incentive to put them into reality.

3.2.1 *Strategic Reactions by Citizens*

The social welfare maximizing approach, based on empirically estimated happiness functions, disregards the institutions on which democracy is based. Citizens are held passive and they are alienated from the state. A happiness maximization approach in this regard is inimical to democracy. It disregards the interaction between citizens and politicians, the influence of interest groups and the resulting information and learning processes.

Once the citizens know that their government uses the national happiness index to pursue its policy, the respondents to a happiness survey have an incentive to

misrepresent their own well-being. Citizens leaning to the left are reluctant to state that they are happy in a society ruled by a right-wing government. Conversely, they tend to indicate a higher level of happiness if a left-wing government rules their nation. Up to now, the answers to the surveys could be considered, and have actually been shown (Diener et al. 2012), to be truthful. This is no longer the case when the respondents become aware that their evaluations enter a national happiness index that is used for political purposes. Citizens start to act strategically, resulting in a distorted national happiness indicator which can no longer be trusted to truly represent the citizen's subjective well-being. While such reactions to government interventions lead to similar problems in other policy areas, they are especially salient in the case of happiness indicators. Such indicators are based on subjective answers to surveys, which can more easily be manipulated than more objective data. Such a reaction reflects a more basic phenomenon, which even applies to the natural sciences. The Heisenberg Uncertainty Principle states that the observation of a system by itself fundamentally disturbs it. In the social sciences, both the observation and public reporting can change the actual behavior of the people involved. This reaction is related to Goodhart's Law and the Lucas Critique (see Chrystal and Mizen 2003). According to Goodhart's Law (1975), any observed statistical relationship – such as the happiness function – will tend to collapse once pressure is placed upon it for control purposes. The Lucas Critique (1976) deals with econometric modeling. When the policy target changes (for instance when an aggregate happiness indicator is introduced), the expectations of private agents adjust, which changes behavior in a rational-expectations model – the result being that the previous estimates are no longer accurate.

Another important aspect relates to the fact that people have preferences for *processes* over and above outcomes, called 'procedural utility' (for a survey see Frey et al. 2004). These processes raise their well-being from living and acting under institutionalized processes. They contribute to a positive sense of self, and address innate needs of autonomy, relatedness and competence (Ryan and Deci 2001). Individuals enjoy procedural utility as income earners and consumers; as citizens subjected to different political and societal procedures; in organizations, as employees confronted with different organizational procedures; and in law, as litigants (Frey and Stutzer 2005; Olken 2008). Procedures matter greatly to people. They experience a significant loss in autonomy, and therefore reduced well-being, when they are just asked in a survey about their happiness, while leaving the rest to government.

Happiness research also fails to provide a rule about the scope and limitations of government intervention in the private sphere. For example, should the government be allowed to prohibit the consumption of alcohol if this were to raise the population's happiness in the long run, or should this be left to the discretion of individuals?

Even more importantly: To what extent should the government be allowed to change the preferences of its citizens? Many interventions might affect people's well-being in the future due to a change in preferences. Two cases are discussed:

- The government could adopt a policy reducing people’s material aspirations. As a result they will be more appreciative of future material benefits.
- The government could raise the National Happiness Indicator by inducing people to take a “happiness pill”. Should such policies be accepted? Abstracting from possible health issues, the potential of such an intervention seems promising: People would be more productive (Oswald et al. 2006). They would be friendlier towards one another and engage in more pro-social behavior. A self-reinforcing trend would be likely to materialize since happiness is contagious (Christakis and Fowler 2011). Inequalities in people’s genetic dispositions to experience happiness would be corrected for. Given that 50–80 % of a person’s feeling of happiness is attributed to the “genetic lottery” (Walker 2011: 129), this is not a minor intervention. However, the negative consequences would be tremendous: The work motivation for some tasks would decrease and important products and services would cease to be procured. A happiness pill would furthermore negate the importance of the procedure with which happiness is attained (see, e.g., Frey et al. 2004). It would eliminate downsides, which – although painful – serve as an important reference point allowing people to actually perceive moments of happiness. Lastly, governments would make use of this new drug not to the benefit of all, but rather to their own advantage.

Both issues, the reduction of people’s aspirations and the dispensation of a happiness pill, must be decided at a fundamental level. It cannot be answered within the happiness maximization calculus alone. A feasible and theoretically consistent approach is to resort to the constitutional level, where people make such fundamental decisions behind the veil of uncertainty.

The most fundamental issue is whether happiness actually is the ultimate goal to be maximized. Other valid goals, for instance, are loyalty, responsibility, self-esteem, freedom or personal development. Whether happiness is the prime goal of individuals, or whether it is only one of several goals, has for centuries been a controversial issue in philosophy (Sugden 2005; Bruni 2006; McMahon 2006; Bruni and Porta 2007).

3.2.2 Manipulation by Government

The decision to maximize social welfare in terms of a national happiness has so far been assumed not to influence the measurement of subjective well-being. This assumption is highly debatable. Indeed, the political relevance of aggregate happiness would certainly induce the government, public bureaucracy and interest groups to manipulate and distort the national happiness index in their favor. Such behavior has been shown to be at play with other politically important economic indicators. As the rate of unemployment has become a sensitive issue among the voters, governments have started to influence it. They aspire to paint a better picture of the state of the labor market than what is actually the case. For instance, people who have been unemployed for a long time are no longer defined as being in the workforce; this lowers the official unemployment rate. The way of measuring budget

deficits was manipulated by a considerable number of European countries when the rules for entering the European Monetary Union required that budget deficits did not exceed 3 % of GDP and that public debt did not exceed 60 % of GDP (Forte 2001; von Hagen and Wolff 2004). Most notably Greece and Italy resorted to accounting tricks or “creative accounting”. This practice does not necessarily violate the law, but it is clearly against the spirit of the law and violates accounting standards. It uses the rules, the flexibility provided by them and the omissions within them in order to make financial statements which look different from what is intended by the rules (Jameson 1988). Such distortions of economic indicators were so widespread that “[...] the determining factor for achieving membership of the planned European Monetary Union (EMU) seems to [have relied] on widespread use of public-sector creative accounting measures” (Dafflon and Rossi 1999: 59–60).

In the rare case that a government is unable to manipulate a particular indicator in its favor, it has an incentive to create new indicators. This is easily possible in the case of happiness. A variety of indicators may capture individual well-being. Governments and pressure groups will choose those indicators most beneficial to their respective interests, or will create new ones better suited to their purposes.

3.3 *An Appropriate Policy Approach*

The above discussion suggests that public policy should not seek to maximize the national happiness index. Rather, government should *improve the nature of the political processes*. Individuals should have more opportunities for advancing what constitutes their idea of a good life, both individually and collectively. They should be made aware that different issues require different measures and indicators of well-being. Happiness research should remain open to constructing a number of different indicators, reflecting well-being according to different aspects of life. Plurality is a necessary consequence of the procedural view outlined above. This is in stark contrast to the maximization approach requiring one single objective. From a constitutional standpoint, people are best served with comparative institutional analyses on subjective well-being.

4 Concluding Remarks

Happiness research has provided us with substantial and useful insights into the determinants of the subjective well-being of individuals. In contrast to indirect material measures such as national income, the determinants of well-being form a welcome basis for public policy more orientated towards the welfare of the citizens. This contribution points out that the gained knowledge should not induce governments to try to directly maximize individuals’ utility. Rather, governments should provide the conditions that allow individuals to choose their own way to happiness.

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Chapter 3

The ‘Wicked Problem’ of Wellbeing: Theorising the Prospects for Policy Change

Ian Bache and Louise Reardon

1 Wellbeing on the Political Agenda

In the past decade there has been an increasing focus at both national and international levels on the extent to which governments can improve the wellbeing of citizens. At the core of these developments has been concern with GDP as the dominant indicator of societal progress, leading to a plethora of initiatives that have sought alternative or complementary measures of progress. A pivotal moment in developments was the report of the influential ‘Stiglitz Commission’ (CMEPSP 2009), which argued for the use of subjective wellbeing (SWB) indicators alongside more widely used objective indicators of progress, such as employment rates and life expectancy. This feature of developments has proved highly controversial and the issues it raises are central to our discussion here.

In this context, this chapter has two concerns. The first concern is with arguments surrounding the appropriate role of government in relation to wellbeing as a policy goal. Here we draw on the distinction between ‘wicked’ and ‘tame’ problems as a reference point for steering a course through arguments.¹ The seminal discussion of this distinction (Rittel and Webber 1973) resonates sharply with current debates on

¹This first section draws on work developed by the authors with Paul Anand. We would like to thank Paul for allowing us to use this material here. The full articulation of our arguments on wellbeing as a wicked problem can be found in Bache et al. (2015).

I. Bache (✉)

Department of Politics, University of Sheffield, Sheffield, UK

e-mail: i.bache@sheffield.ac.uk

L. Reardon

Institute for Transport Studies, University of Leeds, Leeds, UK

e-mail: l.reardon@leeds.ac.uk

wellbeing and indeed is located within similar debates in the past. Here we relate this distinction – and particularly the notion of wellbeing as a ‘wicked problem’ – to four challenges facing the wellbeing agenda relating to *reliability* (of data), *responsibility* (for action), *distrust* (in decision-makers), and *distraction* (from other concerns). The second concern of the chapter is with the prospects for policy change to address this wicked problem, drawing on three contributions to policy analysis: the multiple streams approach, depoliticisation and policy learning.

In developing our arguments we draw mainly from our empirical work on the UK,² where developments in government are widely regarded to be among the most advanced. In doing so, we distinguish between the measurement and policy application aspects of the ‘wellbeing agenda’, while arguing that measurement and policy should also be seen as two sides of the same coin.

1.1 Wicked Problems

Central to Rittel and Webber’s (1973) analysis is the argument that the search for scientific answers to most public policy problems is bound to fail because these problems are generally ‘wicked problems’, which are by their nature difficult to define and for which there are no definitive and objective answers. By contrast, ‘tame problems’ are ones that science and its related practices are capable of dealing with. With tame problems there is a clear mission and it is also clear when the problem has been solved. With wicked problems there is no such clarity and they cannot be solved in the same sense – only partially and temporarily re-solved.

Here we suggest that the challenge of promoting either happiness or wellbeing is a wicked problem – the latter being particularly complex because of its multidimensional nature (below). We summarise the key differences between wicked and tame problems as follows (Table 3.1).

At the core of contemporary debates on wellbeing is contestation on the nature of the problem: for example, some are most concerned with the accelerating levels of reported mental ill-health, for others it is social issues and for others it is to foreground concerns around environmental sustainability and so on. Describing the problem as one of ‘ill-being’ does not bring the necessary clarity – a core characteristic of a wicked problem:

The formulation of a wicked problem *is* the problem! The process of formulating the problem and of conceiving a solution (or re-solution) is identical, since every specification of the problem is a specification of the direction in which a treatment is considered. (Rittel and Webber 1973, 161)

²We are using the UK as shorthand here to refer primarily to actions being developed as part of the Measuring National Wellbeing Programme developed by the Office for National Statistics. We note that there are distinct activities in Scotland, Wales and Northern Ireland in relation to what we describe here as the ‘wellbeing agenda’ but do not have the space to discuss these distinct strands. Moreover, our arguments apply to a range of contexts within and beyond the UK.

Table 3.1 Tame and wicked problems (Bache et al. 2015)

Tame problems	Wicked problems
Definable	Ill defined
Problems separable from one another	No definitive formulation of what factors involved in the problem
Solutions findable	No exhaustively describable solution set
Clear mission to follow to gain resolution	Choice of explanation determines nature of solution
Clear when problem solved	Re-solved rather than solved
e.g. maths equations, checkmate in chess	e.g. complex social policies

The key features of Rittel and Webber’s initial conceptualisation have proved resilient over time, having been widely applied.³ Conklin (2005), Durant and Legge (2006) and Head (2008) all emphasise contestation over the nature of the problem and the preferred solution as the core of a wicked problem. The wicked problems literature also continues to emphasise the importance of interconnected problems across multiple policy domains, while Weber and Khademian (2008) and Head and Alford (2013) emphasise the importance of multiple levels of government or *multi-level governance*, which has become a feature of contemporary policy-making since Rittel and Webber’s seminal contribution (see Bache and Flinders 2004). We return to this theme below.

1.2 Four Challenges Facing the Wellbeing Agenda

In light of the discussion above we identify four challenges that have been raised in relation to the wellbeing agenda (measurement and policy). The challenges illustrate that this agenda very much relates to a wicked problem, but that the measurement agenda is somewhat less wicked than that of policy. Moreover, these challenges also emphasise the importance of distinguishing between happiness (or at least SWB)⁴ and wellbeing (as a multidimensional phenomenon consisting of SWB and a range of other indicators set out by the UK Office for National Statistics (ONS), OECD and others). That there is a blurring of boundaries in both academic and policy debates between measurement and policy, between happiness and wellbeing and, beyond this, considerable ambiguity and uncertainty over the nature of any policy response indicates the status of wellbeing as a wicked problem. We now reflect on these challenges, which we categorise as reliability, responsibility, distrust and distraction.

³5786 Google Scholar cites as of 18/06/2014.

⁴In the ONS programme, there is one question on happiness out of four on ‘personal wellbeing’ (see Beaumont 2012).

Reliability – *That wellbeing cannot be adequately measured and so should not be relied upon for public policy purposes*

There is a long-standing sensitivity within a section of the academic community about the merits of subjective measures of wellbeing. For example, De vos (2012, 185–186) laments that ‘so-called ‘scientific’ happiness data are nothing more than a collection of tentative happiness gauges, summarily offered by fallible respondents, in response to very crude questions, and interpreted by fallible researchers.’ In particular, concerns are raised in relation to the reliability of subjective indicators where the individual is asked to evaluate their sense of wellbeing (e.g., Overall, how happy did you feel yesterday?). A key concern here is that different individuals may define the question differently and even where a shared understanding can be assumed, individuals cannot be trusted to provide accurate information about their level of wellbeing. The argument generally follows therefore that objective data should form the basis of appraisal and evaluation of policies.

In contrast, numerous studies have alleviated concerns that the mood of respondents and contextual factors affect the validity of SWB measures through triangulation with other methods, such as cross-referencing the respondents self-declared SWB score with the assessments of the friends and family of the respondent (Layard 2005). Further, Nef (2012, 2) has suggested that ‘concerns about the fluctuations of “moment to moment mood” ... can be largely discounted once large enough survey samples are considered’ (such as the 165,000 in the UK’s Annual Population Survey). Further, the viability of interpersonal comparability of SWB responses (often seen as a barrier to using such data) is now thought to be both possible, and more robust when extrapolated to an aggregate level (Di Tella and MacCulloch 2008, 29–30; Diener et al. 1999). In addition, the point is often made that it is misleading to describe indicators as either ‘objective’ or ‘subjective’: there are ‘more’ and ‘less’ subjective measures but none that are truly objective in design or application. For example, any objective indicator (including GDP) involves a judgement on what domains (or activities) are to be included, and how components within it should be weighted.

In the context of such debates, viewing wellbeing as a wicked problem brings a caution against over-reliance on scientific solutions. This does not mean that indicators and data are not important and should not be used to guide public policy: rather, it means that data should be used that is ‘good enough’, accepting that contestation over which data are used is inevitable and will be ongoing. Thus, data should not be expected to ‘solve’ this wicked problem but rather contribute to understanding the nature of the problem and therefore be used in the ongoing attempts to develop and frame provisional courses of action or ‘re-solutions’.

Responsibility – *That government is not the most appropriate/effective vehicle for promoting wellbeing*

There are a number of elements to this argument. One element is opposition to ‘big government’ from an ideological point of view, preferring instead either societal or market responses. A variant of this position is that wellbeing is best

left to the individual. A further element is emphasis on improving institutions as a way of facilitating individual and collective notions of the good life, rather than direct policy interventions (Frey and Stutzer 2007). These tend to be arguments that relate to metatheoretical positions that cannot be refuted empirically. However, a key empirical argument connecting and underpinning these positions is the evidence of governments expanding their policy reach (and expenditure) significantly since the Second World War while aggregate levels of happiness have remained relatively constant. Thus, as Bjørnskov (2012, 173) argues; 'What appears to be the unequivocal conclusion to be drawn from the sober, scientific part of the wellbeing literature is that larger government does not imply a happier population.'

These arguments are wide reaching and make use of the hedonic treadmill argument (Layard 2005). By contrast, while it is acknowledged that aggregate happiness levels have stayed fairly constant despite such interventions, we cannot know what would have happened in the absence of these policies and many would find it difficult to imagine that the expansion of education and health services, for example, have not positively affected wellbeing.

While we cannot address the question of 'what should happen to the role of government?' empirically, we can reflect on 'what is happening?' in the UK context to give some sense of the contemporary relevance and urgency of these arguments. The evidence is that, to date, the UK government has done little more than begin to collect SWB data with a view to this possibly informing policy in a very gradual and partial way – other indicators beyond the wellbeing agenda (e.g., on growth and employment) remain paradigmatic in policy terms and, even within the measurement agenda, 'personal wellbeing' constitutes one domain out of ten in the ONS programme, alongside others such as health, work, education and personal finance (Beaumont 2012). As such, UK government has done little to promote wellbeing in public policy other than collect data and conduct some exploratory initiatives within Whitehall. Of course, this may prove more significant longer term and it is not entirely clear whether the agenda implies an overall expansion of government activity.

In short, understanding wellbeing as a wicked problem implies some role for government, but does not suggest that the governments can 'fix' the problem – by its nature the problem cannot be fixed. However, governments would be viewed as part of the problem because of their impact on various domains of wellbeing (economy, health, education etc.) and thus be involved in framing the response. Here it is important to note that this argument relates to wellbeing, drawing on the UK case, and that some of the concerns expressed around the role of government are more properly focused on the pursuit of happiness specifically. In short, understanding wellbeing as a wicked problem does not point to a particular direction in which governments should move either in terms of specific policies or through more or less intervention, but that governments are inevitably part of the problem and thus the solution.

Distrust – *That politicians will be inclined to manipulate data and thus cannot be trusted with wellbeing data*

Increasing public distrust of politicians is a growing phenomenon (Hay 2007) and the concerns over trust are tied to this. The argument is that there is little point in developing datasets on wellbeing to guide public policies because political actors are driven by their own self-interest and the promotion of special interests, not necessarily that of the public good. Moreover, some would argue that the nature of wellbeing data presents a more sinister opportunity for unscrupulous politicians to deliberately misuse data for political ends. For example, Frey and Stutzer (2007, 9) argue that; ‘once aggregate happiness has become politically relevant, the government, public bureaucracy and various interest groups have an incentive to manipulate it’.

The general point about the motivations of politicians cannot be proven or disproven empirically. However, we note that the discourse of cynicism that surrounds contemporary politics pushes politicians to risk-averse, lowest common denominator decisions that can stifle innovation and policy progress. It is increasingly difficult for politicians to think ‘outside of the box’ and develop distinct positions. Such reluctance feeds public scepticism towards politicians, thus contributing to a downwardly spiralling relationship between electorates and their representatives. As such, it is important that we at least challenge this ‘default’ setting that ‘politicians can’t be trusted’, where we have some basis to do so. For example, a mix of motivations have been identified for David Cameron’s support for this issue – some instrumental and pragmatic, others connecting to his beliefs and values (Bache et al. 2015).

However, we are not suggesting by any means that politicians should be ‘trusted’ with data to the extent that there is not close scrutiny and clear lines of accountability. Trust is central to the validity of wellbeing measurement and policy. Understanding wellbeing as a wicked problem emphasises this point: ‘In such fields of ill-defined and hence ill-definable solutions, the set of feasible plans of action relies on realistic judgement, the capability to appraise “exotic” ideas and on the amount of trust and credibility between planner and clientele that will lead to the conclusion, “OK let’s try that”’ (Rittel and Webber 1973, 164).

As noted above, if understanding wellbeing as a wicked problem implies that there is a role for governments, then political involvement is inescapable. It is not clear from the more critical literature on this issue why data on happiness or wellbeing should be any more subject to manipulation than other data used by governments or why we should be any more concerned about manipulation of this data than other data (e.g., economic, health). But again, understanding wellbeing as a wicked problem cautions against over-reliance on data and this would encourage close scrutiny of how data is interpreted and used by politicians.

Distraction – *That the pursuit of wellbeing by government will lead to government failing to address other concerns*

Here the central concern is that a focus on wellbeing might lead to the neglect of other desirable political goals such as freedom, human rights, or fairness that may be more relevant as a guide for government action (Duncan 2010, 172). These arguments are very clear when related to government focusing solely on happiness,

but speak less effectively to a more overtly multidimensional wellbeing agenda. As noted above, there is some consensus among statisticians on the domains that constitute wellbeing, but contentious issues to be resolved about the relative value attributed to different domains and how these might be emphasised differently by politicians with different value structures (e.g., freedom vs. equality): such contention is inherent to the wickedness of wellbeing.

In UK policy circles, there may be a tendency for SWB to be employed as shorthand for the broader wellbeing agenda, which has raised some concerns (e.g. see Austin 2014). To date though, there is little empirical evidence that the collection of SWB data in the UK and the nascent policy interest is about to squeeze out other concerns: the focus of politics and policy remains very firmly on the economy. The ONS wellbeing measurement programme sits alongside long established statistical functions and it is these – particularly relating to economic growth and unemployment – that continue to dominate the interest of the media, public and politicians.

Understanding wellbeing as a wicked problem emphasises the need to recognise the multidimensional nature of the issue and draws attention to the important distinction between happiness/SWB and wellbeing: the distraction concerns are stronger when addressed towards the former. However, the concerns relating to the wider wellbeing agenda are not irrelevant. For some, initiatives to measure wellbeing and related policy experiments are part of a broader agenda to redefine the notion of societal progress. This would challenge and ultimately replace the dominant economic paradigm that, critics believe, fetishizes economic growth and overlooks other important dimensions – social, environmental and personal wellbeing. In this sense, distraction may not be the most appropriate term but it speaks to an attempt to shift the political and policy focus away from the status quo. Understanding wellbeing as a wicked problem emphasises that these issues are about value choices and political action: ‘... in the pursuit of a wicked planning problem, a host of potential solutions arise... It is then a matter of *judgement*⁵ whether one should try to enlarge the available set or not. And it is, of course, a matter of judgement which of these solutions should be pursued and implemented’ (Rittel and Weber 1973, 164).

2 Understanding Wellbeing as a Wicked Problem: The Implications for Policy Making

Thus far we have argued that the challenge of wellbeing should be understood as a wicked problem and that this might help us to steer a course through debates on the appropriate role for government in this area. Our second concern is to consider whether this understanding might offer insights for policy-making. Drawing on

⁵Emphasis in original.

the contributions to the wicked problems literature and the wider literature on governance and public policy, we make a number of observations relevant to wellbeing:

1. The first step to address a wicked problem/the challenge of wellbeing is to recognize its nature (as wicked)

This point is made by Conklin (2005, 9) and elaborated by Head (2008, 103), who suggests that while labelling a problem ‘wicked’ will not solve it, ‘might help to generate wider understanding of strategies available for managing and coping with complex and chaotic issues.’

2. As there is no ‘root cause’ of wicked problems/the challenge of wellbeing, there is no single best approach to tackling them.

This point is made by Head and Alford (2013, 5) and elaborated on by Head (2008, 9) who cautions against the search for ‘quick fixes’ and argues that ‘more knowledge, even if well targeted, is never sufficient . . .’ (Head 2008, 109)

3. Policy-makers should not expect conclusive solutions to wicked problems/the challenge of wellbeing

Instead, they should aim for partial and provisional courses of action (Head and Alford 2013, 2).

4. Discussion and deliberation are often valuable in unpacking entrenched differences surrounding wicked problems/the challenge of wellbeing

Head (2008, 105) makes this point and talks about the potential value of ‘mediated dialogue’ to explore common ground for potential joint action. Durant and Legge (2006, 310) suggest that deliberative models may be more attuned to dealing with wicked problems than more managerialist ones. Deliberative processes can also recognise the perspectives and values that ‘frame’ the definition of the problem and can provide an alternative to solutions based on empirical knowledge (Head 2008, 102).

5. The challenge of wellbeing is intrinsically one of multi-level governance

As a multi-dimensional phenomenon that occupies multiple policy spaces, addressing the challenge of wellbeing requires not only the engagement of stakeholders from a range of sectors, but also from different levels of government. While some policy domains that might affect wellbeing are controlled locally (e.g., the local environment), others are national (e.g., health and education), and others are international (climate change). Of course, many domains cut across levels and sectors (e.g., the economy) and in themselves require coordinated effort by public, private and voluntary actors in shaping public policies.

2.1 Theorising Policy Change: The Prospects for Wellbeing

The observations above primarily scope the governance terrain on which a response to the challenge of wellbeing might be built. In this section we focus on the prospects for policy change, drawing on overlapping contributions to policy analysis

that theorise how the policy responses to the challenge of wellbeing might move forward. These contributions are, respectively, on stream alignment, depoliticisation and policy learning.

2.1.1 Stream Alignment

John Kingdon's (2011) 'multiple streams approach' to agenda-setting has survived for over thirty years, providing an attractive way of conceptualising how ideas rise up governmental agendas. Pertinently for our discussion, it also theorises the situation in which policy change is most likely.

Kingdon's work identifies three separate processes or 'streams' – of problems, policies and politics – that develop largely in isolation from each other but which must ultimately come together for significant policy change to occur. *Problems* can rise up the political agenda through a high profile event or crisis (e.g., a rail crash) or through a shift in respected indicators (e.g., on climate change). *Policies* generally emerge away from the political spotlight through the exchanges of 'experts', such as academics, civil servants and think tanks. Ideas in this stream may 'float around' for years before finding their moment – often after a 'softening up' of policy-makers has taken place. While *political* processes such as elections, leadership changes and shifts in public opinion also shape the agenda. Thus, change in the policy stream tends to be evolutionary, while there is scope for more sudden changes in problems and politics – the idea of 'punctured equilibrium' (see Bache 2015; Bache and Reardon 2013).

A key role in coupling these streams is played by *policy entrepreneurs* – individuals who 'are willing to invest their resources in pushing their favoured proposals or problems, are responsible not only for prompting important people to pay attention, but also for coupling solutions to problems and for coupling both problems and solutions to politics' (Kingdon 2011, 20). The coupling of streams is most likely when a *policy window* is opened by events in either the politics or problem stream. During these windows, policy entrepreneurs try to 'sell' their view of the policy problem and solution to key decision-makers. Generally, the problem stream is the last to be connected, but this is important in providing legitimacy for action (Ackrill and Kay 2011, 77). Windows close if the problem is successfully addressed or if there is no suitable policy alternative available. Windows can also close through a change of personnel in key positions or if the events that opened the window become less important over time (Kingdon 2011, 169–70).

In the UK context, we have argued elsewhere (Bache and Reardon 2013) that in the *politics stream* a period of hesitant governmental interest in the issue took a sudden step forward with the change of government in 2010. Here, Prime Minister Cameron's personal interest in the issue was decisive: while there was little evidence of wide support for this agenda within government, the importance of the Prime Minister within the British system sent a strong signal to civil servants that this agenda demanded a response. Thus, while the issue has subsequently

fallen from media glare, developments continue at civil service level. Of course, the concentration of power in the UK executive and, particularly in this case, the Prime Minister's Office, means in theory that a step forward might be reversed under a successor Prime Minister with different views.

In the *policy stream*, developments in the UK fit well with the emphasis on evolution outlined in the multiple streams approach and the process of 'softening up' that is often necessary for ideas to be heard. Academics and statisticians operating within epistemic communities have played a key role in developing the relevant research and engaging with policy-makers so that the policy-makers have significant confidence in this aspect of the agenda. Knowledge on the policy implications of wellbeing measurement is less advanced and significant policy change has not yet resulted.

In terms of the *problem stream*, this is yet to be connected effectively to the policy and politics streams. Though there may be a general sense among publics that 'society is not taking us to a better place' (interviewee 2011 cited by Bache and Reardon 2013), there is not a clear sense of what the problem is that should be addressed: for some 'the problem' may be about levels of unhappiness, for others it might be environmental or social, for example. This is, of course, central to definition of wellbeing as a wicked problem.

In theoretical terms it is the responsibility of policy entrepreneurs to connect the three streams. Some have suggested the post-financial crisis period provides a 'window of opportunity' to persuade politicians to embrace wellbeing as a policy goal while the prospects for improving key economic indicators remains limited. If the economic crisis has opened a *problem window* across systems, the change of government in 2010 and the intervention of David Cameron opened a *political window* in the UK. To date though, policy entrepreneurs have not been able to effectively couple the streams and this is clearly no small task: while there have been significant advances in the policy stream, there remain significant issues to address that may be essential to an effective coupling. For example, politicians would want simple ways of communicating progress on wellbeing – perhaps a single indicator – while statisticians generally counsel against this approach, suggesting it would necessarily misrepresent complex data. Further, as suggested above, more knowledge is needed on how different policy options might improve wellbeing. Politically, there is cautiousness around these issues that is not helped by these under-developed policy alternatives. In short, there remains a role for policy entrepreneurs to play in framing the issue more effectively to couple the three streams but there is also need for further development within the individual streams themselves to provide policy entrepreneurs with the tools necessary to do this.

2.1.2 Depoliticisation

Depoliticisation is a process of removing issues from formal political arenas for a range of purposes – sometimes because issues are politically sensitive, often because politicians want to reduce their accountability by the delegation of difficult

decisions to arm's-length bodies. This process might be criticised on the grounds that it undermines democratic accountability (input democracy), but justified on the grounds of leading to better outcomes (output democracy). A case in point is the delegation by the UK government of interest rate decision-making to the Bank of England. The point here was that by removing these decisions from government it would allow experts to take a longer-term view of what is good for the economy, whereas politicians might be influenced by immediate concerns of public/media reaction and related electoral consequences.

There may also be a quality of life example in this respect. The National Institute for Health and Care Excellence (NICE) is an arm's-length body originally set up to reduce variation in the availability and quality of National Health Service treatments and care, and has expanded to now provide national advice and guidance to improve health and social care. Over a period of time it has developed a system of QALYs (Quality Adjusted Life Years). QALYs are used by NICE to take into account the quality and quantity of life generated by potential healthcare interventions. They are calculated through determining life expectancy and a measure of the quality of the remaining life-years that would be generated from the intervention. Calculating QALYs for each treatment allows for comparison between treatments and also an assessment of value of money based on the cost per QALY (Phillips and Thompson 2009). While it is not possible to establish the counterfactual, it is reasonable to suggest that developing what might have been (in the hands of politicians) a very sensitive system has been allowed to develop and embed over several years relatively untroubled. It is now widely accepted within the relevant policy communities (Brazier 2014).

To some extent, there may be a depoliticisation of wellbeing activity already taking place in the UK. After the flurry of media attention that accompanied David Cameron's speech launching the ONS programme in 2010, the Prime Minister has been low profile on the issue. This may have been shaped in part by the hostile reaction he received in the media, including newspapers generally supportive of his party's policies. Our research has suggested that Cameron was advised by those close to him not to take a high profile position on the issue because of the likely backlash. That he did so indicates a degree of commitment to the issue. However, that he did so only 6 months into his premiership allowed plenty of time for the issue not to become a problem electorally. It is often suggested to us as researchers of wellbeing in the UK that Cameron/the government has lost interest in the issue because they have not heard anything about it from politicians or the media. However, this is not the case. What has happened in the UK since 2010 is that the issue has been taken out of the political spotlight and is moving forwards in the civil service, with a range of relevant actions developing around measurement and policy (Bache et al. 2015).

It may be with some irony that the EU, currently at the centre of a storm of criticism for being undemocratic and not particularly beneficial for its citizens' economic wellbeing, may provide a productive route for advancement on the wellbeing agenda. Not only does the existence of a European Statistical System provide a means through which to coordinate the collection of wellbeing data that

allows for cross-national comparison across 28 member countries, it has a policy reach across some key domains – for example, environment, trade, regional and social policies – that make it an important contributor to the multi-level governance challenge of wellbeing. Moreover, the absence of close political scrutiny in at least some areas of EU activity can allow for the development of policy frameworks with a long-term view (EU regional policy is a good example – see Bache 2008). Ironically, therefore, it is the very depoliticisation of EU spheres of activity that in the longer term may promise greater wellbeing for EU citizens – whether this trade-off between input and output democracy is one that might be justified and sustained for this purpose is quite another issue however.

How far depoliticisation might and should be pursued as a strategy is highly contested. Other theories (e.g., multiple streams) suggest that, at some point, for major policy change to occur political intervention is required – the connecting of the politics stream to problems and policy alternatives. Without this, it is possible that a largely depoliticised measurement agenda might continue, but not be accompanied by significant policy change. More to the point perhaps are the ethical considerations around seeking to advance significant policy agendas ‘under the radar’. For many – including wicked problems theorists – deliberation and legitimacy are crucial to successful policy responses.

2.1.3 Social Learning

For some, wellbeing provides an opportunity for re-directing political narratives in a radical manner – a paradigm shift that could lead to a new equilibrium in the way that neoliberal economics replaced Keynesianism in some countries a generation ago. Here, Peter Hall’s (1993) work on social learning is instructive.

Hall (1993, 278) identified policy-making as a process usually involving three variables: overarching policy goals that guide policy, the instruments or techniques used in seeking to attain these goals and the precise setting of the instruments. Hall’s distinction between the means and end of policy and between abstract and concrete features was an important contribution to the study of policy change. It challenged the then dominant view that tended to reduce all elements of policy into a single variable and to view all change as incremental in nature (Howlett and Cashore 2009, 36). The relevance to wellbeing is obvious in even the basic distinction we make between measurement and policy application aspects of the agenda that may be characterised by different processes of change.

Hall’s point of departure for explaining policy change through social learning was to set out the position of state theorists on this, which had three features. First, this position emphasised the importance of previous policies in shaping current policies, rather than prevailing social and economic conditions: the idea of ‘policy legacies’. Second, it identified ‘experts’ as the key agents in promoting policy learning, rather than politicians – experts either working for the state or located at the interface of bureaucracy and the ‘intellectual enclaves of society’. And third,

it stressed the capacity of the state to act autonomously from societal pressure in shaping policy (Hall 1993, 277–8).

In response to this position, Hall argued for a clearer definition of social learning, which he described as 'a deliberate attempt to adjust the goals or techniques of policy in response to past experience or new information. Learning is indicated when policy changes as a result of such a process' (1993, 278). Also important was Hall's disaggregation of policy-making as a process that usually involves three different variables: overarching goals, instruments and instrument settings. This distinction facilitates analysis of change in aspects of policy of a different order that may be subject to very different processes. Specifically, Hall identified three orders of change in policy-making.

First order change refers to changes in the settings of policy instruments in the light of experience and new knowledge, while keeping the overall goals and instruments unchanged. *Second order change* refers to changes in the instruments themselves as well as their settings in response to experience, while the overall policy goals remain unchanged. *Third order change* – the least likely – refers to wholesale changes in policy instrument settings, the instruments themselves and the overarching hierarchy of goals behind them. While first and second order changes might be considered normal policy adjustments within a stable paradigm, third order change is generally associated with a paradigm change (Hall 1993, 278–9). Moreover, while first and second order changes are likely to be characterised by incrementalism – analysis consistent with the state theorists' approach to policy learning – third order change is unlikely to be incremental, but more radical. Moreover, first and second order changes do not necessarily lead to third order change: each paradigm is shaped by a different ontology in relation to how the (policy) operates and thus judgments about how best to proceed are not simply technical.

At this stage, the wellbeing agenda is somewhere between first and second order change in the UK – there are new survey instruments, experiments with new policy appraisal methods, and some nascent policy experiments – tentative changes, the significance of which is not yet fully understood. So what would it take for paradigm change to occur – for wellbeing to be the overriding goal of policy? Hall identified three important aspects of paradigm change.

First, that *the replacement of one policy paradigm by another is likely to be more sociological than scientific*. That is, although expert opinion is a factor, the choice between paradigms ultimately rest on 'more political judgments' and the outcome dependent 'not only on the arguments of competing factions, but on their positional advantages within a broader institutional framework, on the ancillary resources they can command in the relevant conflicts, and on exogenous factors affecting the power of one set of actors to impose its paradigm over others' (Hall 1993, 280). This argument sits squarely with wicked problems' theorising – the catalyst for significant change is politics.

Second, that *authority over policy is central to paradigm change*. That is, particularly where complex issues are at stake, the shift from one paradigm to

another 'is likely to be preceded by significant shifts in the locus of authority over policy' (Hall 1993, 280). A change of government might bring such shifts, but a change of UK government in the near future is not likely to bring a paradigm shift in relation to wellbeing policy. The timeframe for such a shift in relation to wellbeing is longer and depends upon other conditions being met (above).

Third, that *experimentation and policy failure are likely to play a key role in paradigm change*. That is, attempts to respond to anomalies and challenges to the existing paradigm will lead to it being stretched in response, but this is likely to eventually undermine the coherence and precision of the paradigm: 'if the paradigm is genuinely incapable of dealing with anomalous developments, these experiments will result in policy failures that gradually undermine the authority of the existing paradigm and its advocates even further' (Hall 1993, 280). If the dominant paradigm that wellbeing is to challenge is the dominance of GDP as a measure of progress, the question must be asked at what point will GDP have been stretched to point at which it is sufficiently undermined? The answer here is to refer back to arguments that such conditions are not objectively defined but are a matter of 'framing' and to the arguments about understanding wellbeing as a wicked problem.

3 Conclusion

As we suggested in our opening section, it is very difficult to adjudicate on the many arguments surrounding happiness and wellbeing – they originate from different disciplines and often from different metatheoretical foundations. Part one of this chapter used the distinction between 'wicked' and 'tame' problems as a reference point from which to navigate through these arguments. From this reference point it can be deduced that wellbeing is not the kind of problem that can be solved but, at best, only temporarily re-solved. Understanding wellbeing as a wicked problem points us very clearly to the conclusion that the solution to this, as to other wicked problems is 'not true-or-false, but good or bad' (Rittel and Webber 1973, 162).

While we note some consensus in measurement issues, there are disputes in relation to other aspects of the wellbeing agenda that depend on how the issue is framed and that are characterised by value dissensus. A number of suggestions for ways forward have been identified from the wicked problems literature. An additional way forward may be the construction of a 'meta-frame' (Schon and Rein 1994) that builds on the conflicting frame of reference of key stakeholders. As Head and Alford (2013, 13) suggest, depending on the scale of the issue 'it may be feasible for policy designers to involve the antagonists themselves in constructing a shared narrative that recognizes multiple voices, teases out the implications of these value preferences, and seeks to resolve conflicts'.

Our purpose in part two of this chapter was to try to outline scenarios in which the increasingly successful 'measurement agenda' might be accompanied by a more successful 'policy agenda'. In doing so, we acknowledge that developments

in this sphere are at a very early stage and that presenting such scenarios is somewhat speculative. However, what is interesting about the theories of policy change is that they point to similar political dimensions in relation to advancing the wellbeing agenda, which concur with the idea of wellbeing as a wicked problem. We have touched upon a number of themes that are deemed important – deliberation, coordination and legitimacy among them.

Moreover, the issue of 'framing' the problem emerges as a central issue. Scientific progress and changes in 'objective' conditions might be necessary for significant policy change, but they are rarely sufficient: knowledge is used to varying degrees and for varying purposes in politics. Crucial in this case is the need for wellbeing to be framed as a 'problem' in a manner that convinces publics, policy-makers and politicians of the need to act. As in the 1960s and 1970s there are now diverse forces seeking new 'direction-finding instruments' for society and the field of narratives challenging the 'God of GDP' paradigm has become crowded. Change could require a fundamental political redefinition of what matters in relation to everything from 'growth' to 'progress' and a process of consensus-building to 're-envision what was institutionalized over the last 65 years' (Costanza et al. 2009, 23) in terms of both dominant indicators and the policies that follow from them. Concepts such as sustainability, green growth, and inclusive growth are just a few concepts attracting interest alongside happiness, wellbeing and quality of life that could act as meta-frames in this endeavour. However, it remains to be seen whether any of these concepts are coherent and powerful enough to not only act as catalysts for political attention, but also to sustain a significant policy response.

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Chapter 4

An Overview of Intertemporal Measures of Individual Well-Being: Can They Explain Life Satisfaction Better?

Conchita D'Ambrosio

1 Introduction

Individual well-being is multidimensional, and depends on comparisons to a reference and on past experiences. Various aspects of quality of life need to be jointly considered in its measurement. Traditional economic modeling has neglected these basic facts. However, this neglect has been challenged by an increasing number of contributions in the income-distribution literature on the measurement of individual well-being. These have proposed various indices which allow different aspects of comparisons to others and to past experiences to be brought into the analysis of the phenomenon under consideration.

This chapter reviews these measures with the aim of offering some guidance to the recent developments in the parallel literature on happiness. These two literatures have a common object of analysis—individual well-being—but differ with respect to the approach, with the former appealing to objective indicators, such as income, functionings and wealth, and the latter mainly relying on self-reported measures.

Some sections of this chapter are taken from joint papers with various coauthors, to whom I am very grateful for the enthusiasm and passion of working together. The purpose of including this material is to provide newcomers to the area with a review and some guidance regarding related measures which have appeared in different journals over the years. The chapter is mainly written for scholars from the happiness literature, who are not aware of related topics in the income-distribution literature. For happiness researchers, relative-income concerns are a

C. D'Ambrosio (✉)
Université du Luxembourg, Esch-sur-Alzette, Luxembourg
e-mail: conchita.dambrosio@uni.lu

fact: individual well-being depends positively on own income and negatively on others' fortune, since the richer the others are the relatively poorer is the individual under analysis. This is labeled the 'status effect'. There are many numbers of ways of attempting to show this effect and several specification of others' fortune have been considered such as rank, relative income, per capita income, overall mean income, and sum of the income gaps with respect to richer and poorer individuals (see, for a recent survey Clark and D'Ambrosio 2015). Some other authors (see Senik 2004) have uncovered opposite empirical results, where individual well-being is positively correlated with others' fortune: the more others earn, the more satisfied the individual under analysis is. This finding has been interpreted as demonstrating Hirschman's tunnel effect (Hirschman 1973): while others' good fortune might make someone jealous, it may also provide information about their own future prospects. This is labeled the 'signal effect'. I will argue in this chapter that the temporal aspect of the concept of history is somehow lost when others' advances are simply considered as the presence of richer individuals, giving rise to inequality in the present distribution of income. As will be discussed in the next section, advances of individuals are better captured by the inclusion of dynamic components. Status and signal effects are not thus opposed but can peacefully co-exist.

The chapter is also written for experimental economists who model inequality aversion. Fehr and Schmidt (1999) were the first to incorporate inequality into the individual utility function via the inclusion of all of the pairs of the differences between the individual's own income and others' incomes. According to Fehr and Schmidt (1999) individual well-being depends positively on own income, but negatively on both their levels of disadvantageous inequality (the gaps to those who earn more than them) and advantageous inequality (the gaps to those who earn less than them). The utility function in the next section is a generalization of this approach. When both specifications are estimated using German data, the results do not confirm complete inequality aversion.

The chapter starts by reviewing indices of income deprivation and satisfaction over time, which aim to capture the effects of comparisons to richer and poorer individuals in the society, following D'Ambrosio and Frick (2012). The consideration of time is related to the fact that those who are richer and poorer than me today can be split up into those who have always been so, and others who have become richer or poorer than me recently.

I then move on to the measurement of intertemporal multidimensional poverty and material deprivation. The latter is a key concept for European social policy. These arguments were tackled by Bossert et al. (2014). The distinction between the two is that a multidimensional poverty measure takes into consideration all dimensions of well-being that may be of relevance for an individual (including non-material attributes such as health condition and education), whereas an index of material deprivation restricts attention to attributes regarding material living conditions only. The time aspect allows to distinguish between episodes of persistency in a state of poverty as opposed to move in and out of it. In addition, periods out of poverty may be beneficial also for their alleviating effects.

I conclude with the new literature on the measurement of economic insecurity, developed with Bossert and D'Ambrosio (2013). Economic insecurity could be defined as the anxiety produced by the exposure to adverse events and the difficulty to recover from them. Economic insecurity is a key concept for the measurement of well-being and social progress proposed by the Commission on the Measurement of Economic Performance and Social Progress; see Stiglitz et al. (2009).

While an empirical analysis of the links with subjective well-being has been provided for the indices of deprivation and satisfaction over time, none is available for the other indices here reviewed. There is room for future research which may lead to a better understanding of individual well-being.

2 Income Deprivation and Satisfaction over Time

Many contributions have highlighted that individual well-being depends on comparisons to a reference, such as neighbors, colleagues, more generally, to a reference group, and relative standing matters. Within this framework, D'Ambrosio and Frick (2012, henceforth DF), on which this section is based, propose a new functional form to represent an individual's preferences that depend jointly on the entire distribution of income, and use panel data from Germany over the period 1992 to 2007 to test its links with subjective well-being. Their main idea is the following: well-being of an individual as measured by the degree of personal satisfaction with respect to income or life depends at time t on four components. (i) The *absolute component*, that is, the standard of living of the individual at time t ; (ii) the *relative component*, that is, the income of the individual compared to that of others at the same time t . Both components have a *dynamic* counterpart: (iii) the *absolute dynamic component*, that is, how the individual performed in terms of own income from time $t - 1$ to time t ; (iv) the *relative dynamic component*, that is, how the individual performed from $t - 1$ to t with respect to others' incomes. The inclusion of the relative dynamic component sheds light on the debate about *status* and *signal* effects of the comparison income (see, among others, Senik 2004, and Clark et al. 2009).

The absolute component is very standard: utility of income should depend directly on own material well-being. The relative component is present in various models of relative utility with alternative formulations such as rank, relative income, mean income, and sum of the income gaps with respect to richer and poorer individuals. The dynamic components aim at capturing the effects of history, both of the individual and of others. One's own history is clearly relevant to one's well-being, because personal history is a major determinant of aspiration levels. DF hypothesize that the history of others will also have an impact on one's well-being, above and beyond one's relative standing in society. An individual concerned with his relative position in society might be particularly satisfied if he was able to pass others and might show disappointment with his income if others were able to pass him. At the same time, passing and being passed by others can have a

signal effect, that is, it provides information of own future prospects. In this case the individual might experience the opposite sentiments: satisfaction when being passed and disappointment when passing.

I now describe DF model formally. For any society composed of $n \geq 2$ individuals, the income distribution is $x = (x_1, \dots, x_n) \in \mathbb{R}_+^n$. The mean of x is indicated by $\lambda(x)$. For $x \in \mathbb{R}_+^n$, $B_i(x) = \{j \in N \mid x_j > x_i\}$ is the set of individuals with a higher income than i , that is, the *Better* off set; similarly, $W_i(x) = \{j \in N \mid x_j < x_i\}$ is the set of individuals with a lower income than i , that is, the *Worse* off set.

The utility function of individual i , $i = 1, \dots, n$, is a generalization of that proposed by Fehr and Schmidt (1999) which is:

$$U_i(x) = x_i + \alpha \frac{\sum_{j \in B_i(x)} (x_j - x_i)}{n} + \beta \frac{\sum_{j \in W_i(x)} (x_i - x_j)}{n}, \quad (4.1)$$

where $\alpha \leq \beta \leq 0$. The utility of each individual depends positively on own income and negatively both on *disadvantageous inequality* (the second term in (4.1)) and *advantageous inequality* (the third term in (4.1)). According to Fehr and Schmidt, individuals dislike inequitable distributions. "They experience inequity if they are worse off in material terms than the other players in the experiment, and they also feel inequity if they are better off. (...) (H)owever, we assume that, in general, subjects suffer more from inequity that is to their material disadvantage than from inequity that is to their material advantage." (Fehr and Schmidt 1999, p. 822).

In the income distribution literature, relative standing plays its most significant role in the measurement of *deprivation* and *satisfaction*. When considering income as the object of relative deprivation, absolute individual deprivation is simply the sum of the gaps between an individual's income and the incomes of all individuals richer than him, while in the relative case, the income gaps are normalized by mean income. These ideas were formalized by Yitzhaki (1979) and Hey and Lambert (1980) who specify the deprivation felt by a person with income x_i with respect to a person with income x_j as:

$$\bar{d}_i(x) = \begin{cases} (x_j - x_i) & \text{if } x_i < x_j \\ 0 & \text{else} \end{cases}, \quad (4.2)$$

while the deprivation function of the person with income x_i is:

$$\bar{D}_i(x) = \frac{\sum_{j \in B_i(x)} (x_j - x_i)}{n}. \quad (4.3)$$

Following this early literature, Chakravarty (1997) proposes to look at a relative concept of deprivation felt by a person with income x_i with respect to a person with

income x_j , namely, their income share differential $\frac{\bar{d}_i(x)}{\lambda(x)}$. Now, the total relative deprivation function of the person with income x_i is:

$$D_i(x) = \frac{\sum_{j \in B_i(x)} (x_j - x_i)}{n\lambda(x)}. \quad (4.4)$$

When the comparison is conducted with respect to poorer individuals, relative satisfaction function of the person with income x_i , $S_i(x)$, emerges. The function $S_i(x)$ is

$$S_i(x) = \frac{\sum_{j \in W_i(x)} (x_i - x_j)}{n\lambda(x)}. \quad (4.5)$$

In the income distribution literature it is implicitly assumed that well-being of an individual depends negatively on relative deprivation and positively on relative satisfaction. Deprivation and satisfaction are very similar to the concepts of disadvantageous and advantageous inequality of Fehr and Schmidt's (1999) utility function. If we believe that the normalization of the income gaps should take into account not only the dimension of the society but also mean income then Eq. (4.1) could be rewritten as:

$$U_i(x) = x_i + \alpha D_i(x) + \beta S_i(x). \quad (4.6)$$

This normalization is more appropriate when comparing different time periods or different societies.

Utility should depend positively on relative satisfaction and negatively on relative deprivation according to the income distribution literature, hence according to this interpretation we would expect $\alpha < 0$ and $\beta > 0$; on the other hand, Fehr and Schmidt (1999) report from their experimental studies that individuals dislike inequitable distributions, hence in view of this $\alpha < 0$ and $\beta < 0$, with $\alpha \leq \beta < 0$. DF results are in favour of the income distribution literature.

Extending the horizon to two-periods then the income distribution is a vector

$$(x^{t-1}, x^t) = ((x_1^{t-1}, \dots, x_n^{t-1}), (x_1^t, \dots, x_n^t)) \in \mathbb{R}_+^{2n},$$

where x^{t-1} is the income distribution of the previous period and x^t that of the current period. Indicating by $BB_i = B_i(x^t) \cap B_i(x^{t-1})$ the set of individuals that currently have and previously had an income higher than i , by $WB_i = B_i(x^t) \setminus B_i(x^{t-1})$ the set of individuals that have but did not have an income higher than i , by $WW_i = W_i(x^t) \cap W_i(x^{t-1})$ the set of individuals that have and had an income lower than i , by $BW_i = W_i(x^t) \setminus W_i(x^{t-1})$ the set of individuals that have but did not have an income lower than i , DF propose the following functional form of a utility function with concerns for relative standing in a dynamic framework:

$$\begin{aligned}
U_i^t(x^{t-1}, x^t) = & \underbrace{\tau x_i^t}_{\text{i) Abs.}} + \underbrace{\vartheta \frac{x_i^t - x_i^{t-1}}{x_i^{t-1}}}_{\text{ii) Abs.Dyn.}} + \underbrace{\kappa \frac{\sum_{j \in BB_i(x^t)} (x_j^t - x_i^t)}{n\lambda(x^t)} + \chi \frac{\sum_{j \in WW_i(x^t)} (x_i^t - x_j^t)}{n\lambda(x^t)}}_{\text{iii) Rel.}} \\
& + \underbrace{\varepsilon \frac{\sum_{j \in WB_i(x^t)} (x_j^t - x_i^t)}{n\lambda(x^t)} + \eta \frac{\sum_{j \in BW_i(x^t)} (x_i^t - x_j^t)}{n\lambda(x^t)}}_{\text{iv) Rel.Dyn.}},
\end{aligned} \tag{4.7}$$

where $\tau, \vartheta, \kappa, \chi, \varepsilon, \eta$ are parameters indicating the weight on the individual's utility of alternative income specifications. The well-being of an individual depends at time t on four components. (i) The *absolute component*, that is, the standard of living of the individual at time t . DF take as its proxy the level of equivalent household net yearly income of the individual at time t . (ii) The *absolute dynamic component* aims at capturing own income's history and is incorporated as own income percentage change. DF take as its proxy the percentage change of equivalent monthly household income with respect to the previous year. With interdependencies, individual well-being depends on relative standing which is included by DF as distances in incomes distinguishing between richer and poorer individuals. To incorporate individuals' histories DF separate the relative income performance in two components distinguishing those that are and were ahead or behind the individual under analysis, depending on the comparison being made with respect to richer or poorer individuals, from those that experienced a change in the relative rankings. As opposed to Eq. (4.6) the relative deprivation and satisfaction functions are separated in two parts: (iii) and (iv). (iii) The *relative component* measures the relative income gaps at the same time t between the individual and the others that are and were ahead or behind, depending on the side of the distribution considered; (iv) the *relative dynamic component*, on the other hand, captures how individual i performed from time $t - 1$ to time t with respect to others' incomes. It is based on the relative income gaps at the same time t of the individual income and that of the others that are and were not ahead or behind the individual considered, that is, those that have passed or have been passed in going from yesterday to today. It is with this component that DF model Hirschman's 'advances of others'. Component (iii) is the pure *status* effect, while component (iv) allows to capture the *signal* effect since it involves 'passers' and 'passees'.

The following effects of alternative income specifications on individual utility are to be expected:

1. The absolute component has a positive contribution on self-perceived satisfaction with own income (or life), hence $\tau > 0$;
2. the absolute dynamic component has a positive effect on satisfaction with own income (or life) only when positive, that is, when the individual experiences an income growth, otherwise it should be non positive, hence $\vartheta > 0$;

3. according to the income distribution literature, satisfaction with income (or life) should depend positively on relative satisfaction and negatively on relative deprivation, hence according to this interpretation $\kappa, \varepsilon < 0$ and $\chi, \eta > 0$; on the other hand, for Fehr and Schmidt (1999) individuals dislike inequitable distributions, hence in view of this $\kappa, \varepsilon < 0$ and $\chi, \eta < 0$. Alternatively, when being passed is seen as good auspice for the own future income prospect $\varepsilon > 0$, similarly when passing has an information effect $\eta < 0$.

The model is estimated on Germany using SOEP data from 1992 to 2007. In order to compare income over time, all income measures are deflated to 2000 prices, also accounting for purchasing power differences between East and West Germany. In order to control for differences in household size and the economies of scale, DF apply the square root of household size as equivalence scale. Individual's well-being, i.e. 'satisfaction with income' and 'satisfaction with life' is measured on an 11-point scale, ranging from 0 ('completely dissatisfied') to 10 ('completely satisfied').

The results of the estimation can be summarized as follows:

The absolute component of income has always the expected positive and significant effect on individual's well-being (income satisfaction and life satisfaction).

When no separation is carried out between ahead or behind, as is the standard practice, the results are in line with the theories belonging to the income distribution literature: Germans are satisfied with respect to poorer individuals and feel deprived when compared to richer ones. Complete inequality aversion is not confirmed. This is to be expected given that income is deserved and not 'manna from heaven' as in the basic experiment. (For a survey on this point see Clark and D'Ambrosio 2015.)

Results do change when DF estimate the utility function they introduced. The absolute dynamic component has the expected signs, positive for those experiencing an income growth, negative otherwise. Losses have a greater effect than gains, confirming the presence of loss aversion. This holds for both satisfaction with income and satisfaction with life.

Regarding the relative component, DF confirm the above finding of Germans being satisfied with respect to poorer individuals and feeling deprived when compared to richer ones only when the comparison takes place with respect to individuals that are and were ahead or behind in both years (REL. deprivation and REL. satisfaction). Germans are interested in keeping their status: being still richer than the same individuals increases satisfaction and being still poorer has the reverse effect. The sign of the coefficients reverse for satisfaction with respect to 'passers' and 'passees' indicating that signal has an additional role together with status.

The comparison with those that are behind but were ahead in the previous period (REL. DYN satisfaction) has a negative effect on Germans' satisfaction with income or life. This fact can be interpreted as containing a negative information, signalling to the individual that he could be one of them tomorrow. The last component, the dynamic deprivation component, affect satisfaction with income differently than satisfaction with life. For satisfaction with income, the coefficient of the REL. DYN. deprivation is positive. Germans do not prove any feeling of deprivation with respect

to individuals who have passed them, actually, being passed makes them more satisfied with their income. Being passed is seen as good auspice for future gains. For life satisfaction, the coefficient of REL. DYN. deprivation is not significant.

The consideration of time with the separation of the relative income performance with respect to richer and poorer individuals in two components—distinguishing those that are and were ahead the individual under analysis from those that experienced a change in the relative rankings has the advantage of reconciling two views that are generally considered in opposition in the literature and allows to analyze jointly the effects of status and signal. An individual's well-being is negatively affected by the comparison with permanently richer individuals, a standard result in studies on relative income, and is positively affected by the comparison with permanently poorer individuals. (See, for example, Clark and Oswald 1996.) At the same time, the presence of newly richer and poorer individuals plays the informational role described in Hirschman's tunnel effect.

3 Intertemporal Multidimensional Poverty and Material Deprivation

No empirical analysis is available on recently proposed indices of material deprivation or multidimensional poverty over time and happiness.

In the multidimensional framework, each person is assigned a vector of several attributes that represent different dimensions of well-being. For measuring multidimensional poverty, it then becomes necessary to check whether a person has minimally acceptable levels of these attributes (Sen 1992).

A person is treated as deprived or poor in a dimension if the observed level falls below a cut-off. In this case we say that the individual is experiencing a functioning failure. It is standard practice to follow what Atkinson (2003) refers to as the counting approach. The counting measure of individual poverty consists of the number of dimensions in which a person is poor, that is, the number of the individual functioning failures. Since some of the dimensions may be more important than others, an alternative counting measure can be obtained by assigning different weights to different dimensions and then adding these weights for the dimensions in which functioning failure is observed.

As highlighted by Bossert et al. (2014) and further extended by D'Ambrosio (2013), on which this section is based, there are four approaches for measuring poverty over time which can be generalized to the multidimensional case:

1. Foster (2009, henceforth F);
2. Bossert et al. (2012, henceforth BCD);
3. Dutta et al. (2013, henceforth DRZ);
4. Hojman and Kast (2009, henceforth HK).

The measures proposed by F are generalizations of the Foster-Greer-Thorbecke (1984) class and allow for time to matter. The individual F index is

the arithmetic mean over time of per-period Foster-Greer-Thorbecke indices. BCD take into account persistence in the state of poverty. Their measure pays attention to the length of individual poverty spells by assigning a higher level of poverty to situations where, *ceteris paribus*, poverty is experienced in consecutive rather than separated periods. The individual index is the weighted average of the individual per-period poverty values where, for each period, the weight is given by the length of the spell to which this period belongs.

DRZ generalizes BCD to take into account not only the debilitating impact of persistence in the state of poverty but also the mitigating effect of periods of affluence on subsequent poverty. The class of proposed individual measures are a weighted sum over time of per-period Foster-Greer-Thorbecke indices. For each period, the weight considers the number of preceding periods of uninterrupted positive levels of deprivation and the number of consecutive non-poor periods immediately prior to a poor period.

HK index of poverty dynamics trades off poverty levels and changes (gains and losses) over time and is consistent with loss aversion. The individual is the sum of two components: (1) the average material deprivation experienced by the individual over time, the same index applied in the approach inspired by F, (2) the average of the weighted changes in material deprivation experienced over time, where the weights can be consistent with loss aversion.

Formally, for the N individuals in the society under analysis there are $M \in \mathbb{N} \setminus \{1\}$ characteristics (or dimensions of material deprivation) and $T \in \mathbb{N} \setminus \{1\}$ time periods. For each individual $n \in \{1, \dots, N\}$, for each time period $t \in \{1, \dots, T\}$ and for each characteristic $m \in \{1, \dots, M\}$, a binary variable $x_m^{nt} \in \{0, 1\}$ is observed. A value of one indicates that individual n is poor with respect to dimension m in period t , a value of zero identifies a characteristic with respect to which the individual is not poor in that period. For all $n \in \{1, \dots, N\}$ and for all $t \in \{1, \dots, T\}$, we let $x^{nt} = (x_1^{nt}, \dots, x_M^{nt}) \in \{0, 1\}^M$. For all $n \in \{1, \dots, N\}$, the deprivation profile $x^n = (x^{n1}, \dots, x^{nT}) \in (\{0, 1\}^M)^T$ is defined. Furthermore, we let $x = (x^1, \dots, x^N) \in ((\{0, 1\}^M)^T)^N$.

For each individual $n \in \{1, \dots, N\}$ and each time period $t \in \{1, \dots, T\}$, individual n 's material deprivation in t is given by

$$\sum_{m=1}^M x_m^{nt} \alpha_m$$

where $\alpha_m \in \mathbb{R}_{++}$ is a parameter assigned to dimension $m \in \{1, \dots, M\}$.

A measure of intertemporal material deprivation for individual $n \in \{1, \dots, N\}$ is a function $D^n: (\{0, 1\}^M)^T \rightarrow \mathbb{R}_+$ which assigns a non-negative individual intertemporal material deprivation value to each x^n in its domain. A measure of aggregate intertemporal material deprivation is a function $D: ((\{0, 1\}^M)^T)^N \rightarrow \mathbb{R}_+$ that assigns a non-negative intertemporal material deprivation value to each x in its domain.

The first approach of this survey is inspired by Foster (2009). For each individual n , intertemporal material deprivation F^n is the average material deprivation experienced throughout the T periods. That is, for all $x^n \in (\{0, 1\}^M)^T$,

$$F^n(x^n) = \frac{1}{T} \sum_{t=1}^T \sum_{m=1}^M x_m^{nt} \alpha_m.$$

Aggregate intertemporal material deprivation F is the arithmetic mean of the individual intertemporal material deprivation values. Thus, for all $x \in ((\{0, 1\}^M)^T)^N$,

$$F(x) = \frac{1}{N} \sum_{n=1}^N F^n(x^n) = \frac{1}{N} \frac{1}{T} \sum_{i=1}^N \sum_{t=1}^T \sum_{m=1}^M x_m^{nt} \alpha_m.$$

In order to discuss the adaptation of Bossert et al.'s (2012) and Dutta et al. (2013) approaches to the intertemporal setting, some additional definitions are required.

Let $n \in \{1, \dots, N\}$ and $x^n \in (\{0, 1\}^M)^T$. We say that n is deprived in period $t \in \{1, \dots, T\}$ in x^n if and only if there exists $m \in \{1, \dots, M\}$ such that $x_m^{nt} = 1$. That is, in order to be deprived in period t in x^n , individual n must be deprived with respect to at least one dimension in this period. This corresponds to the union method of identifying the deprived. Thus, individual n is not deprived in period t in x^n if and only if $x_m^{nt} = 0$ for all $m \in \{1, \dots, M\}$. For alternative identification methods see Alkire and Foster (2011).

To capture the notion of persistence in a state of material deprivation, we introduce functions $P^{nt}: (\{0, 1\}^M)^T \rightarrow \{1, \dots, T\}$ for each $n \in \{1, \dots, N\}$ and for each $t \in \{1, \dots, T\}$. If n is deprived in period t in x^n , we let $P^{nt}(x^n)$ be the maximal number of consecutive periods including t in which n is deprived. Analogously, if n is not deprived in period t in x^n , $P^{nt}(x^n)$ is the maximal number of consecutive periods including t in which n is not deprived. To illustrate this definition, suppose $T = 7$ and x^n is such that n is deprived in periods one, four, five, and seven. The length of the first spell of material deprivation is one and, thus, $P^{n1}(x^n) = 1$. This is followed by a spell out of deprivation of length two (in periods two and three), which implies $P^{n2}(x^n) = P^{n3}(x^n) = 2$. The next two periods are periods with deprivation and we obtain $P^{n4}(x^n) = P^{n5}(x^n) = 2$. Period six is a single period without deprivation and, thus, $P^{n6}(x^n) = 1$. Finally, there is a one-period spell of material deprivation and we have $P^{n7}(x^n) = 1$.

For a deprivation profile x^n let s_t be the number of consecutive non-deprived periods immediately prior to a deprived period t , and let k_t be the number of preceding periods of uninterrupted positive levels of deprivation, up to and including the deprived period t . Formally,

$$s_t = \begin{cases} 0 & \text{if } t = 1 \text{ or } x^{n(t-1)} > 0 \\ t - \min\{s \mid s < t \text{ and } x^{ns} = \dots = x^{n(t-1)} = 0\} & \text{otherwise.} \end{cases}$$

and

$$k_t = \begin{cases} 1 & \text{if } t = 1 \text{ or } x^{n(t-1)} = 0 \\ t - \min\{s - 1 \mid s < t \text{ and } x^{nt'} > 0, \forall t' = s, \dots, t\} & \text{otherwise.} \end{cases}$$

For example, for $T = 4$, the deprivation profile $x^n = (x^{n1}, 0, x^{n3}, x^{n4})$ has $s_1=0$, $k_1=1$, $s_3=1$ and $k_3=1$, and $s_4=0$ and $k_4=2$.

Following Bossert et al. (2012), intertemporal material deprivation BCD^n for individual $n \in \{1, \dots, N\}$ is a weighted mean of the individual material deprivation values where, for each period, the weight is given by the length of the spell to which this period, t , belongs, $P^{nt}(x^n)$. Thus, according to this approach, individual intertemporal material deprivation BCD^n is given by

$$BCD^n(x^n) = \frac{1}{T} \sum_{t=1}^T P^{nt}(x^n) \sum_{m=1}^M x_m^{nt} \alpha_m$$

for all $x^n \in (\{0, 1\}^M)^T$. Again, aggregate intertemporal material deprivation BCD is the arithmetic mean of the individual intertemporal material deprivation values. Thus, for all $x \in ((\{0, 1\}^M)^T)^N$,

$$BCD(x) = \frac{1}{N} \sum_{n=1}^N BCD^n(x^n) = \frac{1}{N} \frac{1}{T} \sum_{n=1}^N \sum_{t=1}^T P^{nt}(x^n) \sum_{m=1}^M x_m^{nt} \alpha_m.$$

Dutta et al. (2013) propose to include the debilitating impact of persistence in the state of poverty and the mitigating effect of periods of affluence on subsequent poverty. Their individual measure DRZ^n is a weighted mean of the individual material deprivation values where, for each period, the weight considers the number of preceding periods of uninterrupted positive levels of deprivation, up to and including the deprived period t (see also BCD^n for an alternative weighing scheme) and the number of consecutive non-poor periods immediately prior to a poor period, s_t . Thus, according to this approach, individual intertemporal material deprivation DRZ^n is given by

$$DRZ^n(x^n) = \frac{1}{T} \sum_{t=1}^T \frac{k_t}{1 + s_t} \sum_{m=1}^M x_m^{nt} \alpha_m$$

for all $x^n \in (\{0, 1\}^M)^T$. Again, aggregate intertemporal material deprivation DRZ is the arithmetic mean of the individual intertemporal material deprivation values. Thus, for all $x \in ((\{0, 1\}^M)^T)^N$,

$$DRZ(x) = \frac{1}{N} \sum_{n=1}^N DRZ^n(x^n) = \frac{1}{N} \frac{1}{T} \sum_{i=1}^N \sum_{t=1}^T \frac{k_t}{1 + s_t} \sum_{m=1}^M x_m^{nt} \alpha_m.$$

Hojman and Kast (2009) propose to include variability as a determinant of individual intertemporal material deprivation. Their individual measure HK^n has two components: the level of individual intertemporal material deprivation and the changes of individual material deprivation over time. The level is measured by means of F^n and the changes are given by the weighted sum of upward and downward movements of individual material deprivation over time. In the terminology of Hojman and Kast (2009), there is poverty creation whenever deprivation increases and poverty destruction whenever deprivation decreases.

To illustrate, consider a situation with $T = 3$ and $x^n, y^n \in (\{0, 1\}^M)^T$ such that n is deprived in periods one and three in x^n , and in periods two and three in y^n . According to the Hojman and Kast (2009) approach, n is intertemporally more deprived in y^n than in x^n . The levels of individual intertemporal material deprivation are the same in x^n and in y^n . However, in x^n , there is poverty destruction (in the move from period one to period two) and poverty creation (in the move from period two to period three), whereas in y^n , there is only poverty creation (in the move from period one to period two).

In general, for a fixed level of individual material deprivation, each movement that decreases material deprivation decreases the overall index and each movement that increases material deprivation increases the index. To provide a formal definition, we introduce two sets of functions $g^{nt}: \{0, 1\}^M \rightarrow \{0, 1\}$ and $\ell^{nt}: \{0, 1\}^M \rightarrow \{0, 1\}$ for $n \in \{1, \dots, N\}$ and $t \in \{1, \dots, T-1\}$ that are intended to capture gains (decreases in individual material deprivation) and losses (increases in material deprivation). They are defined by letting, for all $x^{nt} \in \{0, 1\}^M$,

$$g^{nt}(x^{nt}) = \begin{cases} 1 & \text{if } \sum_{m=1}^M x_m^{nt} \alpha_m > \sum_{m=1}^M x_m^{n(t+1)} \alpha_m \\ 0 & \text{otherwise} \end{cases}$$

and

$$\ell^{nt}(x^{nt}) = \begin{cases} 1 & \text{if } \sum_{m=1}^M x_m^{nt} \alpha_m < \sum_{m=1}^M x_m^{n(t+1)} \alpha_m \\ 0 & \text{otherwise.} \end{cases}$$

For each individual n , intertemporal material deprivation HK^n is given by

$$HK^n(x^n) = \frac{1}{T} \sum_{t=1}^T \sum_{m=1}^M x_m^{nt} \alpha_m + \frac{1}{T} \sum_{t=1}^T (\gamma_t \ell^{nt}(x^{nt}) - \delta_t g^{nt}(x^{nt}))$$

for all $x^n \in (\{0, 1\}^M)^T$, where $\gamma_t, \delta_t \in \mathbb{R}_{++}$ are parameters such that $\gamma_t \geq \delta_t$ for all $t \in \{1, \dots, T-1\}$. When $\gamma_t = \delta_t$, gains and losses are perfect substitutes: any increase in deprivation can be compensated by any decrease of the same amount. When $\gamma_t > \delta_t$, losses weigh more than gains.

Finally, aggregate intertemporal material deprivation HK is the arithmetic mean of the individual intertemporal material deprivation values. Thus,

$$\begin{aligned}
HK(x) &= \frac{1}{N} HK^n(x^n) \\
&= \frac{1}{N} \frac{1}{T} \sum_{n=1}^N \sum_{t=1}^T \sum_{m=1}^M x_m^{nt} \alpha_m + \frac{1}{N} \frac{1}{T} \sum_{n=1}^N \sum_{t=1}^T (\gamma_t \ell^{nt}(x^{nt}) - \delta_t g^{nt}(x^{nt}))
\end{aligned}$$

for all $x \in \left((\{0, 1\}^M)^T \right)^N$.

4 Economic Insecurity

As for the measures surveyed above, no empirical analysis is available on recently proposed indices of economic insecurity and happiness.

Economic insecurity is a term widely used to describe the uncertain situation of the years following the Great Recession. There have been several attempts to design measures of it. They include (i) the Rockefeller Foundation's Economic Security Index (Hacker et al. 2010); (ii) a proposal by the International Labour Organization (2004) and (iii) by Osberg and Sharpe (2009). The respective recommended measures can roughly be described as (i) the fraction of the population who experience a drop in disposable family income of at least 25 % from the previous year and lack an adequate financial safety net; and, in cases (ii) and (iii), a weighted average of the 'scores' achieved in different attributes. Economic insecurity can be defined as the anxiety produced by the possible exposure to adverse economic events and by the anticipation of the difficulty to recover from them.

Bossert and D'Ambrosio (2013), on which this section is based, is the only index which captures insecurity at the individual level, to the best of my knowledge. Economic insecurity is identified in terms of the current wealth level multiplied by minus one plus weighted sums of the wealth gains (losses) experienced in the past. Two sequences of coefficients are employed—one applies to gains, the other to losses. The coefficients are such that recent experiences are given higher weight than experiences that have occurred in the more distant past. A subclass of these measures is obtained by giving higher weights to the absolute values of past losses than to those of past gains.

The notion of wealth employed is defined in a comprehensive manner—wealth is assumed to encompass everything that may help an individual in coping with adverse events. The wealth of an individual includes, for instance, claims on governments, family, friends etc. Sen (1976) refers to these claims as entitlements—consumption bundles available to an agent given her rights and opportunities.

The formal model is as follows. For any $T \in \mathbb{N}_0$, let $\mathbb{R}^{(T)}$ be the $(T + 1)$ -dimensional Euclidean space with components labeled $(-T, \dots, 0)$. Zero is interpreted as the current period and T is the number of past periods taken into consideration. T is allowed to vary because people alive in the current period may have been born (or have become economic agents) in different periods. A measure

of individual insecurity is a sequence of functions $V = \langle V^T \rangle_{T \in \mathbb{N}_0}$ where, for each $T \in \mathbb{N}_0$, $V^T: \mathbb{R}^{(T)} \rightarrow \mathbb{R}$. This index assigns a degree of insecurity to each individual (net) wealth stream $w = (w_{-T}, \dots, w_0) \in \bigcup_{T \in \mathbb{N}_0} \mathbb{R}^{(T)}$.

The class of two-sequences Gini measures is for all $T \in \mathbb{N}_0$ and for all $w = (w_{-T}, \dots, w_0) \in \mathbb{R}^{(T)}$,

$$\begin{aligned} V^T(w) = & \sum_{t \in \{1, \dots, T\}: w_{-t} > w_{-(t-1)}} \alpha_{-t} (w_{-t} - w_{-(t-1)}) \\ & + \sum_{t \in \{1, \dots, T\}: w_{-t} < w_{-(t-1)}} \beta_{-t}, (w_{-t} - w_{-(t-1)}) - w_0. \end{aligned}$$

and it involves two sequences of parameters—one the members of which are applied to past losses in wealth, one that is used for those period pairs in which there are gains, $\langle \alpha_{-t} \rangle_{t \in \mathbb{N}}$ and $\langle \beta_{-t} \rangle_{t \in \mathbb{N}}$ such that

$$[\alpha_{-t} > \alpha_{-(t+1)} > 0 \quad \text{and} \quad \beta_{-t} > \beta_{-(t+1)} > 0] \quad \text{for all } t \in \mathbb{N}. \quad (4.8)$$

A subclass is obtained with the requirement that *ceteris paribus* losses of a certain magnitude in a given period have a stronger impact on insecurity than *ceteris paribus* gains of the same magnitude in the same period. This subclass is defined in terms of those pairs of sequences $(\langle \alpha_{-t} \rangle_{t \in \mathbb{N}}, \langle \beta_{-t} \rangle_{t \in \mathbb{N}})$ that satisfy

$$\alpha_{-t} > \beta_{-t} \quad \text{for all } t \in \mathbb{N} \quad (4.9)$$

in addition to (4.8).

5 Conclusion

The measurement of individual well-being and of its determinants is the central focus of many social sciences as well as of different branches within the same discipline. This chapter is a review of some recent contributions which appeared in the income distribution literature and for which the empirical link with self reported measures of satisfaction with income and life is still (almost) unexplored. I hope that the results of these future applications will support what is for the moment implicitly assumed, that is, that poverty, material deprivation and economic insecurity are associated with unhappiness.

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Chapter 5

The Importance of ‘Domain Importance’ for Happiness Economics

Tim Tiefenbach and Florian Kohlbacher

1 Introduction

In happiness economics, subjective well-being is usually modeled as a unidimensional construct measuring global life satisfaction or global happiness. Most studies do not account for the fact that global life satisfaction and happiness are aggregates of satisfaction/happiness with different life domains. Only a few studies have analyzed the relationship between the overall level of subjective well-being and the satisfaction level in different life domains.¹ However, although happiness economists usually admit that happiness “means different things for different people” (Frey and Stutzer 2002, p. 3), they emphasize that for “many issues, a common metric of the ‘overall evaluation of life’ is suitable” (ibid., p. 28). Thus, they not only think that a detailed analysis of different domain satisfactions is unnecessary, they also implicitly work under the assumption that the importance ranking of different life domains is the same across all individuals. However, this assumption is not realistic, as the importance of life domains may

¹For a general discussion see van Praag et al. (2003) and van Praag and Ferrer-i-Carbonell (2008). For a discussion of how domain satisfaction and global happiness develop over the life course see Easterlin (2006) and Easterlin and Sawangfa (2009).

T. Tiefenbach (✉)

German Institute for Japanese Studies (DIJ), Jochi Kioizaka Bldg. 2F, 7-1 Kioicho, Chiyoda-ku, Tokyo 102-0094, Japan

e-mail: tiefenbach@dijskyo.org

F. Kohlbacher

International Business School Suzhou (IBSS), Xi'an Jiaotong-Liverpool University, Suzhou, China

e-mail: florian.kohlbacher@xjtu.edu.cn

differ greatly among individuals, which we will show in this chapter. There also is preliminary evidence to this effect from quality of life research (e.g. Hsieh 2004, 2012b), although the existing studies suffer from severe limitations, such as non-representative samples of limited size.

To the best of our knowledge, this chapter is the first to control for domain importance in analyzing the relationship between domain satisfaction and the overall subjective well-being level, based on a national probability sample (see Tiefenbach and Kohlbacher 2015b). Using data from the National Survey on Lifestyle Preferences (NSLP; 2010 version) commissioned by the Japanese Cabinet Office, this chapter shows how and to what extent the importance of and the satisfaction with different life domains (such as health, finance, and family) affect the overall happiness level. Our main findings are threefold. (1) Domain importance significantly increases the amount of variance explained in happiness regressions. (2) Depending on the respective domain, we find significant interaction effects between satisfaction and importance. This allows us to identify different types of domains based on their interaction patterns. (3) Further, we show that there is substantial effect heterogeneity between individuals with different importance configurations. Taking account of the effect heterogeneity, we find that the coefficients of even the most basic socio-demographic variables vary *greatly* among the different groups. Casting doubt on the generalizability of the findings from happiness economics, our findings have important implications for policy making and the interpretation of results from happiness economics research in general.

2 Literature and Research Questions

Happiness economics has become an established field of research (see, for example, Frey and Stutzer 2002; Dolan et al. 2008). As mentioned above, in happiness economics, subjective well-being is usually modeled as a unidimensional construct for measuring global life satisfaction or global happiness. Most studies do not account for the fact that global life satisfaction and happiness are aggregated satisfaction from different life domains. Only very few studies explore the relation of global happiness to the different domains (e.g. Easterlin and Sawangfa 2009). One exception is Easterlin (2006), who looks at life cycle happiness and its sources and finds that the pattern of life cycle happiness is the net outcome of satisfaction in the principal life domains, and satisfaction in each domain is the product of both objective conditions and goals or aspirations in that domain (see also Easterlin and Sawangfa 2009). Van Praag et al. (2003) also show that overall life satisfaction can be explained by satisfaction with respect to six distinct domains of life (see also van Praag and Ferrer-i-Carbonell 2008). They argue that domain satisfactions “relate to individual satisfaction with different domains of life, such as health, financial situation, and job” and that satisfaction with life as a whole “can be seen as an aggregate concept, which can be unfolded into its domain components” (van Praag et al. 2003, p. 30).

As mentioned above, most happiness economists implicitly work under the assumption that the importance ranking of different life domains is the same across all individuals. Even in those studies that address domain satisfaction, the idea that people do not consider all domains equally important is hardly mentioned. An exception here is Rojas (2006, pp. 490–491), who offers preliminary empirical evidence to the effect that life satisfaction is not simply a weighted average of domain satisfactions and that there are some domains that, in general, are much more important for life satisfaction than others, depending on individual circumstances. A conceptual justification for this finding can be provided by the conceptual-referent theory of happiness (CRT; Rojas 2005, 2007). This theory posits that the conceptual referent for what constitutes a happy life is not the same for everyone, that is, there is substantial heterogeneity. According to Rojas (2007, p. 3), this also extends to the explanatory structure of happiness: the explanatory factors of happiness are “neither the same nor equally important for everybody.” In psychology, Diener and Fujita (1995) have argued in a similar vein, saying that a person’s resources have an impact on the person’s subjective well-being only when they are useful to attain personally important goals. In economics, empirical evidence of the heterogeneity in the relationship between income and happiness has been provided by several studies (Becchetti et al. 2011; Clark et al. 2005; Rojas 2007). An empirical study that explicitly addresses the difficulties of building an aggregate quality of life index despite different importance ratings is Hagerty and Land (2007). However, they marginalize this problem by concluding that “in every case, intuition greatly underestimates the extent of agreement among individuals.... It is often possible to construct a quality-of-life index that a majority of citizens agree with (at least in direction).”

Outside of economics, work in the multidisciplinary area of quality-of-life research that analyzes the role of domain satisfaction for global happiness is more widespread (see, for example, Cummins 1996; Easterlin and Sawangfa 2009; van Praag and Ferrer-i-Carbonell 2008 for reviews). This also includes a stream of research looking at the role of life domain importance in the relationship between overall satisfaction and life domain satisfaction (see Hsieh 2012b for a review of the literature and Tiefenbach and Kohlbacher 2015b). However, all studies published so far suffer from severe limitations, such as non-representative samples of limited size. Moreover, the debate in the field of quality-of-life research focuses almost exclusively on the goodness-of-fit of the happiness prediction model and whether to include importance weights in domain satisfaction models when predicting overall life satisfaction.² Interestingly, no work in economics has looked at the role of life domain importance in the relationship between overall satisfaction and life domain satisfaction so far.

Our chapter aims for a better understanding of the role of domain importance in happiness regressions. By using a representative large-scale dataset, it overcomes the problems of limited sample size from former studies. At the same time, this

²While Hsieh (2012a) argues in favor of the inclusion of importance weights, Wu and Yoa (2006) argue against it.

chapter is intended to explore all relevant aspects related to domain importance. In keeping with the explorative nature of this study, we address the following research questions.

- RQ 1: Is domain importance *important* in terms of amount of variance explained?
 RQ 2: Do domain satisfaction and domain importance interact and, if so, what are the implications?
 RQ 3: Do groups with different importance ratings show different results regarding established standard control variables and, if so, what are the implications?

3 Data and Variables of Interest

The special nature of our research question required us to find reliable survey data that contain not only measures of happiness and domain satisfaction but also measures of domain importance. While the former can be found in several large-scale surveys (e.g., the British Household Panel Study and the German Socio-Economic Panel), the latter is not included in any major panel study of the Cross-National Equivalent File. We identified the 2010 version of the Japanese National Survey on Lifestyle Preferences (NSLP; in Japanese: *kokumin seikatsu senkōdo chōsa*) as the only government-commissioned and publicly available dataset that contains measures of domain importance.³ This cross-sectional survey was introduced in 1972 and has been conducted on an annual basis since 1984 under the auspices of the Japanese Cabinet Office. Since 2010, the focus has been placed on individual happiness and its determinants.⁴ The population of the survey includes men and women in Japan between 15 and 80 years of age, and the sample is generated via two-stage stratified random sampling to include 4,000 people. Due to the relatively high response rate in 2010 (72.5 %), 2,900 completed questionnaires are available for analysis.

Our explained variable is the current happiness level of the respondent. The corresponding survey item reads: “How happy are you currently?” Answer options range from 0 to 10 on an 11-point scale. Our main explanatory variables are *domain satisfaction* and *domain importance* of the following five domains: financial situation, health, purpose in life (regarding work, hobbies, and social contribution), family relations, and friendships. Regarding domain satisfaction, the corresponding item reads “How satisfied are you with each of the following items? Please indicate on a scale from ‘satisfied’ to ‘dissatisfied’ the state which comes closest to your

³The Cabinet Office labels the years in accordance with the Japanese fiscal year system, which runs from the beginning of April of 1 year to the end of March of the following year. Thus, the survey is from the fiscal year 2009. However, as the NSLP survey is always conducted at the end of the fiscal year, it was actually conducted in the calendar year 2010.

⁴Note that questions on happiness and life satisfaction had been included in questionnaires prior to 2009, but not necessarily as the main focus. For details, see Tiefenbach and Kohlbacher (2015a).

personal feelings.” The respondents can then choose on a 5-point Likert scale their level of satisfaction.⁵ The survey captures domain importance only as a binary variable, asking people “When you evaluated your happiness feeling, which of the following items did you consider important? Please check all relevant items.” Note that it is necessary to emphasize the precise wording of the question, which explicitly asks respondents to evaluate the domains *in terms of their importance regarding the overall feeling of happiness*. Other surveys, such as the World Values Survey, ask respondents only to “indicate how important [the respective domain] is in your life.” With this kind of question, the link between importance and overall life satisfaction/happiness is left ambiguous, since some domains might be important in life but not related to life *satisfaction* itself. This is why the Japanese NSLP is the most suitable for use in analyzing the relationship between satisfaction and importance.

Finally, in some models, we include a number of control variables that are typical in happiness estimations. We control for basic socio-demographic variables (income, age, age squared, gender), family relations (cohabitation with spouse, number of children, presence of children under 6 years of age), employment status (regular employee, manager, member of board of directors, non-privately held company, civil servant, entrepreneur, temporary employee, student, housewife, without work), and a dummy variable that takes value 1 if the respondent or a member of the respondent's family is unemployed and 0 otherwise.

4 Analytical Strategy and Results

To address the research questions presented above, our analysis is conducted in the following steps. In the first step, we analyze the importance of the five presented domains and their relation to the happiness function. In the second step, we test for possible interaction effects between domain satisfaction and domain importance. Finally, we investigate whether the happiness coefficients of standard control variables change under different importance configurations. In [Appendix A](#), we provide further robustness checks for the models presented below.

4.1 Domains and Their ‘importance’

First, we want to know whether domain importance is ‘important.’ To answer this question, we must differentiate between two meanings of ‘importance.’

⁵From this scale, “satisfied” is coded as 5, “somewhat satisfied” is coded as 4, “neither satisfied nor dissatisfied” is coded as 3, “If anything, dissatisfied” is coded as 2, and “dissatisfied” is coded as 1. Note that all satisfaction measures are mean-centered before analysis.

One common definition is that the higher the amount of variance in the individual happiness levels explained by a variable, the more *important₁* that variable is. Applying this concept to domain satisfaction we could say that a domain is *important₁* to the respondents when its regression coefficient is large. This understanding is usually called “relative importance,” and it is applied in happiness prediction models that are based *exclusively* on domain satisfaction (Michalos 2004). However, when we additionally include domain importance in the prediction model, we can ask whether adding domain importance increases the *total* variance explained. When it does, we can say that domain importance is an *important₂* predictor of happiness and should therefore be included in happiness prediction models.⁶

To understand how the two concepts of importance differ, we run a normal OLS regression with only regressing on the domain satisfaction variables (Eq. 5.1). In a next step, we then run a nested regression analysis (OLS), comparing the variance explained by this simple model (Eq. 5.1) with that explained by a model that includes both domain satisfaction and importance (Eq. 5.2). The happiness prediction models correspond to the following equations:

$$\text{HAP}_i = \alpha + \gamma' \text{SAT}_i + \varepsilon_i \quad (5.1)$$

$$\text{HAP}_i = \alpha + \beta' \text{IMP}_i + \gamma' \text{SAT}_i + \varepsilon_i \quad (5.2)$$

Here, HAP indicates the reported happiness level of respondent i ; SAT $_i$ and IMP $_i$ denote the five measures of domain satisfaction (SAT) and importance (IMP), respectively; and β' and γ' are vectors representing their respective coefficients. Finally, α and ε denote the intercept and the error term, respectively.

The results of Eqs. 5.1 and 5.2 are reported in Table 5.1 as Models 1 and 2. As a robustness check, Models 3 and 4 further include standard control variables. First, we want to know which domain satisfaction is the most *important₁* predictor in terms of effect size. A look at the regression coefficients presented in Table 5.1 suggests that financial status and, even more so, family satisfaction are the most *important₁* domains, since their coefficients are the largest in size (0.491 and 0.6, respectively, in Model 1). This ‘visual inspection’ of coefficients is usually considered as an indicator of a variable’s importance in the prediction model (Tonidandel and LeBreton 2011). “Unfortunately, standardized regression weights do not appropriately partition variance when predictors are correlated so these indices are not suitable for addressing questions regarding relative importance” (ibid. p. 2). To address the problem of shared variance, we carry out a dominance analysis that calculates a predictor’s performance (dominance weight) across all

⁶We follow the ‘bottom-up’ explanation of happiness, where overall happiness is considered as the outcome of experiences, good and bad, in various life domains (see e.g. Easterlin 2006; Headey et al. 1991). Note that we do not necessarily claim a causal relationship here—and thus do not have to deal with endogeneity—but rather postulate a mere prediction model, where domain satisfactions predict global happiness.

Table 5.1 Nested regressions of happiness on domain satisfaction and importance (OLS)

Variables	(1) HAP	(2) HAP	(3) HAP	(4) HAP
Financial satisfaction	0.491***	0.450***	0.429***	0.400***
Financial importance		−0.229***		−0.346***
Health satisfaction	0.256***	0.230***	0.247***	0.217***
Health importance		0.073		0.062
Purpose in life satisfaction	0.341***	0.321***	0.370***	0.349***
Purpose in life importance		0.088		0.118+
Family satisfaction	0.600***	0.563***	0.602***	0.582***
Family importance		0.702***		0.546***
Friends satisfaction	0.163***	0.134**	0.117*	0.097*
Friends importance		0.165*		0.174*
Standard controls	No	No	Yes	Yes
Observations	2,860	2,860	2,537	2,537
R-squared	0.394	0.428	0.441	0.468
Change in R-squared		0.034***		0.027***

***p < 0.001, **p < 0.01, *p < 0.05, + p < 0.10

Table 5.2 Dominance analysis

Happiness	Dominance weight	Standardized weight	Ranking
Financial satisfaction	0.114	0.288	1
Family satisfaction	0.111	0.282	2
Purpose in life satisfaction	0.069	0.175	3
Health satisfaction	0.059	0.149	4
Friends satisfaction	0.042	0.105	5
Observations		2,860	
Overall fit statistic		0.395	

possible subset models (Budescu 1993; Azen and Budescu 2003). The results are presented in Table 5.2. Although the regression analysis (Model 1, Table 5.1) shows that family satisfaction has the largest coefficient, our dominance analysis (Table 5.2) indicates that financial satisfaction is the most important predictor of happiness. Out of 39.5 % of explained variance in individual happiness levels, 11.4 % is attributable to financial satisfaction (rank 1), followed closely by 11.1 % to family satisfaction (rank 2). Interestingly, satisfaction with purpose in life ranks higher (6.9 %, rank 3) than satisfaction with health (5.9 %, rank 4). The final rank is satisfaction with friendships, explaining 4.2 %.

Next, we test whether adding measures of domain importance increases the total variance explained. A look at Model 1 (Table 5.1) shows that the five measures of domain satisfaction alone explain 39.4 % of the variance in the individual happiness levels. Adding the domain importance measures to the equation (Model 2) leads to a statistically significant increase in the variance explained by 3.4 percentage points (an increase by about 8.6 %).

In Model 3 (Table 5.1), the five measures of domain satisfaction together with the standard controls explain 44.1 % of the variance in the individual happiness levels. Adding the domain importance measures to the equation (Model 4) leads to a statistically significant increase in the variance explained by 2.7 percentage points (about 6.1 %). Although the added variance explained seems to be relatively small in both model settings, it is important to keep the binary nature of the domain importance measures in mind.

The bottom line is that importance measures significantly increase the variance explained in happiness regressions (and are thus *important*₂). The increase in variance explained is rather small, which is why the results should be verified by further studies that make use of measures of domain importance that are broader in scope. Interestingly, not all domain importance measures are equally *important*₁. From Table 5.1 we can observe that, on the one hand, importance of health and purpose in life are not significantly correlated with happiness. On the other hand, importance of finance and family show statistically significant coefficients with substantial effect sizes, though with opposite signs. While the importance of family relationships is positively correlated with the overall happiness level, the importance of the financial situation shows a negative correlation. These results underline the importance of eudemonic components of well-being (such as family relations), and this agrees with international comparative studies such as Delle Fave et al. (2011). Further, our results are in line with studies reporting that people tend to overvalue extrinsic desires such as income and status (Frey and Stutzer 2014).

4.2 Domain Satisfaction and Importance Interaction

Showing that domain importance measures only marginally increase the happiness prediction does not imply that domain importance should be neglected. Other effects, not observed in an increased variance explained, might be at work. The result that domain satisfaction and domain importance can simultaneously have opposite correlations with happiness raises the question of interaction effects. It is, for example, possible that people with different importance ratings show different slopes in the correlation between the respective domain satisfaction and happiness. It is also possible that people show positive correlations with happiness in some domains but do not perceive them as important. The latter possibility is related to the misprediction of future utility, a well-known phenomenon that is often observed in happiness economics.⁷

⁷For a general discussion see Chapters. 1 and 2 in Frey and Stutzer (2002). Specific cases of mispredicted utility are reported by Frey et al. (2007) in the case of television consumption and by Stutzer and Frey (2008) in the case of commuting.

Table 5.3 Simple interaction effects of satisfaction*importance (OLS)

Model	Variables	Coef.	Observations	Adj. R-squared
(1) HAP	Financial satisfaction	0.354***	2,883	0.252
	Financial importance	−0.262***		
	Finance interaction	0.686***		
(2) HAP	Health satisfaction	0.322***	2,874	0.189
	Health importance	0.521***		
	Health interaction	0.625***		
(3) HAP	Purpose in life satisfaction	0.900***	2,882	0.181
	Purpose in life importance	0.121+		
	Purpose in life interaction	0.183*		
(4) HAP	Family satisfaction	0.543***	2,886	0.301
	Family importance	1.028***		
	Family interaction	0.672***		
(5) HAP	Friends satisfaction	0.678***	2,888	0.148
	Friends importance	0.514***		
	Friends interaction	0.383***		

***p<0.001, **p<0.01, *p<0.05, + p<0.10

To analyze these kind of interaction effects, we first run a simple interaction model (OLS) for each domain, predicting happiness based on domain satisfaction, its (binary) importance and interaction of these. The results in these models indicate which domains are *in general* subject to interaction effects. However, since “the relative importance of each domain of life is not independent of what is happening in the other domains” (Rojas 2006, p. 491), we then run a composite OLS regression, including all domain satisfaction and domain importance measures and all interaction terms that showed as statistically significant in the simple interaction models. All interaction models correspond to the following equation (only the number of domains included in both steps varies):

$$HAP_i = \alpha + \beta'IMP_i + \gamma'SAT_i + \mu'SAT_i * IMP_i + \varepsilon_i \tag{5.3}$$

Apart from the interaction term $SAT_i * IMP_i$, Eq. 5.3 is identical to Eq. 5.2. The reader should keep in mind that all satisfaction measures have been mean-centered. The results of the simple interaction models including only *one* domain are reported in Table 5.3.

The most noteworthy result of Table 5.3 is that, with one exception, all variables, satisfaction and importance measures, and interaction effects for each domain have a positive coefficient and are statistically significant at the 5 % level or better. The only exception is the importance of purpose in life, which shows weak correlation (at the 10 % level). The results allow us to include all interaction terms in the next regression step. The results of this global interaction model are reported in Table 5.4 (see for a similar analysis Tiefenbach and Kohlbacher 2015b). Model 1 contains only domain satisfaction, importance, and the respective interaction terms; Model 2 further includes standard control variables.

Table 5.4 Global interaction model (OLS)

Variables	(1) HAP	(2) HAP
Financial satisfaction	0.123*	0.089
Financial importance	−0.217***	−0.319***
Finance interaction	0.448***	0.426***
Health satisfaction	0.100+	0.098+
Health importance	0.053	0.059
Health interaction	0.173**	0.152*
Purpose in life satisfaction	0.264***	0.310***
Purpose in life importance	0.114+	0.134*
Purpose in life interaction	0.068	0.030
Family satisfaction	0.286***	0.320***
Family importance	0.710***	0.556***
Family interaction	0.415***	0.378***
Friends satisfaction	0.118*	0.078
Friends importance	0.092	0.090
Friends interaction	0.099	0.084
Standard controls	No	Yes
Observations	2,860	2,537
Adj. R-squared	0.453	0.483

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.10$

When including all interaction effects in the same model, only the domains of finance, health, and family maintain significance, while the interactions of purpose in life and friendships lose their significance. Although the interaction effects show a positive sign, they are accompanied by very different conditional main effects, which allows us to make the following classification of interaction patterns.

4.2.1 Relative Domains: Finance and Health

Finance and health can both be classified as *relative domains*. They can be considered “relative” because a large part of the correlation between satisfaction in those domains and happiness depends on whether these domains are considered important. In both models, the regression coefficients of health and financial satisfaction are rather small (about 0.1 on a 0–10 point scale, and smaller than the corresponding domain*importance interaction term). Health satisfaction is only marginally significant at the 10 % level and financial satisfaction loses its significance in Model 2, which includes standard controls. The most prominent difference is that financial importance is negatively correlated with happiness while health importance shows no correlation at all. Since the satisfaction variables are mean-centered, this implies that, at the average financial satisfaction, respondents who regard the financial situation as important are on average about 0.2 points (on a scale from 0 to 10) less happy.

4.2.2 Absolute Domains: Purpose in Life

We consider purpose in life an *absolute domain* because a large part of the correlation between satisfaction in this domain and happiness is independent of whether the domain is considered important. The coefficient of satisfaction with purpose in life is about 0.25 (Model 1) to 0.3 (Model 2), whereas the coefficient of importance of purpose in life is about 0.1, which is only marginally significant in Model 1. The interaction effect is not significant at all.

4.2.3 Amplified Domains: Family

Family can be considered an *amplified domain* because all three variables are large and positive: the conditional main effect of family satisfaction is about 0.3, the conditional main effect of family importance is about 0.6–0.7, and the interaction term itself is about 0.4. This means that family satisfaction is correlated with happiness, even for respondents who do not consider it important. Respondents (at the mean family satisfaction) who consider family important are more than 0.6 points happier than respondents who do not consider family important. Moreover, for them, an increase in family satisfaction correlates more strongly with an increase in happiness than it does for people who do not think family is important.

4.2.4 Marginal Domains: Friendships

Finally, we consider friendships a *marginal domain* since all coefficients are small in size (mostly smaller than 0.1) and most of them are not statistically significant. The only exception is satisfaction with friendships in Model 1, which is significant at the 5 % level. All in all, friendships seem to be less relevant than the other domains.

4.3 Effect Heterogeneity

In a last step, we examine whether different importance configurations alter the happiness effects of standard control variables. To do this, we run a simple OLS regression, regressing happiness on the standard controls only. The model takes the following form:

$$\text{HAP}_i = \alpha + \gamma' \text{CON}_i + \varepsilon_i \quad (5.4)$$

Here, CON_i is a vector of standard control variables for individual i . We run this regression twice for each domain, splitting the sample into respondents who consider the domain important and those who do not. The results are reported in Table 5.5.

Table 5.5 Effect heterogeneity in domain importance (OLS)

Important	Finance		Health		Purpose in life		Family		Friends	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
	HAP	HAP	HAP	HAP	HAP	HAP	HAP	HAP	HAP	HAP
Household income	0.022***	0.012***	0.018***	0.017***	0.013***	0.021***	0.016***	0.016***	0.013***	0.020***
Age	-0.089***	0.006	-0.082***	-0.028	-0.073*	-0.054*	-0.083***	-0.017	-0.038	-0.037
Age squared	0.001***	-0.000	0.001***	0.000	0.001*	0.000*	0.001***	0.000	0.000	0.000
Cohabitation with spouse	0.731***	0.221	0.504***	0.424*	0.607**	0.454***	0.510***	0.116	0.684***	0.480***
Woman	0.604***	0.292*	0.409***	0.638***	0.496***	0.523***	0.435***	0.411**	0.506**	0.390***
Presence of children under 6 years old	0.383*	0.696**	0.617***	0.380	0.417+	0.583***	0.453***	0.324	0.416*	0.564***
Number of children	0.027	0.125+	0.065	0.030	0.121+	0.033	0.054	0.053	0.068	0.053
Company employee	Reference group		Reference group		Reference group		Reference group		Reference group	
Managerial position	0.379*	0.593	0.546**	0.263	0.463+	0.499*	0.485*	0.120	0.400	0.463*
Member of board of directors	0.075	0.256	0.310	-0.059	0.062	0.170	0.220	0.111	0.366	0.042
Non-privately held corporation (including board of directors)	0.273	-0.125	0.289	-0.097	0.040	0.116	0.266	-0.114	-0.022	0.244
Civil servant	0.479*	0.157	0.287	0.752*	0.340	0.464*	0.396*	0.391	0.378	0.437*
Entrepreneur	-0.372*	0.328	-0.023	-0.389	0.165	-0.332+	-0.061	-0.285	-0.090	-0.152
Irregular employee	-0.490**	0.508*	-0.082	-0.529*	-0.560*	-0.012	-0.191	-0.125	-0.189	-0.229
Housewife	0.101	0.445+	0.144	0.320	0.308	0.162	0.205	-0.208	0.412+	-0.124
Student	0.138	0.280	-0.121	0.502	0.375	-0.043	-0.113	0.668*	0.298	-0.083
Without work	-0.197	0.089	-0.276	0.344	-0.316	0.012	-0.052	-0.311	0.166	-0.183
Unemployed in family	-0.529**	-0.540*	-0.664***	-0.422	-0.609*	-0.534**	-0.555**	-0.506*	-1.069***	-0.275
Observations	1,709	855	1,803	761	892	1,672	1,757	807	962	1,602
Adj. R-squared	0.177	0.093	0.144	0.103	0.123	0.141	0.107	0.091	0.123	0.129

***p < 0.001, **p < 0.01, *p < 0.05, + p < 0.10

The various models presented in Table 5.5 show many different results. For sake of brevity, we highlight only the most relevant and intriguing results.

4.3.1 Basic Socio-demographics

Interestingly, the coefficient for household income is positive and statistically significant in all models, indicating that household income is correlated with happiness even for respondents who do not consider finances important (Model 2). However, comparing the effect sizes reveals that the coefficient of household income is almost double in size for people who consider the financial situation important (at 0.22) compared with for people who do not (at 0.12).⁸ The opposite holds true for respondents who consider purpose in life and friendship relations important. Those people show a smaller coefficient for household income, at about half the coefficient size of people who consider those domains as unimportant. In Japan, being a woman is usually highly positively correlated with happiness (Tiefenbach and Kohlbacher 2014, 2015a). The results of Table 5.5 lend further evidence to support this finding. While the gender coefficient is positive and statistically significant in all models, it is double in size (0.6 in Model 1 vs. 0.3 in Model 2) for respondents who consider their financial situation important.

4.3.2 Family Relations

Looking at the family relations, we observe the expected results that living together with one's spouse shows a highly positive coefficient in the case of respondents who consider family important (0.5 in Model 7), whereas the same coefficient is insignificant for people who do not consider family important. An unexpected result, however, is that cohabitation with one's spouse has an even higher coefficient among people who consider finance important (0.7 in Model 1), with respondents who consider it unimportant showing an insignificant coefficient of much smaller size (0.2 in Model 2). When taking cohabitation with one's spouse as a proxy for marriage, this finding suggests that financial motives might influence the decision to get married. Similar to cohabitation, the presence of children under 6 years old shows a positive sign for people who consider family relations important. The coefficient for this measure is about half the size among respondents who consider finance important that it is among respondents who consider finance unimportant (0.38 in Model 1; vs. 0.7 in Model 2). We may interpret this as evidence that financial dimensions play an important role in the decision to have children.

⁸Note that all reported differences in effect sizes between models are statistically significant at the 5 % level or better.

4.3.3 Employment Status

Employment status has special relevance to the financial domain. Respondents who consider their financial situation important (Model 1) show a higher happiness level (relative to that of regular company employees) among managers (0.38) and civil servants (0.48), and lower happiness levels among entrepreneurs (-0.37) and irregular employees (-0.49). Looking at respondents who do not consider finance important (Model 2) shows quite different results. None of managers, civil servants, and entrepreneurs showed statistically different results from regular company employees. In the case of irregular employees, we observe the opposite relationship. Respondents who are irregular employees and consider their financial situation unimportant show a higher level of happiness than regular employees (0.5). However, in terms of purpose in life (Model 5), irregular employees show lower levels of happiness (-0.56). Finally, being unemployed or having an unemployed person in the family shows a negative coefficient in most models. However, this is not statistically significant for respondents who consider health and friends to be unimportant (Models 4 and 10).

5 Concluding Discussion

To conclude, we evaluate the research questions presented in the beginning of the chapter in light of the findings reported above.

Our results show that importance measures significantly increase the amount of variance explained in happiness regressions. However, the increase in explained variance is rather small, which is why those results should be verified by further studies that make use of wider scales of domain importance. Although domain importance does not contribute much to the total variance explained in happiness prediction models, certain domains show significant correlations with happiness, suggesting that what people strive for is related to their overall well-being. The best example here is the importance of family relations, which is positively correlated with happiness, and the importance of financial situation, which shows a negative correlation.

Apart from yielding slightly better happiness predictions, domain importance further affects the correlation between domain satisfaction and happiness. We were able to show that certain domains (which we call relative domains) correlated with happiness only when considered important; health and finance are of this type. Other domains (which we call absolute domains) are correlated with happiness whether or not they are considered important; purpose in life is of this type. This type is indicative of misprediction of future utility. While this phenomenon has been previously observed in the case of television consumption (Frey et al. 2007) and commuting (Stutzer and Frey 2008), our study confirms these findings broadly by demonstrating that some life domains are not considered important despite satisfaction in those domains significantly contributing to the overall happiness

level. Of course, further research is needed to establish the direction of causality. For this, however, better data are needed, which is why domain importance should be measured systematically in future happiness surveys.

Finally, we were able to show that different domain importance configurations—which can be understood as different *concepts* of happiness—affect even the most basic standard control variables. The implications of this finding are far reaching and cannot be overstated. An area of particular relevance is monetary compensation for loss of happiness, to which a calculative approach has been applied in several papers that estimate the monetary costs of loss of happiness triggered by events or the environment (Van Praag and Baarsma 2005; Welsch and Kühling 2009). Given that people have different ratings of financial importance, and therefore show different happiness coefficients for household income, all results from studies that evaluate public policy measures by applying monetary compensation for loss of happiness are, at best, biased, if not misleading.

In a similar vein, the results for employment relations have to be treated with care in light of our findings on importance ratings. If, for example, a policy maker used happiness data to assess whether temporary employees are worse off in terms of happiness than regular employees, then a normal regression analysis of the NSLP 2010 data would give no evidence to that effect: *on average*, temporary employees are not unhappier than regular employees.⁹ However, as our results in Table 5.5 reveal, being a temporary employee has different effects according to whether respondents consider finance an important domain for their happiness. For those who *do* consider finance important, being a temporary employee is negatively correlated with happiness; the opposite is true for people who *do not* consider finance important.

Therefore our findings call for caution when interpreting results from happiness studies, since results at the aggregate level may fail to reveal heterogeneity that depends on the individual conceptions of happiness (importance ratings). Policy makers should thus avoid a one-size-fits-all approach to happiness policy and be aware of effect heterogeneity—which is, in the case of importance ratings, unobserved in most surveys.

Appendix A: Robustness Checks

To verify the robustness of our results, we re-estimate the models presented in Sect. 4 using (A1) a different estimation technique, (A2) different sub-samples, and (A3) more domains.

⁹The coefficient for temporary employees (compared to regular employees) is -0.183 , but it is statistically not significant.

A1 Variation of the Statistical Model

Although several articles in the field of happiness economics have shown that OLS estimators lead to qualitative similar results as ordered probit models (Ferrer-i-Carbonell and Frijters 2004; Rojas 2007; Ochsen and Welsch 2012; Metcalfe et al. 2011), we re-estimated the models presented in Tables 5.1, 5.3, 5.4, and 5.5 by using ordered probit regressions.¹ Apart from slight changes in the levels of significance of a very few coefficients, our ordered probit regression comes to almost identical results. Changes are, for example, observed in the variable for friendship satisfaction in Table 5.1, Model 3, which is now significant at the 1 % level (before: 5 % level). In Table 5.4, the coefficients of health satisfaction (Models 1 and 2) become non-significant (before: 10 % level), which confirms our classification of health as a “relative domain.” Finally, in Table 5.5, Model 2, we see the coefficient of being in a managerial position become significant at the 10 % level (before: not significant). All in all, the results of our ordered probit regression correspond qualitatively to the OLS models presented in Sect. 4.

A2 Variations of the Sample

As a further robustness check, we drop all respondents from the sample who either (a) reported that they consider all five domains important or (b) reported that they consider none of the domains important. After dropping those 377 observations, we are left with 2,521 valid responses, to which we apply the same OLS regressions as reported in Sect. 4. The full results are not reported here, but are available upon request. Similar to the first robustness check, the reported results change only marginally. In Table 5.1, for example, the importance of purpose in life becomes, in both models, statistically significant at the 5 % level, whereas satisfaction with friends loses its significance in Model 4. In Table 5.2, the dominance analysis shows a switch in ranks for financial and family satisfaction (with family taking rank 1). In Table 5.3, Model 3, the importance of purpose in life as well as its interaction term with satisfaction are no longer statistically significant. In Table 5.4, the coefficients for importance of purpose in life as well as for importance of friends become statistically significant at the 1 % (purpose in life) and 5 % (friends) level, while the coefficient of health satisfaction loses its significance in both models.

In a next step, we concentrate on workers in the sample and drop all respondents who are students, housewives, or without work (1,049 observations). After dropping these observations, we are left with 1,847 valid responses to which we apply the same OLS regressions reported in Sect. 4. We are especially interested in any changes concerning the global interaction model, which is why we focus on changes

¹Full results are available upon request.

Table 5.6 Global interaction model (OLS) (only working sample)

Variables	(1) HAP	(2) HAP
Financial satisfaction	0.125+	0.091
Financial importance	−0.258***	−0.395***
Finance interaction	0.452***	0.440***
Health satisfaction	0.130+	0.134+
Health importance	0.212*	0.196*
Health interaction	0.128	0.090
Purpose in life satisfaction	0.339***	0.347***
Purpose in life importance	0.112	0.099
Purpose in life interaction	0.005	0.036
Family satisfaction	0.272***	0.274**
Family importance	0.679***	0.501***
Family interaction	0.458***	0.468***
Friends satisfaction	0.092	0.069
Friends importance	−0.073	−0.012
Friends interaction	0.130	0.090
Standard controls	No	Yes
Observations	1,828	1,662
Adj. R-squared	0.477	0.500

***p < 0.001, **p < 0.01, *p < 0.05, + p < 0.10

in the results of Table 5.4. Results are reported in Table 5.6. The most remarkable change is observed in the health domain. While importance of health becomes significant at the 5 % level in both models, the interaction effect of health satisfaction and importance loses its statistical significance. This results casts doubt on the classification of health as a “relative domain,” which is why further research is needed to verify the classification scheme we proposed in Sect. 4.2.

A3 Variation of the Domains

In a last robustness check, we again focus on workers in the sample ($n = 1,847$). Concentrating on people who are employed allows us to introduce a number of work-related domains, such as *job* and *workplace*. Beside those work-related domains, we also include the *region* that the respondents are living in as another domain of satisfaction and importance. Adding these three domains to the existing interaction model of Table 5.4 allows us to check whether our results are robust on the selection of domains that are related to the happiness function of the respondents (results are available upon request). We find that neither of the newly added domains shows any significant results (in satisfaction, importance, and interaction). The other results are similar to the five domain model of working respondents (Table 5.6).

Taken together, the robustness checks presented above show that our results are robust to a variety of changes in estimation techniques, sample variation, and

domain selection. The only remarkable change in results is observed in the health domain, which is why our classification scheme of Sect. 4.2 should be a subject of further research.

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Chapter 6

Adaptation and the Easterlin Paradox

Andrew E. Clark

1 Introduction

The Easterlin paradox has captured a great deal of attention across social science. The fundamental question behind this paradox is whether income is associated with subjective well-being, where the latter is often measured by single-item questions on happiness or life satisfaction. The broad consensus that has been reached is that, within country, richer people are on average happier than poorer people, and that richer countries are on general happier than poorer countries. As such, the cross-section relationship between income and subjective well-being is positive.

But looking at cross-sections, of individuals within a country or of countries, is not the only way to address this central question. The second approach appeals to time-series data to see what happens to average well-being as countries become richer. The rather disconcerting answer here is that over time rising average income does not seem to go hand-in-hand with higher happiness. This is the Easterlin paradox (see Easterlin 1995): money does bring happiness in the cross-section, but not in time series.

Easterlin's time-series analyses have been replicated a number of times (some recent flat happiness time series in growing countries appear in Clark et al. 2014), although other work has suggested a positive time-series correlation between per capita GDP and average subjective well-being in at least some countries (see Stevenson and Wolfers 2008).

There are two common behavioural explanations of the Easterlin Paradox (as discussed at length in Clark et al. 2008a). The first is social comparisons, whereby individual i compares her income Y_{it} to a comparison income level earned by some

A.E. Clark (✉)
Paris School of Economics-CNRS, 48 Boulevard Jourdan, 75014 Paris, France
e-mail: Andrew.Clark@ens.fr

other individual or group j (Y_{jt}^*). The second explanation is that of adaptation to higher levels of income. This is of the same nature as the first, in the sense that it relies on comparisons, but here the individual's current income is compared to her own income in the past (i.e. Y_{it} is compared to $Y_{it-\tau}$, for some positive value or values of τ).

It is probably true to say that overall the first of these explanations has attracted far more empirical attention than has the second. This is likely for data-availability reasons, as the comparison of my current income to its past levels requires panel data on the same individual. There may also be a suspicion that large changes in Y_{it} are sometimes accompanied by a movement in some other variable that is also correlated with subjective well-being.

This chapter will concentrate on the second explanation of the Easterlin Paradox, and will review the empirical evidence that individuals do indeed compare current to past income. It then asks whether adaptation in subjective well-being is a general phenomenon, in the sense that we eventually get used to all changes, with respect to the labour market, marriage, children, health and so on. It concludes by going back to the beginning and asking under which conditions adaptation to rising income is in fact a viable explanation of the Easterlin Paradox. By doing so, it will underline areas where our knowledge is lacking despite the remarkable growth in work on well-being over the past two decades.

2 Adaptation to Income

Adaptation to anything boils down to a comparison of your current situation with what you have experienced in the past. Higher past levels of a certain experience may partly offset current levels of the same experience, due to changing expectations (Kahneman and Tversky 1979), so that evaluations of situations depend on changes relative to a reference situation, rather than absolute magnitudes.¹ As suggested above, adaptation belongs to the realm of comparisons in the well-being or utility function.

If it is income that is being compared, then we can replace our standard well-being function, $WB = W(Y, \dots)$, with $WB = W(Y, Y^*, \dots)$. The variable Y^* in this expression is what is commonly-called “comparison income”: the income to which we compare/the income of the reference group. We suppose that $W_1 > 0$, as is standard, but that $W_2 < 0$: as reference income rises, my well-being falls. It is of interest to compare the size of the two marginal effects. If $W_1 + W_2 = 0$, then a rise in own income and comparison income of the same amount has no effect on well-being.

¹“an object at a given temperature may be experienced as hot or cold to the touch depending on the temperature to which one has adapted. The same principle applies to non-sensory attributes such as health, prestige and wealth” (Kahneman and Tversky 1979, p. 277)

As intimated in the Introduction, we can compare to a variety of different reference groups. In the above equation, Y^* may refer to the income of other people who look like me (with the same age, sex, education etc.), others in the same household (including the individual's partner), friends, neighbours, work colleagues and so on. One of the issues in the current empirical literature is that we do not really know which of these reference groups are salient, so that the measure of Y^* we impose may be far from the correct one.²

Adaptation arguably suffers less from this drawback, as each individual only has one past: in that sense, the reference group is well-defined (being myself in the past). Empirically, the analysis of adaptation in subjective well-being proceeds by the introduction of lagged values of the variable in question into the well-being function above. Very often, 1-year lags are used (almost all panels are annual) so that we have $WB = W(Y, Y_{i,t-1}, \dots)$. If we compare to ourselves in the past, then we will have, as above, $W_1 > 0$ and $W_2 < 0$. If it is thought that adaptation acts over a longer duration than 1 year, then further lags will be introduced.

If we adapt to income, then we imagine that a rise in income increases subjective well-being when it happens, but that after some time we become used to it. In the case of the 1-year lag above, we would estimate an equation of the form:

$$WB_{it} = \beta' \underline{X}_{it} + \varphi_0 Y_{it} + \varphi_1 Y_{it-1} + \varepsilon_{it} \quad (6.1)$$

The coefficient on current income, φ_0 , is thought to be positive: income is positively correlated with well-being. The coefficient φ_1 reveals the presence of adaptation to income.

Imagine the case of an initial stable income level of \bar{Y} followed by a permanent income rise of ΔY . In this case, we have the following.

- i. The year before the income rise, year 1 say, well-being is given by $\beta' \underline{X}_{it-1} + \varphi_0 \bar{Y} + \varphi_1 \bar{Y}$.
- ii. The year the income rise happens, year 2, well-being is $\beta' \underline{X}_{it} + \varphi_0 (\bar{Y} + \Delta Y) + \varphi_1 \bar{Y}$.
- iii. The year afterwards, well-being is $\beta' \underline{X}_{it+1} + \varphi_0 (\bar{Y} + \Delta Y) + \varphi_1 (\bar{Y} + \Delta Y)$.

Imagine, for simplicity, that the \underline{X} 's do not change over time. It is obvious that WB_{i2} is greater than WB_{i1} , as φ_0 is positive. But what happens in year 3? The difference in well-being between years 2 and 3 is given by $\varphi_1 \Delta Y$. If φ_1 is negative, then well-being falls back again from years 2 to 3: in other words there is adaptation. And if $\varphi_0 + \varphi_1 = 0$, then well-being falls back to its year-1 level, despite the fact that income is now higher. This latter is the case of full adaptation, where any stable

²The third wave of the European Social Survey is one of very few surveys which actually ask respondents about income comparisons. Respondents first answer how important it was for them to compare their income with other people's incomes, and then whose income they would be most likely to compare their own with. The answers to the latter question were work colleagues, family members, friends, or others. Clark and Senik (2010) show that the majority of those who compare their incomes compare them to the income of their work colleagues.

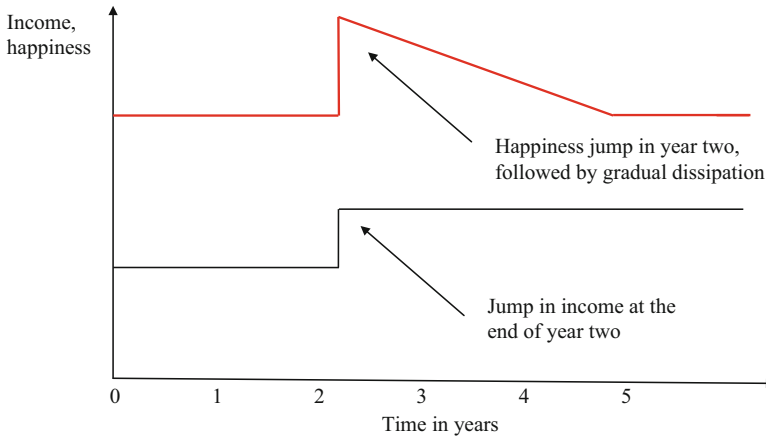


Fig. 6.1 Happiness adaptation following an income shock

income level is as good as any other stable income level. Here income brings about higher well-being only in the short-run (in this example, in year 2), but the effect totally dissipates by year 3.

The comparison of the size of $\varphi_0 + \varphi_1$ in the example above therefore reveals the extent of adaptation:

- If $\varphi_1 = 0$, then there is no adaptation to income;
- If $\varphi_1 < 0$ and $|\varphi_0| > |\varphi_1|$, then there is partial adaptation to income (over the time period under consideration); and
- If $\varphi_1 < 0$ and $|\varphi_0| = |\varphi_1|$, then there is full adaptation to income (over the time period under consideration).

Under full adaptation, higher income will raise well-being when it is received, but after some time individuals will become used to this higher income, with subjective well-being returning to its pre-income-rise level. Figure 6.1 illustrates such a case where the short-run benefit of higher income disappears in a linear fashion over the following 3 years. The top line refers to happiness and the lower line income. There is a jump in income at the beginning of year 2, which remains thereafter at this higher level. Happiness also jumps when income rises, but due to adaptation happiness returns to its initial level by the beginning of year 5.

The level of well-being to which individuals return after adaptation is often called the individual set-point. With a constant value of the variables in \underline{X} above, this set-point would be given by $\beta' \underline{X}_i$; as such, it differs between individuals.³ The literature on adaptation to various states can also be couched in terms of whether the individual's set-point has changed following the event (as in Lucas et al. 2004).

³If we believe that there is full adaptation to income, then none of the variables in the \underline{X} vector should be determined by the individual's financial situation.

The remainder of this section will consider the evidence we have that individuals do indeed compare their income to that which they have received in the past. Despite the obvious importance of the question, there is perhaps less empirical work on adaptation to income than might be imagined. An early contribution is Brickman et al. (1978), who conclude that a small sample of lottery winners ($n = 22$) are not significantly more satisfied with their lives than are a control group.⁴

Inglehart and Rabier (1986) use an explicit measure of the change in income, which they relate to life satisfaction. In pooled Eurobarometer data from ten Western European countries between 1973 and 1983 subjective well-being scores are uncorrelated with current income, but positively correlated with a measure of the individual's change in financial position over the past 12 months.

In the same tradition, Clark (1999) uses the first two waves of British Household Panel Survey (BHPS) data, the panel aspect of which allows the actual changes in income from one year to the next to be calculated. The dependent variable in the empirical analysis is the job satisfaction⁵ of workers who stay in the same firm from one year to the next, and have stayed in the same position (i.e. have not been promoted). In the regression analysis, the income that the individual earned last year attracts a negative coefficient in the job satisfaction equation, which is consistent with adaptation. The estimated coefficients on past and current income are equal and opposite in sign, suggesting full adaptation to labour income within one year. Burchardt (2005) finds evidence of adaptation to income, using a measure of income satisfaction in 10 years of BHPS data, with a suggestion of greater adaptation to rises in income than to falls in income. Other authors have used German Socio-Economic Panel (SOEP) panel data to come to similar conclusions: see Bartolini et al. (2013), Grund and Sliwka (2007), Weinzierl (2005), and Vendrik (2013). Wunder (2009) appeals to SOEP data from 1985 to 2006 to estimate that all of the improvement in the financial situation in Germany over that period was entirely mopped up by adaptation to material well-being, which he calls “desensitisation to the hedonic effects of income”. A recent detailed study of life satisfaction and income adaptation appears in Di Tella et al. (2010), who analyse longitudinal data for around 8,000 individuals drawn from the West German sample of the SOEP over the period 1984–2000. They find that the effect of an income increase after 4 years is only about 42 % of the effect after one year: the majority of the short-term effect of income vanishes over time.⁶

⁴The data here are cross-section, so we do not know if the lottery winners were happier than the control group before their winnings. The results show that the life satisfaction of winners is higher than that of non-winners, but not significantly so. One question is whether the difference would have been significant with a somewhat larger sample size. Recent work on the BHPS using panel data has certainly suggested a significant rise in well-being upon winning even relatively small sums on the lottery (Apouey and Clark 2015; Gardner and Oswald 2007).

⁵Life satisfaction did not appear in the BHPS until Wave 6.

⁶The same kind of analysis can also be carried out at the aggregate level. Di Tella et al. (2003) consider individual happiness in data from 12 European countries over 18 years, and argue that

There are a number of “non-happiness” ways of looking for evidence of adaptation to income. The Leyden Group (see the review in Van Praag and Frijters 1999) considered the Welfare Function of Income, in which individuals are asked to assign income levels (per period) to a number of different verbal labels (such as “excellent”, “good”, “sufficient” and “bad”). These answers can then be used to estimate, for each individual i , a lognormal “Welfare Function of Income”, with estimated mean μ_i and variance σ_i . These two latter values can then be used as dependent variables in regressions, showing which types of individuals require a higher level of income to be satisfied, and which individuals have valuations that are more sensitive to changes in income.

The Welfare Function of Income questions have appeared in the SOEP, in the EUROSTAT surveys of the 1980s, in Russian panels, and the Dutch Socio-Economic Panel, amongst others. With respect to the topic of the current chapter, the key finding is that μ_i is positively and significantly correlated with the individual’s past income. This is what Van Praag (1971) calls “preference drift”: the more that you earned in the past, the more that you need today in order to be satisfied. The findings of the Leyden group on European data suggest that about 60 % of an increase in household income is dissipated within about two years via a rise in what people consider to be “excellent”, “sufficient”, “bad” etc. levels of income. The dissipation here is around the same order of magnitude as that found in subjective well-being panel survey data in Di Tella et al. (2010).

Last, it is of course possible to try to establish income adaptation using revealed preference information on observed behaviour, either in an experimental setting or by the use of survey data, as in Hotz et al. (1988).⁷

There is then a variety of evidence which is consistent with partial, or even total, adaptation to higher income. If there is indeed full adaptation, then increasing income will not have any long-run effect on subjective well-being in the long run (at least in the rich countries, from which this empirical evidence is taken).

3 Adaptation to Economic and Social Life

The policy implication from adaptation to income is that money does not serve to increase happiness in the long-run: we therefore need to concentrate on some other aspect of life if we wish to raise societal well-being. A number of suggestions have been made along these lines: see for example the Big Seven on page 63 of Layard (2005). These fall broadly into the areas of the labour market (and having a job), marriage and the family, health, social activities, freedom, and religion.

some of their results regarding the relationship of subjective well-being to GDP per capita show that “*bursts of GDP produce temporarily higher happiness*” (p. 817).

⁷The preference for rising income profiles, given a total amount of income to be disbursed over a given period, is also consistent with adaptation to income: if past income acts as a deflator for current well-being then we would want to back-load it over time. See the hypothetical-choice results in Frank and Hutchens (1993) and Loewenstein and Sicherman (1991).

We can of course make a good a priori case that all of these matter to individuals. However, following on from the results with respect to income in Sect. 2 above, might we not find adaptation in some of these aspects of life too? For example, do we adapt to marriage, and is unemployment less harmful for well-being after 2 years than it was at 6 months? This section will review what we know about adaptation to the non-pecuniary domains of life.

The analysis of adaptation in panel data follows the same individuals before, during and after their entry into unemployment (for example): this allows us to look for evidence of adaptation to the state of being unemployed. The empirical method used in many (but not all) papers is to use a within-subject (fixed-effect) approach to examine how life events affect subjective well-being both before (anticipation) and after (adaptation) the event in question takes place, providing the individual does not experience another change in status. This boils down to tracing out adaptation to marriage, for those who become married and stay married, for example. This way we avoid any sharp subsequent movements in well-being associated with the end of the marriage spell. It would probably sound rather odd, for example, to say that individuals have adapted to marriage by separating or divorcing.

It is worth emphasising that work on adaptation is very much ongoing, with different datasets, samples, and modelling techniques. Not all of the results of the analyses agree with each other, and it is clear for the moment that we have not necessarily converged to the “right” answer.

The analysis of BHPS data in Clark and Georgellis (2013) uses the approach described above to model both anticipation and adaptation to unemployment, for example, at the same time using the following regression:

$$\begin{aligned} \text{WB}_{it} = & \alpha_i + \beta' \underline{X}_{it} + \theta_{-4}U_{-4,it} + \theta_{-3}U_{-3,it} + \theta_{-2}U_{-2,it} + \theta_{-1}U_{-1,it} + \theta_0U_{0it} \\ & + \theta_1U_{1it} + \theta_2U_{2it} + \theta_3U_{3it} + \theta_4U_{4it} + \theta_5U_{5it} + \varepsilon_{it} \end{aligned} \quad (6.2)$$

Here, WB refers to individual well-being, and \underline{X} is a vector of standard controls. To pick up adaption, the unemployed are split up into six groups: those who have been unemployed 0–1 years, 1–2 years, 2–3 years, and so on up to the last group who have been unemployed 5 years or more. These unemployment duration dummy variables are thus mutually exclusive: any unemployed individual will only be present in one of the six groups at any given year.⁸

If there is no adaptation to unemployment, θ_0 through θ_5 will be roughly the same size; if there is adaptation the later values of θ will be less negative – we will observe individuals “bouncing back” from unemployment; and with full adaptation some of the later values of θ will be insignificant. Equation 6.2 includes an individual fixed effect, α_i . Adaptation is thus tested for by comparing the well-being of those who have been unemployed for 1–2 years, for example, to the scores of the same individuals in their first year of unemployment. This seems a natural way to empirically model adaptation.

⁸Which is different from the continuous variable set-up in Eq. 6.1, where individuals have both an income level now and an income level last year (i.e. they will have positive values for both Y_{it} and Y_{it-1}).

Anticipation is treated similarly in the same equation. The U dummies referring to future entry ($U_{-4,it}$ to $U_{-1,it}$) show whether the individual will enter unemployment in the next 0–1 years, 1–2 years, 2–3 years, or 3–4 years. The omitted category in Eq. 6.2 is thus those who will not enter unemployment in the next 4 years, and the estimation sample consists of all those individuals who are not unemployed in the first year that they are observed in the BHPS (so that they are at risk of unemployment entry).

Figure 6.2 below illustrates the results of this kind of analysis for five life events (unemployment, marriage, divorce, birth of child, and widowhood) in the BHPS data from Clark and Georgellis (2013). We will now consider a number of these different life events in turn.

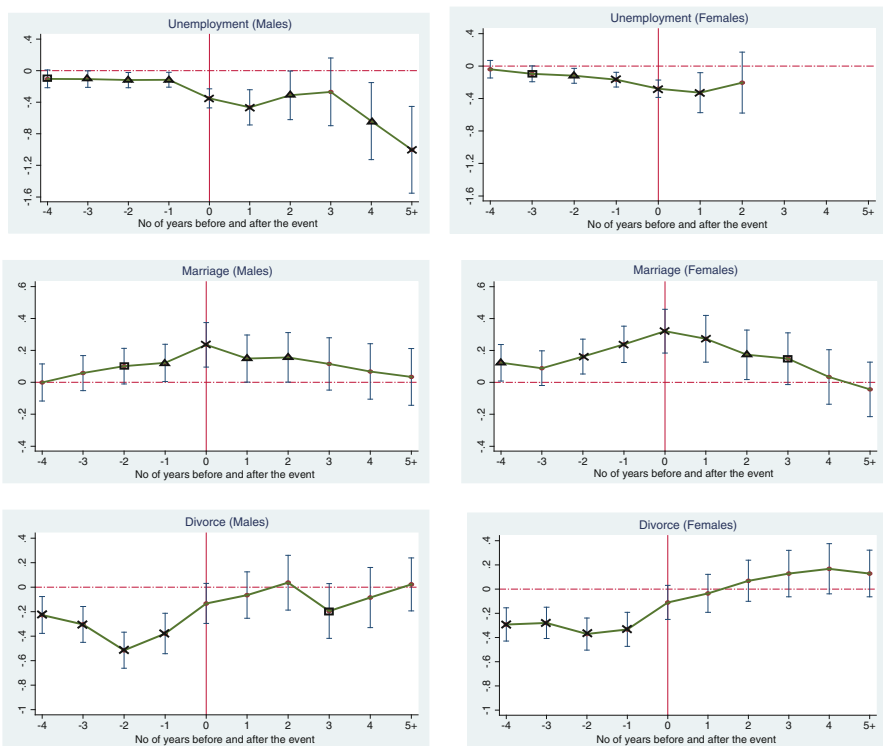


Fig. 6.2 The time profile of life satisfaction and life and labour market events: BHPS. Notes: X, Δ and □ denote significance at the 1 %, 5 % and 10 % levels respectively; the error bars represent the 95-percent confidence intervals. The analysis here concerns people who became unemployed (for example) at time zero and who stay unemployed over the period in question. The change in life satisfaction between times $t+1$ and $t+2$ is the average well-being (conditional on the other right-hand side variables) of individuals who are unemployed at $t+1$ and remain unemployed at $t+2$ (Source: Clark and Georgellis (2013))

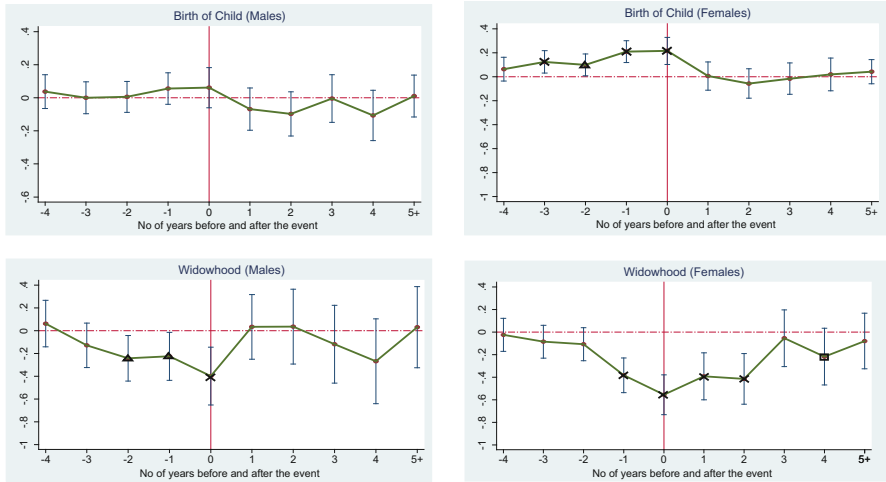


Fig. 6.2 (continued)

3.1 The Labour Market

The relationship between unemployment and subjective well-being has occupied a central place in the Economics of Happiness, with many contributions finding sharply lower well-being amongst the unemployed (for example, Clark and Oswald 1994; Winkelmann and Winkelmann 1998). It seems beyond dispute that unemployment does indeed cause unhappiness (with broadly the same correlation being found in cross-section and panel data). However, this tells us nothing about the time profile of well-being after entry into unemployment. The three profiles in Fig. 6.3 are all consistent with the unemployed reporting lower well-being than the employed on average, but with very divergent conclusions regarding adaptation.

The findings in Clark et al. (2008b) find no adaptation to unemployment for men (with a somewhat noisier set of results for women). Both of these analyses appeal to SOEP data. Identical results are found in data from the BHPS (Clark and Georgellis 2013), Russian Longitudinal Monitoring Survey (RLMS: Clark and Uglanova 2012), the Korean Labor and Income Panel Study (KLIPS) for men (there are insufficient data points for women to reach a conclusion) in Rudolf and Kang (2015), and the Household, Income and Labour Dynamics in Australia (HILDA) survey in Frijters et al. (2011). The research in Lucas et al. (2004) suggests only partial adaptation to unemployment in SOEP data, as do those on Swiss Household Panel (SHP) survey in Anusic et al. (2014), although the statistical methods used there are different from those used many of the above-cited articles.⁹

⁹For example, Oesch and Lipps (2013) suggest that there is no evidence of adaptation to unemployment in either SOEP or SHP data. It would be useful to have a thorough discussion

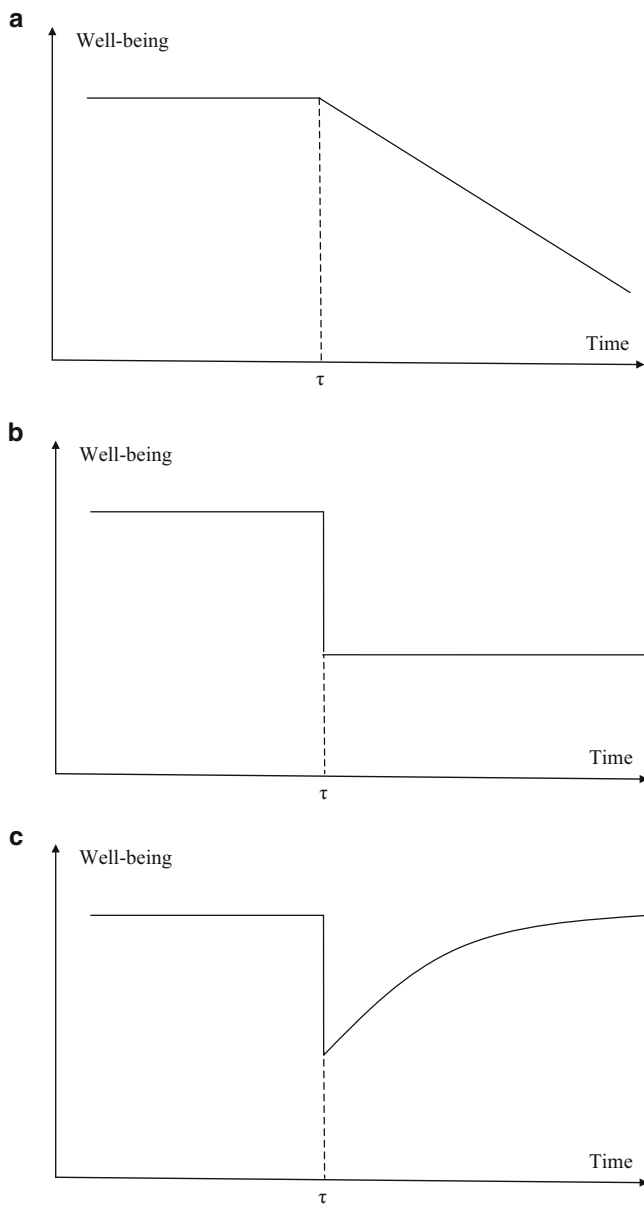


Fig. 6.3 Well-being profiles over time following entry into unemployment at time τ . (a) Permanently-falling, (b) step function, (c) adaptation

3.2 *Marriage and the Family*

The same method as used for unemployment can be applied to family events. One of the central questions here is whether marriage makes people happy. While it is mostly obvious in cross-section data that the married are happier than the single, Stutzer and Frey (2006) suggested that most of this correlation was down to people who were happy when single being more likely to marry in the first place. Work on adaptation to marriage has suggested broadly complete adaptation to marriage in the SOEP (Clark et al. 2008b; Lucas et al. 2003), BHPS (Clark and Georgellis 2013), HILDA (Frijters et al. 2011) and SHP (Anusic et al. 2014). Adaptation here is full, or even over-full, in the sense that individuals after marriage may end up being less happy than they were when they were single (even though most work finds a positive “impact” effect of marriage on subjective well-being).¹⁰

There are, however, some country differences here in this respect. Marriage leads to lasting life satisfaction gains in Russia (Clark and Uglanova 2012), and Rudolf and Kang (2015) also find that marriage is lastingly good in Korea (but only for men). It is also striking that in these two countries we do not observe much of a happiness spike at the year of marriage, which we do see in the other panel datasets under consideration.

The flip-side of marriage is separation and divorce. The empirical analysis of panel data here shows a sharp impact effect of divorce. Divorce is one of the events for which we also observe significantly lower subjective well-being in the years leading up to the event. This is understandable in this context, where divorce is often preceded by a number of years of separation or dysfunctional marriage. Adaptation to divorce is complete in the SOEP, BHPS¹¹ and HILDA. The work in Anusic et al. (2014) however suggests only partial adaptation to divorce in Switzerland. In a striking mirror image of their finding of no adaptation to marriage for Korean men, the analysis in Rudolf and Kang (2015) reveals full adaptation to divorce for Korean women, but no adaptation at all for Korean men.

Some couples do not end in divorce or separation, but in widowhood. This is one of the events for which we find the largest impact effect (for example, about one point on the zero to ten scale in the SOEP). Even here, most analyses suggest that this sharp fall in well-being is not permanent, with full adaptation in British, Russian

between economists and psychologists (and others) about the different ways in which we can model the time profile of well-being in panel data.

¹⁰This work on adaptation compares subjective well-being after marriage to well-being before marriage (as in Eq. 6.2). It is likely that well-being was on an upward profile before marriage, and it can be argued that the anticipation effects a year or more before marriage is part of marriage’s well-being benefits. In that case we would maybe want to compare well-being after marriage to well-being 3, 4 or even 5 years before marriage. This naturally produces less adaptation than comparing to all years before marriage. Qari (2014) adopts this technique and finds only partial adaptation to marriage in SOEP data.

¹¹See also Blekesaune (2008) and Laporte and Windmeijer (2005) for partnership separation and the time profile of subjective well-being in BHPS data.

and German panel data and for Korean men, and partial adaptation in Switzerland. The outliers here are Frijters et al. (2011), who find no adaptation to the death of a spouse or child in Australian data (although they do not analyse widowhood as an isolated event), and the Korean women in Rudolf and Kang (2015).

Last, we can look at the effect of children on subjective well-being.¹² Here there is consensus in the literature: the results from all of the panel datasets that we have mentioned here suggest no lasting effect of children on subjective well-being, although many of them do pick up a positive anticipation effect in the years leading up to childbirth.¹³

3.3 *Health*

Some work in this domain has considered adaptation to disability. Oswald and Powdthavee (2008) use BHPS data to track individuals' levels of reported life satisfaction in the years leading up to, and following, disability. Their fixed-effects regressions suggest that about one-third to one-half of the negative impact of disability on well-being dissipates over time. Lucas (2007) analyses the BHPS and SOEP data, and finds only little evidence of adaptation. Oswald and Powdthavee (2008) suggest that this difference in results may be due to the different estimation methods used, as they use fixed-effect regression analysis, while Lucas' results are based on multi-level methods. Again, the distinction between the two would seem worthy of future analysis. Anusic et al. (2014) find partial adaptation to disability in SHP data, and Frijters et al. (2011) partial adaptation to illness or injury in HILDA data.

Wu (2001) considers health adaptation via what is arguably quite an exogenous event: heart attacks. He shows that the onset of a new heart condition amongst individuals who have had such a condition in the past has smaller self-assessed health and emotional health effects than amongst those who have no previous heart conditions. Riis et al. (2005) uncover evidence of adaptation to hemodialysis.

Graham et al. (2011) suggest that individuals seem better able to adapt to one-off health shocks, such as the loss in mobility, than to conditions associated with uncertainty, such as anxiety and pain. However, their analysis is based on cross-section data, and they do not have both pre- and post health shock measures of subjective well-being.

¹²Rudolf and Kang (2015) note that much of the childbirth effect found in the literature might actually reflect an overlapping effect from marriage. The joint modeling of multiple adaptation to different events seems potentially rather complicated.

¹³Myrskylä and Margolis (2014) find full adaptation to birth of first child in the SOEP and BHPS, although they do find less adaptation for older parents (those aged between 35 and 49 at the time of childbirth). Dyrdaal and Lucas (2013) find similar adaptation profiles for both parents in SOEP data.

An interesting mirror to most of the work in this area, which has dealt with health problems of some kind, is provided in Barazzetta (2014), who looks at adaptation to increased mobility. Her data here come from a randomised-control trial of individuals in Uganda who were fitted with orthotics designed to improve their mobility (the controls here were a wait-time group who would have the same orthotics fitted in the future). While she does indeed find that orthotics improve mobility, the well-being effects associated with this health improvement disappear after 1 year. This work is both unusual in that it looks at a health improvement, and that the allocation into the experimental and control groups was random, producing exogenous health changes.

Last, a separate literature has considered the well-being impact of something that is most definitely endogenous: cosmetic surgery. This is shown to have a positive impact effect on subjective wellbeing, which is long-lasting in some cases (Cole et al. 1994; Margraf et al. 2013).

3.4 *Adaptation in Other Life Domains*

With economists' interest in the labour market, some work has considered adaptation to labour-market phenomena other than labour income and unemployment. Hanglberger and Merz (2011) appeal to SOEP data to look at adaptation to self-employment, finding full adaptation within 3 years, and there is full adaptation to unionization within a few years in Powdthavee (2011). On the contrary, Burchell (2011) finds that there is little adaptation to job insecurity in BHPS data (which perhaps resonates with the suggestion in Graham et al. 2011, that is difficult to adapt to conditions that are associated with uncertainty).

Outside of the labour market, there is adaptation to moving house in both the BHPS (Nowok et al. 2013) and HILDA (Frijters et al. 2011). The results in Flèche (2014) are consistent with reduced local-government autonomy in Switzerland having only temporary effects on residents' well-being. Verhaest and Omey (2009) analyse the relation between objective over-education and job satisfaction data in a sample of Flemish school leavers. Their fixed-effects estimation results reveal a sizeable negative effect of over-education on job satisfaction. However, this effect is also shown to fall with years of work experience. In a very general approach, Etilé et al. (2014) consider the dynamics of subjective well-being in British cohort data, and conclude that individuals in general adapt to the shocks that they receive within 4 years.

Last, the research discussed in Sect. 3 suggested that individuals adapted to income in general, by showing that past income entered a well-being regression with a negative coefficient. However, the work discussed there mostly did not distinguish between rising and falling incomes. And more importantly, it considered all movements in income, regardless of whether they occurred to richer or poorer people. However, we may be especially interested in the well-being effects of particularly low income, i.e. poverty.

Clark et al. (2015) consider individuals as being in poverty if they live in a household whose equivalised income is under 60 % of the median level of household equivalised income in the country (this is the EU definition of poverty). In SOEP data, poverty entry is associated with a sharp downward movement in life satisfaction. There is no evidence that this negative effect becomes smaller as the time spent in poverty increases. So to this extent, the effect of poverty on subjective well-being is very similar to that of unemployment: there is a large drop in life satisfaction upon entry which does not diminish over time, so that individuals do not adapt.

The combination of the result of no adaptation to poverty with that in Sect. 3 of broad adaptation to changes in income (which are most often income rises, at least in nominal terms) then suggests that we cannot configure the Easterlin Paradox backwards to say that recessions don't matter: while we may adapt to higher incomes, it looks as though the negative effects of particularly low income might be much more long-lasting.

The broad conclusion from the empirical results in this section is that there is adaptation in economic and social life, but that individuals take longer to become used to some states than to others. This seems in particular to apply to negative events (unemployment, poverty, disability), so that we might almost conclude as to the presence of loss-aversion in adaptation.¹⁴

4 Outstanding Issues

This last substantive section considers a number of outstanding issues, and also returns to the beginning of the chapter by asking whether adaptation to income does indeed represent a viable explanation of the Easterlin Paradox.

4.1 *Method and Measure*

As mentioned in Sect. 3.1 above, there is no one universally-applied method for the analysis of adaptation in the social sciences. Broadly it seems as if economists have relied on fixed-effect estimation, whereas sociologists and psychologists have preferred multi-level methods. The former trace out adaptation in a non-parametric way, whereas multi-level methods are at least partly parametric. There is also the issue of which sample we should use to analyse adaptation, whether to drop observations when individuals exit the state in question (does adaptation to divorce include remarriage?), and what to do about repeated entries into the state in question

¹⁴Lyubomirsky (2011) suggests that in general adaptation is faster to positive than to negative events.

(on which see Luhmann and Eid 2009). A definitive answer to the question of adaptation would require some conformity in these dimensions.

A second point is what measure should be used to pick up subjective well-being. This is a vexed question: see Clark (2015). In terms of adaptation, a small number of papers have made empirical contributions to the debate by carrying out comparative analyses using more than one different well-being measure. In Clark and Georgellis (2013), the adaptation profile in the BHPS is similar for life satisfaction and the 12-item General Health Questionnaire (GHQ) measure. Von Scheve et al. (2013) however note that the time path of adaptation to unemployment differs according to the (single-item) well-being measure in SOEP data for 2007–2012. The effect of unemployment on anxiety and happiness (reported for the last 4 weeks) lasts for only 1 year. There is no impact effect for anger, but this rises with unemployment duration. Last, there is no adaptation in terms of sadness, nor in terms of life satisfaction. Finally, Luhmann et al. (2012) carry out meta-analyses, and find different adaptation effects in affective well-being and life satisfaction. However, the information revealed to date has been somewhat scattershot, and many questions remain open: For example, is there evidence of adaptation of the kind discussed in Sects. 2 and 3 when we consider eudaimonia as the measure of well-being?

4.2 *Resilience*

Regression analysis produces conditional means, which reveal the average estimated effect over the population of interest. However, the size of this effect may differ widely between different groups of individuals. In terms of the effect of unemployment, for example, we might want to know which groups are most affected in well-being terms, and if some groups of individuals bounce back faster than do others. We can either make progress here by defining a priori groups who we think will be affected differently (and some of the analyses above have looked at separate effects for men and women), or we could let the data decide which individual to assign to which group in latent growth mixture models to identify multiple trajectories of subjective well-being in response to life events (as in Mancini et al. 2011).

Yap et al. (2012) suggest that resilience is related to personality traits in BHPS. Etilé et al. (2014) use HILDA data and a latent-class model to split individuals into three different resilience groups. As in Yap et al. (2012), resilience is related to personality traits (high internal locus of control and low levels of neuroticism). Etilé et al. (2014) also show that resilience is related to both current outcome variables (good health, male, well-educated) and those from childhood (being raised with an employed father and a stay-at-home mother). Powdthavee (2014) also considers resilience as a function of childhood characteristics.

As well as being of academic interest, the analysis of the distribution of resilience is of policy importance, as it would help to show us who needs help more, and in which circumstances.

4.3 Does Adaptation Explain the Easterlin Paradox?

Adaptation is a fascinating area of study. In this chapter, I motivated its analysis via its potential to explain the Easterlin Paradox. As noted in the Introduction, there are two parts to this paradox: a positive cross-section elasticity between income and subjective well-being, and a much smaller or zero time-series elasticity between the same two variables.

Adaptation to income can certainly explain the second part of the paradox: there will be no long-run well-being return to higher income if we get used to it. But what about the first part of the paradox? If we all adapt to higher incomes, then surely the rich should end up being just as happy as the poor. Yet the data suggest that the rich are systematically happier than the poor.¹⁵

Of course it does take some time for adaptation to operate. In the short run, individuals are happier with higher incomes, even if they will fully adapt to them in the long run: only recent changes in income affect well-being. As such, for the richer to report higher subjective well-being scores than do the poorer, the rich must have enjoyed more positive recent income gains than did the poor. In other words, adaptation can only explain the Easterlin Paradox when there is rising income inequality. And this has to be a certain type of rising income inequality: the Easterlin Paradox would not be explained by rising inequality where the poor were getting poorer, but instead requires that this inequality results from the rich becoming richer.

Clark et al. (2008a) noted that, under adaptation, “*the only way to achieve permanently greater happiness is to have continually rising income*”, but did not make the link to the cross-section relationship between income and happiness. While income inequality has indeed been rising in recent years in many countries, this has not been the case for all countries and all time periods for which the flat time-series relationship has been observed. I believe that this somewhat undermines the case that can be made for adaptation to income as an explanation for the Easterlin Paradox.

¹⁵It could be countered that the rich have more positive values of the elements of the \underline{X} vector in Eq. 6.1, so that they have higher set-point well-being. This may sound reasonable. But then we would expect increasing GDP per capita over time to go hand-in-hand with higher average happiness, as the average \underline{X} values in the economy would then improve over time as well.

5 Conclusion

While adaptation occurs in many domains of economic and social life, it is not inevitable. In particular, we seem to adapt less, or not at all, to a certain number of negative events: unemployment, disability and poverty. Policy that aimed to increase well-being would want us to bounce back quickly from bad events, but not from good events. Some recent work has started to ask which kinds of individuals can indeed recover (in terms of subjective well-being) more quickly from negative shocks (or enjoy the positive shocks longer). This resilience has been related to both adult personality and childhood circumstances, providing a means via which policy can potentially produce more resilient adults.

A considerable amount of research has suggested that income rises do not produce lasting effects on well-being. Adaptation to income has been suggested as one of the two behavioural explanations of the Easterlin Paradox (the other being social comparisons). While I believe that there is adaptation to income (at least in rich countries), questions remain about whether adaptation is a good explanation of the paradox. The problem is that under adaptation the rich can only be happier than the poor if they receive more positive income shocks than do the poor. For adaptation to explain the Easterlin Paradox, income inequality must systematically rise. This has been true in some countries in some periods, but not all countries in all periods.

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Part II
Income Inequality, Employment, and
Happiness

Chapter 7

Comparative Study of Happiness and Inequality in Five Industrialized Countries

Toshiaki Tachibanaki and Sayaka Sakoda

1 Introduction

In many countries, great interest has been shown in the subject of happiness. Traditionally, economists have been interested in utility, which can be obtained from consumption, and so utility was a key concept in microeconomics for a long time. Happiness is concerned not only with utility from consumption but also with satisfaction derived from all kinds of human activities, including marriage, family life, leisure, and such other things. In this chapter, we do not discuss the similarities and differences among utility, satisfaction, and happiness. An important reference is given by, for example, Frey (2008), who presents “happiness” as general satisfaction derived from usual daily life.

The purpose of this chapter is to compare happiness of the populations of the industrialized and developed countries of the G5, namely, the U.S., the U.K., France, Germany, and Japan. In particular, this chapter uses people’s evaluation of happiness to examine the relationship between happiness and inequality among these five countries. As Alesina and La Ferrara (2005) show, there is a large, negative, and significant effect of inequality on happiness in Europe but not in the U.S. Thus, it is preferable to consider the subjective aspect of inequality and our chapter adds “the sense of inequality” as one of the subjective inequality variables.

This study proceeds as follows. Part 2 describes the data that we use in this chapter. Part 3 gives some general observations about happiness evaluations in the five countries. Part 4 focuses on the relationship between the degree of happiness and the sense of inequality. In addition, we show the contribution of psychological factors and the personalities, using the so-called “Big Five” factors.

T. Tachibanaki (✉) • S. Sakoda
Faculty of Economics, Doshisha University, Kyoto, Japan
e-mail: ttachiba@mail.doshisha.ac.jp

There are several reasons for our interest in G5 countries. First, these countries are all industrialized and developed, with relatively high per-capita incomes. Also, all are liberal and democratic countries. There are, however, some differences among them. For example, Japan is an Asian country, while the other four are European civilizations, though there are differences between the Anglo-American countries and the continental European countries.

Second, we conducted a survey study using a common questionnaire distributed to respondents in the five countries in order to obtain fairly comparable data sources based on common interests. Of course, we applied standard statistical estimation methods to these data sets in conducting our study.

Third, a particular interest of our survey was to examine the impact of psychological factors and the personalities of individuals in each country, for which use the Big Five factors, and we asked respondents to evaluate their own happiness. The reason for considering the effect of the Big Five factors is that the relative importances may be quite different among countries, and thus they may affect feelings of happiness differently. The common data can give us an excellent source to use in investigating such an effect.

Fourth, nearly all industrialized countries are becoming more unequal in terms of income and wealth distribution. Thus, this particular concern is addressed by examining inequality in relation to happiness.

2 Data Description

Doshisha University conducted a large survey, Life and Happiness in Regional Areas, in 2011, with the financial support of the Japanese Ministry of Education, Culture, Sports, Science and Technology. A large number of people were sent a survey questionnaire concerning economic conditions, work environments, family life, happiness, and leisure. At the same time, we also wanted to obtain information on the psychological factors and personalities of individuals. The survey has a sample size of 4,927 for Japan, 1,001 for the U.S., 1,077 for the U.K., 1,088 for Germany, and 1,049 for France.

One of the most important characteristics of the survey is that we were interested in recognizing each individual's personality, as was done in Benet-Martínez and John (1998). For example, questions included "Are you a brave person, or a careful person?", "Are you optimistic or pessimistic?", "Are you a generous person, or a strict person?", and "What is the most important value in your life?" Using 44 questions regarding individual personalities and psychological factors, we summarized these questions into five categories by using factor analysis, which allows us to indicate a person's personality in a simple way. The five variables we used were (i) conscientiousness, (ii) neuroticism, (iii) openness, (iv) agreeableness, and (v) extraversion. Of course, the degree to which each person shows these traits differs from person to person, and it is expected that such differences are influential

in determining personality. Lastly, it should be noted that these differences lead people to have different judgments and opinions on inequality and happiness.

Another important effort that was made in regard to the data. The questionnaires were translated into English, German, and French (from the original Japanese) and distributed to people in the G5 countries. Common questionnaires were distributed, although the number of questions and the sample number were reduced considerably for the questionnaires distributed outside Japan. It is reasonable, nevertheless, to say that we obtained reliable data to conduct an international comparative study based on the common data preparation for each country.

3 Preliminary Comparisons

Before presenting our estimated results, it would be useful to make a general observation about happiness evaluations among the five countries.

Table 7.1 shows the happiness rank for each country, based on various studies and the related variables that may affect happiness evaluations. The “source” in Table 7.1 is the institution or group presenting the evaluation of people’s happiness. The first three—the United Nations, Leicester University as given by White (2006), and the World Values Survey—included both developed and developing countries, and the OECD covered industrialized and semi-industrialized countries only. Our survey, of course, is noted where applicable.

There are several interesting observations that we can make about Table 7.1. First, the U.S. can be regarded as the country where people are the happiest, as all the studies expect for one indicated that Americans had the highest degrees of happiness. The U.S. also ranks at the top for all other related variables, which is curious but may be natural given the overall level of happiness. However, it should also be remembered that the U.S. has the highest levels for Gini coefficient and poverty rate, indicating that it is a highly unequal society, even among industrialized nations.

Second, Japan can be regarded as the country where the people are least happy among the five countries examined. It would be a valuable subject to inquire into the reasons why the U.S. and Japan are such extreme cases in regard to level of happiness. See, for example, Tachibanaki (2013) for Japan.

Third, the U.K. has a similar status as the U.S. in the sense that the degree of happiness across various measures came in first, second, or third among the countries examined, slightly below the U.S. The American and British people broadly share an Anglo-Saxon culture, and thus they hold many common societal characteristics.

Fourth, the continental European countries of Germany and France both generally stay somewhere between the U.S./U.K. group at the top and Japan at the bottom. These two countries differ considerably in their cultural and societal characteristics, and thus it would not be appropriate to treat them as one group in our analysis.

Table 7.1 Comparison of happiness level in the G5 countries

Source	Ranking			World values survey	OECD survey	Our survey	GDP per capital	Gini coefficient	Poverty rate (%)	Divorce rate per 1,000 couples
	UN survey	Leicester University survey								
Country										
United States	17 (1)	23 (1)		9 (2)	7 (1)	8.03 (1)	6 (1)	0.378 (1)	17.1 (1)	4.0 (1)
United Kingdoms	22 (2)	41 (3)		8 (1)	13 (2)	7.48 (3)	21 (3)	0.345 (2)	8.3 (4)	2.6 (2)
Germany	26 (4)	35 (8)		36 (5)	16 (3)	7.37 (4)	17 (2)	0.295 (4)	11.0 (3)	2.4 (3)
France	25 (3)	64 (4)		19 (3)	18 (4)	7.79 (2)	24 (5)	0.293 (5)	7.1 (5)	1.9 (5)
Japan	43 (5)	90 (5)		24 (4)	19 (5)	7.13 (5)	22 (4)	0.329 (3)	14.9 (2)	2.2 (4)
Total sample countries	156	178		57	34	5	187	5	5	5

Note:

- (1) Numbers in our survey imply the degree of happiness
- (2) Numbers in parentheses are rankings among the G5 countries

Fifth, we would like to discuss inequality in terms of the Gini coefficient and the poverty rate and its impact on happiness in the U.S. As has been described already, the U.S. has a highly unequal society, as shown by the high level of both its Gini coefficient and poverty rate. Competition among both individuals and businesses is highly appreciated and inequality is often not criticized as there is a common perception in the U.S. that it is fair treatment for winners to receive considerably higher incomes than the losers, who receive considerably less. Also, Americans have a strong spirit of autonomy and sense of higher income mobility, which may lead people to believe that one can become rich at some point in the future, even if they are poor currently. For further information, see the useful studies by Alesina et al. (2004) and Bjornskov et al. (2013), among others. We can safely say that the U.K. is similar to the U.S. with respect to inequality.

An interesting case in the discussion of inequality is Japan. In the past, up until about 30 years ago, Japan was a country with relatively equal income distribution, with a level of equality similar to that in the Scandinavian countries. Japan's degree of inequality, however, has increased considerably in recent years. Persuasive evidence of this can be found in Table 7.1, which shows that the Gini coefficient and the poverty rate are higher in Japan than those in Germany and France. See, for example, Tachibanaki (2005) for more on the reasons for this increasing inequality.

A lower degree of happiness and a relatively high level of income inequality in Japan may give us an interesting subject to investigate, in terms of whether high inequality leads people to feel unhappiness. We can notice that the American case and the Japanese case provide us with opposite extremes, namely, the positive relationship between happiness and inequality in the U.S. and the negative relationship in Japan. It is interesting to search for the reasons why such opposite results appear between the U.S. and Japan.

We suggest two simple reasons. First, the American people feel that they can change their economic conditions if they make a strong effort, while Japanese people feel that they cannot change their status, even when making a strong effort to do so, because the society is so firm and closed. Second, American people are optimistic, whereas Japanese are pessimistic. Our later analysis will provide some support for this interpretation.

Both the German and French cases stay in the middle between the Anglo-Saxon countries and Japan in terms of the relationship between the degree of happiness and the related variables. Nevertheless, it is interesting to speculate about why the levels of all related variables for France are at the bottom, despite their middling level of happiness.

Our next concern is to investigate the causes of happiness. Concretely speaking: for what reasons do people feel happiness? We offer several variables likely to affect feelings of happiness and try to identify which variables are more important and less important in order to explain greater happiness. Table 7.2 presents these results.

The numbers in this table show each variable's rank in importance out of seven variables for explaining greater happiness. The figures in parentheses signify the percentage of respondents who expressed that the corresponding variable is important.

Table 7.2 Causes of happiness

Source	Country				
	United States	United Kingdom	Germany	France	Japan
<i>Male (married)</i>					
Level of household income	20.53	17.47	15.75	10.21	2.97
Level of household assets, savings	17.49	20.89	14.65	7.75	3.47
Relationships with friends	39.16	36.64	31.87	15.49	5.34
Place of residence	43.73	40.07	43.59	23.59	8.95
Amount of free time	48.67	38.01	39.93	17.61	7.17
Relationship with spouse	55.89	63.36	56.04	43.66	26.99
Sample size	263	292	273	284	2190
<i>Male (single)</i>					
Level of household income	15.22	13.17	11.32	8.57	1.91
Level of household assets, savings	15.22	14.81	10.19	7.14	2.25
Relationships with friends	31.30	28.81	25.66	10.48	5.41
Place of residence	32.17	26.75	32.08	15.71	7.66
Amount of free time	40.00	28.81	29.43	10.95	5.41
Relationship with my boyfriend (girlfriend)	41.25	21.81	28.68	28.42	3.72
Sample size	230	243	265	210	888
<i>Female (married)</i>					
Level of household income	19.49	19.33	20.14	8.42	6.12
Level of household assets, savings	17.65	19.33	16.38	5.13	4.71
Relationships with friends	46.69	49.44	44.37	13.55	10.99
Place of residence	47.06	44.24	54.95	24.54	11.65
Amount of free time	43.75	37.92	44.71	14.29	9.17
Relationship with spouse	57.72	66.91	59.04	36.63	22.81
Sample size	272	269	293	273	1210
<i>Female (single)</i>					
Level of household income	13.98	9.89	9.73	3.90	2.35
Level of household assets, savings	11.86	11.36	10.12	3.19	2.97
Relationships with friends	36.44	44.69	40.86	17.73	9.55
Place of residence	38.56	37.73	42.80	19.15	9.86
Amount of free time	43.64	38.46	42.41	11.70	6.57
Relationship with my boyfriend (girlfriend)	49.12	26.01	39.69	35.95	4.69
Sample size	236	273	257	282	639

Note: Nm = sample size of those who are married; Ns = sample of those who are single

The most fascinating observation is given by the fact that in all five countries, both men and women show that the relationship with a spouse is the most important for determining happiness. Married people find that a better relationship with their spouse is crucial in the determination of happiness. This is true not only for the

western countries (i.e., Europe and the U.S.) but also for Japan. Most significantly in people's lives, marriage and family stability provide a higher degree of happiness.

It is interesting, however, that the level of importance, as shown by the percentage figures in parentheses, differs considerably from country to country. In particular, the Japanese results are the lowest, with their values being much lower than the Euro-American figures. Since European and American people regard married life as most important, they do not hesitate to get divorced when a marriage is in trouble. Japanese people regard married life as less important, and thus they do not divorce as often.

Now we would like to say a few words about the views of single, non-married people regarding their feeling of happiness based on their relationship with their partner. A similar result with the case of married couples was observed. There are, however, several differences for single people. First, the importance of the relationship is viewed as less by single people than by married couples in the determination of happiness. Second, people in France view relationships with a boyfriend or girlfriend as being fairly important. Love is important in France.

Second, in all five countries, the level of household incomes or assets is not important in the determination of happiness. This holds true for both men and women. When evaluating their own happiness, people do not care about their momentary financial conditions. This may be a somewhat surprising result because people need to have substantial resources in order to survive. The clue for resolving this dilemma can be found in the fact that the sampled population represented in this table includes all kinds of people, from the rich to the poor. If we asked the same question of only poor people, the importance of incomes and assets is likely to increase significantly because they desire more resources to be capable of living at a reasonable level.

Third, different variables, such as relationships with friends, place of residence, and the amount of free time, lie somewhere between spouses and significant others and the effect of family incomes and assets in terms of importance in evaluating the level of happiness.

Next, we turn to several other factors that are necessary for happiness. We identified a large number of variables that are likely to affect the feeling of happiness and asked whether each of these variables is necessary for happiness. In other words, we asked whether people could feel any happiness without access to this variable. If people cannot have any possibility of having a particular variable, then life would be very unpleasant. Ultimately, we chose 15 variables. The percentages of people who answered that the variable is necessary for happiness are shown in Fig. 7.1. Some conclusions we can draw from these results are as follows.

1. Owning a home is most important for people in France, followed, in order, by the U.S., the U.K., Japan, and Germany. A similar ranking is observed for owning a car. Owning a home and a car increases physical and material assets, and French people can be viewed as appreciating these assets quite highly, while German people have the opposite taste.

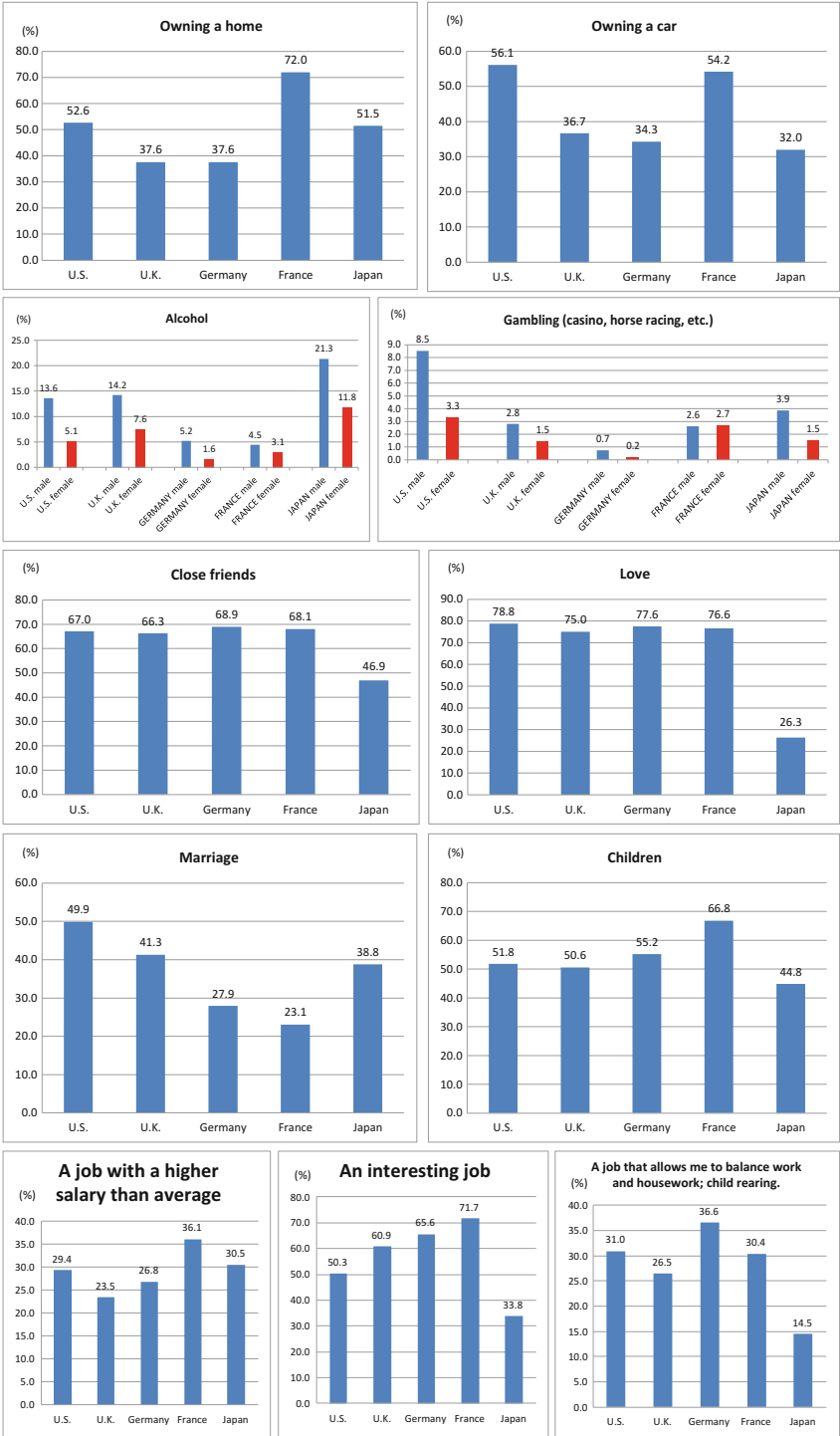


Fig. 7.1 Necessary factors for happiness

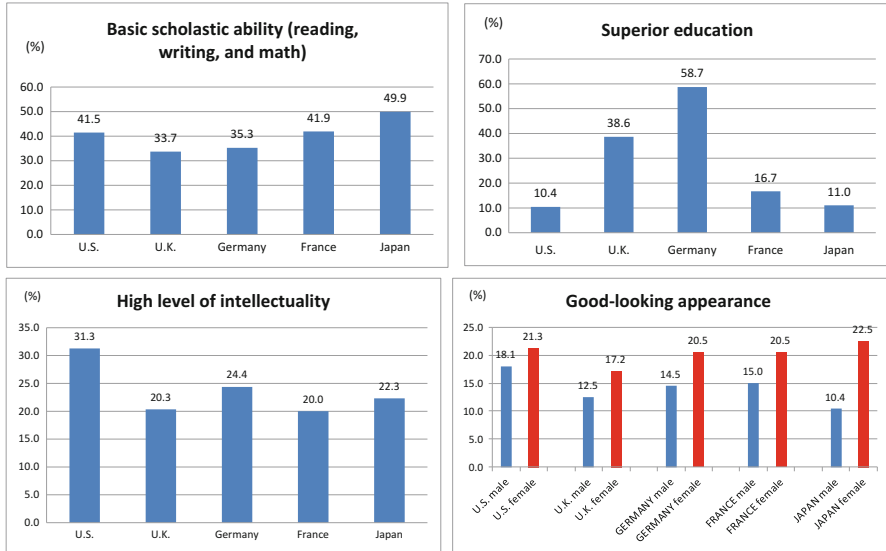


Fig. 7.1 (continued)

- Japan shows a relatively high evaluation of the importance of alcohol, while the other countries do not show such figures. However, the Germans view beer as not being alcohol, and the same thing is true for wine for the French. Thus, we have to be careful on questions about alcohol. A more solid result, however, is that men feel that alcohol is a higher necessity than women in all countries. There are not many people who appreciate gambling as necessary for happiness in any of the countries, with the exception being American men.
- There are no significant differences among the four Euro-American countries regarding the effect of close friends. Japan is the exception in this regard, with the Japanese showing a slightly lower degree of importance for friendship. An astonishing result can be seen for the influence of love because the Japanese respondents showed it as being a much lower necessity in the determination of happiness than respondents in the western countries, which all had almost the same high level of necessity, did. It is hard to prepare detailed and justifiable explanations for why the Japanese feel this way. Is love a direct outcome of animalism and sensualism or of spiritualism? Is it due only to cultural differences?
- Three countries, the U.S., the U.K. and Japan, replied that marriage is necessary for happiness, while the other two countries thought this to a lesser extent. The effect of children is different from that of marriage because France appears to value children the highest for happiness and Japan values them the lowest. Nevertheless, there is no significant difference among the five countries regarding children.

5. We now explain the next three figures that concern jobs. Almost all countries show equivalent levels for the importance of pay, and their levels are not very high, at about 30 % of respondents. An interesting job, however, is more important than pay in the Euro-American countries, with about 50–60 % expressing its importance. The exception to this is Japan, which shows only about 30 % of respondents viewing an interesting job as necessary for happiness.

The above result suggests and supports the previous finding that people do not regard income (more precisely pay or wage) as an important factor for happiness in their day-to-day lives, but instead want to choose an interesting or valuable job regardless of wage payments. Simply put, a job's character trumps its pay.

Next, we turn to work-life balance. All countries show that women evaluate it more highly than men do. This is quite understandable. The degree to which men and women differ varies somewhat from country to country.

6. The influence of scholastic ability, superior education, and intellectuality is discussed together. The most interesting result appears for the role of superior education, with the U.K. and Germany in particular viewing it as very necessary for happiness, while the U.S., France, and Japan showed fairly lower levels of necessity for this. We know that the latter three countries have high levels of university attendance and academic credentials because graduates of prestigious universities and the *grandes écoles* in France can enjoy advantageous careers in their professional lives, while the difference between the best and worst universities is quite small in Germany. The U.K. case is somewhere between these two extremes.

The Germans and the English find that a superior education is necessary for happiness, while the Americans, the French, and the Japanese do not find it to be overly important. At a glance, this is a bit strange and counterintuitive. It would seem more natural if the latter three countries had shown greater importance for a superior education for happiness.

We interpret this finding as follows. Since the people in the latter three countries know well that their countries are led by those with strong academic credentials, people who do not have a superior education view other factors besides superior education as being necessary for happiness. In other words, they have already given up on the role of education to a large extent, and try to find and use the other factors that can compensate for their disadvantage due to lower education. Thus, they indicate a lower necessity of superior education.

The German case is the opposite. Since university attendance rate in Germany is lower than in the other countries, people there find that university education is quite advantageous in their professional lives. Thus, they express the view that superior education is necessary.

The other variables examined, such as ability and intellectuality, do not show much difference between the five countries. Thus, we provide no interpretation for them. For respondents in all countries, about 20–40 % found these variables as necessary for happiness.

Last, we examine the effect of appearance. There is not much difference among the five countries regarding the necessity of having an attractive appearance for happiness. An interesting observation appears in the difference between men and women. In Japan, women are almost twice as likely as men to view appearance as necessary for happiness. The U.S. case, however, shows no significant difference. Thus, the role of appearance differs from country to country in terms of the difference between men and women.

4 Inequality and Happiness

4.1 Data Description

This section presents an analysis of inequality and happiness, and the effect of inequality on happiness. At the same time, the contribution of personality, especially various of the Big Five factors, to inequality and happiness is examined.

We explain the meaning of the dependent variables in Table 7.3. The dependent variable “inequality” is measured as the individual’s judgment of inequality on a five-point scale of whether an increasing trend toward unequal income distribution in their country is detrimental. The higher the numerical value, the more detrimental the respondent views inequality to be. In other words, a higher value implies that an individual feels that it is not good to have a high level of income inequality in his or her own country.

The next dependent variable, “happiness,” is measured by capturing individuals’ feeling of happiness on an 11-point scale. The higher the numerical value, the higher an individual’s feeling of happiness. We know that there are several shortcomings in this method of estimating one’s happiness. We followed, nevertheless, this tradition approach without modifying our method of estimating happiness.

Next, the meaning of each independent variable is briefly explained. “Income” is measured using an equivalent scale family income, adjusted by the number of family members. We adopted a value of 0.5 for equivalence elasticity in this adjustment.

Educational variables are classified by level of education completed, namely (i) compulsory education and secondary education, (ii) junior colleges and professional schools, and (iii) universities and graduate schools. Since years of schooling differ by country, it was impossible to have a common numerical scale for years of schooling in grouping educational attainment.

Employment status is classified as (i) regular, full-time employees, executives, and civil servants, (ii) non-regular, part-time employees or employees with a limited duration of contract, or with other special contracts, (iii) self-employed, including homemakers, and (iv) unemployed persons and students.

These are several dummy variables in our model, including (i) marriage (1 if married), (ii) sex (1 if female, 0 otherwise), and (iii) age. Age is binned by decade

Age	-0.113 (0.183)	-0.00639 (0.359)	0.326** (0.166)	1.350** (0.603)	0.381*** (0.143)	1.355** (0.596)	-0.0278 (0.154)	-0.707** (0.344)	0.135 (0.0873)	-1.064*** (0.160)
Age squared	0.0197 (0.0232)	-0.0200 (0.0458)	-0.0327 (0.0212)	-0.111* (0.0658)	-0.0406** (0.0180)	-0.128* (0.0669)	0.0178 (0.0202)	0.0927** (0.0455)	-0.00317 (0.0102)	0.182*** (0.0187)
Sex dummy (Female = 1, male = 0)	0.225*** (0.0761)	-0.198 (0.217)	-0.0500 (0.0683)	0.0228 (0.150)	0.0806 (0.0593)	0.523*** (0.181)	0.190*** (0.0591)	0.471*** (0.182)	0.106*** (0.0339)	0.990*** (0.0670)
Constant	4.030*** (0.346)	-3.986 (3.240)	3.348*** (0.306)	26.12*** (5.746)	3.566*** (0.266)	32.22*** (5.030)	4.149*** (0.283)	13.27*** (2.695)	3.353*** (0.179)	16.89*** (0.789)
Observations	843	843	929	929	945	945	825	825	4,850	4,850
R-squared	0.017	0.062	0.012	0.079	0.019	0.063	0.051	0.062	0.042	0.161
Sense of inequality		1.345* (0.748)		-3.430 (2.347)		-6.690*** (1.405)		-0.739 (0.638)		-1.893*** (0.205)
Equivalent income (e = 0.5)	-0.00319 (0.0154)		-0.00913 (0.0133)		-0.0134 (0.0104)		-0.0331*** (0.0113)		-0.0395*** (0.00649)	
Marriage dummy (married = 1, otherwise = 0)		0.687*** (0.134)		0.734*** (0.123)		0.587*** (0.140)		0.711*** (0.124)		1.019*** (0.0575)
Compulsory and secondary education		-0.120 (0.161)		-0.103 (0.158)		-0.191 (0.258)		-0.220 (0.145)		-0.591*** (0.179)
Junior college and professional school		-0.181 (0.154)		- (0.158)		- (0.258)		- (0.145)		-0.00420 (0.179)
University and graduate school		- (0.154)		- (0.158)		- (0.258)		- (0.145)		- (0.179)
		- (0.154)		-0.0153 (0.137)		0.392*** (0.150)		-0.366** (0.144)		- (0.144)

(continued)

Table 7.3 (continued)

Variables	United States		United Kingdom		Germany		France		Japan	
	Sense of inequality	Happiness	Sense of inequality	Happiness	Sense of inequality	Happiness	Sense of inequality	Happiness	Sense of inequality	Happiness
Regular employee	–		–		–		–		–	
Non-regular employment	0.121 (0.129)		–0.0288 (0.0885)		0.0521 (0.0998)		0.0247 (0.0903)		0.189*** (0.0441)	
Self-employed	–0.0222 (0.122)		–0.00777 (0.123)		0.0764 (0.0994)		–0.165 (0.127)		0.0430 (0.0515)	
Not working	–0.154* (0.0915)		0.00381 (0.0887)		0.0513 (0.0799)		–0.0239 (0.0717)		0.117*** (0.0415)	
Age	–0.112 (0.185)	–0.721** (0.321)	0.276* (0.166)	0.435 (0.698)	0.410*** (0.145)	1.540** (0.637)	–0.0662 (0.153)	–0.920*** (0.311)	0.123 (0.0869)	–0.956*** (0.149)
Age squared	0.0204 (0.0233)	0.0643 (0.0409)	–0.0257 (0.0211)	–0.0256 (0.0700)	–0.0449** (0.0183)	–0.155** (0.0727)	0.0221 (0.0201)	0.107** (0.0418)	–0.00127 (0.0102)	0.143*** (0.0175)
Sex dummy (female = 1, male = 0)	0.205*** (0.0778)	0.222 (0.188)	–0.114 (0.0695)	–0.128 (0.299)	0.0835 (0.0598)	0.560*** (0.186)	0.139** (0.0603)	0.433*** (0.150)	0.0674* (0.0349)	0.664*** (0.0614)
conscientiousness	0.0929* (0.0504)	0.272** (0.113)	0.0756* (0.0442)	0.624*** (0.188)	0.0181 (0.0388)	0.168* (0.0914)	0.0807* (0.0450)	0.137 (0.104)	0.0832*** (0.0195)	0.422*** (0.0374)

Openness	0.0630 (0.0489)	-0.147 (0.0976)	0.0391 (0.0417)	0.257** (0.121)	-0.00473 (0.0369)	-0.149* (0.0843)	0.0224 (0.0391)	0.0568 (0.0823)	-0.0134 (0.0195)	-0.00859 (0.0342)
Neuroticism	0.0545 (0.0514)	-0.979*** (0.0940)	0.153*** (0.0455)	-0.289 (0.372)	-0.0752** (0.0371)	-0.441*** (0.135)	0.0570 (0.0381)	-0.498*** (0.0909)	0.120*** (0.0191)	-0.142*** (0.0431)
Extraversion	-0.0343 (0.0540)	0.259*** (0.0952)	-0.0436 (0.0454)	0.102 (0.128)	-0.0314 (0.0392)	-0.00639 (0.0999)	-0.000375 (0.0434)	0.549*** (0.0888)	-0.00487 (0.0191)	0.381*** (0.0336)
Agreeableness	-0.0109 (0.0505)	-0.244*** (0.0884)	0.124*** (0.0435)	0.206 (0.306)	0.00307 (0.0378)	-0.0135 (0.0862)	0.123*** (0.0374)	0.00382 (0.115)	0.0803*** (0.0182)	0.218*** (0.0360)
Constant	4.018*** (0.354)	4.004 (2.972)	3.472*** (0.309)	20.01** (8.134)	3.525*** (0.269)	32.67*** (5.026)	4.242*** (0.281)	12.02*** (2.689)	3.380*** (0.178)	14.69*** (0.788)
Observations	843	843	929	929	938	938	825	825	4,850	4,850
R-squared	0.028	0.281	0.038	0.281	0.025	0.069	0.077	0.248	0.056	0.275

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

up to 69: 2 if 20–29 years old, 3 if 30–39, 4 if 40–49, 5 if 50–59, and 6 if at least 60 years old. We also use the square values of the age variables in order to capture any quadratic relation with age.

Detailed explanations are necessary for the personality variables, which are the psychological characteristics of each individual. These variables were used as the independent variables for inequality and happiness.

We prepared 44 questions that captured respondents' self-evaluations regarding their personalities. For example, questions were included such as "Do you finish your task perfectly?", "Are you a person who makes plans before performing your task?", "Are you a person who worries a lot?", and "Do you love to talk with other persons?". Of course, each question was quantified in order to obtain some useful information that can be used for later econometric work.

We applied factor analysis to summarize each respondent's personality, or psychological characteristics, and obtained five variables that indicate an individual person's personality in a fairly simple way. These five variables are regarded as the Big Five factors: (i) conscientiousness, (ii) neuroticism, (iii) openness, (iv) agreeableness, and (v) extraversion. Next, we provide a few words on the meaning of each item.

Conscientiousness implies that a person is reasonable, careful, sincere, and serious. Neuroticism means that a person is pessimistic, unstable, distracted, and temperamental. Openness signifies that a person is creative, imaginative, eccentric, and open to new experiences. Agreeableness signifies that a person is pleasant, cooperative, and comfortable. Extraversion indicates that a person is sociable, talkative, lively, and spirited.

It is interesting and valuable to see a simple correlation between the degree of happiness and the five personality variables. Table 7.4 presents such results. We explain the results in detail only for Japan since the Japanese dataset is the most reliable because of the large sample size, 4,927.

By observing the correlation coefficients between happiness and each personality variable, we notice that the highest positive correlation coefficient (0.34) is observed for extraversion. The next highest correlation was for conscientiousness, followed in order by openness and agreeableness. In contrast, neuroticism showed a negative correlation with happiness. Since these positive and negative correlations are explainable intuitively, we do not provide detailed interpretations. It may be useful to note, nevertheless, that a person who is sociable, talkative, lively, and spirited is more inclined to have a higher degree of happiness, while a person who is pessimistic, unstable, distracted, and temperamental tends to feel greater unhappiness. In terms of the simple correlations between the personality and psychological variables, the highest positive correlation (0.56) is observed between conscientiousness and openness, and the highest negative correlation (-0.34) is observed between extraversion and neuroticism. In particular, it is worthwhile to note that all the other variables were negatively correlated with neuroticism. These results are quite reasonable and intuitively justified. Thus, we add no further comment.

Table 7.4 Simple correlation coefficients between happiness and personality factors in G5 countries

	Happiness	conscientiousness	Openness	Neuroticism	Extraversion	Agreeableness
<i>US</i>						
Happiness						
conscientiousness	0.0953**					
Openness	0.0899**	0.5091**				
Neuroticism	0.0135	−0.3218**	−0.1534**			
Extraversion	0.0381	0.4341**	0.4515**	−0.3729**		
Agreeableness	0.0193	0.3611**	0.0521	−0.4237**	0.0032	
Sample size	1,001					
<i>UK</i>						
Happiness						
conscientiousness	0.2928**					
Openness	0.1889**	0.4567**				
Neuroticism	−0.4368**	−0.2894**	−0.1244**			
Extraversion	0.2814**	0.3142**	0.3608**	−0.3129**		
Agreeableness	0.1351**	0.3455**	0.0213	−0.4118**	−0.0226	
Sample size	1,077					
<i>Germany</i>						
Happiness						
conscientiousness	0.0285					
Openness	−0.0231	0.4567**				
Neuroticism	−0.0195	0.2894**	−0.1244**			
Extraversion	0.0467	0.3142**	0.3608**	−0.3129**		
Agreeableness	−0.0278	−0.3455**	−0.0213	0.4118**	0.0226	
Sample size	1,088					
<i>France</i>						
Happiness						
conscientiousness	0.1174**					
Openness	0.0549	0.5879**				
Neuroticism	−0.0115	−0.1816**	−0.1426**			
Extraversion	0.0482	0.5882**	0.4553**	−0.3762**		
Agreeableness	0.1806**	0.1932**	−0.0685	−0.4038**	0.1106**	
Sample size	1,049					
<i>Japan</i>						
Happiness						
conscientiousness	0.3094**					
Openness	0.205**	0.5644**				
Neuroticism	−0.3388**	−0.3428**	−0.2305**			
Extraversion	0.3445**	0.3356**	0.3718**	−0.3817**		
Agreeableness	0.0957**	0.1491**	−0.1409**	−0.266**	−0.1289**	
Sample size	4,927					

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Last, we discuss the reasons that we introduced these personality and psychological variables in our analysis of inequality and happiness. First, people are quite different with respect to their personalities and psychological characteristics. They may, therefore, be expected to have different feeling about the evaluations of inequality and happiness. Typically, an optimistic person is likely to express a higher degree of happiness than his or her intrinsic evaluation, while a pessimistic person is likely to reveal a higher degree of unhappiness than his or her intrinsic evaluation. Simply, the evaluation that appeared in the numerical values of happiness may be superficial.

Second, the observation above suggests the need to conduct a further analysis that controls for the contribution of personalities and psychological factors in the analysis of happiness. In fact, Ohtake and Tomioka (2010) estimated a happiness function by adopting a large number of independent variables for Japan, finding that there are missing and unobservable variables that explain happiness. The Big Five factors are candidates for these missing or unobservable variables. Our later analysis can be regarded as the finding that the missing or unobservable variables are equivalent to the Big Five factors.

4.2 *Empirical Analysis*

We present two models in Table 7.3. The first includes the case in which the Big Five factors are treated as independent variables, and the second excludes those variables. However, it should be noted that the two models are basically recursive (i.e., self-referential) in nature. This recursive nature assumes that the inequality variable is the dependent variable at the first stage, while at the second stage the happiness variable is the dependent variable and the inequality variable is included as an independent variable. We apply Zellner's (1963) seemingly-unrelated-regression (SUR) estimation in these models.

4.2.1 *Inequality*

The first column in the estimation results for each country shows the inequality equation without considering Big Five factors. The highest attention is paid to the effect of equivalent family income because an individual's judgment on inequality or income distribution is influenced by his or her own income. There are two possibilities. First, if the estimated coefficient is negative, it indicates the fact that people do not observe high inequality in their country. Second, if it is positive, it implies the reverse, that high inequality is observed.

The results in this table show statistically significant negative coefficients for both France and Japan, which implies that people whose income levels are higher in France and Japan find that wider income differentials are not socially unjust. This result for France is consistent with that in Alesina et al. (2004). One possible

answer may be suggested for France, namely the idea of *noblesse oblige*, implying that people with higher incomes should contribute to the society more strongly. In Japan, there is a proverb stating that people with strong powers should be more humble. Fuller discussions are needed to explain the reason why the French and the Japanese people judge inequality in this way because the historical, socioeconomic, and cultural factors must be taken into account and we have not included these in our analysis. The American, British, and German cases show no effect for family income. The U.S. case is discussed later.

Another important variable is the positive correlation with being female for the U.S., France, and Japan. Women understand that they tend to face higher income differentials than men in their countries. One interesting difference appeared between the positive coefficient for universities and graduates schools in Germany and the negative coefficient in France with respect to the effect of education. Both values are statistically significant. The difference between the two countries is somewhat curious because we have a common understanding that Germany is not a country with a high level of academic credentialism, while France is the opposite.

The British and the German cases have positive coefficients for the age variable, implying that the greater the age, the higher the degree of dissatisfaction with higher inequality. It should be noted, however, that this property becomes weaker when people in Germany are older because of the negative coefficient of age squared.

4.2.2 Happiness

The second column for each country presents the estimated results for the happiness function without consideration of the effects of Big Five factors.

The most interesting observation is given by the fact that the “inequality” variable is statistically significant in the determination of happiness for each country. Therefore, judgments on inequality (i.e., on wider income distributions) has some impact on the feeling of happiness. More specifically, the effect is positive for the U.S., while it is negative for the U.K., Germany, France, and Japan. The former implies that Americans are likely to feel higher degrees of happiness when inequality and wide income differentials are higher, while the latter implies that people in the U.K., Germany, France, and Japan are likely to feel higher degrees of unhappiness. This is consistent with the proposition given by Alesina et al. (2004) who found a similar difference between the U.S. and Europe regarding the relationship between inequality and happiness.

People in the U.S. feel happiness even when wider income differentials are observed, while people in Europe and Japan do not feel happiness when the degree of income inequality is high. American people view competition and self-reliance favorably, and thus they accept wider differentials in incomes between people regarded as capable, productive, and hard-working and people regarded as incapable, less productive, and lazy; people in Europe and Japan have a different opinion on the subject. This characteristic, namely the difference between the U.S. and Europe, led several economists to propose that the two regions have different

openness to the power of income redistribution policies (see, for examples Alesina and Angeletos (2005) and Alesina and La Ferrara (2005)) and acceptance of the state of income and social mobility (see Piketty 1995). We propose similar results as these studies from our investigation into the relationship between inequality and happiness.

Another possible reason may be suggested for the U.S. The degree of income mobility among different income classes is perceived to be high. Thus, current members of lower income groups in the U.S. are not unhappy because they expect that they can receive higher incomes in the near future if they work hard.

This study produced new information regarding Japan, since no studies of this nature have been performed in the past. For Japan, we can make similar observations as for the group of European countries. Additional observations should be described for Japan, nevertheless, in the sense that the average level of happiness was much lower than in Europe and the U.S.

4.2.3 Effect of Personalities and Psychological Variables

The effect of these variables on both the perception of inequality and on happiness is argued simultaneously. The first worthwhile result appears in the increase in the goodness of fit from the inequality equation to the happiness function by the inclusion of these personality variables. The biggest increase in the adjusted R-squared value was provided in the case of the U.S. (0.219) and the smallest increase was for Germany (0.006).

Secondly, the goodness of fit is fairly good for the happiness function in the U.S., the U.K., France, and Japan. The one exception is Germany, where there is not much difference between the inequality equation and the happiness function.

The previous two propositions suggest the following additional conclusions. It is quite useful to consider the effect of the contribution of personalities and psychological variables in the analysis of happiness functions in the cases of the U.S., the U.K., France, and Japan. Moreover, it would be misleading to estimate a happiness function without including personality and psychological variables. To do so would make the mistake of ignoring the contribution of missing or unobservable variables.

We obtain the following findings from the second model. First, the effects of conscientiousness, neuroticism, and agreeableness are statistically significant in many countries. This is true for both the inequality and happiness functions.

Second, the effect of conscientiousness is positive for the U.S., the U.K., and Japan for both inequality and happiness. The effect is positive for Germany and negative for France. The former may lead to a conflicting view at first glance because people who are conscientious in many activities accept higher inequality but have a higher level of happiness. One clue to resolve this conflict may be the fact that people who are conscientious commit to many activities with solid plans, and their success from such planned activities may lead to greater feelings of happiness.

Third, the negative effect of neuroticism on inequality in Germany is somewhat surprising because in all other countries it showed positive effects. A person in Germany who is unstable regards high inequality as bad, while a person in the U.K. and Japan does not view it as negatively.

Fourth, the effect of agreeableness gives a negative value in the U.S., which suggests that people who are altruistic or generous feel lower happiness, while people in Japan who have the same personality trait feel higher happiness. This is an interesting contrast.

Fifth, the effect of openness is statistically significant only in the U.K. and Germany in the determination of happiness, although the signs are different (Germany is negative and the U.K. is positive). People who are anxious for intellectuality and the spirit of inquiry feel greater happiness with increased openness in the U.K., while people who prefer stability feel lower happiness with increased openness in Germany.

5 Concluding Remarks

This chapter conducted an international comparative study on happiness and inequality for five industrialized countries (the G5 countries, including the U.S., the U.K., Germany, France, and Japan). Two extreme countries with respect to the degree of happiness exist: the U.S. with the highest and Japan with the lowest. The continental European countries stay somewhere between them. We provided some suggests for why such differences exist between these countries and showed how people view the importance of various factors affecting happiness through our own surveys of people in these countries.

Two important features can be proposed for this study. First, we were interested in the effect of Big Five factors on feelings of happiness. The effect of neuroticism was negative in all countries. Second, we investigated the interactions between inequality and happiness. In particular, we estimated the effect of inequality on feeling of happiness and found that the sign of the effect differed by country.

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Chapter 8

Happiness, Social Cohesion and Income Inequalities in Britain and Japan

Dimitris Ballas, Danny Dorling, Tomoki Nakaya, Helena Tunstall, Kazumasa Hanaoka, and Tomoya Hanibuchi

1 Introduction

Politics was once seen as a way of improving people's social and emotional well-being by changing their economic circumstances. But over the last few decades the bigger picture has been lost. People are now more likely to see psychosocial well-being as dependent on what can be done at the individual level, using cognitive behavioural therapy – one person at a time – or on providing support in early childhood, or on the reassertion of religious or family values. However, **it is now clear that income distribution provides policy makers with a way of improving the psychosocial wellbeing of whole populations**. Politicians have an opportunity to do genuine good (Wilkinson and Pickett 2009: 233; our emphasis)

D. Ballas (✉)

Department of Geography, University of Sheffield, Sheffield, UK
e-mail: d.ballas@sheffield.ac.uk

D. Dorling

School of Geography and Environment, University of Oxford, Oxford, UK
e-mail: danny.dorling@ouce.ox.ac.uk

T. Nakaya

Department of Geography, Ritsumeikan University, Kyoto, Japan
e-mail: nakaya@lt.ritsumei.ac.jp

H. Tunstall

School of Geosciences, University of Edinburgh, Edinburgh, UK
e-mail: helena.tunstall@ed.ac.uk

K. Hanaoka

Department of Geography, Tohoku University, Sendai, Japan
e-mail: hanaoka@irides.tohoku.ac.jp

T. Hanibuchi

School of International Liberal Studies, Chukyo University, Nagoya, Japan
e-mail: info@hanibuchi.com

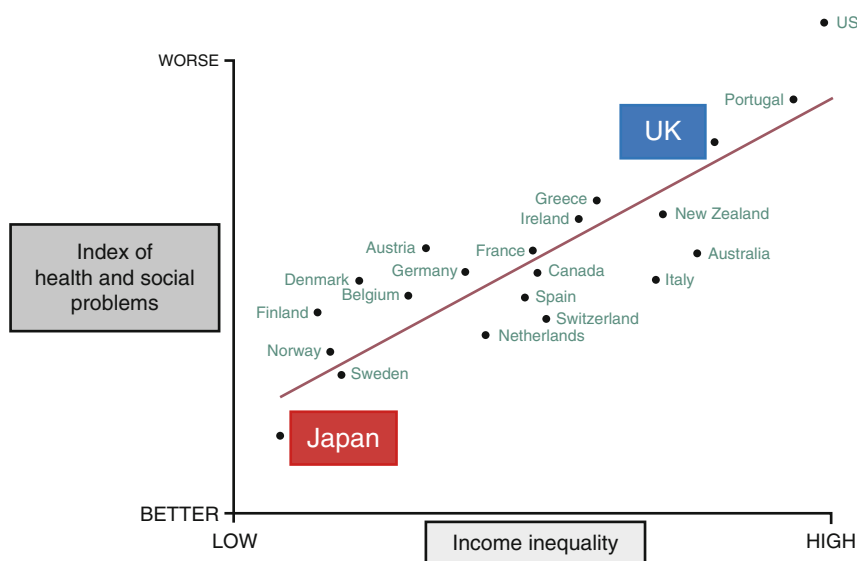


Fig. 8.1 Japan and the UK in the spirit level (After Wilkinson and Pickett 2009; <http://www.equalitytrust.org.uk>)

The above quotation is from the popular book entitled “The Spirit Level: Why More Equal Societies Almost Always Do Better”. This text describes the relationship between income distribution and well-being in affluent countries suggesting it is mediated through psychosocial pathways shaping the impacts of economic structure upon social relationships. In this model lower income inequality is seen to result in societies with more cohesion, greater trust and cooperation and lower social stress. Wilkinson and Pickett (2009) present evidence suggesting that social and economic policies affecting the income distribution of a society can make a huge difference to the psychosocial well-being of the whole populations of this society. For instance, according to the evidence used in this book if income inequality were halved in the UK then the murder rates in the country and obesity rates would also halve, mental illness could be reduced by two thirds, imprisonment could reduce by 80 %, teen births could reduce by 80 % and levels of trust could increase by 85 % (The Equality Trust 2011).

According to “The Spirit Level” research evidence Japan is more equitable and hence harmonious than other industrialised affluent countries (see Fig. 8.1), whereas Britain is one of the most unequal and so disharmonious. In this chapter we present on-going research, building on “The Spirit Level” work, aimed at exploring issues of income inequality, social cohesion, happiness and well-being in Britain and Japan. In particular, the key aim of our research is to address the subjects that have been central to recent controversies regarding health, happiness and social wellbeing in Japan and Britain.

In this chapter we argue the case for a comparative study of social cohesion between Britain and Japan. We discuss issues pertaining to the relationships

between income inequality, health, happiness and well-being and we argue that data on income inequality can be a very good proxy for general happiness, given the overwhelming evidence suggesting that the income distribution of a society affects the psychosocial well-being of the whole populations of this society. In particular, the remainder of this chapter is organised as follows: Sect. 2 discusses the importance of comparative study of social inequality, health, well-being and happiness in Britain and Japan. Section 3 reviews research regarding health, social and spatial inequality in Japan and Britain. Sections 4 and 5 discuss the data and methods that we have at our disposal, and also some of the results of the analysis that we have conducted to date, drawing heavily on and discussing further the evidence and theoretical debates presented in recently published relevant work (Ballas 2013; Ballas et al. 2013). Section 6 discusses issues pertaining to happiness and well-being in Britain and Japan and presents a research agenda for further work. The final section offers some concluding comments.

2 Why Compare Britain and Japan?

The Japanese do not die during the first precarious months after birth, enjoying as they do the lowest infant mortality on earth. They do not die on the battlefield because their constitution prevents them from going to war. Thanks to social bonds and neighbourhoods that are relatively intact, they do not die of street crime. Violence, though hardly unknown, is not a major cause of death. They don't kill themselves eating too much junk food or drinking too much alcohol. Fatal traffic accidents have been declining steadily. And medical research is making progress improving the protection from coronary heart disease and cancer, the two leading causes of death in Japan. (Coulmas 2011: 1)

Britain is an unequal country, more so than many other industrial countries and more so than a generation ago. This is manifest in many ways – most obviously in the gap between those who are well off and those who are less well off. (Hills et al. 2010: 1)

Japan is a world leader in health with currently the highest life expectancy of any country (United Nations 2011). Life expectancy in Japan first overtook that in other countries in the 1970s and has retained this ranking ever since (Yanagishita and Guralnik 1988). In addition, according to a recent study comparing self-rated health and socio-economic status in East Asia, Japan has a relatively low level of health inequality (Hanibuchi et al. 2012). Britain, in contrast, has relatively poor health and has established a place near the bottom of the life expectancy rankings in comparison to other industrialised countries (Marmot and Davey Smith 1989).

A small number of public health and demography research studies since the 1980s have examined the causes of high life expectancy in Japan (Johansson and Mosk 1987; Marmot and Davey Smith 1989; Bezruchka et al. 2008; Horiuchi 2011). These studies have suggested this good health may be related to low rates of poverty and income inequality and a socially collaborative and supportive culture. The remarkable longevity of Japan's population has however only recently begun to attract wider popular interest and debate beyond health and demography academics. This interest has been encouraged by the publication of "The Spirit Level" book discussed in the Introduction. This book, building on several decades of academic

research, has popularised the ‘income inequality hypothesis’, drawing public and political attention to the theory that more equal societies have greater health and social well-being. International comparisons of industrialised countries within the “The Spirit Level” have brought to wide notice the perception that Japan is an exemplar of the value of greater equality with better health and fewer social problems than other industrialised nations. While Britain is highlighted in this book as an example of an industrialised country with relatively poor health, high income inequality and marked social divisions.

Within Japan a self-image of the country as a highly egalitarian ‘90 percent middle-class society’ has been commonly held among the population in the post war era (Tachibanaki 1998). However, this characterisation of Japan has been challenged significantly following the publication of the ground breaking book “Confronting Income Inequality” in Japan in 1998 by Japanese economist Toshiaki Tachibanaki. Some analysis of income data in Japan has suggested that income inequality in Japan has grown in recent decades and is now relatively high compared to other industrialised countries (Tachibanaki 2006; Ohtake 2008). Japanese social researchers have also increasingly focussed upon the problem of poverty in Japan (Abe 2010, 2011). Paradoxically therefore, increasing attention in Britain, and internationally, has recently become focussed upon Japan’s socio-economic equality following a period in which many Japanese researchers have decisively rejected this characterisation of their countries’ social structure.

In Britain, several critics of the “The Spirit Level” have produced publications attacking the income inequality hypothesis and questioning the international comparisons contained in the book (Sanandaji et al. 2010; Saunders 2010; Snowdon 2010). They too have focussed upon Japan because of its significance as an exemplar of the income inequality hypothesis and have questioned the role of income inequality in explaining high life expectancy in Japan. These critics have suggested instead that Japan’s good health is explained by the genes, diet or the ‘racial’ and cultural homogeneity of its population.

Japan and Britain therefore not only have marked differences in their health and social equality and well-being but also have, in different ways, been at the centre of recent international academic and political debate regarding these issues in industrialised countries. Differences in health and social inequality in these countries are also of particular interest because of the characteristics that these countries have in common. Both are high income, island nations, dominated by world cities whose populations benefit from universal health care (Nakaya and Dorling 2005). These similarities allow comparisons of Japan and Britain to operate as a ‘natural experiment’ focussed upon the divergent health, well-being, happiness and socioeconomic characteristics of their populations.

Relatively little research has however directly compared well-being, health, happiness and social inequalities in Britain and Japan. One study completed in the 1980s used comparison of Japan and England and Wales to assess why the Japanese were living longer (Marmot and Davey Smith 1989). An analysis of socioeconomic inequalities in physical functioning and perceived health has also compared government employees in Britain, Japan and Finland (Martikainen et al.

2004). Finally, Nakaya and Dorling (2005) compared the relationship between regional income inequalities and death rates in Japan and Britain. The aim of the research presented in this chapter is to build upon these studies by conducting further analysis of appropriate data sets in Britain and Japan and in particular to estimate the levels of inequality using the best and most suitable available data sets in both countries. Before this analysis is introduced, we briefly review some pertinent research regarding the relationship between socio-economic status, health and happiness.

3 The Relationship Between Individual Socio-economic Status, Health and Happiness

Explanations for Japan's record of good health which are based on theories regarding the social and economic structure of the country imply that the relationship between *individual* socio-economic status and health may also be distinctive in Japan. Arguments stressing the importance of income equality and social cohesion suggest that individual socio-economic status in Japan is less strongly associated with health than in other industrialised countries. This may be either because Japan has less steep socio-economic gradients or because aspects of the culture protect the health of those at lower social status from the potentially harmful effects of their social position.

The risks to health associated with low socio-economic status in industrialised countries have been established by a large body of research in a range of countries (Marmot and Wilkinson 2005). Britain has a strong tradition in public health, epidemiology and health inequalities research and has been close to the centre of this research investigating the relationship between socioeconomic status and health for several decades. There are numerous studies in Britain demonstrating the existence of social gradients in health, by income, occupation, socioeconomic class, education level, material living standards and area deprivation, for a broad range of causes of morbidity and mortality in most socio-demographic groups in the population (Marmot and Wilkinson 2005).

In Japan, in recent decades there has also been a growing research literature investigating the relationship between socioeconomic status and health, encouraged in part by growing concern about increases in income inequality and social disparities. While this research has demonstrated there is an association between individual socioeconomic status and health in Japan it also suggests that this relationship is different from that in other industrialised countries. A narrative review of this literature by Kagamimori et al. (2009) identified 45 references on this relationship from research articles published between 1990 and 2007 and other influential research reports published prior to 1990. They conclude that these studies indicate that "... socioeconomic differences in mortality, morbidity and risk factors are not uniformly small in Japan, but occur to a smaller degree than in the US or Europe" (2009, p. 2159). In a discussion of research assessing socio-economic

differential in mortality and health in Japan Horiuchi also suggests: "... whereas the overall relationship of SES [socio-economic status] to mortality and health in Japan is in the expected direction, the association appears to be weak, inconsistent, and often anomalous" (2011, p. 165).

Notable 'anomalous' results in Japan include research that has found ischemic heart disease risk to be lower among less educated Japanese men (Fujino et al. 2002). Some research in Japan also suggests that the relationship between socio-economic status and health varies significantly by age group. In particular, analysis of Japanese men in advanced old age has found that those with less education lived longer than those that were better educated (Liang et al. 2002). These findings regarding age imply that there may be significant variations in the social determinants of health between cohorts in Japan and that the relationship between socio-economic status in Japan and Britain differs in part because the countries have different experience of economic development and the epidemiological transition.

It should also be noted that differences in health status are very likely to be linked to differences in well-being and happiness. Health status and health-related variables consistently stand out as an extremely important factor affecting happiness, with studies consistently reporting a high positive correlation between well-being and physical and psychological health (Ballas and Dorling 2007; Dolan et al. 2007; Michalos et al. 2000; Frey and Stutzer 2002).

Among studies that explicitly measure happiness and well-being, of particular relevance to this chapter is the work of Oshio and Kobayashi (2010, 2011) who investigated the relationship between income inequality and perceived happiness and self-rated health in Japan and found that people living in areas of high inequality tend to report themselves as both unhappy and unhealthy, even after including a number of control variables. In Britain, Clark (2003) used data from the British Household Panel Survey to show that the well-being of unemployed people is strongly positively correlated with reference group unemployment at the regional and household level, suggesting that "unemployment hurts, but it hurts less when there are more unemployed people around" (Clark 2003: 346). Also, more recent research by Ballas and Tranmer (2012) combined the British Household Panel Survey with census data in order to explore levels of happiness and well-being at the individual, household, district and regional level. Their findings suggested that most of the variation in happiness and well-being is attributable to the individual level, some variation in these measures was also found at the household and area levels. However, this geographical variation in happiness was not found to be statistically significant when controlling for a number of pertinent socio-economic and demographic variables. However, the lack of statistical significance of place at the district level may have been due to the small sample size (Ballas and Tranmer 2012) and that there is a need for further investigation of the impact of geographical and social context upon happiness.

It should also be noted that the influence of social justice issues, social inequality and context in general has long been identified and discussed in the social sciences:

A house may be large or small; as long as the neighboring (*sic*) houses are likewise small, it satisfies all social requirement for a residence. But let there arise next to the little house a palace, and the little house shrinks to a hut. The little house now makes it clear that its inmate has no social position at all to maintain, or but a very insignificant one; and however high it may shoot up in the course of civilization, if the neighboring (*sic*) palace rises in equal or even in greater measure, the occupant of the relatively little house will always find himself more uncomfortable, more dissatisfied, more cramped within his four walls. (Marx 1847)

More recently it has been argued that people compare themselves most with their “near equals” (Runciman 1966) and in particular to their colleagues, friends, neighbours or so called “reference groups” and this in turn has an impact on happiness and health (Layard 2005). As Clark and Oswald (2002) point out, the group of people to whom we compare our income is thought to be our “peer group”, defined as “people like me” (of the same sex, age and education). Most of the empirical studies that examined comparison effects to date have focused on relative income. Research into the impact of income on happiness highlights the importance of relative income and income-rank, given that an individual’s position in the income distribution is also an indicator of how they are “valued”. Income is a means of communicating their relative status in the social hierarchy (Alesina et al. 2004; Ballas 2013; Ballas et al. 2007; Clark and Oswald 1998; Frank 1985, 1999, 2007; Layard 2005). This occurs despite incomes not often being explicitly known. In fact it is because income is so important in relation to status that we tend not to let others know our exact incomes, but they can be guessed at roughly from our consumption patterns, job titles and simply residential addresses (for a more detailed discussions of these issues and how they relate to social and spatial inequalities in happiness and well-being see Ballas 2013).

In addition, as noted above, “The Spirit Level” work (Wilkinson and Pickett 2009) presented new compelling evidence on the relationship between income inequality and a wide range of different health and social problems. Of particular relevance to our research is the evidence pertaining to the relationship between income inequality and physical and mental health, trust and community life (see Fig. 8.2) and that of income inequality and child well-being (see Fig. 8.3). Even within wealthy Western nations, outcomes in these and other areas are very substantially worse in more unequal societies. These findings highlight clearly the role of social and geographical context with regard to a wide range of factors that are associated with happiness.

It should also be noted that a key relevant argument is that low income inequality leads to higher levels of trust which can be associated with notions of cooperation and ‘friendly competition’, which in turn helps to improve economic efficiency. Figure 8.2 illustrates the relationship between a measure of trust and income inequality. Nevertheless, it is difficult to operationalise and quantify measures of ‘friendly competition’. Perhaps a good example of a ‘friendly’ competition that can be quantified and measured using publicly available data is that of getting to work without blocking the roads with a car. Figure 8.4 uses a different measure of inequality to that of the ‘Spirit Level’, drawing on recent work on ‘Inequality



Fig. 8.2 “Community life” and income inequality

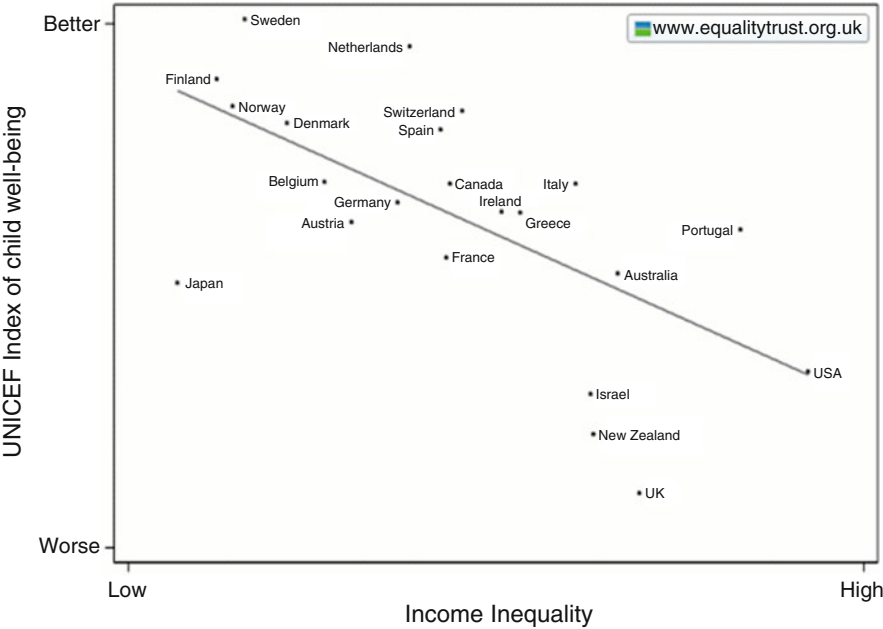


Fig. 8.3 “Child well-being” and income inequality

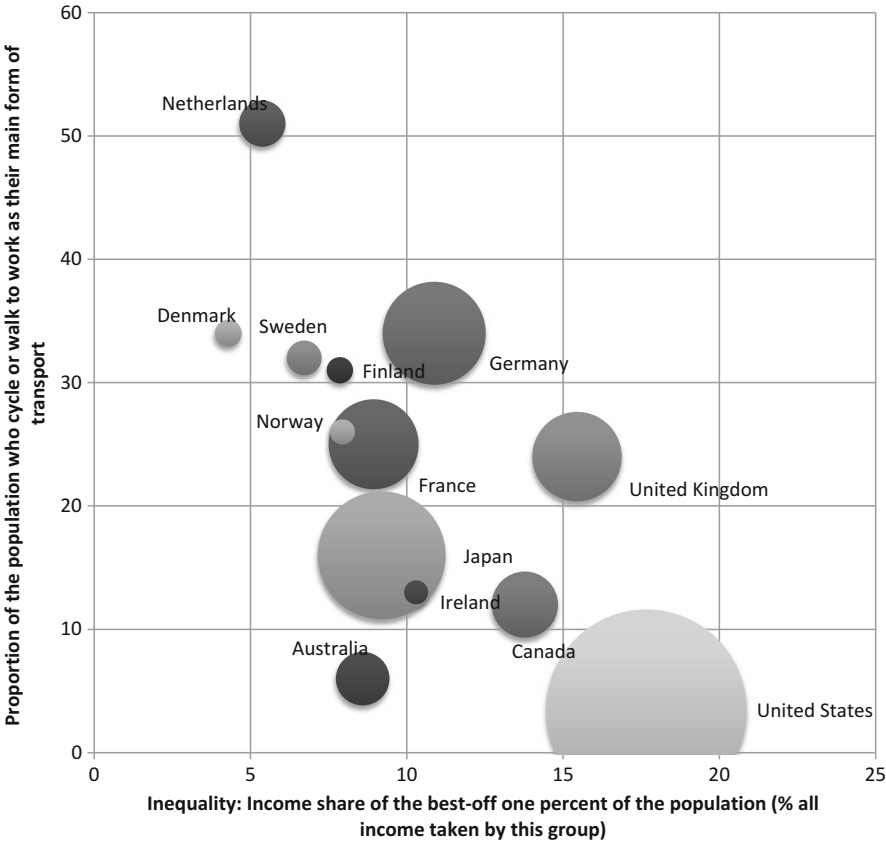


Fig. 8.4 Income inequality and ‘friendly competition’ (Data sources: Paris Top income dataset and on cycling and walking for Japan 16 % of workers and 25 % of students from: <http://www.tokyobybike.com/2013/10/how-many-japanese-cycle-to-work.html>; Buehler, R. and Pucher, J. (2012) Walking and cycling in Western Europe and the United States: trends, policies, and lessons, TR News 280, May-June: <http://onlinepubs.trb.org/onlinepubs/trnews/trnews280WesternEurope.pdf>)

and the 1 %’ (Dorling 2014) and provides an example of a possible measure of ‘friendly competition’ (the proportion of the population in each country that go to work on foot or by bicycle). Walking or cycling to work could be seen as a form of “friendly competition” (compared to commuting by car). As can be seen, there is an apparent relationship between these measures, but it is interesting to note that only 3.5 % of the US population walk or cycle. It should also be noted that there may be some measurement issues pertaining to people who combine two or more modes of transport (and which may be particularly relevant for countries like Japan, for which the figure appears higher than what perhaps we should expect), as the proportion would not include people taking the train and walking). In any case, this Figure highlights another important dimension of income inequality and its impacts

on trust and well-being, but also efficiency and competitiveness, and could be used to form a strong counter-argument to those that believe that inequality may be good for economic efficiency. It should be noted however that because so many people in Japan travel to work by train or bus, fewer walk to work than in the UK. This is despite car use being so much lower in Japan as compared to the UK. The figures are also affected by how people who use multiple means of travelling to work prioritise the one they say they use when asked. It is possible that people who walk a part of their journey to work in the UK are more likely to say they walk to work than someone undertaking the same journey in Japan.

4 Data and Methods

The above discussion highlights the importance of considering income and wealth inequalities when analysing subjective happiness and well-being. In this and the following section we draw on and expand on analysis and evidence presented in recently published relevant work (Ballas et al. 2013) in order to build upon the debate surrounding ‘The Spirit Level’, focusing on Britain and Japan. In the context of our-ongoing research, we conducted a thorough review of datasets in both Japan and Britain that include sources of income that could be potentially used to compare inequality between the two countries (for more details see Ballas et al. 2011). We found that there were far less datasets containing individual and household income in Japan than in Britain. In particular, we identified only one dataset in Japan that is available in microdata form and has information on income measured in absolute terms (not banded). This is the *National Survey of Family Income and Expenditure*, which is commissioned by the Ministry of Japanese Internal Affairs and Communications and conducted by the Statistics Bureau. The survey is aimed at providing a picture of aspects of Japanese citizens’ lifestyles such “as national and regional household consumption, income and asset levels, composition and distribution through a comprehensive survey of items such as household income and expenditures, savings and liabilities, consumer durables, residences and residential property” (Japanese Statistics Bureau 2008). The survey was first conducted in 1959 and repeated every five years since then. Until recently these data were only available to government officials, but in the last year the Japanese Statistics Bureau has made it possible to apply for data for use in academic research. In particular, digital survey microdata sets for the years since (and including) 1989 are available subject to successful application to the Bureau. The survey has a sample size of over 50,000 households (excluding student households and non-Japanese households) and it includes information on sources of gross income as well as tax, national social insurance contributions and other deductions. The income recorded is released in absolute values (rather than banded) but incomes of 25 million yen are top coded. The dataset also includes a set of weights that can be used to deal with sample bias by adjusting by known population totals.

In the UK, the survey dataset with the largest sample size is the *Family Resources Survey (FRS)* and its refined *Households Below Average Income (HBAI)* version. The latter dataset builds on the data produced by the FRS in order to ensure that household income data are properly comparable between households. This involves a process known as “equivalisation” adjusting the raw income figures produced by the FRS to take into account variations both in the size and composition of the household (Adams et al. 2010; Palmer 2011). The survey includes gross and net income data with the incomes of “very rich” households adjusted to correct for under-reporting of very high incomes in the FRS, which has been identified by comparison of the FRS with data from the Survey of Personal Incomes (Adams et al. 2010). The HBAI is also widely seen as the key dataset for the analysis of income poverty and inequalities in Britain (Palmer 2011; Hills et al. 2010).

After identifying the most suitable datasets to conduct a comparative study between Britain and Japan the next step was to ensure that the variables in the analysis were appropriate and comparable. As noted above, the HBAI dataset included equivalisation adjustment to the income values to allow for household size and composition (Atkinson 1983; Adams 2010). The HBAI data includes calculated equivalence figures for each household using the McClements and OECD methods (before and after housing costs; for more details see Adams 2010: 213). For the purposes of the research presented here we used the OECD equivalence scales before housing costs. In particular, we used the existing figures in the HBAI and we calculated the scales for the Japanese National Survey of Family Income and Expenditure data set, using the household size and composition information.

Once we had collected and calculated income data for Japan and Britain that were suitable for comparison, we calculated the following measures of income inequality:

- *The median quintile ratio*: this is the median income of the richest 20 % of the population divided by the median income of the poorest 20 %. This ratio is also known as the ratio of top to bottom quintile medians and is widely used in the analyses of HBAI datasets conducted by the DWP (e.g. see Adams et al. 2010).
- *The mean quintile ratio*: this is the mean income of the richest 20 % of the population divided by the mean income of the poorest 20 %. This is also known as the ratio of top quintile share to bottom quintile share and it was the key measure used in ‘The Spirit Level’.

5 Comparing Income Inequality Measures in Japan and Britain, 1989–2009

Table 8.1 presents the quintile group household income medians in Japan for all the years for which we had income data from the *National Survey of Family Income and Expenditure*.

As can be seen, the *median quintile ratio* increases throughout the 1990s from 3.7 in 1989 to 4.08 in 1999 before dropping to 3.99 in 2004 (after Ballas et al. 2013).

Table 8.1 Quintile group gross annual income medians and median quintile ratios, Japan 1989–2004

Year	Quintile group medians						Median quintile ratio
	1	2	3	4	5 ^a	Population mean ^a	
2004	219	341	446	584	875	509	3.99
1999	231	364	479	627	945	545	4.08
1994	235	363	474	610	904	536	3.85
1989	201	306	394	507	746	448	3.70

Data source: National Survey of Family Income and Expenditure
10,000s of Japanese Yen

^aIncomes over 2,500 were top-coded

Table 8.2 Quintile group gross annual income means and mean quintile ratios, Japan 1989–2004

Year	Quintile group means						Mean quintile ratio
	1	2	3	4	5 ^a	Population mean ^a	
2004	207	340	446	587	965	509	4.67
1999	217	365	481	632	1030	545	4.74
1994	221	364	475	617	1006	536	4.56
1989	190	306	396	511	837	448	4.41

Data source: National Survey of Family Income and Expenditure
10,000s of Japanese Yen

^aIncomes over 2,500 were top-coded (after Ballas et al. 2013)

Table 8.2 shows the quintile group means (annual income) and mean quintile ratios for Japan from 1989 to 2004. A similar pattern is observed: an increase from 4.41 in 1989 to 4.74 in 1999 before dropping to 4.67 in 2004. It is also interesting to note that the mean income of the bottom quintile decreased in nominal terms between 1994 and 1999 and dropped even further by 2004. The mean income of all the other quintiles (and the overall population mean) dropped 1999–2004.

Table 8.3 shows the quintile group gross income medians (household weekly income) and median quintile ratios for the UK in the years for which we had available data from the FRS that matched the respective years for which we also had similar data for Japan as well as the most recent median quintile ratio calculated using the most recently released data (2008/2009). As can be seen the ratio is much higher than its Japanese counterpart in all years. Looking at the trends through time, there is an increase in the ratio between 1994/1995 and 1990/2000 from 5.09 to 5.23. The ratio then drops to 4.99 in 2004/2005 before and rises again to 5.14 in 2008/2009. In the most recent year for which we have available data for both countries (2004/2005) the UK median quintile ratio is higher by 1, whereas the highest difference is recorded in 1994/2005 (1.24).

Table 8.4 shows the quintile group means of gross income and the mean quintile ratios. Comparing it to the respective Japanese figures we can see that the ratios are much higher in Britain (and the gap is even larger than the difference in the quintile group medians). The highest difference in the mean quintile ratio between

Table 8.3 Quintile group gross weekly income (in GBP) medians and median quintile ratios, UK 1994–2009

Year	Quintile group medians						Median quintile ratio
	1	2	3 (median)	4	5 ^a	Population mean	
2008/2009	232	363	516	730	1192	681	5.14
2004/2005	202	313	447	626	1008	577	4.99
1999/2000	160	247	368	524	837	473	5.23
1994/1995	129	193	289	412	656	363	5.09

After Ballas et al. (2013)

Table 8.4 Quintile group gross weekly income (in GBP) means and mean quintile ratios, UK 1994–2009

Year	Quintile group means						Mean quintile ratio
	1	2	3	4	5	Population mean	
2008/2009	199	365	518	735	1590	681	7.99
2004/2005	188	314	449	633	1302	577	6.93
1999/2000	150	248	369	528	1071	473	7.13
1994/1995	119	195	291	417	794	363	6.65

After Ballas et al. (2013)

Table 8.5 Comparing quintile ratios between Britain and Japan

Inequality measure/year	1994	1999	2004
Median quintile ratio in Japan	3.85	4.08	3.99
Median quintile ratio in the UK	5.09	5.23	4.99
<u>Difference</u>	<u>1.24</u>	<u>1.15</u>	<u>1.00</u>
Mean quintile ratio in Japan	4.56	4.74	4.67
Mean quintile ratio in the UK	6.65	7.13	6.93
<u>Difference</u>	<u>2.09</u>	<u>2.39</u>	<u>2.26</u>

After Ballas et al. (2013)

the two countries is recorded in 1999 (7.13 in Britain and 4.74 in Japan). Table 8.5 summarises the mean and median quintile ratios and their differences for the years for which we had data for both Britain and Japan.

The findings presented above support “The Spirit Level” work, suggesting that income inequality in Japan has consistently been significantly lower than in Britain. Nevertheless, in order to be able to confirm this we need to obtain disposable income data on both countries.

6 Comparing Subjective Happiness and Well-Being Between Britain and Japan: Setting a Research Agenda

We have argued throughout this chapter that income inequality is a very useful and appropriate proxy for happiness. Therefore, the analysis presented in the previous section is very important when considering the psychosocial well-being of the whole populations of this society. As noted in Sect. 3, Oshio and Kobayashi (2011) have shown that income inequality in Japan is associated with subjective happiness and self-rated health status. It is worth emphasising that one of the key findings of their analysis is that individuals living in areas of high inequality tend to have lower subjective happiness, even after controlling for various individual and regional factors. This finding is consistent with the ‘Spirit Level’ hypothesis and the arguments that we have made throughout this chapter. There are no similar studies linking income inequality and happiness in Britain at the regional and local level. Nevertheless, the analysis of Ballas and Tranmer (2012) which was briefly discussed in Sect. 3 suggested that unemployed people were on average happier in areas of high unemployment, a finding consistent with previous research by Clark (2003). This is also consistent with relevant work by Powdthavee (2007) examining the role of social norms in the relationship between happiness and unemployment and suggesting that unemployment appears to be less detrimental to happiness in regions where the rate of unemployment is high.

The data that we had at our disposal to explore income inequalities in Britain and Japan did not include any variables pertaining to subjective happiness and well-being. The next step in our research project will be to explore social and spatial inequalities in subjective happiness attainment using the datasets used by Oshio and Kobayashi (2011) and Ballas and Tranmer (2012) in Japan and Britain respectively. In particular, our research agenda involves addressing within each country as well as between the two island countries questions such as:

1. What are the factors that influence different types of individuals’ happiness?
2. Is the source of happiness or unhappiness purely personal or do contextual factors matter? (and if they do, to what extent?)
3. If social comparisons are important, what is the spatial scale at which people make their social comparisons?

The first question has already been addressed to a great extent by researchers in both Britain (e.g. see Ballas and Dorling 2007, 2013; Clark and Oswald 2002; Oswald 1997; Dolan et al. 2007; Peasgood 2008) and to some extent in Japan (Oshio and Obayashi 2011; Uchida et al. 2004). The second question, regarding context, has addressed to some extent in Britain (Ballas and Tranmer 2012; Clark 2003) and to a greater extent in Japan (Oshio and Obayashi 2011). The third question remains largely unanswered mainly due to data availability issues, although the income inequality and analysis of ‘unemployment as a social norm’ discussed above have provided some clues.

It should also be noted that the inequality in income distribution in both Britain and Japan have important geographical manifestations which need to be considered when looking at the spatial dimension of subjective happiness and well-being. For instance, Dorling et al. (2007) have shown that Britain has been experiencing increasing levels of socio-economic spatial polarisation and that the country is moving back towards levels of inequality in wealth and poverty last seen more than 40 years ago. In addition, a more recent report (Dorling et al. 2008) shows how British society has been moving towards demographic segregation and economic polarisation, social fragmentation and political disengagement since at least the late 1960s. It has also been argued that these processes of socio-economic polarisation also operate at smaller area levels within British cities (Thomas et al. 2009). On the other hand, it has often been argued that such spatial disparities are much less common in Japan (e.g. see Fujita and Hill 1997). Nevertheless, there have also been studies suggesting that this is not always the case (e.g. see Fielding 2004) and to that end there have also been efforts to highlight differences in lifestyle and socio-economic status using commercial geodemographic classification techniques such as that of Mosaic:

Mosaic Japan is a geodemographic segmentation. It classifies consumers according to the type of neighborhood in which they live, and is based upon the well established principle that when people are deciding where to live they naturally prefer to live amongst people with similar demographics, lifestyles and aspirations to their own (Mosaic Japan 2011)

It is interesting to note that one of the authors of this chapter (Nakaya 2011) have recently successfully linked the Mosaic Japan small area residential classification data to the *Japanese General Social Survey* (which contains subjective happiness data and which is the dataset used by Oshio and Kobayashi 2011, as discussed above). There also similar geodemographic classification attempts in Britain by the same commercial group that created the Japanese data (see Mosaic UK 2009) but also non-commercial ‘open’ geodemographic classifications (Vickers and Rees 2007; Vickers 2010; Vickers and Pritchard 2010) which could potentially be linked to British survey data containing subjective happiness and well-being variables (such as the British Household Panel Survey, which was used by Ballas and Tranmer 2012 as discussed above). Such combinations of national survey data with geographical small area data can help us explore further possible answers to the second and third research question listed above. In particular, the geodemographic classification description can be seen as another proxy for social and geographical context. Also, by analysing the relationship between ‘type of place’ and ‘subjective happiness’ we could have more information on what might matter in terms of social comparisons. Table 8.6 shows the major Mosaic geodemographic classification groups in Japan (Mosaic Japan 2011) and UK National Geodemographic classification in Britain (Vickers and Rees 2007), giving a flavour of what kind of information is included.

Our on-going research in the context of the project presented in this chapter will aim to explore the relationship between ‘type of place’ and ‘subjective happiness’ attainment, building on the work that we reviewed above.

Table 8.6 Geodemographic classification groups in Japan and Britain

Mosaic group Japan	UK national geodemographics
A Metropolitan Careerists	1: Blue Collar Communities
B Graduate Newcomers	2: City Living
C Campus Lifestyles	3: Countryside
D Older Communities	4: Prospering Suburbs
E Middle Japan	5: Constrained by Circumstances
F Corporate Success Story	6: Typical Traits
G Burdened Optimists	7: Multicultural
H Social Housing Tentants	
I Blue Collar Owners	
J Rural Fringe	
K Deeply Rural	

Source: <http://www.mosaicjapan.com/>; http://www.sasi.group.shef.ac.uk/area_classification/

7 Concluding Comments

The research presented here aims at advancing our knowledge about well-being, happiness and social cohesion in Britain and Japan. It can be argued that the findings so far support the Spirit Level work. Nevertheless, in order to be able to confirm this we need to enhance the analysis with the use of disposable income data on both countries. We have such data for Britain but not for Japan. One of the next steps in our analysis will be to estimate disposable income for Japan by applying appropriate income tax rates on the gross figures that we have. Also, we will explore the possibility of requesting from the Japanese Statistics Bureau individual earner data for each household that will enable us to carry out a more accurate estimation of disposable income.

Another key aim of the project presented here is to examine the geography of subjective happiness and well-being in Japan and to explore links with social cohesion and social capital. Unfortunately there has been limited progress in relation to this aim due to data limitations. Nevertheless, as discussed in this chapter there are a number of interesting possibilities of adding a geographical dimension to happiness research.

Overall, the arguments and analysis presented in this chapter suggest that income inequality at the national level can be seen as a proxy to the psycho-social well-being of whole populations, which is also a key thesis of the Spirit Level work. These arguments are also extremely relevant to cross-country comparisons of happiness, which are widely believed to be affected by cultural differences in expressing happiness. The discussion presented in this chapter suggests that having good quality income data and estimates of income inequality measures is very important when comparing subjective measures of happiness and well-being between countries, especially given the cultural (Dorling and Barford 2009; Tiberius 2004; Lu and Gilmour 2004; Uchida et al. 2004), as well as possible linguistic

issues (Veenhoven 1993), that affect the responses to happiness questions in surveys in different countries. In addition, the degree to which people's responses to such a question may or may not reflect their true feelings is affected by geographical and cultural context. People living in societies where personal modesty is valued over individualism (and it could be argued that this may be the case in Japan) may understate their levels of happiness, whereas happiness may be overstated by those living in societies that encourage individuals to "stand out from the crowd" (Abdallah et al. 2007; Frey and Stutzer 2002).

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Chapter 9

Happiness and Employment Status

Tadashi Yagi, Kunio Urakawa, and Katsuhiko Yonezaki

1 Introduction

It is accepted by most that working constitutes an important part of happiness. It is true that, for some people, working increases their happiness through feelings of self-achievement satisfaction; for others, it decreases their happiness by increasing stress and anxiety. The state of happiness will differ depending on a person's job status, such as regular or non-regular employment. The story is not simple, however, because the aim of working may differ between individuals, and the treatment, training, and job type may differ between regular and non-regular work. In this sense, it is meaningful to investigate the state of happiness by focusing on job status.

The purpose of the chapter is to examine this issue by comparing data from five countries (Japan, the US, the UK, France, and Germany). First, we examine the structure of each country's labor market in terms of regular and non-regular workers and then theoretically incorporate the possibility of cooperation between regular workers and non-regular workers. Secondly, we analyze the effects of employment status on the state of happiness in detail by using micro-data. Then, we compare the mechanisms through which happiness is affected by employment status in these five countries by using an international comparative survey on happiness.

For regular workers, the incentive for cooperation with non-regular workers results from the efficiency wage effect. By redistributing income from regular

T. Yagi (✉)

Faculty of Economics, Doshisha University, Kyoto, Japan

e-mail: tyagi@mail.doshisha.ac.jp

K. Urakawa

Faculty of Economics, Kyusyu University, Fukuoka, Japan

K. Yonezaki

Life Risk Research Center, Doshisha University, Kyoto, Japan

workers to non-regular workers, it might be possible to increase the income received by regular workers through the increased productivity of non-regular workers. We will analyze the conditions under which this mechanism leads to an increase in the distribution share of non-regular workers. We focus on the functions and effects of aspiration¹ and propose the concepts of “positive” and “negative” happiness as new measurements of happiness. These factors are related with aspiration. The results of the analysis show that the sources of happiness differ greatly between regular workers and non-regular workers. However, we consider that there may be many country-level differences in the effects of employment status, which would reflect the incentives for working and the working environments.

In the case of the Japanese economy, throughout the depression period of the 1990s and 2000s, regular workers were replaced by non-regular workers in Japan as a cost-reduction measure. The proportion of non-regular workers in the workforce has been gradually increasing since 1990, and it exceeded 30 % in 2013. In particular, the ratio of non-regular workers in the 15–24 year-old age group increased drastically at the end of the 1990s, and has exceeded 50 % (including part-time work among students). This ratio has remained roughly constant from 2000 until the present day. We can confirm that labor productivity has not improved over this same period (Figs. 9.1 and 9.2).

In Japan, the timing for hiring recent graduates is restricted to the beginning of April. This system has some merit in that it reduces the cost of recruiting recent graduates and helps with the transition from student to employee. However, this timing works to increase the ratio of non-regular workers when the economic situation fluctuates, because the risks of over-employment in the face of sluggish demand increases greatly under the less flexible recruiting system.

In addition to the high ratio of non-regular workers, the decreasing probability of shifting from non-regular work to regular work is also a serious issue. This probability was less than 20 % in 2013, and the probability of shifting from regular to non-regular work has increased from around 20 % in the 1990s to around 40 % in 2013.

According to the “2013 Labor Force Survey” compiled by the Ministry of Internal Affairs and Communication, 14.8 % of female non-regular workers and 31.1 % of male non-regular workers did not voluntarily choose non-regular status but accepted it because they were unable to find a job with regular status. Moreover, this ratio among male workers is 40.5 % for the 25–44 year old age group. A survey conducted by the Ministry of Internal Affairs and Communications in 2013 showed that around 70 % of non-regular workers are in non-regular status involuntarily, and more than half of non-regular workers want to change to regular status.²

¹An area of considerable recent interest is the relation of aspiration to happiness and Job satisfaction (see Easterlin (2001) and Layard (2003)). Stutzer (2004) examines the role of income aspiration in individual happiness. Poggi (2010) develops a measure for aspiration biases and examine these aspiration effects.

²In recent years, many researchers have focused on the consequences of labor market entry position on future careers. They examined the scenario of whether the first job functions as an “entrapment” or as a “stepping-stone.” The stepping-stone scenario is supported in Western Europe, but the

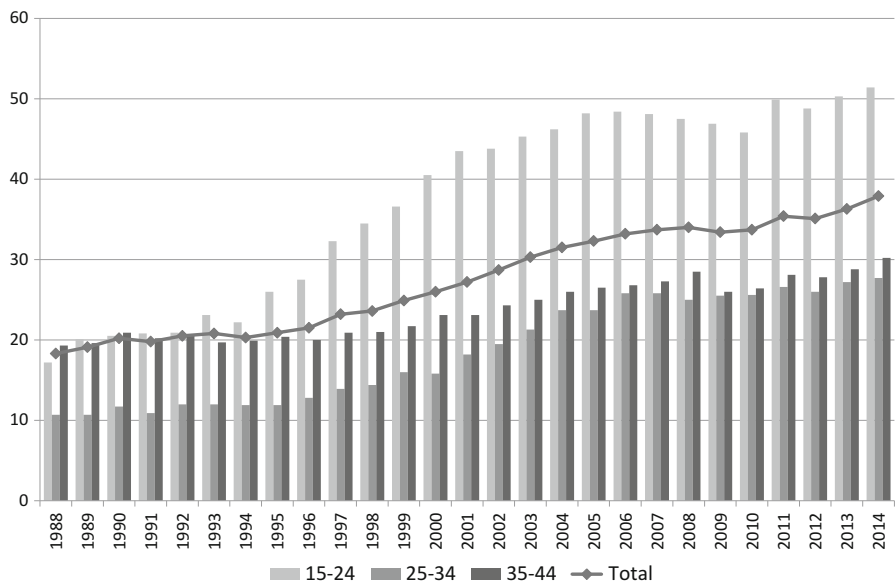


Fig. 9.1 Ratio of non-regular workers in Japan (%)

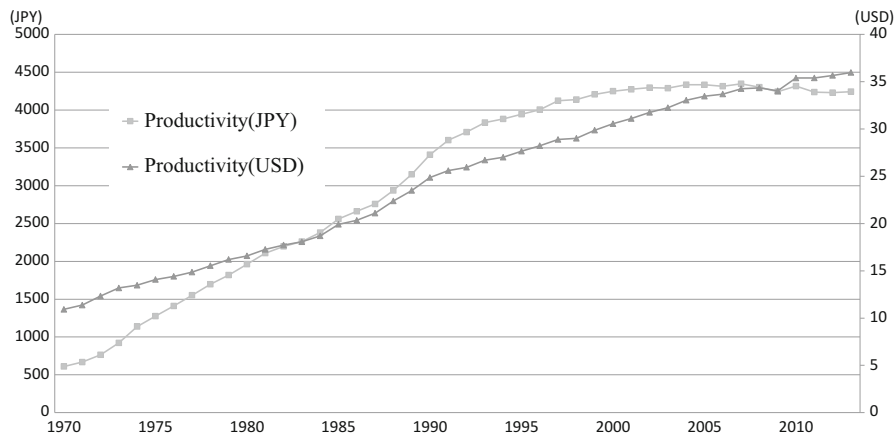


Fig. 9.2 Labor productivity per hour in Japan

One of the problems for non-regular workers is the development of human capital. For example, the ratio of non-regular workers receiving off-the-job training (OFF-JT) is less than half the ratio for regular workers (Fig. 9.3).

entrapment scenario is supported in Japan (see Scherer (2004), Baranowska et al. (2011), Kondo (2007), Inagaki and Oshio (2014)).

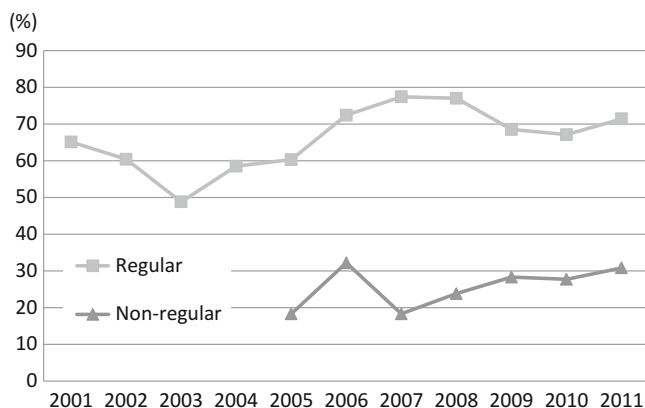


Fig. 9.3 Ratio of establishments and enterprises offering off-the-job training, by employment status

The rest of the chapter is organized as follows. In Sect. 2, we describe the model and discuss a number of important problems facing non-regular workers. Section 3 reviews the literature on employment and happiness. Section 4 describes the survey data and introduces our measurements of happiness. Section 5 provides an international comparison of the determinants of happiness among the five countries examined. Section 6 offers concluding remarks.

2 Optimal Wage Strategy for Non-regular Workers

2.1 Issues Facing Non-regular Workers

In this section, we examine the essential problems facing non-regular workers and discuss some policies that could alleviate these issues. The unfair distribution of income between regular and non-regular workers stems from differences in negotiating power. In Japan, only regular workers have trade unions because the length of tenure of non-regular workers is less than 3 years on average. A key problem for non-regular workers is whether regular workers have an incentive to negotiate with their employers concerning the distribution share of wages to non-regular workers. If not, regular workers will negotiate to increase their own distribution share while minimizing the distribution share to non-regular workers. The minimized wage rate is the market wage rate prevailing in the market; otherwise, less quality workers will be employed. In this sense, there is no game theoretic structure for the determination of wage rate of non-regular workers.

There possibly exist some incentives for regular workers to negotiate with their employers to increase the income share of non-regular workers in the following two cases. The first is the altruistic motivation case. If regular workers increase their

utility by reducing the wage difference between regular and non-regular workers, a wage increase for non-regular workers could be attained as the optimal solution. However, it is hard to imagine that this kind of altruistic motivation is widespread among regular workers or would be sustainable over the long term. The second motivation is the “incentive wage.” If an increase in income to regular workers is gained from the efficiency improvement of non-regular workers and is large enough to cover the decreased income share of regular workers, regular workers will agree to a decrease in their income share. This case may arise when the efficiency of non-regular workers increases and the prevailing market wage rate of non-regular workers is lower than the optimal wage rate. In this section, we examine this point rigorously by using a mathematical model.

2.2 The Incentive Wage Model

We consider a two-period model. In the first period, both regular and non-regular workers work with the given wage rate. In the second period, the efficiency of work changes from the degree of aspiration. We consider the situation in which the aspiration changes depending on the relative wage difference between regular and non-regular workers. Labor supplies of regular and non-regular workers are given as the constants L_r and L_n , respectively, in this model because the focus of this study is the optimal wage strategy that incorporates the effects of aspiration on productivity.

The first-period output produced by regular workers is given by

$$f_r^1 = f_r^1(L_r).$$

The first-period output produced by non-regular workers is given by

$$f_n^1 = f_n^1(L_n).$$

We assume that the labor supply is infinitely elastic for each firm, and the labor demand of the company is small enough so that the market wage rate is not affected by the behavior of the company. This implies that each company faces the same market wage rate. In addition, it is assumed that the amount of labor employed is kept constant from period 1 to period 2 to focus on the net effect of redistribution.

We consider whether or not the redistribution of wages between regular and non-regular workers stimulates the aspiration of non-regular workers, which is represented by α . The second-period output produced by regular workers is given by

$$f_r^2 = \phi_r(w - \alpha) f_r^1(L_r),$$

where $\phi_r(w - \alpha)$ is the change in productivity of regular workers caused by the change in aspiration.

The second-period output of non-regular workers is given by

$$f_n^2 = \phi_n (w + \alpha) f_n^1 (L_n),$$

where $\phi_n (w + \alpha)$ is the change in productivity of non-regular workers caused by the change in aspiration.

The total profit function is given by the following equation:

$$\begin{aligned} \pi = & p (f_r^1 (L_r) + f_n^2 (L_n)) + \frac{P}{1+r} (\phi_r (w_r - \alpha) f_r^1 (L_r) + \phi_n (w_n + \alpha) f_n^1 (L_n)) \\ & - \left(\frac{2+r}{1+r} \right) ((w_r - \alpha) L_r + (w_n + \alpha) L_n). \end{aligned}$$

The optimal amount of redistribution α^* is given by the following optimality condition

$$\frac{d\pi}{d\alpha} = \frac{p}{1+r} (\phi_n' f_n^1 - \phi_r' f_r^1) - \left(\frac{2+r}{1+r} \right) (L_n - L_r) = 0.$$

That is, the optimal redistribution is determined at the point where the following equation holds:

$$\frac{p}{1+r} (\phi_n' f_n^1 - \phi_r' f_r^1) = \left(\frac{2+r}{1+r} \right) (L_n - L_r).$$

Figure 9.4 shows the marginal effect of redistribution on aspiration. Figure 9.5 demonstrates the difference in the impacts between regular and non-regular employees.

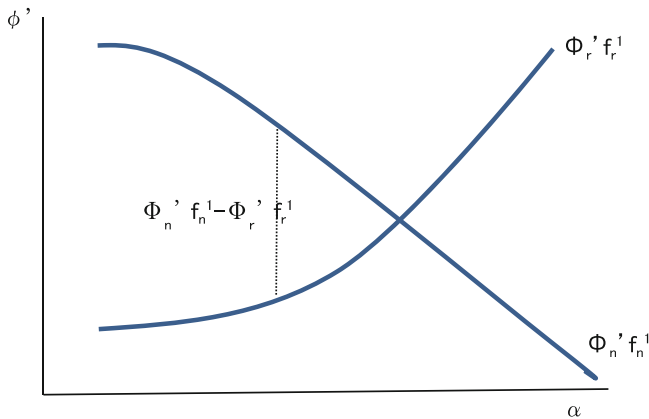


Fig. 9.4 Marginal effect of redistribution on aspiration

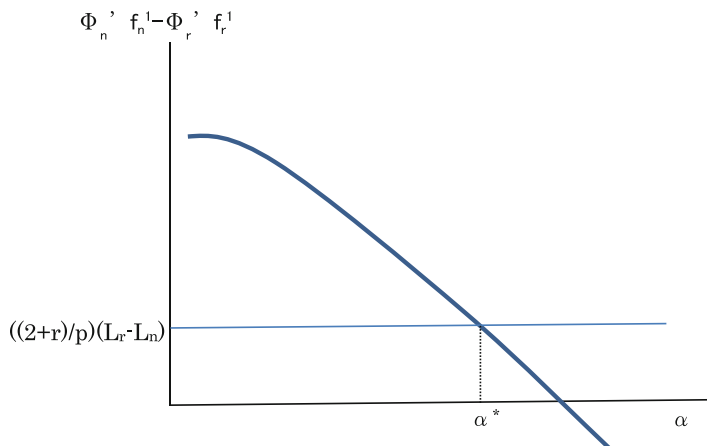


Fig. 9.5 Difference in the marginal effect of redistribution on aspiration between regular and non-regular employees

The optimality condition implies the following results. First, the optimal redistribution level increases as the marginal effect of redistribution on the aspiration of non-regular workers increases. Second, the optimal redistribution level increases as the price of output increases because the relative cost of redistribution to output value decreases. Third, the optimal redistribution level decreases as the interest rate increases because the discounted value of redistribution decreases. This also implies that short-sighted employers tend to set the redistribution level at a low level.

The model described in this chapter is quite simplified. The critical point is that the company hires both regular and non-regular workers at the market wage rate in the first period. We then consider the possibility that non-regular workers increase their labor productivity from income redistribution from regular to non-regular workers via the aspiration effect. If the marginal positive effect of redistribution is large enough to cover the marginal cost of redistribution, the redistribution increases the total profit. The merits of redistribution include an enhancement of cooperation between non-regular and regular workers. The redistribution within a workplace improves the sense of fairness among workers and leads to trust formation among workers. This contributes to improved productivity of teams.

One of the most serious problems caused by the widening income gap between regular and non-regular workers is the erosion of trust in the workplace. There is the risk of moral hazard when the trust among workers is eroded, which can cause increases in various kinds of costs such monitoring and inspection costs, for example. Mental health and well-being among workers would also decrease if human relations within the workplace were to worsen. The empirical study in the following sections gives some evidence on how workers perceive their treatment in the workplace and the impact of human relations within the workplace.

3 Literature Review on Employment and Happiness

Prior studies have found that work satisfaction benefits workers' health and improves their productivity (Judge et al. 2001; Justina et al. 2009). Therefore, it is very important to investigate factors affecting workers' well-being as part of any evaluation of the impacts of human resource management and labor policy. Previous research has shown that wage, labor status, job type, company size, and labor characteristics, such as sociality and work burden, contribute to employee well-being (Warr 1999; Frey and Stutzer 2001; Skalli et al. 2008; Origo and Pagani 2009). Blanchflower and Oswald (2004) showed that the effect of joblessness on happiness is close in size to the unhappiness associated with divorce. In addition, studies in Japan have found differences in the average level of worker satisfaction by gender and labor status after controlling for other important covariates (Sano and Ohtake 2007; Okunishi 2008; Nozaki 2010).

Regarding the measurement of happiness, many methods have already been developed in previous studies. These different approaches to measuring happiness vary in a number of respects, including the breadth and timescale of the experience encompassed, and the words in which the idea of happiness is expressed. Subjective well-being, such as happiness, can be measured using either single- or multiple-item scales (MacKerron 2012). For example, Easterlin (2001, 2005) measured the degree of happiness by asking a single question, such as "How much do you feel happy in general?" Contrary to this approach, Hills and Argyle (2002) adopted the method of measuring the degree of happiness by asking 29 questions and applying principal factor analysis to summarize the information. In addition, in the research of Kahneman and Krueger (2006), happiness was measured at various time scales. In the data most commonly used by economists, respondents are asked about the vague present ("these days," "nowadays," "the last few weeks," and so on) (MacKerron 2012).

Interestingly, the research of Rolls (2014) in the field of neuroscience suggests two viewpoints in measuring happiness. Rolls (2014) states that the primary reinforcer of happiness, which is defined as the primary stimuli that drive a person's actions and decision making, consists of "rewards" and "punishments." Secondary reinforcers are stimuli that are combined with learning and the primary reinforcers. For example, when you see an item of food (it is the primary reinforcer and, in this case, it is also a reward), then the sight of the object becomes a positive secondary reinforcer connected with some knowledge of food and various responses and decisions are made after optimizing the combination of choices to maximize the net rewards.

In this chapter, we primarily follow the method used by Hills and Argyle (2002) and the viewpoint stated by Rolls (2014), and try to understand the impacts of labor status and work conditions on happiness, which are considered as two aspects of primary stimuli (rewards and punishments). In particular, we investigate the gap in happiness level between regular and non-regular workers, controlling for important variables such as family structure and personality traits. There is little research focusing on the association between employment status and happiness that defines both concepts on the basis of "rewards" and "punishment."

4 International Comparison of Working Conditions

4.1 Data Description

The surveys we conducted are summarized below and key details are outlined in Table 9.1. We used micro-data collected from a nationwide Internet survey in each country. The surveys were designed and implemented during 2012–2013 for a research project that investigated the socioeconomic determinants of subjective well-being and was sponsored by the Japanese Society for the Promotion of Science. The surveys captured ample information about individuals' subjective assessments of own well-being, personal traits, demographic and socioeconomic status, and perceived neighborhood characteristics, all of which are useful for examining the relationship between working conditions and happiness. In the case of Japan, in order to ensure that the sample was representative of the actual population, we constructed targeted proportions of 15 population groups, which corresponded to a matrix of five age groups (20s, 30s, 40s, 50s, and 60s) and three household income classes (3 million yen or less, 3–6 million yen, and 6 million yen or more) in advance and collected surveys until we obtained the numerical targets. In contrast, for the United States (US), United Kingdom (UK), France, and Germany, we simply collected samples, with 1,000 respondents in each country, and did not modify the sample distribution on the basis of official statistics. Therefore, we need to be careful when interpreting the comparisons between the estimated results for Japan and those for the other four countries. In this analysis, we conduct an empirical analysis of working conditions on two aspects of happiness, controlling for several important variables that seem to affect happiness, which is in line with previous research such as Oshio and Urakawa (2014).

4.2 Descriptive Data

The bar charts shown in Figs. 9.6, 9.7, and 9.8 and Table 9.2 allow comparing the data characteristics of the samples for the five countries. For gender (Fig. 9.6) and age distribution (Table 9.2), only Japan exhibits an unbalanced distribution, due to the reason we explained earlier, and the percentages of male, middle-aged, and older respondents are larger than for other countries. However, regarding the sample size for Japan, it is much larger than for the other countries, and we can control for gender using a female dummy variable in the later empirical analysis.

Table 9.2 shows that, of all the countries examined, Japan has the highest ratio of married respondents and the lowest ratio of divorced respondents. And, it shows that Japan has the highest ratio of respondents in a household with a spouse and children, and the lowest ratio of respondents who are single parents with children.

Figure 9.7 shows the portion of respondents who reported that they are currently searching for work. We can see that about 15–20 % of respondents in each country

Table 9.1 Outline of the international surveys

	Japan	US	UK (England)	France	Germany
A. Title of survey	Survey on living environment in the region and sense of happiness				
B. Time period of survey	Oct. 1, 2013–Oct. 31, 2013	Aug. 1, 2012–Aug. 31, 2012	Oct. 1, 2013–Oct. 31, 2013	Aug. 1, 2012–Aug. 31, 2012	Oct. 1, 2013–Oct. 31, 2013
C. Survey method	The survey was organized by NTT Com Research by using various internet survey companies in the U.S. and Europe. All samples were collected via Internet panels with multiple sources. Each respondent is verified as being unique via IP address				
D. Sample controls	Sampling for the Japanese dataset is controlled so that the age distribution and income distribution of the survey are close to the real distributions				
E. Sample size	4,927	1,001	1,077	1,049	1,088
F. Response rate	It is not easy to calculate the response rate in this kind of survey because the respondents are recruited through banner advertisements, and so non-responses are not registered				

Fig. 9.6 Gender

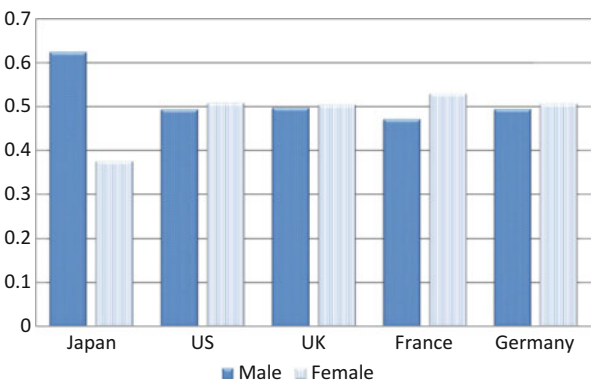


Fig. 9.7 Currently searching for work

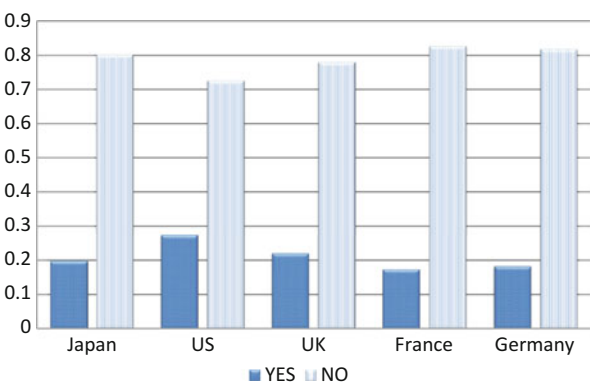
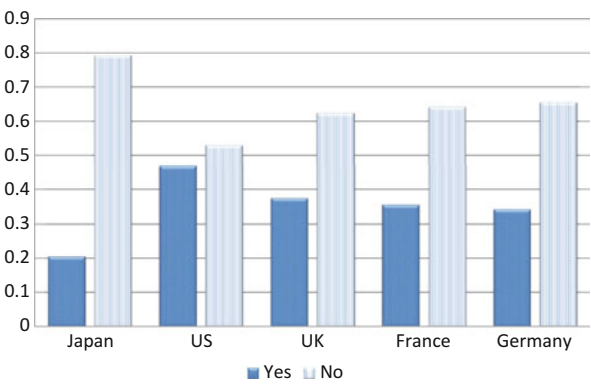


Fig. 9.8 Period of unemployment in previous 5 years



are engaged in a job search. Furthermore, Fig. 9.8 shows the portion of persons who experienced unemployment within the previous 5 years, which is smallest in Japan and largest in the U.S. In Europe, the portion of respondents who had experienced recent unemployment is smallest in Germany.

Table 9.2 Distribution of variables

Age class	20–29	30–39	40–49	50–59	60–	Total
Japan	11.0 %	19.3 %	18.7 %	26.5 %	24.5 %	100.0 %
US	18.7 %	20.0 %	20.0 %	20.7 %	20.7 %	100.0 %
UK	19.6 %	19.9 %	19.5 %	20.2 %	20.8 %	100.0 %
France	18.9 %	20.2 %	19.7 %	20.5 %	20.7 %	100.0 %
Germany	19.5 %	19.6 %	19.9 %	20.1 %	21.0 %	100.0 %

Marital status	Single	Married	Divorced	Widowed	Total
Japan	24.9 %	68.3 %	5.1 %	1.7 %	100.0 %
US	29.6 %	53.4 %	13.8 %	3.2 %	100.0 %
UK	34.4 %	52.1 %	10.3 %	3.2 %	100.0 %
France	32.3 %	53.1 %	13.2 %	1.4 %	100.0 %
Germany	31.9 %	52.0 %	12.5 %	3.6 %	100.0 %

Family structure of respondent's household	With spouse	With spouse and children	Single parent (self) with children	With spouse, children and parents	Single (including other)	Total
Japan	27.5 %	40.7 %	2.3 %	7.4 %	22.1 %	100.0 %
US	29.4 %	33.3 %	8.4 %	1.2 %	27.8 %	100.0 %
UK	26.7 %	32.0 %	8.3 %	1.8 %	31.2 %	100.0 %
France	29.2 %	33.0 %	10.2 %	0.7 %	26.8 %	100.0 %
Germany	31.0 %	33.7 %	7.6 %	2.0 %	25.8 %	100.0 %

Table 9.3 shows the distribution of job type for each country. The portion of regular employees is largest in Germany and smallest in the U.S. The portion of unemployed people (including homemakers) is largest in Japan and smallest in Germany. The portion of civil servants is largest in Germany and smallest in the U.S. The portion of temporary or dispatched workers plus part-time employees is largest in Japan and smallest in France.

4.3 Measurement of Happiness

In our analysis, according to the theory of the reinforcers by Rolls (2014), we identify the principal components that capture two aspects of happiness based on the results of the questionnaire used by Hills and Argyle (2002) (Table 9.4).

The results are summarized in Table 9.5. After quartimax rotation, it is shown that around 40 % of the variation is explained by the main two components, and the additional three factors explain only 7.7 % of the total variation. This implies that the degree of happiness can be decomposed into two main factors. Through principal factor analysis, this result suggests that we should use the two major factors as measures of happiness. We name these factors “positive happiness” (sense of achievement) and “negative happiness” (sense of anxiety) on the basis of the

Table 9.3 Distribution of job type

	Job type											
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
Country												
Japan	3.9 %	32.1 %	4.8 %	4.6 %	1.8 %	10.8 %	7.8 %	1.0 %	0.7 %	2.0 %	28.6 %	2.0 %
US	6.8 %	24.6 %	2.0 %	1.6 %	0.2 %	6.9 %	8.3 %	0.5 %	1.3 %	5.8 %	26.3 %	15.8 %
UK	6.5 %	30.0 %	4.8 %	7.1 %	0.6 %	10.5 %	5.9 %	0.7 %	0.6 %	3.4 %	16.1 %	13.7 %
France	2.6 %	30.2 %	11.0 %	5.1 %	2.3 %	2.6 %	3.3 %	0.4 %	0.8 %	4.0 %	16.4 %	21.4 %
Germany	8.6 %	38.4 %	5.4 %	0.6 %	1.2 %	7.3 %	6.5 %	1.0 %	1.3 %	6.5 %	10.0 %	13.1 %
Total	4.9 %	31.6 %	5.3 %	4.1 %	1.5 %	9.0 %	6.9 %	0.8 %	0.9 %	3.3 %	23.3 %	8.4 %

(a) Top level manager or executive, (b) regular employee, (c) civil servant, (d) contract employee, (e) dispatched employee, (f) part-time employee, (g) self-employed, (h) assistant for a family business, (i) side jobs/home-based work, (j) student, (k) unemployed (including homemakers), (l) other types of work

Table 9.4 Happiness questionnaire

1.	I am not completely satisfied with my personal life at the moment
2.	I am deeply concerned about others
3.	My life is very rewarding
4.	I have warm relationships with most people
5.	I sleep normally but still feel tired
6.	I am pessimistic about the future
7.	I enjoy most things
8.	Whatever I take on, I always give it my all
9.	My life is wonderful
10.	I do not think that the world is a wonderful place
11.	I laugh often
12.	I am very satisfied with my life
13.	I do not regard myself as an attractive person
14.	I do not end up doing what I want
15.	I am very happy
16.	I look for the beauty of things
17.	I always uplift the spirits of others
18.	I make time for things that I want to do
19.	I hardly have the amount of control over my life that I want have
20.	I am competitive in everything that I do
21.	I am clever and never caught off guard
22.	I am often in a good mood
23.	I do not have a hard time making decisions
24.	My life does not have any particular aim or purpose
25.	My life is full of vitality
26.	I have a positive impact on things
27.	I do not go out with others for socializing
28.	I am not healthy
29.	I have very few happy memories from the past

In the survey, there are six possible responses for each item, as follows: (1) Definitely not; (2) I do not think so, (3) If pressed to say, I would say no; (4) If pressed to say, I would say yes; (5) Yes, I think so; and (6) Definitely

values for items in each component and factor loadings. The first component can be considered as explaining positive thinking for achieving happiness, while the second component can be viewed as explaining anxiety, which decreases happiness.

To grasp the relationship between subjective happiness and the two major factors, we calculate the correlation coefficient, using the survey data for Japan (Table 9.6). It is shown that the correlation of subjective happiness for positive happiness is stronger than that for negative happiness, and the correlation between positive happiness and negative happiness is almost zero. These results suggest that respondents' subjective happiness is more strongly influenced by negative factors such as anxiety and that positive and negative factors are independent.

Table 9.5 Results of principal factor analysis on happiness

Total variance explained									
	Initial eigenvalue			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	Contribution rate (%)	Cumulative contribution rate (%)	Total	Contribution rate (%)	Cumulative contribution rate (%)	Total	Contribution rate (%)	Cumulative contribution rate (%)
Comp. 1	9.70	33.48	33.48	9.25	31.90	31.90	7.99	27.56	27.56
Comp. 2	3.04	10.49	43.97	2.46	8.51	40.40	3.55	12.24	39.79
Comp. 3	1.36	4.71	48.70	.851	2.94	43.34	.91	3.13	42.92
Comp. 4	1.25	4.33	53.01	.748	2.58	45.92	.83	2.86	45.78
Comp. 5	1.08	3.73	56.74	.433	1.49	47.41	.47	1.63	47.41

(1) Extraction method: principal component analysis; (2) Rotation: quartimax

Table 9.6 Correlation coefficients between happiness indices (Japan)

	Subjective happiness	Positive happiness (positive thinking)	Negative happiness (anxiety)
Subjective happiness	1	0.422	−0.522
Positive happiness (positive thinking)	0.422	1	−0.071
Negative happiness (anxiety)	−0.522	−0.071	1

4.4 Big Five Inventory (BFI)

Personality affects happiness. It can be expected, for example, that a person with a nervous personality will tend to feel less happiness. In analyzing the relationship between happiness and economic behavior, therefore, we must try to control for the influences of personality on the level of happiness. In this chapter, we apply the Big Five inventory (BFI) method used in Benet-Martinez and John (1988) to measure the personality for each respondent in the sample.

Specifically, each value is set to one if the score from principal component analysis exceeds the sample-average value; otherwise, it is zero for that component. In line with previous research, we adopt the following five components of personality traits:

- 1. conscientiousness,
- 2. neuroticism,
- 3. openness,
- 4. extraversion, and
- 5. disagreeableness

Conscientiousness describes the level of socially prescribed impulse control, which facilitates task- and goal-directed behavior. Neuroticism shows the level of emotional instability related to a broad range of negative feelings, including anxiety, sadness, irritability, and nervous tension. Openness describes the breadth, depth, and complexity of an individual’s mental and experiential life. Extraversion summarizes traits related to activity and energy level and degree of sociability. Disagreeableness means a status lacking in agreeableness. Agreeableness includes traits such as altruism, tenderness, trust, and modesty. In the analysis, we used personality traits variables as control variables for the econometric analysis.

5 Comparison of the Determinants of Happiness Among the Five Countries

In this section, we examine the effect of job environment and working condition on happiness. By using principal factor analysis, we extracted the two indices of happiness, dealing with positive stimuli (“rewards”) and negative stimuli (“punishment”).

We named these indices positive happiness (sense of achievement) and negative happiness (sense of anxiety), respectively.

Positive happiness includes happiness from achieving something, improving one's capabilities, and so on. Negative happiness includes anxiety, disappointment, feelings of hopelessness, and so on. The purpose of the analysis is to examine the relationship between the work situation and positive and negative happiness, and to compare these relationships among the five countries.

After controlling for the effects of personality, we regressed positive and negative happiness on working conditions, the perceived differences between actual and ideal working conditions, and attributes such as gender, income, and age. Regarding working conditions, we used ordinal variables based on the answers provided on the particular items in the questionnaires, including questions dealing with (1) increasing capability, (2) career success, (3) living standard from wage and working hours, and (4) parental leave for child care. Higher scores for each item indicate a more favorable work environment.

We defined non-regular workers as employed persons other than regular employees and civil servants. Regular workers satisfy the following three conditions: employment is open-ended, full time, and directly with the employer. As a result, in this survey, contract employees, dispatched employees, and part-time employees are classified as non-regular workers.

5.1 Impacts of Positive Happiness (Sense of Achievement)

Table 9.7 shows the effect of the working conditions variables on positive happiness by labor types (regular workers versus non-regular workers). It is possible to clarify the differences in characteristics among the five countries from the results shown in the table.

Table 9.7 Effect of work conditions on positive happiness (sense of achievement)

		Japan	US	UK	France	Germany
Increased capability	Regular worker	0.147 ^a	0.104 ^a	0.129 ^a	0.028	0.096 ^a
	Non-regular worker	0.152 ^a	0.111 ^a	0.133 ^a	0.159 ^a	−0.018
Career success	Regular worker	0.012	−0.010	0.028	−0.021	−0.010
	Non-regular worker	0.007	0.102 ^a	0.082 ^a	−0.040	0.018
Living standard from wage and working hours	Regular worker	−0.012	0.017	−0.041	0.034	0.035
	Non-regular worker	0.026	−0.033	0.077 ^a	0.124 ^a	0.123 ^a
Parental leave for child care	Regular worker	0.014	0.079 ^a	0.093 ^a	0.096 ^a	0.045
	Non-regular worker	0.014	−0.038	0.055 ^a	−0.048	0.076 ^a

Standardized coefficients (Beta) are shown in the Table

Control variables included for age, marital status, family structure, job search status and BFI personality traits

^aIndicates positively significant at the 5 % level

For regular workers in France, increased capability showed no effect on positive happiness; whereas for non-regular workers in France, it had a strong positive effect on happiness. In contrast, increased capability had a positive effect on the positive happiness of regular workers in Germany, while non-regular worker in Germany were not affected in terms of their positive happiness. This difference between the two countries possibly suggests differences in the incentives to workers. In France, regular workers may not have strong incentive to move up in their careers, while non-regular workers possibly have good incentive for building their capabilities in order to get a stable job. In Germany, this result suggests that non-regular workers have little incentive to increase their capability. Bremer and Seifert (2008) showed that opportunities for job re-training offered by employers for fixed-term employment workers are limited and the probability that they participate in the training is low compared with open-ended workers, with this result according to socioeconomic panel data on Germany (Japan Institute for Labor Policy and Training 2010).

For regular workers in all countries, career success had little effect on positive happiness, while for non-regular workers in the US and UK, career success increased positive happiness. This reflects the fact that non-regular workers who view their job as a tool for success in life have positive happiness in US and UK, whereas workers do not have such positive feelings in Japan, France, and Germany. This finding seems to reflect the fact that many people, such as homemakers, who engage in non-regular employment do so in order to contribute to their family's budget, rather than to pursue their careers further.

For living standards from wage and working hours, regular workers in all countries are not sensitive to this condition in terms of increasing positive happiness, while non-regular workers are sensitive to this in the UK, France, and Germany. The fact that the difference in hourly earnings between full-time and part-time workers in European countries is lower than in Japan and the US might reflect the sense of fairness that non-regular workers in these countries appear to have.

The parental leave for childcare obligations has different effects among the countries examined and between regular and non-regular workers. Japanese workers are insensitive to this condition for both regular and non-regular workers. For non-regular workers in the UK and Germany workers, parental leave for childcare has a positive effect on positive happiness. This is possibly affected by the availability of public child care systems in these countries. In the case of Japan, the use of childcare leave by male workers is very low, at about 2 % in 2012. In addition, many non-regular workers are not able to receive benefits under the social security systems for childcare. According to a survey by the Cabinet Office of Japan in 2013, the percentage of all female workers taking childcare leave is 83 %, whereas for non-regular female workers the percentage is lower, at 71 % (Ministry of Health, Labor and Welfare 2012).

Next, we evaluated the impacts of gaps between actual and ideal working conditions on positive happiness, using the items of the survey questionnaire. The gaps in respondents' evaluations between the actual and ideal conditions represent dissatisfaction with working conditions. The gap increases both in cases where the level of the ideal situation increases and when the level of the actual situation

Table 9.8 Effect of gaps in actual and ideal working conditions on positive happiness (sense of achievement)

Area of gap in working condition		Japan	US	UK	France	Germany
Work flexibility	Regular worker	−0.006	0.025	0.003	−0.027	−0.010
	Non-regular worker	−0.022	0.058	−0.063 ^a	−0.143 ^a	0.122
Leveraging ability	Regular worker	−0.017	0.030	0.030	−0.007	−0.027
	Non-regular worker	−0.007	−0.107 ^a	0.028	−0.053 ^a	0.050
Diversity	Regular worker	0.002	−0.083 ^a	−0.007	−0.046 ^a	0.013
	Non-regular worker	−0.009	−0.099 ^a	0.016	0.016	−0.119 ^a
Job requirements	Regular worker	−0.061 ^a	−0.045 ^a	−0.009	0.063	−0.096 ^a
	Non-regular worker	0.018	−0.051 ^a	−0.034 ^a	−0.119	−0.005
Relationships with other companies	Regular worker	0.002	0.049	−0.018	−0.018	0.076
	Non-regular worker	0.018	0.025	0.120	−0.101 ^a	0.149
Wage level	Regular worker	−0.062 ^a	−0.104 ^a	0.003	−0.074 ^a	−0.070 ^a
	Non-regular worker	−0.042 ^a	−0.171 ^a	−0.114 ^a	−0.114 ^a	−0.050 ^a
Amount of work	Regular worker	−0.019	−0.054 ^a	0.044	0.032	−0.038 ^a
	Non-regular worker	−0.011	−0.055	0.012	−0.040	0.130
Social importance	Regular worker	0.036	−0.003	0.048	0.040	0.019
	Non-regular worker	−0.002	−0.001	−0.103 ^a	0.126	−0.076 ^a
Future career potential	Regular worker	−0.041	−0.077 ^a	−0.058 ^a	−0.047 ^a	−0.026
	Non-regular worker	−0.073 ^a	−0.019	−0.101 ^a	0.022	0.005
Fair treatment	Regular worker	−0.033	0.012	−0.106 ^a	−0.037 ^a	0.024
	Non-regular worker	−0.025	−0.058 ^a	−0.061 ^a	−0.021	−0.158 ^a

Standardized coefficients (Beta) are shown in the Table

Control variables included for age, marital status, family structure, job search status and BFI personality traits

^aIndicates positively significant at the 5 % level

decreases. Thus, the interpretation of the result is complicated, and the effects of the gaps on positive happiness are not straightforward. The estimated results are shown in Table 9.8.

The gap between ideal and actual flexibility at work and the gap between ideal and actual leveraging of ability both have little effect on positive happiness for regular workers. On the other hand, for non-regular workers, these two gaps both negatively affect positive happiness in some countries. For example, the gap in work flexibility has a strong negative effect on positive happiness in France. Dispatched workers have lower opportunities for training within the enterprise compared with regular employees in France (Erhel et al. 2009; Japan Institute for Labor Policy and Training 2010). Low levels of discretion at work may decrease workers' motivation. In the US as well, the gap in leveraging ability has a strong negative effect on positive happiness. This implies that non-regular workers in the US view improving their ability through their job as important for future career formation.

It is shown that for both regular and non-regular workers in the US, a large gap between actual and ideal levels of diversity has a negative effect on positive

happiness, whereas Japanese workers are insensitive to diversity. This reflects the differences in social circumstances, such as the degree of multiculturalism and the degree of sensitivity to gender issues. In Germany, regular workers are insensitive to diversity, while non-regular workers in Germany are affected by perceived gaps in diversity. This suggests the possibility of the existence of discrimination in finding regular employment in Germany, such as foreign worker issues. Kaas and Manger (2010) investigated the existence of ethnic discrimination in Germany's labor market with a correspondence test. They responded to 528 advertisements for student internships by sending two similar applications, one with a Turkish-sounding name and one with a German-sounding name. As a result, they showed that a German name raises the average probability of a callback by about 14 %.

For the gap between actual and ideal job requirements, we should be careful in interpreting the results. As an example, if workers request that job responsibilities should be clarified, the gap has a negative effect on positive happiness. The results shown in Table 9.2 suggest that workers in most of the countries are dissatisfied about the degree of clarification needed in terms of job requirements.

Japanese workers are insensitive to the gap between the actual and ideal relationships with other companies, but this factor has a strong negative effect on positive happiness for non-regular worker in France. However, in Germany, this gap has a positive effect on positive happiness both for regular and non-regular workers. The differences in these effects possibly reflect the differences in industrial structure among the countries. In Germany, for example, professional skills are basically untransferable between companies in the same industry, which originates in the "guild" system. If associations in the industry have strong influences on the business, it is reasonable that workers are sensitive to the relationships with other companies.

The effect of gaps in wage level on positive happiness is quite simple and consistent with the intuition that workers prefer a higher wage, so a gap between actual and ideal wages decreases positive happiness. Among all countries, the effects are statistically significant, except for the case of regular workers in the UK. Workers in the US are most sensitive to the wage gap both for regular and non-regular workers. Japanese non-regular workers are relatively insensitive to wage gap. This result possibly suggests that some Japanese non-regular workers, such as part-time married women, do not expect high wages. The current pension system in Japan gives women a negative incentive for desiring employment because the Employee's Pension Insurance (EPI) provides future pension benefits for a spouse who does not earn more than ¥1.3 million per year (called the Category No. 3) (National Institute of Population and Social Security Research 2011).

The gap between actual and ideal amount of work has relatively little effect in all countries except for the case of non-regular workers in Germany. Surprisingly, it has a strong positive effect on positive happiness. This may suggest that the amount of work is much larger than expected, but this increases workers' sense of achievement. On the other hand, it is shown that US regular workers are negatively sensitive to the amount of work.

The gap between ideal and actual social importance generally decreases positive happiness. This suggests that workers feel satisfaction by working in a manner that

Table 9.9 Effect of work conditions on negative happiness (sense of anxiety)

		Japan	US	UK	France	Germany
Increased capability	Regular worker	−0.072 ^a	−0.151 ^a	−0.084 ^a	−0.162 ^a	−0.166 ^a
	Non-regular worker	−0.092 ^a	−0.173 ^a	−0.079 ^a	0.048	−0.178 ^a
Career success	Regular worker	0.045	0.138	0.051	0.102	0.086
	Non-regular worker	0.060	0.078	0.100	0.180	0.028
Living standard from wage and working hours	Regular worker	−0.014	−0.056 ^a	−0.138 ^a	−0.101 ^a	−0.019
	Non-regular worker	−0.033	−0.004	0.086	0.000	0.005
Parental leave for child care	Regular worker	−0.013	0.030	0.089	−0.011	−0.018
	Non-regular worker	−0.007	0.027	0.043	−0.119 ^a	−0.004

Standardized coefficients (Beta) are shown in the Table
Control variables included for age, marital status, family structure, job search status and BFI personality traits
^aIndicates positively significant at the 5 % level

makes a social contribution. However, the impacts are very small except for the cases of non-regular workers in France and Germany.

Finally, the gap in workers’ perceived actual and ideal future career and the gap in fair treatment both have a negative effect on positive happiness for regular workers and non-regular workers in many countries, including the UK. Forde et al. (2008) demonstrated that there are large differences in the construction industry in the treatment of non-regular workers, such as dispatched workers and other temporary workers, and regular workers, even after controlling for differences in personal attributes and job characteristics.

5.2 Impacts on Negative Happiness (Sense of Anxiety)

In Table 9.9, the effects of working condition on negative happiness (sense of anxiety) are shown for regular and non-regular workers. It is reasonable that increasing capability decreases negative happiness and improving living standards with respect to wage and working hours decrease negative happiness. However, the fact that an increase in career success increases negative happiness is not straightforward. One possible interpretation is that workers who pursue career success feel anxious about various things. There are relatively little differences among the five countries in the effects of work conditions, other than parental leave for childcare. One slight tendency to note is that Japanese workers are insensitive to working conditions in terms of negative happiness, with the exception of increasing capability. As for non-regular workers, compared with the results for regular workers, the effects of living standards from wage and working hours are small.

Table 9.10 also shows the effects of the gap between actual and ideal working conditions on negative happiness for regular and non-regular workers. There are strong differences in the effects on negative happiness among the countries.

Table 9.10 Effect of gaps in actual and ideal working conditions on negative happiness (sense of anxiety) by employment status

Area of gap in working condition		Japan	US	UK	France	Germany
Work flexibility	Regular worker	0.007	0.032	0.110 ^a	−0.030	0.059 ^a
	Non-regular worker	0.062 ^a	−0.042	−0.044	−0.144	0.043
Leveraging ability	Regular worker	0.055 ^a	−0.017	−0.060	0.026	−0.005
	Non-regular worker	0.019	0.127 ^a	0.100 ^a	−0.058	0.048
Diversity	Regular worker	0.018	0.001	−0.020	0.038	0.035
	Non-regular worker	−0.025	−0.026	−0.138	−0.015	0.099 ^a
Job requirements	Regular worker	−0.004	0.017	0.074 ^a	0.003	0.062 ^a
	Non-regular worker	−0.008	−0.026	0.099 ^a	0.054 ^a	−0.020
Relationships with other companies	Regular worker	−0.038	−0.008	−0.048	−0.012	−0.008
	Non-regular worker	−0.048	0.043 ^a	0.102	−0.087	0.116 ^a
Wage level	Regular worker	0.036	−0.020	−0.002	0.071 ^a	0.104 ^a
	Non-regular worker	0.126 ^a	0.122 ^a	−0.015	−0.055	0.010
Amount of work	Regular worker	0.046 ^a	0.049 ^a	0.084	0.069 ^a	−0.025
	Non-regular worker	−0.011	−0.037	0.034	0.079 ^a	−0.026
Social importance	Regular worker	−0.010	0.003	−0.005	0.044 ^a	0.053 ^a
	Non-regular worker	−0.001	0.080 ^a	0.073	0.076 ^a	−0.040
Future career potential	Regular worker	0.082 ^a	0.046 ^a	0.083	0.056 ^a	0.060 ^a
	Non-regular worker	0.124 ^a	0.015	−0.038	0.159 ^a	0.066 ^a
Fair treatment	Regular worker	0.080 ^a	0.039	0.074	0.030	−0.009
	Non-regular worker	0.015	−0.057	0.000	−0.032	0.127 [*]

Standardized coefficients (Beta) are shown in the Table

Control variables included for age, marital status, family structure, job search status and BFI personality traits

^aIndicates positively significant at the 5 % level

First, it is shown that regular workers in the UK are quite sensitive to gaps in actual and ideal conditions in several areas such as work flexibility, job requirements, amount of work, future career potential, and fair treatment, for all of which a gap increases feelings of negative happiness. Regular workers in France and Germany are also quite sensitive to various gaps, such as in wage level and social importance. It is noteworthy that regular workers in all five countries are quite sensitive about a gap between actual and ideal future career potential, and Japanese and UK regular workers are sensitive to gaps in fair treatment in terms of feeling negative happiness. In addition, non-regular workers are sensitive to gaps regarding work flexibility, wage level, and future career potential, with the impact on negative happiness being quite large in Japan. This reflects the real situation in Japan, where non-regular workers are quite pessimistic about future career potential. Non-regular workers in the US and UK are also quite sensitive to a gap in leveraging ability. This suggests that they must build their ability to survive in the labor market, but that the actual situation in the workplace is not good for doing so. It is interesting that non-regular workers in the UK and France are not sensitive to gaps in wage level, whereas they are rather dissatisfied with the gap in social importance.

6 Conclusion

In this chapter, we examine the state of happiness of workers by job status with a focus on the aspirations of workers by using micro-data collected from nationwide surveys in five OECD countries. This analysis gives us some insights on the relationship between the working conditions of workers and happiness.

It is possible to deduce whether or not non-regular status is chosen voluntarily from this analysis. If gaps between the actual and ideal conditions decrease positive happiness or increase negative happiness for non-regular workers, the status can be deemed as likely being an involuntary choice. Estimation results show that non-regular workers who perceive gaps in several work conditions have relatively lower positive happiness and higher negative happiness. This also implies that they are choosing non-regular status involuntarily.

In addition, the differences in the effects of career building on happiness imply the motivation of working. In particular, the difference between regular and non-regular workers suggests that they have different aims for working. Examining the differences between regular and non-regular workers in the five countries would give us various types of information on working conditions and worker aspirations. Research with a detailed examination of the reasons for these differences should be undertaken in the future.

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Chapter 10

The Impact of Employment System on Feeling of Happiness in Germany and Japan

Toshiyuki Shirakawa

1 Introduction

Employment instability has recently been observed in many developed capitalist countries. This condition is directly related to poverty, and may produce political conflict. If the number of people who lack a reliable economic foundation for life increases, and if gaps between strata of society continue to widen, then social cohesion will lose a base of stability. Such scenarios are detrimental to creating a future competitive economy and knowledge-based society. Describing actual conditions and the main factors influencing employment instability is thus an urgent issue within the social sciences.

One aspect of the dynamics of the employment environment—unemployment—in France, Germany, Italy, the United Kingdom, the United States, and Japan after the late 1990s is summarized in Fig. 10.1 The unemployment rate continues at near 10 % in the principal European countries. Although average unemployment rates were low in the United Kingdom and the United States, these figures have risen since the onset of the global economic crisis. The unemployment rate was lower in Japan than in these western countries. In fact, Japan's unemployment rate was less than 5 % during the periods covered by the available data, although they show a slight upward trend.

The matter looks quite different when we use another measure of employment instability. Figure 10.2 shows the shift in the non-regular part-time employment rate for each of the countries shown in Fig. 10.1 during the 2000s. Part-time employment rates in Japan, as well as in Germany and the United Kingdom, were relatively high and have recently risen further. In Japan, part-time employees are often referred to as *freeters*. Since 1990, the number of *freeters* has grown among young Japanese men

T. Shirakawa (✉)

Graduate School of Human Sciences, Osaka University, 1-2 Yamadaoka, Suita 565-0871, Japan
e-mail: st.nizi0404@gmail.com



Fig. 10.1 Changing unemployment rates in France (FRA), Germany (DEU), Italy (ITA), the United Kingdom (UK), the United States (USA), and Japan (JPN) from 1995 to 2010 (Source: The World Development Report 2013)



Fig. 10.2 Shifts in part-time employment rates in France, Germany, Italy, the United Kingdom, the United States, and Japan (Source: The OECD Employment Outlook)

and women, and their wages and life conditions are markedly inferior to workers with regular employee status. In comparison with these three countries, part-time employment rates in France, the United States, and Italy, and especially in the former two countries, have been maintained at low levels. Non-regular part-time employment can be used to realize flexibility in working and could revitalize a labor market. However, it has been criticized for leading to an increase in the proportion of the population leading an economically precarious existence, while allowing firms to cut personnel expenses. The economic instability associated with part-time employment has been explored by researchers. For example, Sakaguchi (2011) has examined unemployment risks for part-time workers, and Tarohmaru (2006a) has shown reduced chance of moving between regular employment and non-regular employment, and addressed a link between social origin and employment status.

Individual position in the labor market is thought to affect various attitudes and values about daily social life. People acquire valuable goods by engaging in business and consequently evaluate their levels of life satisfaction and class identity on the basis of the amount of goods they acquire. Unemployment generally has a negative effect on the level of happiness, whereas re-employment improves that level (Gundert and Hohendanner 2014). Although the effect of unemployment can be partly explained by the amount of household income, it has been found that unemployment also has a direct impact on happiness (Ohtake 2004). This finding implies that unemployment reduces happiness through a multidimensional process. Little is known about the effect on happiness of non-regular employment. However, some studies have reported that the subjective well-being and class identification of non-regular workers are both lower than those of regular workers (Kobayashi 2008a, b). Our aim in undertaking international research was to contribute more empirical knowledge on this topic. We examined the effect of employment on happiness in Japan and Germany to elucidate the general role of employment status and cross-national differences in determinant structure. Each of these countries is considered to be an advanced capitalist society with a market economy. However, as we discuss in this chapter, they have different structures in relation to the career consequences of non-regular employment. In the next section, we examine previous studies and related theory to clarify the research issue regarding the relationship between labor market integration and happiness.

2 Theory and Previous Research

2.1 Changes in the Employment Environment and Subjective Well-Being

The sociological study of social consciousness starts with an analysis of the determinants of class identification. It has been commonly supposed that a significant relationship exists between individual status and social consciousness (Umino

2000). In many studies, the effect of occupation was examined as the most important measure of social status. However, quantitative research conducted using survey data on social stratification and social mobility has shown that occupation does not have the theoretically expected effect on class identification (Naoi 1979; Mamada 1990). For instance, people with high occupational status did not necessarily classify themselves as belonging to the privileged class. Consequently, Kikkawa (1999, 2006) has advocated a multidimensional approach to provide a new perspective for studying class identification. He has developed a multivariate linear causal model of class identification. This model includes age, sex, education, and income, as well as occupation, as independent variables.

The recent shift in the employment environment in Japan has provided an opportunity for sociologists to review the determinant structure of social consciousness. The number of people with non-regular employment status, such as part-timers, those with fixed-term contracts, and temporary agency workers, has rapidly expanded after the so-called “lost generation” which indicates cohorts who first entered the labor market between 1993 and 2005. Non-regular workers currently constitute about 35 % of the entire working population. This situation undermines the validity of the conventional approach used in social stratification and social mobility research, as discussed below. Scholars in this field have endorsed the implicit assumption that almost all men who graduate from school will become full-time regular workers. Hence, they have focused solely on the effects of occupational status when investigating intergenerational class mobility and the relationship between occupation and social consciousness. At least up to 2000, analyses of class mobility, including unemployment and non-regular employment, and of the effects of unemployment and non-regular employment on social consciousness, were dismissed by social stratification researchers.¹

Currently, sociologists engaged in stratification research do acknowledge the important role not only of occupational status, but also of employment status. A more detailed operational definition of occupation has been employed to examine the influence of the *freeter* experience on intra-generational class mobility (Tarohmaru 2006b), as well as the association between educational attainment and the probability of an individual becoming a non-regular worker (Shirakawa 2008).

Researchers interested in social consciousness have also tackled this problem. Kobayashi (2008a) stated that the conventional method of operationalizing occupation is inadequate for examining occupation’s effect on various social outcomes, such as happiness and class identification. Occupational prestige, which has been used most widely in analyses of social consciousness to assess the effect of occupation, represents only one aspect of occupation. Attention should also be paid to another important dimension of occupation, namely, employment status. The issue of work ethics and the vocational attitude of non-regular workers, including *freeters*, has been taken up within the mass media, with the result that negative

¹Earlier, the increasing influence of non-regular employment was given attention within labor economics and the sociology of education.

impressions of this group are often found throughout society. The combination of an increase in non-regular employment and this negative impression created by the mass media may have strengthened non-regular employees' status as a socially disadvantaged group, accelerating the formation of a negative self-image among *freeters*. If this is the case, it is plausible that there is a clear relationship between employment status and social consciousness.

However, whether all non-regular workers can be treated as a homogenous group is an open question (Genda 2001; Kosugi 2003). This is because the process of entering into non-regular employment and the meaning attached to that status may differ among individuals. Whereas one individual may consider non-regular employment as an investment for attaining high occupational status in the future, another may be compelled, for some reason, to engage in non-regular employment. Kobayashi (2008b) reported a difference in happiness levels among non-regular workers that was contingent on how they interpreted their current situation. His analysis, which focused on three types of *freeters*, showed that *freeters* of the "no alternative" type expressed markedly lower happiness than those of the "dream pursuing" and "moratorium" types.²

2.1.1 Theoretical Pointers from Social Exclusion Studies

The above research indicates that employment instability has a negative impact on not only the economic lives of citizens, but also on their social consciousness (Tarohmaru 2008). Further theoretical discussion is required to understand the mechanism by which insecure employment brings about these effects. A leading explanation regarding the mechanism whereby labor market position generates an effect on happiness, the social outcome of most interest in this research, focuses on the relationship between employment status and the availability of resources. Most researchers would agree that a decline in income and an economically precarious life brought about by the loss of a job lowers individual happiness. In fact, income is one of the most important factors affecting the level of happiness. Currently, social exclusion theory is attracting attention as it provides a new explanation, from a dynamic and multidimensional perspective, for the influence of a shift in the social environment on individual lives (Castel 2003). This theory regards the process through which an individual is multiply excluded from a variety of mutually related spheres as problematic. Social exclusion is a concept that indicates the inability of individuals to participate in political, economic, and social activities as a result of a prolonged condition whereby a person is deprived of the essentials for reaching a minimal level of daily life (Bellani and D'Ambrosio 2011).

Social exclusion theory emphasizes the central role of labor market integration as a means of understanding the process whereby individuals are excluded from

²Moratorium *freeters* have intentionally avoided regular full-time employment so that they can work in comfort while young.

several spheres within society. Unemployment and non-regular employment imply a weakening of the degree of labor market integration. This weak labor market integration immediately decreases the availability of financial or material resources. Hence, this process can be understood as the exclusion of individuals from the economic sphere. Financial and material resources are indispensable goods for maintaining a minimum standard of life. These economic resources would also be needed for satisfying an individual's needs within modern society, which is characterized by high consumption-oriented values. Therefore, it is reasonable to assume that a reduction in economic resources has a negative effect on individual happiness. There is already evidence of this relationship available from previous research.

Moreover, opportunities for contacting others are closely related to the degree of labor market integration. An individual acquires a basis for maintaining a continuous commitment relating to their organizational purpose and participation in social activities, as well as economic resources, through stable long-term employment. Clearly, a worker who enters into a long-term employment contract with a specific firm engages in some kind of organizational purpose. Further, an individual will be able to access opportunities to participate in various recreational or civic activities via his or her interpersonal relationships within the workplace and the loose ties that stem from these relationships. Personal contacts with others outside of the family, and the socialization effect of these ties, are thought to have a positive influence on individual happiness. Exclusion of individuals from the economic sphere is related to their exclusion from the social sphere because the workplace provides an important base for accumulating social capital. Social exclusion theory predicts that the happiness level of those who are unemployed or have non-regular employment will be relatively low as a result of insufficient social capital.

Another aspect pertaining to the effect of labor market integration on social consciousness is related to the status that an individual attains through his or her work engagement. As highlighted by social stratification researchers, occupational status is itself a valuable social resource (Tominaga 1979). A high status with regard to occupational stratification is foundational in forming a positive self-concept. This mechanism could explain the effect of occupation, which is independent from economic resources, on social consciousness within a society where working is a dominant norm. A similar logic can be applied for explaining the effect of non-regular employment. For example, if the growth of the number of *freeters* become an issue and the image of *freeters* as a socially disadvantaged group becomes more widespread, non-regular workers who internalize this image are likely to regard themselves as being unhappy. This scenario also implies the spreading of the impact of weak labor market integration outside of the economic sphere. Employment instability, that is, unemployment and non-regular employment collectively, lowers individual happiness levels through loss of socially valuable status.

Social exclusion theory states that labor market integration allows individuals to access economic resources, social capital, and status. In addition to this basic consideration, an interesting psychological mechanism has been put forward regarding the relationship between employment status and happiness. The concept

of social exclusion sheds light on temporal aspects of diminished labor market integration. A lingering instability of employment situation lessens the capability of individuals to make decisions during the course of their lives. Critical decisions made by an individual during his or her life-course include the choice of place of residence, timing of marriage, investment in education and training for career advancement, involvement in community organizations, and other matters. It is difficult for individuals on a trajectory that reflects social exclusion to have positive future prospects, mainly because they are deprived of various resources, and there is a high probability that their condition will worsen during their life (Bellani and D'Ambrosio 2011). This difficulty in achieving predictability, or controllability, with regard to their life constrains individuals from fully participating in the societies in which they live. Psychological vulnerability caused by unstable employment regarding future prospects provides another route for characterizing the effects of unemployment and non-regular employment on mental status, especially after the inclusion of a wide array of significant resources.

For example, in order for an individual to build friendly relationships with others, and to participate in social activities, having high expectations with regard to being able to engage in such actions may be a prerequisite. Frequent changes of job and address would impede individuals from maintaining regular contact with others at a significant level and from taking part in social activities on a continuous basis. Incomplete labor market integration causes frequent changes in job and place of residence and cuts individuals off from networks within workplaces and neighborhoods. Consequently, they cannot make future projections regarding their participation in various activities on the basis of stable relationships maintained with others. Weak labor market integration reduces not only the amount of social capital, but also the level of life-course predictability (Gundert and Hohendanner 2014). Rising uncertainty relating to life-course predictability thus becomes a source of difficulty for future prospects of participating in social activities that are fostered through regular contact with others. In short, employment instability results in non-regular workers having a low sense of control and a limited ability to plan ahead. It is assumed that the reduced capability to plan ahead, which is produced by limited life-course predictability, adversely affects individual happiness.

The decline of a sense of control over life incidents due to reduced life-course predictability is an important concept for comprehending how incomplete labor market integration leads to a reduction of happiness. There is still no empirical evidence to support the explanatory validity of this assumption. Thus, the principal aim of this research is to demonstrate the effect of a sense of control over life on the level of happiness. That is, it seeks to investigate, through empirical research, whether after controlling for economic resources and social capital, the link between a low level of happiness and employment insecurity can be explained by the perception of a lack of control over life. A perspective from economics, indicated by a literature review of studies on happiness (Urakawa 2011), suggests that a low level of decision latitude and stability among non-regular employees is related to a decline in their subjective well-being. However, there is no connection between this finding and the discussion regarding the function of life-course predictability.

A situation of non-regular employment reduces the domains of life over which an individual has control, whether at work or outside the workplace, strengthening the perception of an individual that uncertain factors exert influence upon his or her life-course. It is meaningful, we believe, to explore psychological aspects of labor market integration as a happiness study.

2.2 *The International Context*

In Germany, relaxing employment regulations and increasing fixed-term employment have been part of policy measures for raising the employment rate. As a result of implementing these measures, the total number of temporary agency jobs increased sixfold between the beginning of the 1990s and 2010. The total number of jobs entailing fixed-term contracts doubled during the same period. Germany's employment protection legislation applies to workers who have completed their probation period. The length of the probation period is contractually determined and generally continues for 6 months. In an attempt to skirt employment protection legislation and to retrench labor costs, an employer can take advantage of temporary employment. Employment protection legislation does not apply to fixed-term employees after the expiration of their contracts with their employers, because the contract between employer and employee is dissolved at its conclusion. Consequently, contract expiration exposes both fixed-term and temporary agency workers to the risk of unemployment and job insecurity.

However, in Germany there is an argument that fixed-term workers differ from temporary agency workers in terms of the risks of employment uncertainty for them (Gundert and Hohendanner 2014). Briefly, although fixed-term jobs may sometimes provide a stepping-stone for advancement, only a few temporary agency workers are able to find stable employment after concluding their short-term contracts. For some jobs requiring a high level of skills and qualifications, employers use fixed-term contracts as trials to ascertain the potential productivity of workers. This serves as a form of screening of workers. Consequently, a person who is hired for a job with high skill requirements will have experienced fixed-term contracts at early stage of his or her career. As compared with fixed-term contracts, many temporary agency workers are offered jobs with low-skill status, especially within the manufacturing sector. The average qualifications of temporary agency workers are also lower than those of fixed-term contracts workers. This is a reason why the stepping-stone effect of temporary agency employment is small. It is thought that these characteristics of the working conditions of temporary agency workers contribute to the formation of negative self-concept.

Whether the Japanese labor market for various forms of non-regular employment is also stratified in the same way is less clear. However, quantitative data analysis has revealed that when non-regular employees are treated as one group, the path-dependency effect on later status attainment is quite strong. It is known that once an individual has engaged non-regular employment, it is not easy for him or her to be

subsequently hired as a full-time regular employee (Tarohmaru 2006a). In Japan, the function of the support system for converting non-regular employment into regular employment is far from adequate. The structure of the labor market implies a modest stepping-stone effect of non-regular employment in the Japanese context. Consequently, it would not be unreasonable to expect that the overall effect of non-regular employment on social consciousness would be rather more pronounced in Japan than in Germany.

3 Data and Measurements

The data we used for the study were drawn from the regional life environment and happiness survey. This survey was conducted by using comparable questionnaires in five countries: Japan (in 2010, 2011, 2012, and 2013), France (in 2010), Germany (in 2013), the United Kingdom (in 2013), and the United States (in 2010). For our study, we analyzed the datasets for Japan and Germany. Although the survey design for the Japanese data had a panel structure, only data on the latest period were employed for the analysis. The regional life environment and happiness survey was internet-based. The survey subjects were sampled from among those who had previously registered with a research company. However, it should be noted that the generalizability of the analysis results should be given some attention because the respondents do not form representative samples for the countries. Furthermore, only those who were able to use the Internet could participate in this survey. Consequently, the data set included a disproportionately high proportion of well-educated people. However, the survey data were suitable for the purposes of this research. Respondents were interviewed regarding their current occupation, employment status, household income, educational background, and other important information related to factors influencing labor market integration. The questionnaire also included many items on social consciousness. These features of the survey enabled us to describe the relationship between labor market integration and happiness in detail, and to unveil what was behind this relationship. Clearly, it is important to compare the results reported in this study with those of a study that used data obtained from a random sampling survey. This is an issue that future researchers should consider.

The dependent variable in this study was reported happiness. Respondents were asked to rate their overall level of happiness on a scale from 0 to 10, with 0 indicating “very unhappy” and 10 indicating “very happy.” This measure of happiness was used throughout the analysis.³

³A respondent’s subjective happiness was measured on a discrete 11-point scale converted into numerical scores from 1 to 11. Consequently, those who were most happy within our sample had a score of 11 for this variable. A score of 1 meant that respondents considered their overall level of happiness as very unhappy.

The main independent variable in this research was employment status. Respondents described their employment status for their main line of work. Twelve mutually exclusive options for employment status were provided to respondents. The measure of employment status, which had six categories, was constructed on the basis of these options. Regular employees and civil servants served as reference categories in the regression analysis. The other categories were executives and the self-employed, fixed-term and temporary agency employees, part-time employees, the unemployed, and those not employed for other reasons. Fixed-term, part-time, and temporary agency employees were considered as non-regular employees. It is difficult to further subdivide these categories of employment status because of the limited number of cases available, especially in Germany. Students and people whose employment status was indistinct were marked as missing data, and these cases were omitted from the final data set.

For this study, our interest is in demonstrating how the relationship between employment status and happiness could be explained by a mediated process, as discussed in the previous section. The mediated process consists of four parts: economic resources, social capital, valued status, and life-course predictability. Household income, which is the most reliable measure of economic resources, was obtained in a straightforward manner for each respondent. Pre-tax and post-transfer household incomes were adjusted according to the number of household members, accounting for the changing needs of a household in a non-linear way. One unit of household income was considered as 10,000 yen in Japan and 100 euros in Germany. Although household income was mainly used as a continuous scale, its discrete form was also used descriptively for some parts of the analysis.

The level of social capital was captured by three questions about neighborhood activities. Respondents were asked how often they participated in activities designed to promote relationships between people in the area; sports, hobbies, and amusement activities; and volunteering, NPO, civic, and other similar types of activities. Each question offered four alternatives that could be selected, ranging from "Never" to "Yes, often." Respondents scored highly when their answers approached "Yes, often" for every question. The respondent's total score for frequency of participation in neighborhood activities was calculated to obtain an overall indicator of social capital. The maximum score for this measure was 12, which meant that the respondent often participated in all three neighborhood activities.

A question about experiencing difficulty in having control over life was used as indicator of diminished life-course predictability. Out of six options, respondents were asked to select the one that best represented their opinion. A higher score indicated that respondents definitely felt that they had hardly any degree of the control that they desired over their lives. Conversely, it was assumed that respondents who scored low on this variable, felt able to manage their own lives. Accordingly, this could be interpreted as an indicator of self-rated uncertainty of life-course predictability.

Unfortunately, there was no clear and direct indicator for status attained by an individual through participation in the labor market. Meaningful mediated factors and other socioeconomic characteristics may not completely explain the effect of

employment status. In this case, it is likely that some differences in employment status reflect differences in status. We can indirectly elucidate the effects of status because many of the variables that are correlated with well-being were accounted for in our study. Nevertheless, it would be desirable to include a direct measure of the loss of status to explicate the consequences of employment insecurity as a next step.

Sex, age, educational career, and marital status of respondents were controlled within a multivariate analysis on happiness. Previous studies have shown that educational level is a strong predictor of various types of social consciousness (Kikkawa 2006; Ishida 2009). The education attained by an individual is closely related to their position in the labor market. Thus, there may be doubts as to whether the effect of labor market integration on happiness is spurious because of the high correlation between educational attainment and employment status. Four categories pertaining to the educational background variable were employed for both Japan and Germany. However, the classification of educational levels differs in the two countries. In Japan, these are: junior high school, senior high school, vocational school, junior college and technical college, and university. However, educational levels in Germany are: lower secondary school, upper secondary school, post-secondary vocational training, and university. The dual system of vocational training after lower secondary education is amalgamated here with upper secondary education. Post-secondary vocational training offered within the German non-tertiary education sector consists of *Berufshochschule* [vocational high school] and *Fachhochschule* [technical high school]. Details regarding the distribution of the dependent variable, independent variables, and other control variables are available from the authors on request.

4 Results

Tables 10.1 and 10.2 show average scores for happiness, household income, community activity, and a sense of lacking control over life by employment status in Japan and Germany, respectively. The effect of employment status on happiness is statistically significant for both countries. The average happiness level of fixed-term and temporary agency employees, and of part-time employees, is lower than that of executives and self-employed individuals, as well as lower than that of regular employees and civil servants. The unemployed showed the lowest happiness level. These findings support the contention that labor market integration is a crucial source of individual happiness in modern society.⁴

⁴Table 10.1 shows the highest value for non-employed for other reasons in relation to happiness. This result implies that, in general, those who do not work for other reasons feel happier than not only fixed-term and temporary agency employees, part-time employees, and those who are unemployed, but also executives and self-employed individuals, as well as regular employees and civil servants. However, this is a spurious correlation as many of the individuals who were

Table 10.1 Happiness levels, household incomes, community activities, and a sense of lacking control over life in Japan, by employment status

	Happiness	Household income	Community activities	Sense of lacking control over life
Executives and self-employed	7.21	421.38	5.82	3.35
Regular employees and civil servants	7.07	452.68	5.20	3.47
Fixed-term and temporary agency employees	6.58	314.53	4.87	3.64
Part-time employees	6.84	289.41	5.23	3.59
Unemployed	6.24	237.62	5.07	4.09
Non-employed for other reasons	7.54	313.22	5.77	3.33
Sample size	4820	4618	4820	4820
F statistics	24.90	129.56	19.56	16.45
Significance level	<0.000	<0.000	<0.000	<0.000

Table 10.2 Happiness levels, household incomes, community activities, and a sense of lacking control over life in Germany, by employment status

	Happiness	Household income	Community activities	Sense of lacking control over life
Executives and self-employed	7.65	365.34	6.51	2.86
Regular employees and civil servants	7.53	292.66	6.05	2.92
Fixed-term and temporary agency employees	7.32	208.32	6.47	3.00
Part-time employees	7.28	193.84	5.66	2.75
Unemployed	6.34	156.73	4.91	2.84
Non-employed for other reasons	6.72	164.47	4.96	2.94
Sample size	874	784	874	874
F statistics	4.57	31.22	6.66	0.35
Significance level	0.001	<0.000	<0.000	0.885

The average household incomes of respondents who were non-regular employees and who were unemployed were relatively low compared with those of executives and self-employed individuals, and regular employees and civil servants, as expected. Degrees of participation in community activities of fixed-term and temporary agency employees and those who were unemployed in Japan, and of part-

categorized as non-employed for other reasons were women and retirees. Moreover, women frequently showed high levels of subjective well-being compared with men. The average age of retirees was high and their overall happiness level was also relatively high, because age has a U-shaped effect on scaled happiness. Therefore, the positive relationship between being non-employed for other reasons and happiness disappeared when the age and sex of respondents were controlled in multivariate analysis. We will practically demonstrate this in the second half of the results section.

time employees and unemployed individuals in Germany, were also low. In sum, respondents engaged in non-regular employment and those who were unemployed not only lacked adequate economic resources, but also adequate social capital. There were signs of the spread of social exclusion to various social spheres, brought about by the declining degree of labor market integration.

Results for the sense of life-course predictability of respondents were completely different for the two countries. In Japan, respondents who were non-regular employees and unemployed perceived their ability to manage their own lives to be inadequate. However, in Germany, respondents who were non-regular employees and unemployed felt that they were able to control their lives in the way that they desired. For instance, their subjective evaluation regarding a sense of lacking control over life was not statistically higher than that of regular employees. Clearly, the effects of labor market integration on an individual's life-course predictability differ in Japan and Germany.

Our analysis confirmed the general structure of association between school career and employment status. Employment status is deeply correlated with respondents' completed education. In Japan and Germany, executives and self-employed respondents, and regular employees, were frequently recruited from the highly educated group (data not shown). In contrast, many non-regular employees and unemployed respondents had low levels of education. There was a large difference between individuals in terms of their current employment status according to their educational status.

We calculated average happiness levels according to employment status by age and household income. We defined five groups of respondents on the basis of household income. Group I represents the lowest income group and group V represents the highest income group. The results illustrate the basic socio-demographic characteristics of happiness (data not shown). Happiness correlates curvilinearly with age. The young and the elderly were more likely to report being happy as compared with people who had reached middle age. Household income strongly affects individual happiness. The higher the household incomes of respondents, the higher their level of happiness is. Age and household income are important factors currently influencing people's subjective well-being. However, differences remained between various types of employment status in relation to happiness levels, even after controlling for these factors. Especially at low levels of household income, non-regular employment and unemployment status evidently had negative impacts on happiness.⁵ We subsequently used multiple regression analysis to further elucidate the determinate happiness factor.

In light of the above, individual happiness was regressed on employment status and other explanatory variables. Model 1 in Tables 10.3 and 10.4 serves as a baseline model and was used to identify the broad effect of different situations of employment status. In both Japan and Germany, the happiness levels of non-regular employees and unemployed individuals were lower than those of the omitted groups

⁵Raw data and a line graph can be obtained from the authors on request.

Table 10.3 Multiple regression analysis of happiness in Japan on a scale from 1 to 11

	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	7.079***	4.465***	6.148***	9.826***	6.517***
Men (ref)					
Women		0.636***			0.585***
Age		−0.134***			−0.083***
Age squared		0.002***			0.001***
Single (ref)					
Married		1.047***			0.774***
Divorced		0.039			0.019
Widowed		0.215			0.082
Executives and self-employed	0.152~	0.055	0.038	0.063	0.013
Regular employees and civil servants (ref)					
Fixed-term and temporary	−0.462***	−0.307**	−0.402***	−0.344***	−0.217*
Agency employees					
Part-time employees	−0.201*	−0.253*	−0.207*	−0.112	−0.190*
Unemployed	−0.840***	−0.639***	−0.821***	−0.315*	−0.268~
Non-employed for other reasons	0.490***	0.041	0.389***	0.383***	0.073
Household income (log)		0.671***			0.533***
Junior and senior high school (ref)					
Vocational school		0.093			0.135
Technical and junior college		0.124			0.093
University		0.098			0.067
Community activities			0.179***		0.070***
Sense of lacking control in life				−0.792***	−0.640***
Adjusted R ²	0.026	0.180	0.065	0.208	0.304
AIC	19,390	18,605	19,199	18,434	17,848

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, ~ $p < 0.10$; Executives and self-employed: 649, Regular employees and civil servants: 1699, Fixed-term and temporary agency employees: 326, Part-time employees: 556, Unemployed: 163, Non-employed for other reasons: 1221

(i.e., regular employees and civil servants). The part-time employment coefficient in Germany was not significant, even at the 10 % level. However, this is likely due to the relatively small sample size. The size of the estimated value for part-time employment in Germany ($\beta = -0.289$) was notably larger than that for the same employment category in Japan ($\beta = -0.201$). To identify a mediated process for modeling being deprived of economic resources, household income was included in the regression equation (Model 2). Sex, age, age square, educational level, and

Table 10.4 Multiple regression analysis of happiness in Germany on a scale from 1 to 11

	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	7.483***	5.489***	6.367***	9.257***	8.088***
Men (ref)					
Women		0.119			0.075
Age		-0.118**			-0.126***
Age squared		0.001**			0.001**
Single (ref)					
Married		0.654***			0.467**
Divorced		0.175			0.209
Widowed		0.616			0.220
Executives and self-employed	0.217	0.059	0.119	0.148	0.019
Regular employees and civil servants (ref)					
Fixed-term and temporary	-0.248	-0.033	-0.309	-0.205	-0.235
Agency employees					
Part-time employees	-0.289	-0.086	-0.250	-0.400	-0.245
Unemployed	-1.079***	-0.593~	-0.893**	-1.152***	-0.729*
Non-employed for other reasons	-0.878**	-0.554~	-0.681*	-0.892**	-0.545~
Household income (log)		0.749***			0.474***
Lower secondary (ref)					
Upper secondary		-0.400~			-0.283
Post-secondary vocational training		-0.334			-0.338
University		-0.094			-0.136
Community activities			0.184***		0.138***
Sense of lacking control in life				-0.606***	-0.548***
Adjusted R ²	0.021	0.091	0.069	0.169	0.236
AIC	3380	3332	3342	3253	3198

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, ~ $p < 0.10$; Executives and self-employed: 173, Regular employees and civil servants: 437, Fixed-term and temporary agency employees: 17, Part-time employees: 67, Unemployed: 47, Non-employed for other reasons: 43

marital status were also controlled. The log of household income had a strong and significant effect on happiness. However, the impact of educational level on happiness was not notable. In this model, many of the statistically significant effects of employment status were diminished in the case of Germany. However, the estimated size of the unemployment coefficient in Germany ($\beta = -0.593$) was similar to the regression coefficient of unemployment in Japan ($\beta = -0.639$). In Japan, the effects of fixed-term and temporary agency employment, and of unemployment, were reduced, but still statistically significant, when the results of Model 2 were compared with those of the previous model. The effect of part-time

employment did not substantially contribute to a difference between the two models. Significant and positive effects of non-employment for other reasons in model 1 were no longer observed when household income and other control variables were accounted for. We observed that respondents' sex and age, including the square of age, fully explained the effect of non-employment for other reasons. On the whole, the analysis revealed that economic resources were not the only important explanatory factor for differences in happiness levels in relation to employment status.

In Model 3, participation in community activities was added as an indicator of social capital. This additional variable in the model was significantly and positively associated with happiness level; a result that was consistent with discussions in the existing literature regarding the community's function (Putnam 2000; Yagi 2010). However, the employment status coefficient hardly changed even when the community-related variable was controlled in the model. Although the degree of participation in community activities was moderately related to current employment status, this factor did not serve as a potential mediator of the effects of labor market integration.

To investigate the mediating role of life-course predictability, happiness was regressed on sense of lacking control over life, together with employment status in Model 4. It was evident from the adjusted R^2 and AIC statistics that this subjective, negative assessment of life-course predictability alone, quite strongly determined happiness. The overall happiness level of respondents who felt that they lacked significant control over their own lives was expected to be notably lower. Interestingly, the mediating function of a feeling of unease regarding control over the life-course was entirely different in Japan and Germany. In Germany, the effect of employment status was scarcely mediated by feelings of uncertainty about the life-course. This was a reasonable result, because a pessimistic assessment regarding controllability of the life-course was not correlated to various types of employment in Germany. With respect to Japan, the mediation effect of a feeling of insecurity related to control over the life-course was substantive. The effect of part-time employment was not statistically significant. Fixed-term and temporary agency employment, and unemployment, had a statistically significant effect on happiness. Nevertheless, the coefficients of these variables were considerably reduced in size in comparison with those in the baseline model. In the case of fixed-term and temporary agency employment, and of unemployment, 26 % and 63 % of their respective effects were attributed to the inability of individuals to control their own lives. There was thus evidence in support of the notion that low happiness levels of non-regular employees and the unemployed can be partly interpreted from the perspective of their reduced life-course predictability.

Model 5, our final model, included all the independent variables, mediation variables and control variables as regressors. While the effect of the two categories of non-regular employment in Japan is significant at the 5 % level, the coefficient was rather small in comparison with the results of the preceding model. Furthermore, the effect of unemployment in this model is only marginally significant (at the 10 % level). These findings indicate that the relationship between labor market

integration and happiness is partially mediated by factors included in the regression model, especially the economic situation and a feeling of insecurity relating to lack of control over the life-course. With respect to Germany, while non-regular employment did not affect the overall happiness level,⁶ the effect of unemployment is statistically significant at the 5 % level. Our findings about the remaining effect of unemployment parallel the results for Model 4. That is, in Germany a feeling of insecurity regarding lack of control over the life-course did not mediate the association between different types of employment and individual happiness.

5 Discussion and Conclusions

We conducted a quantitative study to explore the mechanism behind the relationship between labor market integration and individual subjective well-being. Earlier in this chapter, we discussed recent shifts in the labor markets of contemporary capitalist countries. An evident increase in non-regular employment and unemployment has prompted a revision of the traditional sociological framework for understanding the various impacts of labor market experiences on life-course events and social consciousness. We obtained some theoretical pointers from a study of social exclusion. This theory highlights multiple processes that exclude individuals from various social spheres. Additionally, we attended to the impacts of reduced life-course predictability that has been brought about by a decline in labor market integration.

The results of our data analysis indicated that labor market integration was positively associated with the overall level of happiness. Regular employment, for instance, was associated with higher levels of happiness than non-regular employment and unemployment. We found that labor market integration was also positively related to household income and the degree of participation in community activities, and negatively related to the uncertainty associated with a reduction in life-course predictability. Our findings have provided evidence of multiple processes of social exclusion. They show that weak labor market integration leads to both economic deprivation and other forms of social exclusion, such as a drop in social capital and a decrease in the controllability of the life-course.

Our multivariate analysis showed that the effects of different types of employment were substantially reduced in magnitude when we controlled household income. There was evidence of a difference in economic well-being bringing about the difference in happiness levels related to employment status, although this was not the only mechanism generating this relationship. Evidence regarding the role of community activities was not consistent with our theoretical expectation. This indicator of social capital did not have the mediation effect that would explain the

⁶However, there may be no substantive difference between Japan and Germany in terms of the size of the coefficient of fixed-term and temporary agency employment and part-time employment.

association of employment status and happiness, in spite of a positive relationship existing between community activities and labor market integration. In Japan, the effect of employment status was substantially mediated by controllability of the life-course. Our quantitative evidence supports the notion that a low level of life-course controllability, which is inherent in unstable employment, is consequential for an individual's subjective well-being. The empirical confirmation of this relationship is one of the main contributors of our research. However, with respect to Germany, the mediation effect of diminished life-course predictability was less pronounced.

In Japan, becoming a non-regular employee, notably a fixed-term or temporary agency employee, is associated with a greater decrease in subjective happiness than that associated with non-regular employment in Germany. This raises the question of what produces this result. We think that the different characteristics of labor markets for non-regular employment play an important role therein. In Japan, there is a likelihood of non-regular employment having a long-term negative impact on individuals' work experience, and there is a wide mobility barrier between different employment statuses. Unlike in Germany, non-regular employment is more likely to be a trap, not a stepping-stone, in the career trajectory of individuals. So their experience of employment insecurity endures for a long period, causing progressive deprivation of various resources during their life-course to the extent that they can hardly predict their future prospects. Reduced life-course predictability inflicted through a series of processes results in non-regular employees losing their capability to cope with diverse life events. The perceived reduction of control and the ability to foresee the future is related to the low level of happiness of non-regular employees. Evidence regarding the impacts of life-course predictability revealed that differences between the two countries in terms of the effects of non-regular employment became less pronounced once we took this factor into account. The same interpretation may be applicable to the effect of unemployment. Individuals who had lost their jobs in Japan clearly felt that they seldom had the same amount of control over their life as they previously had. An unemployed person tends to experience this feeling partly because it is difficult for him or her to get a new job. The unfavorable estimation of control and the inability to plan ahead are responsible for lowering the happiness level of the unemployed. On the other hand, in Germany, current unemployment itself appears to have a strong negative impact on the happiness level. Unemployment, and perhaps non-employment, is a sign of loss of status in society, which may result in a decrease in the happiness of a person without a specific job. The limitation of this research relates to the impossibility of using a direct measure of valued status. Instead we had to rely on indirect testing of the assumption regarding the mediation role of social status. Future studies should empirically examine the influence of status and clarify how it explains the different effects of job insecurity in different countries.

On the whole, the impact of employment instability on individual daily life is merciless. A precarious employment environment casts a dark shadow over the happiness as well as the economic situation, community activities and life-course predictability of an individual. It is necessary to ensure complete financial support for people who are experiencing employment instability. Individuals must

maintain a minimum standard of living and satisfy social and cultural needs that are considered important in advanced capitalist society, even if they lose stable employment for various reasons. The provision of economic resources is indispensable for satisfying this demand. To improve the opportunity for moving from non-regular employment to a stable position, and ensure that a shift takes place from unemployment to re-employment, are also a political issue. Stable employment and re-employment are essential for gratifying psychosocial needs that go beyond the need to manifest economic resources. These include, for instance, a strong sense of control and the ability to plan ahead and socially valued status. Labor market integration is a key concept for eradicating social exclusion and reinstating individuals within various social spheres. Generous political efforts should alleviate individual risks that relate to job insecurity and contribute to the evolution of an information-based society.

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Chapter 11

Effects of Paid and Unpaid Overtime Work on Stress, Earnings, and Happiness

Akira Kawaguchi and Takato Kasai

1 Introduction

Working is one of the most basic activities of our lives. It is a way to earn money, and consuming commodities that are purchased with that money can often lead to happiness. Traditional neoclassical economics assumes that people prefer leisure time to working time, and that people work to obtain the money, which is necessary for consumption, and that their utility increases as consumption increases. Following this, people maximize their utility by balancing leisure and work.

Real life, of course, is not so simple. Capturing the relation between working time and happiness is a matter of great interest in happiness economics. Rudolf (2013) shows that in Korea, a reduction in statutory working hours increases satisfaction with working hours, but has no impact on job and life satisfaction. In contrast, Hamermesh et al. (2014) find that the reduction of statutory working hours in Korea and Japan partly increases workers' life satisfaction.

Some authors argue that long working time is a stressor that may cause mental and physical illness and work-family conflicts (Asano and Kenjo 2011; Shimazu et al. 2011), while others argue that a long working time does not necessarily cause stress. Shimazu et al. (2012) distinguish between *workaholism* and *work engagement*. *Workaholics* are propelled by an obsessive inner drive that they cannot resist, whereas engaged employees are intrinsically motivated. While *workaholism*

A. Kawaguchi (✉)

Faculty of Policy Studies, Doshisha University, Kyoto, Japan

e-mail: akawaguc@mail.doshisha.ac.jp

T. Kasai

Faculty of Economics, Doshisha University, Kyoto, Japan

e-mail: t.kasai@outlook.com

is related to an increase in ill health with a decrease in life satisfaction, *work engagement* is related to a decrease in ill health and to an increase in life satisfaction and job performance.

Many workers in Japan work long hours. In 2011, 31.1 % of employees worked 50 h or more per week. This is the largest proportion among major developed countries, followed by Korea (27.7 %). The corresponding figures are 11.1 % in the United States and 9.0 % in France (Japan Institute of Labour Policy and Training [JILPT] 2014). Recently, the long working time has become a target of criticism in Japan. The recent buzzword of *black companies* has come to refer to companies that force employees to work long hours without overtime payment. *The Ministry of Health, Labour and Welfare* investigated 5,111 establishments on suspicion of abusive labor practices in 2013, and found 43.8 % had illegal overtime work and 23.9 % had unpaid overtime work. The proportion of *black companies* is large in industries such as manufacturing, retail and wholesale, and transportation.¹

While unpaid overtime is a serious social problem, little academic research has been done on this issue. Here, we apply a mediation analysis to investigate the effects of paid and unpaid overtime on stress, earnings, and happiness. The major findings of this research are as follows. First, unpaid overtime has a significantly positive effect on stress and significantly negative effect on happiness. Second, the effect of unpaid overtime on stress is much greater for women than for men. Third, while unpaid overtime performed by men is not associated with their earnings, that performed by women is positively correlated with their earnings.

The remainder of this chapter is organized as follows. The legal regulation of working time in Japan, the United States, and France is explained in Sect. 2. We discuss our model and hypotheses in Sect. 3. Section 4 is devoted to an explanation of the database and variables. We overview the data in Sect. 5. Estimation results are presented in Sect. 6, and finally we conclude the chapter in Sect. 7.

2 The Legal Regulation of Working Time in Japan, the United States, and France

We will investigate the legal regulation of working time in Japan, the United States, and France, in particular focusing on overtime work.

In Japan, *the Labor Standards Law* limits the legal working time to 8 h per day and 40 h per week. Employers are required to pay 25 % higher hourly wages for employees working more than this legal working time, and the overtime premium rises to 50 % when the overtime exceeds 60 h per month.

However, some employees who work overtime do not receive overtime payments. First, *the Labor Standards Law* exempts *bona fide* managers from the legal regulation of working time. This exemption gives companies an incentive to

¹*Nihon Keizai Shinbun* (Nikkei Newspaper), evening edition, December 17, 2013.

promote workers to manager status in order to save on overtime payments. It is not unusual for employees to lose income after they attain promotion. This sometimes causes conflicts between employers and employees. For example, a shop manager at MacDonald's sued his employer, claiming that he did not have the authority of a manger nor did he receive a commensurate salary, and that the employer had appointed him as manager to avoid overtime payment. In 2008, the Tokyo District Court ruled in favor of the plaintiff and ordered the defendant to pay overtime (Nikkei BP Net 2008).

Second, some employers do not pay overtime, in violation of *the Labor Standards Law*. Employees may acquiesce because they are afraid of losing their job by antagonizing their employers, or they may voluntarily work overtime to show their employers their good performance.

Recently a reform of working time regulations has attracted attention. The *Abe cabinet* launched a plan of "white-collar exemption" as one of its economic revitalization strategies in 2014 (Headquarters for Japan's Economic Revitalization 2014). According to *the Ministry of Health, Labour and Welfare's* plan, which was released in January 2015, professional workers who earn 10,750,000 yen (about \$90,000) or more will be exempt from the regulation of working time.²

In the United States, the Fair Labor Standards Act (*FLSA*) regulates the minimum work conditions.³ The act sets the normal working time as 40 h a week. If workers work more than 40 h a week, they are paid 50 % more than regular wages. This rate of *overtime premium* is higher than in Japan.

Some white-collar workers are exempt from working time regulations. *FLSA* Section 13(a)(1) exempts from overtime pay protection *bona fide* executive, administrative, professional, and external sales employees who are paid on a salaried basis of no less than \$455 per week. *FLSA* Section 13(a)(17) exempts paid-hourly employees who perform certain types of work in the field of computing if they are paid at a rate of not less than \$27.63 per hour. The threshold of \$455 per week seems too low to protect workers and has not been updated since 2004. Nowadays, only 12 % of salaried workers fall below the threshold that guarantees them overtime and minimum wage protection. President *Obama* stated the necessity of updating this threshold in March 2014 (White House 2014).

In France, working regulations were gradually set in place from 1936, and the legal definition of working time became 35 h per week (about 1,600 h per year) in 2000. Working time exceeding 35 h per week is overtime. The *overtime premium* is 25 % for up to 8 h per week and 50 % thereafter.

There are two deemed working time systems in France: the comprehensive working time (*forfait en heures*) system and the annual working day (*forfait en jours*) system. In the former system, an employee and his/her employer can have a contract involving weekly, monthly, or annual working time and payments. Working

²*Nihon Keizai Shinbun* (Nikkei Newspaper), morning edition, January 8, 2015.

³Unless otherwise stated, the Japan Institute for Labour Policy and Training [JILPT] (2012) is used as a reference for the description of working time regulations in the United States and France.

time that exceeds 35 h per week is overtime. An annual contract of working time and payments is allowed only when the employer and the union have an agreement, and it applies only to managerial workers and workers who have discretion in managing their own working time.

In the latter system, an employee and his/her employer can have a contract involving annual workdays and payments, and the employees can independently manage their working time. Therefore, there is neither overtime work nor overtime payment. An annual working day contract is allowed only when the employer and the union have an agreement, and it applies only to managerial workers and workers who have discretion in their working time management. The limit for annual working days is 218 days.

Recently, the amount of overtime work has been increasing, because since 2007 overtime payments have not been taxed. This policy was implemented by then-President *Sarkozy* to increase working time and earnings.

3 Model and Hypotheses

Traditional economic theory has considered labor as having simply negative effects on individual utility, satisfaction, or happiness. This negative effect, however, will differ by kind of work (scheduled work or overtime), and is not seen very clearly in the real world. Therefore, we will estimate a simple model that can be illustrated by Fig. 11.1. We assume that working time affects happiness through two intermediaries: work-related stress and earnings. We also assume that working hours have a direct effect on happiness.

We categorize working time into three types: scheduled working time, paid overtime work, and unpaid overtime work. The effects of these three types of working time on stress, earnings, and happiness is assumed to be different. Because there are many publications that state that a long working time is a source of stress, we will examine whether working time increases stress by testing the following hypothesis.

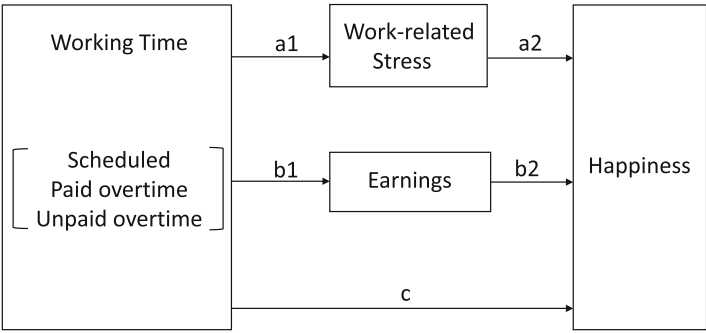


Fig. 11.1 Model

Hypothesis 1.1 Any type of working time increases stress, by means of which happiness is reduced.

The effect of working time on stress may depend on the type of working time. It is reasonable to predict that overtime work would cause greater stress than scheduled work, because overtime work may be unanticipated and may be forced on employees, and the stress caused by an extra hour of work may increase as total working time increases. Thus we will test the following hypothesis.

Hypothesis 1.2 The effect of paid overtime on stress is greater than that of scheduled working time, and hence paid overtime reduces happiness more than scheduled working time.

Another interesting question is whether unpaid overtime causes more stress than paid overtime. One could conjecture that the same tasks cause the same stress, and whether this work is paid or unpaid is irrelevant. However, if overtime work is not paid, workers may feel they are unfairly treated and may feel disappointed, miserable, or depressed. We will test the following hypothesis.

Hypothesis 1.3 The effect of unpaid overtime work on stress is greater than that of paid overtime work, and hence unpaid overtime reduces happiness more than paid overtime work does.

It is reasonable to predict that the three types of working time affect earnings in different ways. While both scheduled working time and paid overtime increase earnings, the effect will be greater for overtime work since an *overtime premium* is paid. On the other hand, unpaid overtime work will not increase earnings. However, it should be noted that ‘unpaid’ overtime work may be compensated for by bonuses or higher salaries. For example, managers, sales workers, and professionals often work under the discretionary work system, and overtime work is not paid. We will test the following hypotheses.

Hypothesis 2.1 Scheduled working time and paid overtime work increase earnings, by means of which happiness increases.

Hypothesis 2.2 The effect of paid overtime work on earnings is greater than that of scheduled working hours, and hence paid overtime increases happiness via earnings more than scheduled working time does.

Hypothesis 2.3 Unpaid overtime work does not increase earnings, and hence it does not increase happiness via earnings.

4 Database and Variables

The database used for this study derives from the Questionnaire on Life Environment and Happiness, which was conducted in 2012 by Toshiaki TACHIBANAKI and Tadashi YAGI. The sample size is 6,491 people in Japan, 1,001 in the United

States, and 1,049 in France. This database contains variables such as *gender*, age, education, marital status, occupation, total working hours per week, hours worked as paid overtime, hours worked as unpaid overtime, work-related stress, annual earnings, and happiness score. Table 11.1 summarizes the descriptive statistics.

Table 11.1 Descriptive statistics

	Male		Female	
	Mean	S.D.	Mean	S.D.
Japan				
Work-related stress	14.76	4.15	14.58	4.35
Weekly earnings (1,000 yen)	106.6	59.7	43.7	34.2
Happiness	5.90	1.96	6.06	2.05
Total workweek	43.24	12.25	33.66	13.70
Unpaid overtime (dummy)	0.41	0.49	0.24	0.43
Scheduled workweek	35.11	11.36	28.98	12.12
Paid overtime	3.79	7.02	3.00	5.16
Unpaid overtime (hours)	4.33	7.38	1.68	3.66
Age	46.09	11.68	41.11	12.23
Age squared/1,000	2.261	1.080	1.839	1.037
Education dummy				
Graduate school	0.10	0.30	0.04	0.20
University	0.55	0.50	0.35	0.48
Junior college	0.12	0.33	0.36	0.48
High school	0.21	0.41	0.25	0.43
Junior high school	0.01	0.12	0.01	0.08
Marital status dummy				
Married	0.71	0.45	0.46	0.50
Divorced	0.04	0.18	0.11	0.31
Bereaved	0.00	0.06	0.01	0.10
Never married	0.25	0.43	0.42	0.49
Occupation dummy				
Agriculture	0.00	0.05	0.00	0.03
Manual	0.06	0.25	0.02	0.16
Sales	0.07	0.26	0.07	0.25
Service	0.12	0.32	0.17	0.38
Clerical	0.22	0.41	0.47	0.50
Professional	0.32	0.47	0.17	0.38
Manager	0.13	0.34	0.01	0.07
Others	0.08	0.27	0.08	0.28
Numbers of observations	1,991		932	
US				
Work-related stress	13.01	5.50	12.48	5.42
Weekly earnings (1,000 yen)	921.79	624.16	711.54	527.60
Happiness	7.09	1.93	7.68	1.55

(continued)

Table 11.1 (continued)

	Male		Female	
	Mean	S.D.	Mean	S.D.
Total workweek	40.07	11.10	35.08	12.47
Unpaid overtime (dummy)	0.21	0.41	0.17	0.37
Scheduled workweek	36.33	10.55	32.04	12.07
Paid overtime	1.60	4.03	1.25	3.32
Unpaid overtime (hours)	2.13	4.23	1.79	3.88
Age	42.87	11.68	41.42	12.35
Age squared/1,000	1.97	1.04	1.87	1.06
Education dummy				
Graduate school	0.13	0.33	0.16	0.37
University	0.40	0.49	0.32	0.47
Junior college	0.25	0.43	0.29	0.46
High school	0.23	0.42	0.23	0.42
Junior high school	0.00	0.00	0.00	0.00
Marital status dummy				
Married	0.54	0.50	0.57	0.50
Divorced	0.10	0.30	0.17	0.37
Bereaved	0.01	0.12	0.01	0.09
Never married	0.35	0.48	0.26	0.44
Occupation dummy				
Agriculture	0.01	0.08	0.00	0.00
Manual	0.11	0.32	0.03	0.18
Sales	0.11	0.31	0.08	0.28
Service	0.15	0.35	0.14	0.35
Clerical	0.07	0.25	0.21	0.41
Professional	0.30	0.46	0.27	0.44
Manager	0.14	0.35	0.04	0.20
Others	0.12	0.33	0.23	0.42
Number of observations	150		120	
France				
Work-related stress	13.00	4.72	13.82	5.03
Weekly earnings (1,000 yen)	486.67	265.95	371.83	226.35
Happiness	6.56	1.88	6.61	1.82
Total workweek	35.71	9.23	32.98	9.46
Unpaid overtime (dummy)	0.28	0.45	0.30	0.46
Scheduled workweek	30.68	9.43	28.60	9.43
Paid overtime	2.43	5.43	2.19	4.31
Unpaid overtime (hours)	2.59	4.71	2.19	6.41
Age	40.71	10.66	40.91	12.13
Age squared/1,000	1.77	0.90	1.82	0.00

(continued)

Table 11.1 (continued)

	Male		Female	
	Mean	S.D.	Mean	S.D.
Education dummy				
Graduate school	0.00	0.00	0.00	0.00
University	0.28	0.45	0.29	0.45
Junior college	0.49	0.50	0.51	0.50
High school	0.17	0.38	0.18	0.39
Junior high school	0.06	0.24	0.02	0.16
Marital status dummy				
Married	0.56	0.50	0.42	0.49
Divorced	0.10	0.30	0.16	0.37
Bereaved	0.00	0.00	0.01	0.12
Never married	0.34	0.47	0.41	0.49
Occupation dummy				
Agriculture	0.00	0.07	0.01	0.10
Manual	0.08	0.08	0.04	0.20
Sales	0.11	0.32	0.11	0.32
Service	0.15	0.35	0.18	0.38
Clerical	0.19	0.40	0.29	0.45
Professional	0.23	0.42	0.16	0.37
Manager	0.04	0.19	0.03	0.17
Others	0.19	0.39	0.19	0.39
Number of observations	212		203	

There are five questions related to stress caused by work. Respondents are asked to rate each of the following statements on a five-point scale: strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree.

- (a) I have been worried about my job.
- (b) I have been depressed about my job.
- (c) I have felt disappointed with my job.
- (d) I feel concerned about my job.
- (e) I feel miserable in my job.

The score indicating stress is calculated for each statement at: strongly agree (4), agree (3), neither agree nor disagree (2), disagree (1), and strongly disagree (0). The sum of the scores of the five statements is the total score indicating stress, which varies from 0 to 20. Table 11.1 shows that work-related stress is almost the same for both *genders*.

Weekly earnings are calculated as annual earnings divided by 52. Male earnings are more than twice as large as female earnings in Japan. Happiness is evaluated on a 0-to-10 scale. Although women have slightly higher scores in all three countries, this gap is not statistically significant.

Working time is calculated as follows. Respondents are asked to select one of the following categories for their total workweek: 0 h, 1–10 h, 11–20 h, 21–30 h, 31–40 h, 41–50 h, 51–60 h, and 61 h or more. We regard those who selected 1–10 h as working 5 h, those who selected 11–20 h as working 15 h, and so on, with those who selected 61 h or more as working 65 h. Paid overtime work and unpaid overtime are calculated in the same way. The scheduled workweek is calculated as the total workweek minus paid overtime and unpaid overtime. We also created a dummy variable that is 1 if a respondent works unpaid overtime and 0 otherwise. The table shows that men work longer than women regardless of the type of work or country.

5 Overview of the Data

Table 11.2 summarizes the mean and distribution of working time in the three countries. Male working time is the longest in Japan, followed by the U.S. and France. However, female working time is the longest in the U.S., followed by Japan and France. There is a clear difference in the distribution of working time. In France, 72 % of men and 68 % of women work between 31 and 40 h per week. Japan and the U.S. do not have such a high concentration into a single workweek category. The reason for this feature might be the restrictive working time regulations in France. As mentioned above, the legal working time in France is 35 h, which is shorter than for the other two countries. In the U.S., 63 % of men and 43 % of women work between 41 and 50 h per week, and in Japan, 45 % of men and 32 % of women belong to that category.

Another remarkable feature is that the proportion of workers who work 51 h or more is very large in Japan; 24 % of men and 7 % of women in Japan work 51 h or more, while only 5 % of men and 3 % of women work 51 h or more in the other two countries.

The scheduled workweek is the longest in the U.S. at 35.9 h for men and 32.0 h for women, followed by Japan and France. Paid overtime is the longest in Japan and the shortest in the U.S. Japanese men also work the longest unpaid overtime, that is, 4.3 h a week.

In the remainder of this chapter, we will focus on the Japanese data to discuss the effects of paid and unpaid overtime work on stress, earnings, and happiness. Figure 11.2a, b show the relationship between the total workweek and the stress of Japanese male and female workers. A solid line shows workers who worked overtime and a dashed line the workers who did not work overtime. Vertical lines measure standard deviation.

There is a clear difference between the two groups of workers. Workers who worked overtime suffer a greater degree of stress regardless of the total workweek and regardless of *gender*.

Figure 11.3a, b show the relationship between the workweek and earnings for male and female workers. It is surprising that workers who worked unpaid overtime

Table 11.2 Distribution of weekly hours worked

	Japan		U.S.		France	
	Male	Female	Male	Female	Male	Female
Total workweek						
Mean	43.14	33.71	39.75	35.00	35.68	32.73
Distribution						
1–10 h	0.03	0.05	0.04	0.03	0.03	0.03
11–20 h	0.03	0.15	0.04	0.12	0.03	0.09
21–30 h	0.04	0.14	0.08	0.17	0.03	0.10
31–40 h	0.22	0.27	0.17	0.21	0.72	0.68
41–50 h	0.45	0.32	0.63	0.43	0.14	0.06
51–60 h	0.17	0.06	0.03	0.02	0.04	0.01
61 h or more	0.07	0.01	0.02	0.01	0.01	0.02
Total	1.00	1.00	1.00	1.00	1.00	1.00
Scheduled workweek						
Mean	35.04	28.97	35.85	31.98	30.68	28.50
Distribution						
1–10 h	0.06	0.11	0.06	0.07	0.06	0.07
11–20 h	0.08	0.18	0.04	0.16	0.10	0.17
21–30 h	0.19	0.27	0.16	0.17	0.37	0.32
31–40 h	0.43	0.33	0.42	0.40	0.42	0.40
41–50 h	0.20	0.10	0.31	0.19	0.04	0.03
51–60 h	0.04	0.01	0.00	0.01	0.02	0.00
61 h or more	1.00	1.00	1.00	1.00	1.00	1.00
Total	0.06	0.11	0.06	0.07	0.06	0.07
Paid overtime work						
Mean	3.78	3.00	2.25	1.78	2.62	2.08
Distribution						
0 h	0.62	0.60	0.69	0.74	0.64	0.76
1–10 h	0.24	0.32	0.25	0.21	0.29	0.19
11–20 h	0.09	0.06	0.04	0.03	0.06	0.03
21–30 h	0.03	0.01	0.01	0.01	0.00	0.00
31–40 h	0.01	0.00	0.00	0.00	0.00	0.00
41–50 h	0.00	0.00	0.00	0.00	0.00	0.00
51–60 h	0.00	0.00	0.00	0.00	0.00	0.01
Total	1.00	1.00	1.00	1.00	1.00	1.00
Unpaid overtime work						
Mean	4.32	1.74	1.65	1.24	2.38	2.15
Distribution						
0 h	0.59	0.75	0.78	0.83	0.72	0.70
1–10 h	0.24	0.20	0.17	0.12	0.20	0.25
11–20 h	0.12	0.04	0.03	0.04	0.05	0.05
21–30 h	0.04	0.00	0.01	0.00	0.01	0.01
31–40 h	0.01	0.00	0.00	0.00	0.01	0.00
41–50 h	0.00	0.00	0.00	0.00	0.00	0.00
51–60 h	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.00	1.00	1.00	1.00	1.00	1.00
Number of observations	2,022	954	158	121	211	216

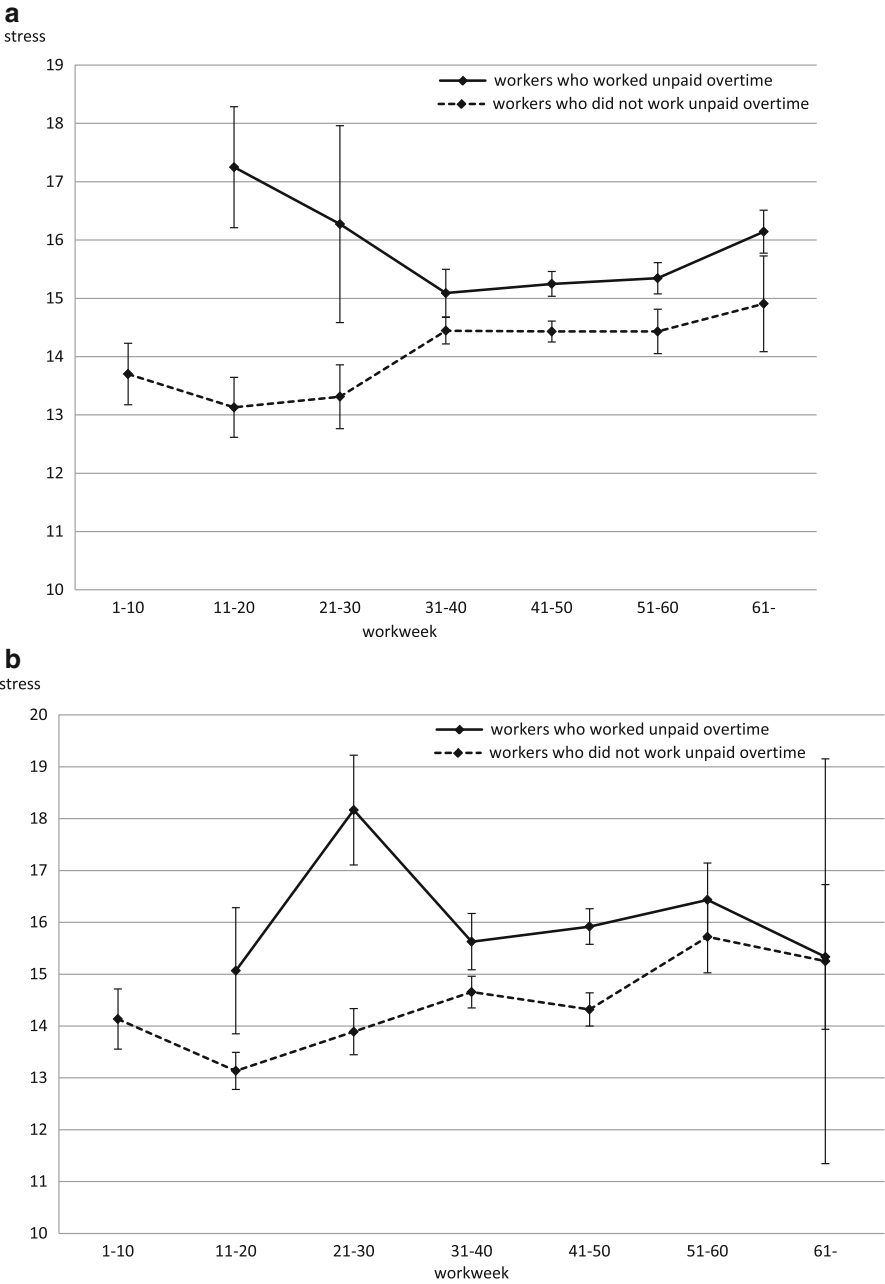


Fig. 11.2 Workweek, unpaid overtime and stress, Japanese (a) male, (b) female

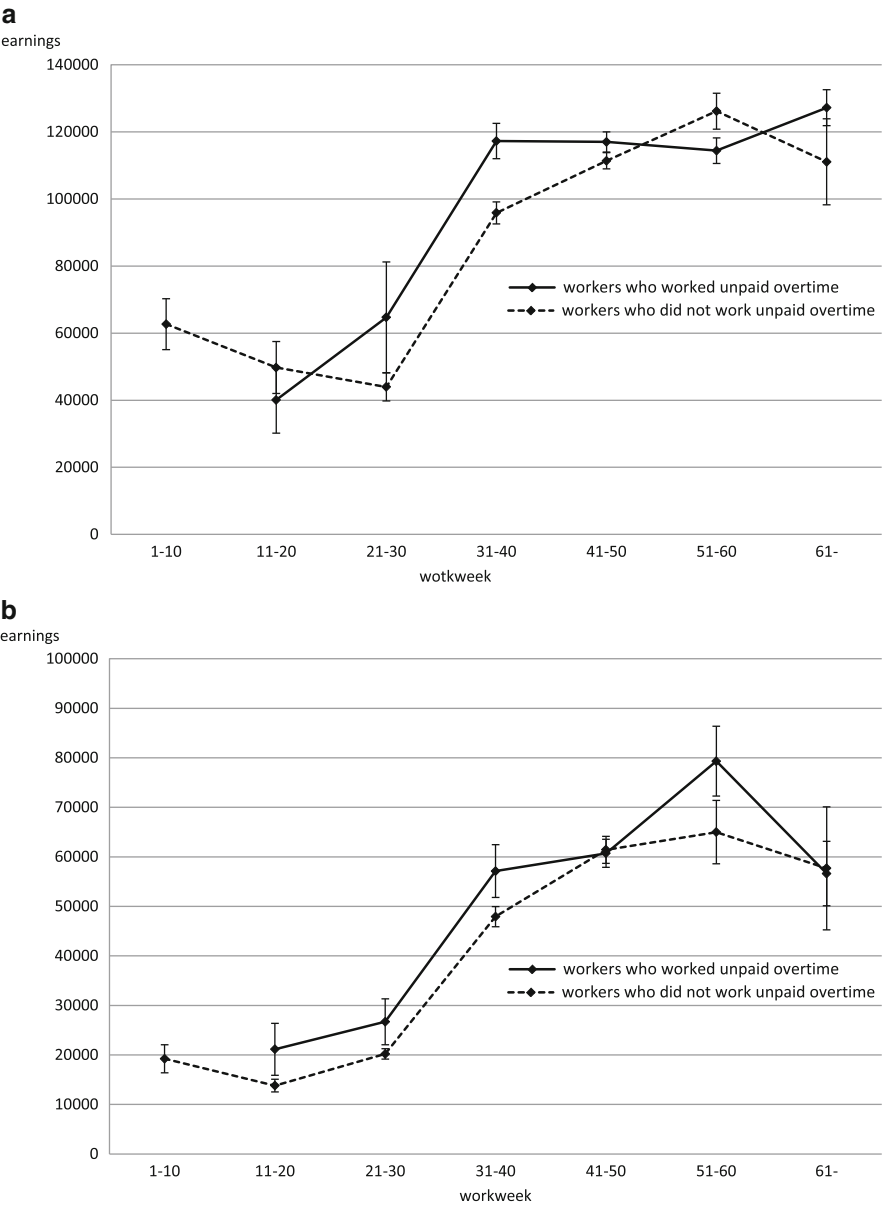


Fig. 11.3 Workweek, unpaid overtime and earnings, Japanese (a) male, (b) female

tend to have larger earnings than those who did not, although the difference is not significant at the 5 % level. This is true for female workers. This implies that ‘unpaid’ overtime may be compensated. Workers with a long working time receive high wages even though it is not paid in the form of overtime payment.

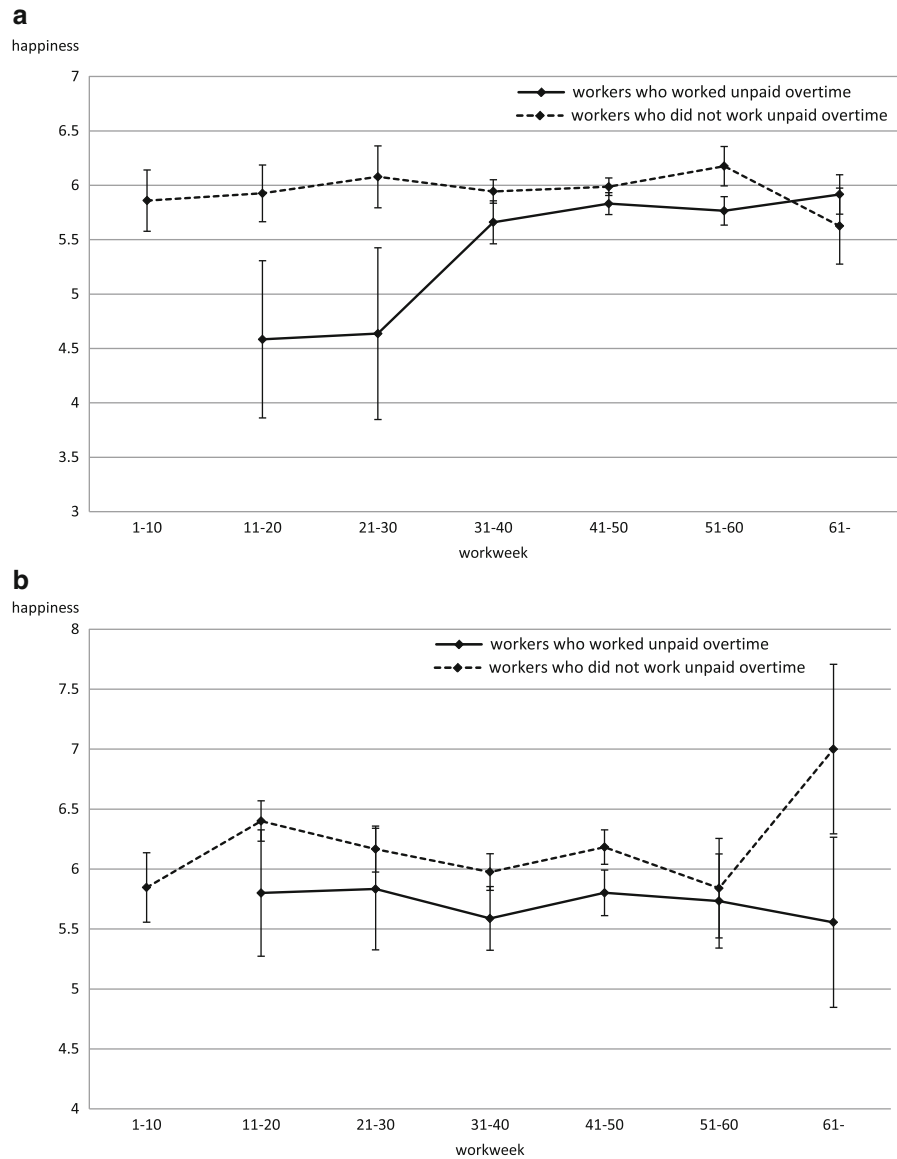


Fig. 11.4 Workweek, unpaid overtime and happiness, Japanese (a) male, (b) female

Figure 11.4a, b show the relationship between the workweek and happiness for male and female workers. Workers who work overtime tend to be less happy regardless of *gender*. Workers who work unpaid overtime tend to have more stress, which reduces happiness, and more income, which increases happiness. Figure 11.4a, b imply that the former effect exceeds the latter.

To sum up, stress is positively correlated with unpaid overtime. Earnings are positively associated with unpaid overtime, but it is not statistically significant. Happiness is negatively associated with unpaid overtime. These facts are observed both for male and female workers.

6 Estimation Results

Table 11.3 summarizes the estimation results of the model. A seemingly unrelated regression model is used to estimate two mediation variables and a dependent variable simultaneously. Two models are estimated. The total workweek and an unpaid overtime dummy are used as working-time variables in Model 1, and scheduled working time, paid overtime, and unpaid overtime are used in Model 2.

6.1 Model 1

The male stress equation of Model 1 shows that the total workweek does not have a significant effect on stress, but workers who work unpaid overtime have 1.03 greater stress than those who do not, which is significant at the 1 % level.

The earnings equation for men shows that a greater length of the total workweek increases male earnings. A 1-h increase in the total workweek increases weekly earnings by 810 yen, which is close to the Japanese minimum wage (749 yen in 2012). On the other hand, weekly earnings of workers who worked unpaid overtime are 5,760 yen lower than those of workers who did not work unpaid overtime.

The happiness equation for men shows that stress reduces happiness and earnings increase it, as expected. An increase in stress by one standard deviation (s.d. = 4.15) decreases happiness by 0.664, which is 33.9 % of the s.d. of happiness. An increase in earnings by 1 s.d. (59.7) increases happiness by 0.281, or 14.3 % of the s.d. of happiness.

The female stress equation in Model 1 reveals that the total workweek does not have a significant effect on stress, but workers who work unpaid overtime have 1.61 greater stress than those who do not, which is significant at the 1 % level. The coefficient is much larger than that of men.

The female earnings equation shows that a greater length of the total workweek increases their earnings. A 1-h increase in the total workweek increases weekly earnings by 1,170 yen, which is larger than the effect on male earnings (810 yen). This does not mean that earnings per hour is larger for women. This implies rather that male earnings are not sensitive to working time, since men are more likely to be regular workers and their basic salary is not dependent on working time. Yet, the coefficient of the unpaid overtime dummy in the earnings equation is not significant, which means that 'unpaid' overtime work is somehow compensated. This contrasts with the case of men, where those who work unpaid overtime receive significantly lower earnings if the total working time is controlled.

Table 11.3 Effects of paid and unpaid overtime on stress, earnings and happiness

	Stress		Earnings		Happiness	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Model 1 (male)						
Stress	—	—	—	—	−0.160	0.010***
Earnings	—	—	—	—	0.0047	0.0009***
Total workweek	0.013	0.008	0.81	0.09***	0.000	0.004
Unpaid overtime dummy	1.032	0.199***	−5.76	2.22***	−0.172	0.084**
Age	0.063	0.065	11.39	0.72***	−0.095	0.029***
Age squared/1,000	−1.1629	0.6961*	−121.29	7.75***	0.929	0.310***
Education dummy						
Graduate school	−2.249	0.828***	48.30	9.21***	1.293	0.349***
University	−1.709	0.782**	33.17	8.70***	1.055	0.328***
Junior college	−1.389	0.810*	11.44	9.01	0.855	0.339**
High school	−1.792	0.789**	15.23	8.77*	0.923	0.330***
Junior high school	—	—	—	—	—	—
Marital status dummy						
Married	—	—	—	—	—	—
Divorced	0.964	0.496*	−14.11	5.52**	−0.721	0.208
Bereaved	−2.222	1.530	−9.01	17.02	−0.925	0.640
Never married	0.469	0.238**	−22.87	2.65***	−1.060	0.102
Occupation dummy						
Agriculture	−1.223	1.680	−2.54	18.69	−0.969	0.703
Manual	—	—	—	—	—	—
Sales	−0.031	0.502	6.33	5.58	0.050	0.210
Service	0.169	0.449	−1.82	4.99	0.084	0.188
Clerical	−0.372	0.418	22.12	4.65***	0.239	0.176
Professional	−0.635	0.407	24.95	4.53***	0.090	0.171
Manager	−1.181	0.464**	70.16	5.16***	0.290	0.203
Others	0.378	0.485	4.91	5.39	0.025	0.203
Constant	15.489	1.652***	−220.97	18.38***	9.270	0.725***
R-squared	0.068		0.441		0.265	
Number of observations	1,992		1,992		1,992	
Model 1 (female)						
Stress	—	—	—	—	−0.148	0.015***
Earnings	—	—	—	—	0.0038	0.0023*
Total workweek	0.008	0.012	1.17	0.08***	0.006	0.006
Unpaid overtime dummy	1.608	0.341***	1.60	2.18	−0.215	0.153
Age	−0.069	0.088	2.95	0.56***	−0.057	0.040
Age squared/1,000	0.256	1.027	−29.25	6.56***	0.657	0.461
Education dummy						
Graduate school	0.843	1.844	11.04	11.77	−0.287	0.819
University	1.128	1.719	12.86	10.98	−0.385	0.764
Junior college	1.239	1.718	2.30	10.97	−0.464	0.763

(continued)

Table 11.3 (continued)

	Stress		Earnings		Happiness	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
High school	1.152	1.724	−0.47	11.01	−0.993	0.766
Junior high school	−	−	−	−	−	−
Marital status dummy						
Married	−	−	−	−	−	−
Divorced	1.595	0.476***	11.77	3.04***	−0.835	0.215***
Bereaved	−1.708	1.362	−5.59	8.70	−0.781	0.606
Never married	0.724	0.352**	10.35	2.25***	−0.909	0.159***
Occupation dummy						
Agriculture	−6.382	4.250	4.27	27.14	−1.284	1.890
Manual	−	−	−	−	−	−
Sales	0.008	1.024	5.29	6.54	0.657	0.455
Service	−1.042	0.940	4.59	6.00	0.562	0.418
Clerical	−1.084	0.895	9.81	5.72*	0.509	0.398
Professional	−1.401	0.947	23.42	6.05***	0.543	0.424
Manager	−2.054	2.081	36.09	13.29***	1.637	0.928*
Others	−0.835	0.994	4.89	6.34	0.140	0.442
Constant	15.712	2.708***	−85.39	17.29***	9.592	1.236***
R-squared	0.088		0.397		0.189	
Number of observations	932		932		932	
Model 2 (male)						
Stress	−	−	−	−	−0.162	0.009***
Earnings	−	−	−	−	0.0046	0.0009***
Scheduled workweek	0.011	0.009	0.89	0.10***	0.000	0.004
Paid overtime	0.019	0.015	0.99	0.16***	0.000	0.006
Unpaid overtime (hours)	0.066	0.013***	0.21	0.14	−0.009	0.005
Age	0.085	0.065	11.36	0.72***	−0.097	0.029***
Age squared/1,000	−1.417	0.698**	−120.66	7.71***	0.959	0.310***
Education dummy						
Graduate school	−2.112	0.829**	47.96	9.17***	1.271	0.349***
University	−1.557	0.783**	32.75	8.66***	1.030	0.328***
Junior college	−1.282	0.812	11.02	8.97	0.838	0.339
High school	−1.670	0.790**	14.76	8.74*	0.903	0.330***
Junior high school	−	−	−	−	−	−
Marital status dummy						
Married	−	−	−	−	−	−
Divorced	0.958	0.497*	−13.59	5.50**	−0.721	0.208***
Bereaved	−1.949	1.533	−9.36	16.94	−0.972	0.640
Never married	0.459	0.239*	−22.83	2.64***	−1.059	0.102***
Occupation dummy						
Agriculture	−1.097	1.685	−1.81	18.62	−0.987	0.703
Manual	−	−	−	−	−	−

(continued)

Table 11.3 (continued)

	Stress		Earnings		Happiness	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Sales	0.109	0.502	6.46	5.55	0.029	0.210
Service	0.222	0.450	−1.47	4.97	0.075	0.188
Clerical	−0.260	0.418	21.61	4.62***	0.220	0.175
Professional	−0.549	0.407	25.01	4.50***	0.075	0.171
Manager	−1.067	0.465**	71.08	5.14***	0.276	0.203
Others	0.519	0.485	4.48	5.36	0.003	0.202
Constant	15.019	1.658***	−223.70	18.33***	9.341	0.726***
R-squared	0.063		0.445		0.264	
Number of observations	1,992		1,992		1,992	
Model 2 (female)						
Stress	−	−	−	−	−0.150	0.015***
Earnings	−	−	−	−	0.0038	0.0023
Scheduled workweek	0.006	0.013	1.10	0.08***	0.006	0.006
Paid overtime	0.015	0.027	1.64	0.17***	0.002	0.013
Unpaid overtime (hours)	0.181	0.039***	1.41	0.25***	−0.009	0.018
Age	−0.079	0.089	2.94	0.56***	−0.057	0.040
Age squared/1,000	0.367	1.029	−28.91	6.53***	0.646	0.461
Education dummy						
Graduate school	0.865	1.848	11.14	11.71	−0.293	0.820
University	1.236	1.723	12.79	10.92	−0.409	0.765
Junior college	1.385	1.721	2.63	10.91	−0.489	0.763
High school	1.281	1.727	−0.03	10.95	−1.018	0.766
Junior high school	−	−	−	−	−	−
Marital status dummy						
Married	−	−	−	−	−	−
Divorced	1.645	0.477***	12.01	3.03***	−0.840	0.215***
Bereaved	−1.662	1.365	−5.57	8.65	−0.790	0.606
Never married	0.764	0.353**	10.75	2.24***	−0.916	0.159***
Occupation dummy						
Agriculture	−6.441	4.260	5.10	27.01	−1.301	1.891
Manual	−	−	−	−	−	−
Sales	0.048	1.027	5.91	6.51	0.635	0.456
Service	−1.023	0.943	5.08	5.98	0.543	0.418
Clerical	−1.081	0.898	10.47	5.69*	0.499	0.399
Professional	−1.414	0.951	23.83	6.03***	0.516	0.425
Manager	−2.376	2.094	36.51	13.28***	1.625	0.933*
Others	−0.784	0.998	6.03	6.32	0.119	0.443
Constant	15.881	2.718***	−85.68	17.23***	9.639	1.239***
R-squared	0.084		0.403		0.188	
Number of observations	932		932		932	

The seemingly unrelated regression model is used

*, **, and *** imply that coefficients are significant at the 10 %, 5 %, and 1 % level, respectively

The happiness equation for women shows that stress reduces happiness and earnings increase it, as expected. An increase in stress by 1 s.d. (4.35) decreases happiness by 0.646, which is 31.5 % of the s.d. of happiness. An increase in earnings by 1 s.d. (34.2) increases happiness by 0.128, or 6.3 % of the s.d. of happiness. The effect of earnings on women's happiness is much smaller than that for men. A possible explanation for this difference is that a married woman's earnings are negatively correlated with her spouse's income. Since we have not controlled for spouse's income, the effect of a woman's own earnings on happiness may be underestimated.

6.2 *Model 2*

Model 2 uses three different types of working time as explanatory variables: scheduled working time, paid overtime, and unpaid overtime. The stress equation for male workers reveals that unpaid overtime increases stress significantly, but scheduled working time and paid overtime work do not. This supports Hypothesis 1.3 but is in contradiction of Hypotheses 1.1 and 1.2. This implies that working time does not increase stress insofar as it is paid.

The earnings equation for male workers shows that scheduled working time and paid overtime increase earnings, but unpaid overtime does not. This supports Hypotheses 2.1 and 2.3. The coefficient of paid overtime is 11 % larger than that of scheduled working time. This supports Hypothesis 2.2. Considering that in Japan the overtime wage premium is 25 %, the estimated premium is slightly small.

The happiness equation for men shows that the effects of stress and earnings are almost the same as those in Model 1. The direct effects of the three types of working time are not significant.

The stress equation for female workers reveals that unpaid overtime increases stress, but scheduled working time or paid overtime does not. This supports Hypothesis 1.3, but is in contradiction of Hypotheses 1.1 and 1.2.

The earnings equation for women shows that the three types of working time increase earnings and that the effect is the greatest for paid overtime work. This result supports Hypotheses 2.1 and 2.2, but is in contradiction of Hypothesis 2.3. The positive association between unpaid overtime and earnings implies that women's 'unpaid' overtime is partly compensated. Women who have high income tend to work overtime in order to show a good performance to their employers and to secure their jobs.

The happiness equation for women shows that stress significantly reduces happiness, but that earnings do not have a significant effect on happiness.

The results for female workers are different from those for male workers with respect to the following points. First, the effect of unpaid overtime on stress for women is three times as great as that for men. Female workers are more vulnerable to unpaid overtime work. When we look at the components of stress in more detail,

Table 11.4 Effects of working time on happiness via mediator variables

	Male		Female	
	Coef.	S.E.	Coef.	S.E.
Scheduled working time → stress → happiness	−0.0018	0.0015	−0.0009	0.0019
Scheduled working time → earnings → happiness	0.0041	0.0009***	0.0041	0.0025
Total effect of scheduled working time on happiness	0.0020	0.0041	0.0091	0.0059
Paid overtime work → stress → happiness	−0.0030	0.0024	−0.0023	0.0041
Paid overtime work → earnings → happiness	0.0046	0.0011***	0.0062	0.0038
Total effect of paid overtime work on happiness	0.0016	0.0066	0.0063	0.0128
Unpaid overtime work → stress → happiness	−0.0106	0.0022***	−0.0272	0.0064***
Unpaid overtime work → earnings → happiness	0.0010	0.0007	0.0053	0.0034
Total effect of unpaid overtime work on happiness	−0.0185	0.0059***	−0.0306	0.0183*

*, **, and *** imply that the coefficients are significant at the 10 %, 5 %, and 1 % level, respectively
 Total effect on happiness includes a direct effect as well as indirect effects

male workers who work unpaid overtime are more likely to be depressed, and female workers who work unpaid overtime are more likely to be worried about their jobs. Male workers' unpaid overtime is literally unpaid, and hence they are likely to be depressed. However, female workers who work unpaid overtime receive higher wages than those who do not. They work unpaid overtime to show employers a good performance and to secure their jobs.

Second, the effects of the three types of working time on earnings are greater than the estimation for male workers. In particular, the effect of unpaid overtime on earnings is seven times as great as that for men, and is significant at the 1 % level. Thirdly, the effect of earnings on happiness is not significant. This could be because the earnings of a married woman are negatively correlated with her spouse's income, which was not controlled in our model.

6.3 Effects on Happiness

Finally, we will measure the effects of the three types of working time on happiness through two mediator variables. The effect of working time on happiness via stress is measured by $a1*a2$ in Fig. 11.1, the effect via earnings is measured by $b1*b2$, and the total effect is measured by $a1*a2 + b1*b2 + c$.

Table 11.4 summarizes the effects of the three types of working time via two mediator variables, as derived from Model 2 of Table 11.3. We find the following facts from the table. First, scheduled working time does not have a significant effect on happiness. This is true for both *genders*. Second, scheduled working time increases happiness via earnings, but the effect is significant for only men. The total effect of scheduled working time on happiness is not significant. We can observe the same trend for paid overtime work.

The effects of unpaid overtime work on happiness are quite different from those of paid overtime. First, unpaid overtime significantly reduces happiness via stress. The effect is much greater for women, so that the effect on female happiness is 2.7 times as great as that on male happiness. Second, the effect of unpaid overtime on happiness via earnings is not significant. This is true for both *genders*. Finally, the total effect of unpaid overtime on happiness is significantly negative. The size of the effect is greater, but less significant, for women.

To sum up, Hypotheses 1.1 and 1.2 are not supported. Scheduled working time and paid overtime are not significantly associated with stress, regardless of *gender*. On the other hand, Hypothesis 1.3 is supported, and women in particular are very vulnerable to unpaid overtime work.

Hypotheses 2.1 and 2.2 are supported. Scheduled working time and paid overtime increase earnings, and the effect is greater for paid overtime. This is true for both *genders*. On the other hand, Hypothesis 2.3 is supported only for men. 'Unpaid' overtime has no effect on male earnings, but is positively associated with female earnings to a significant degree.

7 Concluding Remarks

This chapter discussed the effects of working time on stress, earnings, and happiness. We estimated a model assuming that working time affects happiness through two intermediaries: work-related stress and earnings. A seemingly unrelated regression model is used to estimate two mediation variables and a dependent variable simultaneously.

We found the following facts. First, unpaid overtime has a significantly positive effect on stress, but scheduled working time and paid overtime do not. Second, the effect of unpaid overtime on stress is much greater for women than for men. This may reflect strict *gender* roles in Japanese society, where women have the responsibility for *housekeeping*. Third, scheduled working time and paid overtime have a positive effect on earnings. Paid overtime work has a greater effect on earnings than scheduled working time. Fourth, while unpaid overtime work performed by men does not have a significant effect on earnings, that performed by women is positively associated with earnings to a significant degree. This implies that women's 'unpaid' overtime is actually compensated.

When we look at the components of stress in more detail, we find male workers who work unpaid overtime are more likely to be depressed, and female workers who work unpaid overtime are more likely to be worried about their jobs. Male workers' unpaid overtime is literally unpaid, and hence they are likely to be depressed. On the other hand, female workers who work unpaid overtime receive higher wages than those who do not. Women who have good jobs tend to work unpaid overtime to show their employers good performances and to secure their jobs.

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Part III
Societal Issues and Happiness

Chapter 12

Why Do Japanese Parents and Their Young Adult Children Live Together?

Kei Sakata and Colin R. McKenzie

1 Introduction

Nest-leaving or leaving the parental home can be seen as the first step for adult children to become independent of their parents both financially and emotionally. However, there is a clear trend that more and more young adults are delaying their residential independence from their parental home, especially among Mediterranean youth (see, for example, Cobb-Clark (2008), Giuliano (2007) and Manacorda and Moretti (2006)).

These trends are also found for Japanese youth. This may have serious implications for the parents' well-being in their older age. The combination of a low fertility rate and an aging population is expected to have significant impacts on the care families provide for their aged parents, and the wealth older generations have to accumulate for their life after their retirement. However, the younger generation is now more likely to delay their nest leaving, and seems to economically depend more on their parents. Figure 12.1 depicts the co-residence rates of single young Japanese adults (aged 20–34) over the period from 1980 to 2010 as a proportion of the total number of young people.¹ This figure indicates that Japanese single young adults are much likely to live with their parents today than in the 1980s. In 2010,

¹Figure 12.1 appears to suggest that women are more independent than men, but this interpretation is a little misleading as women marry earlier than men on average.

K. Sakata
College of Economics, Ritsumeikan University, Minami-Kusatsu, Japan
e-mail: ksakata@ec.ritsumei.ac.jp

C.R. McKenzie (✉)
Faculty of Economics, Keio University, Tokyo, Japan
e-mail: mckenzie@keio.jp

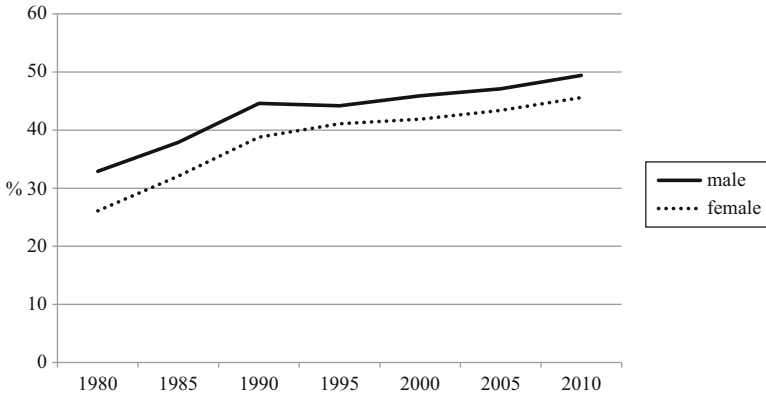


Fig. 12.1 Proportion of single young people (aged 20–34) living with their parents (*Source:* The original data used to compute the proportions in this figure are taken from Nishi (2013). Note: For each sex, the proportion is computed as the percentage ratio of the number of single young people living with their parents to the total number of young people)

the co-residence rate for single young Japanese men was 49.4 %. Much higher co-residency rates are observed, when the co-residence rates are computed using a sample limited to *single* adult children. For example, according to the 2003 White Paper on the National Lifestyle, 68.4 % of single adults lived with their parents in 2001 (Cabinet Office (Japan) 2003).

Numerous studies have been undertaken to examine why young people around the world delay their nest-leaving. One stream of the research seeks an explanation for this delay by examining labor market conditions (McElroy 1985; Card and Lemieux 2000; Becker et al. 2008). Some empirical evidence suggests that high housing prices and high rents have an influence on living arrangements (Haurin et al. 1993; Ermisch 1999). Guiso and Jappelli (2002) argue that severe imperfections in the mortgage market in Italy lead to young adults delaying their nest-leaving. Fogli (2004) provides evidence that young people choose to live with their parents when there is a high degree of employment protection and severe credit constraints. Delaying residential independence enables young adults to consume, save and invest even when they face credit constraints (Cox 1990; Ermisch 2003; Fogli 2004). All of these studies try to unravel why young adults live with their parents and what benefits the young adults obtain from co-residing with their parents. In the Japanese context, Raymo and Ono (2007) and Raymo et al. (2009) focus on women to examine the relationship between their nest-leaving and family formation.

Although we do not deny the importance of the factors from the children's point of view, in this chapter, we will particularly focus on the preferences of parents. It is difficult to say that the same amount of attention has been paid to why parents accept the delay in their children's nest-leaving and what parents gain (or lose) in exchange for the co-residence with their adult children. This chapter investigates why parents live with a single young adult child and what parents might gain/lose from the co-residence with a single young adult child.

There are some studies which highlight what parents gain from co-residence with their adult children in terms of their satisfaction and financial transfers. Aquilino and Supple (1991) argue that co-residence with an unemployed or financially dependent adult child increases conflict between the parents and the child. Blanco and Kluve (2002) indicate that a child’s nest-leaving increases parental satisfaction with their housing situation in the Netherlands, Denmark and Spain. Ermisch (2003) contends that young people are more likely to live in the parental home when parental income increases, and less likely to live in the parental home when their own income increases. Manacorda and Moretti (2006) argue that in Italy, parents prefer to live with their adult children, and they ‘bribe’ their adult children, who prefer to live on their own, to live with them. Their empirical evidence suggests that parental income has positive effects on co-residence with a son, and at the same time, they found that the parents’ subjective well-being improves when they live with a single adult son whereas that is not true for their child. On the other hand, Rosenzweig and Wolpin (1993) suggest that the opposite is true as parental income decreases co-residence rates in the U.S., and argue that in the U.S. parents prefer to live on their own. Cobb-Clark (2008) has argued that “the economic and social consequences for parents of their children’s increased financial dependency are completely unexamined”.

U.S. evidence suggests that parents use co-residence to subsidize their children’s investment in education (Rosenzweig and Wolpin 1993). Martínez-Granado and Ruiz-Castillo (2002) found that Spanish parents used co-residence to support children who were studying or finding a job. Cobb-Clark and Gørgens (2014, p. 450) argue that “parents may care about their children’s characteristics (i.e. educational attainment) or behavior (i.e. employment status) rather than their utility or wellbeing per se”. However, there is a puzzle in Japanese living arrangements. Over 65 % of single adult children who live with their parents have a job irrespective of their birth order (see Table 12.1). How then should we interpret the co-residence of adult children with their parents? One possible explanation is that working single adult children may be living with their parents because the child’s income is too low to live on their own. Another is that parents may be happy to live with their children (for example, Manacorda and Moretti (2006)). If the co-residence with single adult children reduces the utility of parents, the co-residence may be targeted to support

Table 12.1 Employment status of single adult children who live with their parents

	First child (%)	Second child (%)	Third child (%)
Employed	69.2	67.4	66.7
Still in school	24.6	26.8	26.5
Not employed	6.3	5.8	6.8
Total	100.0	100.0	100.0
Sample size	2608	2482	790

Source: The data is computed from responses to the 1998 and 2003 NFRJ surveys
Note: Single adult children are defined as children between the ages of 18 and 34 who have never married

their low income children in exchange for raising the parent's utility rather than for the parents to "bribe" children to live with them.

Using data from two surveys, the *National Family Research of Japan 1998* and the *National Family Research of Japan 2003* (NFRJ1998 and NFRJ2003), we examine how co-residence affects the levels of parents' satisfaction. In order to estimate these co-residence effects, we estimate the average treatment effects of the treated by propensity score matching. In this chapter, co-residence is seen as the treatment, and life satisfaction and marriage satisfaction and financial status are viewed as the outcomes. We incorporate this information when estimating the propensity score. We also introduce a gender dimension into the analysis, and examine the effects of co-residence with at least one son (daughter) on the satisfaction of both mothers and fathers separately.

Our empirical evidence suggests that Japanese parents are more likely to be dissatisfied with their life and marriage when they live with an adult child. The gender analysis reveals that mothers are more likely to be dissatisfied with the co-residence with an adult son, but fathers are likely to be indifferent. On the contrary, fathers are more likely to be dissatisfied with the co-residency with an adult daughter, whereas mothers seem to be indifferent. The findings suggest that impact of co-residence on the life and marital satisfaction of parents is determined by who bears the burden of domestic duties, and by the Japanese fathers' preference relating to their daughter's early marriage. Importantly, parents who co-reside with an unmarried adult child are more likely to be financially distressed. In particular, mothers who play a central role in managing the household's spending are likely to express their financial distress. Our empirical evidence suggests that the 'bribe' model is not valid in Japan, and it is more likely that the co-residence is targeted to support their low income children in exchange for the parent's utility.

The remainder of this chapter consists of four sections. Section 2 provides the methodological framework used in this chapter, while Sect. 3 describes the data. Section 4 reports and discusses the estimation results, and Sect. 5 provides some concluding remarks.

2 Methodology

This section illustrates how to measure the effects of co-residence on the satisfaction levels of parents and the financial status of the households. We estimate such effects by the propensity score matching (PSM) method. We regard co-residence as a 'treatment', and life satisfaction levels, marriage satisfaction levels, and the levels of financial status as outcomes.

The major challenge of micro-econometric program evaluation is the problem of selection bias (see Heckman et al. 1997, 1998). We are interested in the difference in outcomes between the participants' outcome with treatment and without treatment. In our case, we would like to know the difference between the satisfaction of parents

living with their young adult children and parents living without them. However, these two outcomes cannot be observed at the same time for the same individual.

It is not appropriate to use the mean outcome of nonparticipants as an approximation since it is more likely to suffer from selection bias. The PSM approach is one possible solution to the problem of selection bias. In the PSM approach, we look for individuals in the nonparticipant group who are similar to participants, and compare the outcomes of these two groups. It is assumed that after controlling for all the relevant covariates X , the difference between participants and nonparticipants who are similar to participants can be attributed to the treatment program (or in this case co-residence).

In the context of co-residence, we are interested in the impact of co-residence of an adult child on the life satisfaction levels of parents when compared to the counterfactual of parents who did not live with their adult child. The aim is to estimate the so-called average treatment effect on the treated (ATT) defined as:

$$\tau_{ATT} = E(\tau|D = 1) = E[Y(1)|D = 1] - E[Y(0)|D = 1] \quad (12.1)$$

where $Y(1)$ and $Y(0)$ are the life satisfaction levels for co-residency and non-residency, respectively, and D is a dummy variable taking the value unity for co-residency and 0 otherwise. As mentioned earlier, the counterfactual mean $E[Y(0)|D = 1]$ is not observable. We use the propensity score to simulate the counterfactuals. Rosenbaum and Rubin (1983) define the propensity score as the conditional probability of receiving a treatment given pretreatment characteristics. The propensity score can be written as:

$$p(X) = P(D = 1|X) = E(D|X) \quad (12.2)$$

where X is a vector of covariates. Rosenbaum and Rubin (1983) indicate that if being treated is random within cells defined by X , it is also random within cells defined by the values of $p(X)$. In other words, if we take individuals with the same propensity score and divide them into those that are treated and those that are untreated, the groups will be approximately balanced on the variables predicting the propensity score. The assumption that is required to identify the ATT is called ‘strong ignorability’ (Rosenbaum and Rubin 1983). If the focus is to estimate the ATT only, it is possible to weaken the assumptions above (Caliendo and Kopeinig 2008) to an unconfoundedness assumption and a common support assumption. The ‘unconfoundedness’ or ‘selection on observables’ assumption is that selection is made solely on the basis of the observed characteristics and that all the relevant variables are observed by the researcher. The common support assumption rules out the perfect predictability of D given X and requires that $0 < P(D = 1|X) < 1$.

Under the conditional independence assumption and the overlap between two groups, the PSM estimator for the ATT can be written in general as (12.3):

$$\tau_{ATT}^{PSM} = E_{p(x)|D=1} \{E[Y(1)|D = 1, p(X)] - E[Y(0)|D = 0, p(X)]\} \quad (12.3)$$

We estimate the ATT in the following two steps. First, we estimate the propensity score by a Probit model with a set of covariates. Then, we estimate the ATT based on the propensity score.

In order to estimate the propensity score, we estimate a Probit model for co-residency outcomes using a set of covariates. This is essentially a parametric model for the probability in Eq. 12.2. For the parents' sample, the covariates in X include the husband's age and its square (Husband age and Husband age squared, respectively), a dummy variable for the husband's employment status taking the value 1 if the husband is employed and zero otherwise (Husband employed), a dummy variable for the husband's health status taking the value 1 if the status is "bad" and zero otherwise (Husband health), the wife's age and its square (Wife age and Wife age squared, respectively), a dummy variable for the wife's health status taking the value 1 if the status is "bad" and zero otherwise (Wife health), a home ownership dummy taking the value 1 if the home household owns the home and zero otherwise (Own house), an urban dummy taking the value 1 if the household lives in an urban area and zero otherwise (Urban), the number of children, and a 0–1 dummy variable for the year of the survey taking the value 1 if the observation relates to the 1998 survey and zero if it relates to the 2003 survey (year dummy).

Next, we establish appropriate intervals so that the average propensity score of the treatment and control groups are not different. Furthermore, after establishing appropriate intervals, we test within each interval that the means of each characteristic in X do not differ between the treatment and control groups. This is a necessary condition for the "balancing property".

The algorithm is restricted to the common support. The common support restriction suggests that in order to test the balancing property, we only perform the test on the observations whose propensity score belongs to the intersection of the supports of the propensity score of treated and control individuals.

Theoretically, the probability of treatment and control groups with exactly the same value of the propensity score is zero since $p(X)$ is a continuous variable. Various methods have been proposed in the literature to overcome this problem and we use two of the most widely used methods: Nearest Neighbor Matching and Kernel Matching.

In the matching method, each treated individual i is matched with some group of comparable untreated individuals. With respect to the outcome of the treated individual i , the weighted outcomes of her 'neighbors' j in the control group can be written as:

$$\hat{y}_i = \sum_{j \in C^0(P_i)} w_{ij} y_j \quad (12.4)$$

where $C^0(P_i)$ is the set of neighbors of treated individual i in the control group, y_j is control j 's outcome, and $w_{ij} \in [0, 1]$ is a weight with the property $\sum_{j \in C^0(P_i)} w_{ij} = 1$.

The nearest neighbor matching is the most straightforward matching estimator. Treated unit i is matched to the control unit j such that the distance between the two units is minimized:

$$|p(X_i) - p(X_j)| = \min_{k \in \{D=0\}} \{|p(X_i) - p(X_k)|\} \quad (12.5)$$

where $\{D=0\}$ refers to the set of all units in the control group. Intuitively, an individual in the control group is matched to the individual in the treatment group with the closest propensity score.

Another estimator is Kernel matching, which uses a weighted average of all cases in the control group used to estimate the counterfactual outcomes. Weights are computed using the propensity score distance between a treatment case and all the control cases. Control j 's outcome y_j is weighted by

$$w_{ij} = \frac{K\left(\frac{p(X_i) - p(X_j)}{h}\right)}{\sum_{j \in \{D=0\}} K\left(\frac{p(X_i) - p(X_j)}{h}\right)} \quad (12.6)$$

where K denotes the Kernel function, and h denotes the bandwidth value. Intuitively, the greatest weight is given to those control units that are closest to the treated unit and the least weight is given to those control units that are the farthest away from the treated unit.

3 Data

Our data are drawn from the 1998 and 2003 NFRJ (Kazoku nitsuiteno Zenkoku Chousa) surveys. These surveys were conducted by the Japan Society for Family Sociology and are housed at the Social Science and the Social Science Japan Data Archive, Information Center for Social Science Research on Japan, Institute of Social Science, the University of Tokyo. The surveys were collected by the drop-off-pick-up method. In the 1998 survey, 10,500 individuals who were aged between 28 and 77 as of December 1998 were surveyed with a response rate of 66.52 % (6985 responses). In the 2003 survey, 10,000 individuals who were aged between 28 and 77 as of December 2003 were surveyed, and the response rate was 63.02 % (6302 responses). In our analysis, the two surveys are pooled together.²

Both surveys ask respondents about who lives in the surveyed household, and contain information for up to the third child of the respondent. The information on the children includes their sex, ages, levels of education, and employment status.

²Japan Society of Family Sociology (2000, 2005) contain discussions of the representativeness of the two surveys.

One of the advantages of using the NFRJ data set is that when a parent is the respondent it contains rich information for both those children who co-reside with their parents *and* those who do not co-reside with their parents.

Here, a single adult child is defined as a child who has never married, who is not attending an educational institution, and who is aged between 18 and 34. For each respondent parent, we create the following co-residence dummy variable relating to their single adult children³:

$$\text{Coreside} = \begin{cases} 1 & \text{if the parent lives with at least one single adult child.} \\ 0 & \text{otherwise} \end{cases}$$

We are interested in the effects of the co-residence with young *single* adults on the life satisfaction and marriage satisfaction of parents. We do not confuse such effects with the case of a *married* child who might co-reside with his/her parents in order to care for them. As we will discuss later, we also exclude elderly parents whose demand for co-residency with an adult child may be higher due to health reasons.

It is important to note that due to the fact that many parents live with multiple adult children, we could not incorporate the information of each and every child into the Probit model to explain the likelihood of co-residence. Therefore, all the child information is left out when we estimate the effect of co-residency. This is true for all of the cases in estimating the likelihood of living with at least one child, at least one son, and at least one daughter.

Furthermore, both NFRJ surveys contain information on the respondent's life satisfaction and marriage satisfaction which are both measured on a scale of 1 (very dissatisfied) to 4 (very satisfied). For the financial status variable, we use the question on the financial condition of household, which is measured on a scale of 1–4. We create a variable on a scale of 1 (very hard) to 4 (very good). Unfortunately, the information on the household's financial status is only available in NFRJ 2003. These variables are used as our outcome variables. In addition, the survey asks about the health status of the respondent and his/her spouse using a 5 point scale (from 1 (very good) to 5 (very bad)). We use the parents' health status as covariates in estimating the propensity score rather than as an outcome variable. This is because in the analysis of happiness, previous studies tend to include health status as an explanatory variable. We create a health dummy variable which takes the value unity if in response to the health status question the respondent answered 4 (a little bad) or 5 (very bad), and 0 otherwise.

³It could be argued that the appropriate control group should not be single adult children living separately from their parents, but single adult children who live separately, but near their parents. The NFRJ data set does contain information on how far each child lives from his/her parents, so we leave using this alternative definition of co-residency as a matter for future research.

One of the major costs of co-residence is an increased burden of domestic duties. The domestic duties associated with co-residence may play crucial roles in determining the level of satisfaction of parents. If this is so, mothers, who usually bear the burden of domestic duties, may be more likely to be dissatisfied with the co-residence with an adult child. By a similar argument, living with sons, who are less likely to contribute to domestic work than daughters, is likely to reduce the satisfaction of mothers. Thus, for the analyses of life satisfaction and marriage satisfaction, we extend our analysis to examine whether or not fathers and mothers are satisfied with the co-residence with at least one child respectively. In addition, we investigate if fathers and mothers are satisfied with the co-residence with sons or daughters, respectively.

The simplest and clearest way to capture the gender impacts of adult children would be to limit the analysis to a household with a single adult child, a single male adult child or a single female adult child. For most of the analyses we are interested in, the relevant sample sizes are too small for this type of analysis. As many parents live with multiple adult children, the co-residence with at least one son (daughter) dummy is defined as taking the value unity if the parents live with *at least* one son (daughter), and zero otherwise.

For the analysis of financial status, we examine the cases of living with at least one child for pooled parents, fathers and mothers, as well as co-residence with at least one son, and co-residence with at least one daughter. As mentioned earlier, the information on the financial status of household is only available in NFRJ2003. Although the sample sizes are small, we also report results for the sub-sample analysis of living with at least one son or daughter. If parents express financial distress due to co-residency with a child, this implies that they may support their low income single adult child by living together.

3.1 Sample Selection

We estimate our models using a parents' sample. In the following analysis, an unmarried adult child refers to an unmarried child aged between 18 and 34 who is not attending an educational institution. Our sample is confined to respondents who satisfy the following five criteria. First, we focus on married respondents where the husband's age is in the range 36–59 and the wife's age is in the range 34–59. This is because the Japanese legal age for marriage is 18 for men and 16 for women. Therefore, for a father to have an 18 year old child he would need to be at least aged 36. For a mother, she would need to be at least 34. The upper age limit for parents is set because we do not want to include the cases of co-residence motivated by reasons related to the care of ageing parents. Second, we only used respondents who are currently married and who have never been divorced or widowed. Divorcees or widows may have children from their previous marriage, but the NFRJ surveys do not contain information on their previous marriages, so we cannot identify if a child lives with the ex-spouse of one of his/her current parents. Third, we confine

Table 12.2 Descriptive statistics for the parents' sample

	Mean	Std. Dev.	Min	Max	N
Living with at least one adult child	0.265	0.441	0	1	4656
Living with at least one adult son	0.153	0.360	0	1	4656
Living with at least one adult daughter	0.142	0.349	0	1	4656
Life Satisfaction (scale of 1 (very dissatisfied) to 4 (very satisfied))	2.693	0.973	1	4	4597
Marriage Satisfaction (scale of 1 (very dissatisfied) to 4 (very satisfied))	3.026	0.724	1	4	4575
Financial Status (scale of 1 (very bad) to 4 (very good))	2.292	0.700	1	4	2153
Husband age	48.584	6.485	36	59	4656
Husband age squared	2402.466	622.991	1296	3481	4656
Wife age	46.014	6.444	34	59	4656
Wife age squared	2158.807	592.014	1156	3481	4656
Husband employed (1 if husband is employed)	0.966	0.180	0	1	4656
Own house (1 if own a house)	0.764	0.425	0	1	4656
Husband's health (1 if bad)	0.094	0.292	0	1	4656
Wife's health (1 if bad)	0.109	0.312	0	1	4656
Number of children	2.138	0.633	1	3	4656
Urban (1 if lives in urban area)	0.564	0.496	0	1	4656
Year dummy	0.535	0.499	0	1	4656

Source: The data is computed from responses to the 1998 and 2003 NFRJ surveys

Notes:

1. The parents' sample is limited to married couples whose husband's age is between 36 and 59, and wife's age is between 34 and 59
2. Adult children are defined as children between the age of 18 and 34 who have never married. Students are excluded

the sample to households with at least one child. Fourth, since parents only report detailed information on their first three children, we limit the analysis to households with three or fewer children. Finally, we exclude all observations which do not contain all the information required in estimation. Descriptive statistics for the parents' sample are summarized in Table 12.2.⁴

⁴It is worth noting that out-of-wedlock births are rare in Japan. According to Table 4.31 in e-Stat (2013), out-of-wedlock births in Japan are only 2.2 %. In our data set, the average age of a mother at her first birth is 26 years old (s.d. = 3.7).

4 Results

4.1 *Life Satisfaction and Marriage Satisfaction*

All results reported in this chapter were computed using STATA 12, and STATA programs to compute the PSM that are publicly available.⁵ The columns labeled (1), (2) and (3) in Table 12.3 report the results of estimating a Probit model for the co-residence with at least one adult child for the full sample, the fathers' sample and the mothers' sample. The father and mother samples refers to the cases where the respondent is the father and mother, respectively. All the specifications presented in the Table 12.3 pass the "balancing property" test.⁶ We have estimated several other versions of the co-residence equation, but those models fail to pass the balancing property tests.

Using the estimated results in Table 12.3, we compute the propensity score for each individual. For the cases of co-residency with at least one child, the estimated results for the ATT estimates using PSM are shown in Table 12.4 for parents pooled together, and for fathers and mothers separately. Results are also shown for co-residency with at least one son, and at least one daughter. In this analysis, we use the parents' life satisfaction and marriage satisfaction as the outcome variables. We conduct nearest neighbor matching estimation and kernel matching estimation. The asymptotic t-statistics for the ATT estimation with the Kernel Matching method are calculated using bootstrapped standard errors based on 1000 replications. In Table 12.4, where parents are pooled and the co-residency is with at least one child, the empirical evidence shows that co-residency with at least one young adult child reduces the levels of marital satisfaction whether we use nearest neighbor estimation or kernel estimation. On the other hand, co-residence with at least one young adult child has a negative impact on the life satisfaction of parents when we use kernel estimation.

The sub-sample analyses of fathers and mothers in Table 12.4 suggest that co-residency with at least one young adult child reduces the levels of life satisfaction for fathers, but not for mothers. However, it only reduces the levels of marriage satisfaction for fathers when Kernel Matching is used.

⁵The relevant software is available from the following URLs: <http://kb.iu.edu/data/avll.html> & <http://www.lrz.de/~soebecker/pscore.html>. Accessed 12 April 2012.

⁶It is important to note that the test of the balancing property is only conducted on observations whose propensity scores belong to the intersection of the supports of the propensity score for the treated and controls. Once the propensity score space has been divided into a number of intervals that ensure that the average propensity score of the treated unit and control units in each interval do not differ, within each interval a test of the null hypothesis that the means of each characteristic do not differ for the treated and control units is conducted. This is the balancing test. If for one or more characteristics, the means differ, then the balancing property is not satisfied, and a less parsimonious specification is adopted (see Becker and Ichino 2002; Caliendo and Kopeinig 2008; Chen and Zeiser 2008).

Table 12.3 Probit models of co-residence with at least one single adult child/son/daughter

	Coreidence with at least one adult child			Coreidence with at least one adult son			Coreidence with at least one adult daughter		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All	Father	Mother	All	Father	Mother	All	Father	Mother
Husband age	0.116*** [0.022]	0.139*** [0.033]	0.095*** [0.031]	0.064*** [0.015]	0.069*** [0.023]	0.058*** [0.019]	0.046*** [0.015]	0.065*** [0.021]	0.031 [0.019]
Husband age squared	-0.0011*** [0.000]	-0.0013*** [0.000]	-0.0009*** [0.000]	-0.0006*** [0.000]	-0.0006*** [0.000]	-0.0005*** [0.000]	-0.0004*** [0.000]	-0.0006*** [0.000]	0.000 [0.000]
Wife age	0.183*** [0.020]	0.174*** [0.029]	0.193*** [0.027]	0.093*** [0.014]	0.089*** [0.021]	0.096*** [0.018]	0.091*** [0.013]	0.086*** [0.019]	0.091*** [0.017]
Wife age squared	-0.0017*** [0.000]	-0.002*** [0.000]	-0.0018*** [0.000]	-0.0009*** [0.000]	-0.0009*** [0.000]	-0.0009*** [0.000]	-0.001*** [0.000]	-0.001*** [0.000]	-0.001*** [0.000]
Husband employed	-0.009 [0.022]	-0.008 [0.032]	-0.016 [0.032]	0.014** [0.007]	0.003 [0.022]	-0.036 [0.027]	[0.000]	-0.005 [0.020]	0.012 [0.014]
Own house	-0.002 [0.011]	0.013 [0.016]	-0.007 [0.015]	-0.009* [0.009]	0.022** [0.010]	0.007 [0.009]	-0.008* [0.007]	-0.003 [0.011]	-0.010 [0.010]
Husband's health (1 if bad)	-0.011 [0.013]	-0.025 [0.018]	0.006 [0.021]	0.000 [0.009]	-0.010 [0.013]	-0.009 [0.012]	0.002 [0.009]	-0.013 [0.011]	0.018 [0.015]
Wife's health (1 if bad)	0.022 [0.015]	0.023 [0.026]	0.020 [0.017]	0.010** [0.005]	-0.015 [0.015]	0.006 [0.011]	0.015 [0.009]	0.029 [0.020]	0.008 [0.010]
Number of children	0.018*** [0.007]	0.023** [0.010]	0.015 [0.009]	0.001*** [0.006]	0.011*** [0.007]	0.009 [0.006]	0.011*** [0.004]	0.017*** [0.007]	0.007 [0.005]
Urban (1 if lives in urban area)		0.007 [0.013]	0.021* [0.011]			0.002 [0.007]	0.013*** [0.005]	0.006 [0.008]	0.018*** [0.007]
Year dummy								0.022** [0.009]	
Sample size	4656	2193	2463	4656	2193	2463	4656	2193	2463

Notes:

1. Marginal effects are reported, and the figures in parentheses are standard errors

2. ***, **, and * denote statistical significance at the 1 %, 5 % and 10 % levels, respectively

Table 12.4 The effects of co-residence on parents' life satisfaction and marriage satisfaction

		Nearest neighbor matching					Kernel matching					
		Treat	Control	ATT	Std. Err.	t-statistic	Treat	Control	ATT	Std. Err.	t-statistic	
Co-reside with at least one child	Life satisfaction	All	1213	1162	-0.07	0.05	-1.409	1213	2453	-0.109	0.038	-2.849***
		Fathers	571	423	-0.28	0.075	-3.735***	571	1175	-0.153	0.06	-2.564***
		Mothers	642	458	-0.084	0.071	-1.19	642	1254	-0.082	0.054	-1.511
	Marriage satisfaction	All	1214	1145	-0.084	0.036	-2.352**	1214	2431	-0.07	0.028	-2.48***
		Fathers	574	424	-0.05	0.049	-1.024	574	1171	-0.078	0.035	-2.2**
		Mothers	640	457	-0.005	0.056	-0.088	640	1237	-0.054	0.04	-1.353
Co-reside with at least one son	Life satisfaction	All	695	1026	-0.067	0.058	-1.152	695	2838	-0.047	0.045	-1.037
		Fathers	317	457	-0.047	0.086	-0.554	317	1378	-0.013	0.067	-0.191
		Mothers	378	448	-0.106	0.077	-1.386	378	1385	-0.083	0.059	-1.401
	Marriage satisfaction	All	700	1039	-0.055	0.039	-1.393	700	2814	-0.042	0.03	-1.382
		Fathers	320	463	0.004	0.049	0.076	320	1374	0.015	0.038	0.388
		Mothers	380	444	-0.099	0.057	-1.737*	380	1365	-0.079	0.045	-1.762*
Co-reside with at least one daughter	Life satisfaction	All	652	909	-0.073	0.06	-1.217	652	2951	-0.099	0.047	-2.1**
		Fathers	329	288	-0.075	0.094	-0.804	329	1342	-0.164	0.067	-2.43***
		Mothers	323	363	0.118	0.085	1.381	323	1500	-0.036	0.063	-0.577
	Marriage satisfaction	All	649	912	-0.005	0.041	-0.126	649	2933	-0.021	0.031	-0.667
		Fathers	329	284	-0.14	0.056	-2.497***	329	1341	-0.116	0.041	-2.809***
		Mothers	320	358	0.11	0.066	1.678*	320	1485	0.052	0.049	1.066

Notes:

- 1. Bootstrapped standard errors based on 1000 replications are reported for the ATT estimation with the Kernel Matching method
- 2. ***, ** and * denote statistical significance at the 1 %, 5 % and 10 % levels, respectively
- 3. The figures in the Treat and Control columns report the number of observations in the treatment and control groups, respectively

The columns of Table 12.3 labeled from (4) to (9) report the results of estimating a Probit model for the cases of co-residence with at least one adult son and at least one daughter for the parents' sample, fathers' sample and mothers' sample, respectively.

Table 12.4 also reports the estimated results for the ATT estimates using PSM for fathers' satisfaction and the mothers' satisfaction estimated separately for the cases of co-residence with at least one adult son and at least one adult daughter for the parents' sample, fathers' sample and mothers' sample, respectively. When we divide parents by their gender, in contrast to the case of co-residence with at least one child, father's express no significant dissatisfaction with co-residence with a son, but mothers indicate that their marital satisfaction falls in this case. On the other hand, fathers are more dissatisfied with living with a single adult daughter as in all cases except for the level of life satisfaction with nearest neighbor estimation the reduction in their satisfaction is statistically significant. In contrast, mothers' marital satisfaction falls weakly when living with their adult son. This may highlight that the effect of co-residency of adult children on parental satisfaction may depend heavily on the burden of domestic duties. Since the mothers' share of domestic work is far larger than fathers in Japan, the co-residency may reduce mother's life and marital satisfaction. Statistics Bureau (2007) reporting on the results of the 'Survey of Time Use and Leisure Activities' for 2006 indicates that on average Japanese working husbands with working (non-working) wives perform a mere 10 (8) minutes of housework a day compared to their working (non-working) wives who do 3 h 15 min (4 h 41 min) a day! This possibility becomes more evident when we examine the effects of living with at least one daughter on the mother's satisfaction in Table 12.4. In three of the four cases, the impact is not statistically significant, and in the remaining case, co-residence with at least one daughter raises the mother's marital satisfaction. This result may be due to the fact that a cohabiting daughter may provide some assistance with domestic duties.

However, why are fathers less satisfied to live with their daughter? One possible explanation is that daughters may not contribute to the household financially as much as sons do due to relatively lower wages of women. However, this reasoning may not be convincing as we will see in the following sub-section that co-residence is associated with mothers feeling financially distressed but not fathers. Another explanation is fathers' preference for their daughter to be married early. According to Dai-Ichi Life Research Institute (2005), 28 % of parents want their son to get married by the age of 30. On the other hand, 55 % of parents want their daughter to tie the knot by the age of 30. This preference is more evident in fathers. Forty-nine percent of mothers hope their daughter's marriage happens before she hits 30, whereas 61.8 % of fathers want their daughter's marriage before her 30th birthday. Thus, fathers' disutility of living with their single adult daughter may be due to the fact that they want their daughter to get married early.

It has been suggested to us that the control groups in the gender based analysis are not as clear as they should be because when the treatment is co-residence with at least one adult son (daughter), in the control group we include adults sons (daughters) living away from home and daughters (sons) whether they co-reside

or not. Table 12.5 limits our analysis to families where there is only one adult son (daughter) in the household, but there is no restriction on the number of adult daughters (sons), and examines more directly the gender impact of adult children. Limiting the sample in this way reduces the available sample sizes considerably compared to the cases reported in Table 12.4. As can be seen from Table 12.5, marital satisfaction is reduced for mothers when a son co-resides, but this is not true for daughters. In contrast, for fathers there is some weak evidence that marital satisfaction falls when a daughter co-resides.

4.2 *Financial Status of Households*

Next, we investigate whether parents are financially distressed by PSM which use the estimates of the propensity scores from the models reported in Table 12.3. Table 12.6 reports the corresponding estimated results for the ATT estimates using PSM for the financial status of the household. When using the pooled parents' sample, the findings suggest that parents who live with at least one single adult child are financially distressed. Co-residency with a single adult child reduces the financial condition of the household. Interestingly, such distress appears to stem from the mothers distress. When we use just the fathers' sample, it is found that the co-residency of a single adult child does not decrease the subjective financial status reported by fathers as the nearest neighbor and kernel estimates are both insignificant. However, if the respondents are mothers, the Kernel based estimate is negative and statistically significant, but not for nearest neighbor matching. Mothers express their financial distress when they co-reside with a single adult child. For completeness, we also report the results for co-residence with at least one son and co-residence with at least one daughter, but in all but one case the estimated ATTs are insignificant.

One reason that mothers not fathers express financial distress is that mothers are more likely to be in charge of financial affairs of the household in Japan. Table 12.7 reports who manages the financial affairs of the household. This survey was conducted by National Institute of Population and Social Security (2003), and a representative sample of married women is used. 64.4 % of the respondents answered that the financial management was done by the wife or more likely to be done by the wife. Thus, mothers are more likely to be exposed to financial stress on a daily basis than fathers.

Some may argue that the causality between the co-residency and the financial condition of household may be the other way around. In other words, financially distressed parents may live with a single adult child so that the child could support them. However, this appears to be less likely. Table 12.8 summarizes the children's reasons for the co-residency as reported in Cabinet Office (2003) which reports the results of a survey conducted on youth that asked those who live with their parents why they live with their parents. It is apparent that the main reasons for co-residency with parents are the financial constraints of children not parents.

Table 12.5 The effects of co-residence on parents' life satisfaction and marriage satisfaction

		Nearest neighbor matching					Kernel matching				
		Treat	Control	ATT	Std. Err.	t-statistic	Treat	Control	ATT	Std. Err.	t-statistic
		357	385	0.051	0.084	0.606	357	1372	-0.039	0.065	-0.603
Co-reside with a son	Life satisfaction	165	182	-0.132	0.124	-1.068	165	645	-0.009	0.096	-0.093
	Fathers	192	168	-0.069	0.117	-0.584	192	564	-0.049	0.088	-0.561
	Mothers	359	395	-0.033	0.059	-0.559	359	1361	-0.063	0.046	-1.373
	Marriage satisfaction	166	183	-0.049	0.069	-0.714	166	642	0.06	0.053	1.133
	Fathers	193	160	-0.18	0.093	-1.938*	193	559	-0.146	0.07	-2.087**
	Mothers	353	380	-0.114	0.084	-1.361	353	1349	-0.108	0.067	-1.616
Co-reside with a daughter	Life satisfaction	179	133	0	0.128	0	179	491	-0.127	0.093	-1.373
	Fathers	174	163	-0.093	0.121	-0.767	174	722	-0.077	0.093	-0.822
	Mothers	355	375	-0.009	0.058	-0.165	355	1337	0.016	0.044	0.366
	Marriage satisfaction	181	136	-0.148	0.077	-1.922*	181	489	-0.085	0.059	-1.443
	Fathers	174	162	0.061	0.089	0.686	174	711	0.102	0.066	1.541
	Mothers										

Notes:

- 1. For the co-residence with a son case, we confine the sample to those households with one adult son, and for the co-residence with a daughter case, we confine the sample to those households with one adult daughter
- 2. Bootstrapped standard errors based on 1000 replications are reported for the ATT estimation with the Kernel Matching method
- 3. ***, ** and * denote statistical significance at the 1 %, 5 % and 10 % levels, respectively
- 4. The figures in the Treat and Control columns report the number of observations in the treatment and control groups, respectively

Table 12.6 The effects of co-residence on the financial status of the household

		Nearest neighbor matching					Kernel matching				
		Treat	Control	ATT	Std. Err.	t-statistic	Treat	Control	ATT	Std. Err.	t-statistic
Co-reside with at least one child	All	478	374	-0.104	0.058	-1.778	478	990	-0.074	0.044	-1.683*
	Fathers	234	151	-0.058	0.081	-0.71	234	453	-0.046	0.061	-0.753
	Mothers	244	151	-0.109	0.083	-1.312	244	287	-0.104	0.062	-1.679*
Co-reside with at least one son	All	265	299	-0.037	0.066	-0.563	265	1144	-0.038	0.05	-0.763
	Fathers	131	151	-0.099	0.089	-1.115	131	519	0.001	0.07	0.011
	Mothers	134	143	-0.17	0.092	-1.851*	134	418	-0.082	0.07	-1.178
Co-reside with at least one daughter	All	266	293	-0.03	0.065	-0.462	266	1237	-0.029	0.052	-0.571
	Fathers	132	116	-0.106	0.094	-1.125	132	575	-0.053	0.065	-0.809
	Mothers	134	119	-0.026	0.098	-0.267	134	362	-0.01	0.079	-0.133

Notes:

- 1. Bootstrapped standard errors based on 1000 replications are reported for the ATT estimation with the Kernel Matching method
- 2. ***, ** and * denote statistical significance at the 1 %, 5 % and 10 % levels, respectively
- 3. The figures in the Treat and Control columns report the number of observations in the treatment and control groups, respectively

Table 12.7 Who manages the financial affairs of the household?

Wife	On balance the wife	Together	On balance the husband	Husband	Not known
34.3 %	27.1 %	19.3 %	7.4 %	4.8 %	7.1 %

Source: Authors computations from the original data in National Institute of Population and Social Security Research (2003)

Note: The sample size was 7771

Table 12.8 Reasons for living with parents

Reasons:	(%)
Cannot afford to live independently	58.4
Need to save money to live independently	24.7
Not confident to live independently	18.6
Can spend some money freely	26.9
Burden of domestic duties	18.2
Want to live with parents	20
Help with parents' business or succeed to it	3.2
Looking after parents	1.1
Others	7.7
No answer	2

Source: Cabinet Office (Japan) (2003)

Notes:

1. This is based on a survey of unmarried males and females aged between 20 and 34 who live with their parents. There were 802 respondents
2. Multiple answers are permitted

Fifty-eight percent of single adult children who live with their parents answered that they cannot afford to live independently, and 24 % answered that they live with their parents to save money for their nest-leaving. Only 1.1 % of the young single adult answered “looking after parents” as their reason for the co-residency. Therefore, adult single children live with their parents not because the children want to help unhappy or financially distressed parents but because the children need financial assistance from the parents. Thus, we can conclude that the co-residency is causing the financial distress of parents, not the other way around.

These results lead us to conclude that Manacorda and Moretti's (2005) ‘bribe model’ does not seem to be valid for Japan. Their bribe model assumes that parents prefer to live with their adult children and they ‘bribe’ their adult children, who prefer to live on their own, to live with them. In Japan, we find that living with a single adult child reduces the life satisfaction and marriage satisfaction of Japanese parents. The gender effects are prevalent when we divide the samples into fathers and mothers to investigate the co-residency with at least one son and at least one daughter. In addition, Japanese parents who live with a single adult child are more financially distressed.

5 Conclusion

This chapter examines how co-residence affects the levels of parents' life satisfaction and marriage satisfaction using a unique Japanese data. We divide the sample into fathers and mothers, and investigate how fathers and mothers respond to the different types of co-residency: to live with at least one single adult child, at least one single son, and at least one single daughter. We also examine how the co-residency affects the financial condition of the household. In order to estimate the average treatment effects of the treated, we use the propensity score matching approach. In our application, we consider co-residence as a treatment, and life satisfaction, marriage satisfaction, and financial status as outcomes.

Our empirical evidence suggests that co-residence with a single adult child decreases the life and marital satisfaction of Japanese parents. In Japan, the 'bribe' model is not valid, and it is more likely that Japanese parents gain rent payments in the exchange for co-residence.

The findings of the analysis by gender of the parent and the children suggest that mothers are dissatisfied with the co-residence with an adult son. In contrast, fathers are dissatisfied with living with a single adult daughter and mothers seem to be indifferent to co-residence with an adult daughter. The findings may result from the domestic obligations imposed on mothers associated with the co-residence of their children, particularly sons, and that changes in these obligations may play a significant role in determining the level of their life and marital satisfaction. The Japanese fathers' dissatisfaction with living with a single adult daughter may reflect that Japanese fathers want their daughter to get married earlier than their son. Moreover, we find that the co-residency with a single adult child puts the parents into financial distress, and the parental concern of financial status of the households appears to stem from mother's distress. This is a reasonable finding in that mothers are more likely to financially manage and run the household.

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Chapter 13

Anticipation of Life Satisfaction Before Emigration: Evidence from German Panel Data

Marcel Erlinghagen

1 Introduction

Because of low birth rates (Kohler et al. 2004) and increasing life expectancies (White 2002), all industrialized countries face some degree of demographic change that will shift the age distribution in these countries toward increasingly aged societies. This development has been recognized as one of the most important economic and social challenges of the coming decades. In particular, the decreasing proportion of younger people and the growing proportion of older people creates pressure in the labor market. A shrinking work force will cause a labor supply shortage that may lead to a lack of skilled workers and the concomitant negative effects on economic productivity, social security systems, tax revenue, and consumer demand (Börsch-Supan 2008; Schmähl 1990). In addition to appropriate indirect policy measures (for example, measures to encourage postponing retirement or to increase participation by women in the labor market), changes in two demographic characteristics, namely, fertility and migration, could help to lessen the negative social and economic effect of demographic change. Consequently, it is not surprising that immigration to and emigration from ageing industrialized countries has attracted increasing attention in recent years. However, little is known about the demographic structure and motives of emigrants; likewise, little is yet known about the individual and societal outcomes of emigration from highly industrialized countries.

M. Erlinghagen (✉)
University of Duisburg-Essen, Duisburg, Germany
e-mail: marcel.erlinghagen@uni-due.de

During recent decades, migration has increasingly been analyzed from a life-course perspective (Mulder and Hooimeijer 1999; Kley 2011; Wingers et al. 2011). This chapter, too, adopts the life-course approach, using it to study the circumstances of individuals' decisions to migrate from Germany, a highly industrialized country. Beside socio-economic and socio-demographic characteristics and the given institutional, economic and social context (cf. De Jong and Fawcett 1981; Massey et al. 1993) it can be assumed that also overall life satisfaction might have an impact on individuals' decision whether to migrate or not. However, almost nothing is known about individuals' anticipation of life satisfaction in advance of emigration. A few studies have analyzed life satisfaction after emigration, and even fewer studies have focused on life satisfaction at the time of emigration (discussed in the next section). To address this gap, this chapter explores the relation that the evolution of life satisfaction has with the decision to emigrate and the emigration process up to actual emigration and proposes a model for this relation (see Erlinghagen 2015 for a more comprehensive discussion of the interrelation between the evolution of life satisfaction and the emigration process).

2 The State of Research

Although a connection between life satisfaction and the individual migration process seems theoretically plausible, there has been little empirical research on this topic (for a comprehensive literature review, see Simpson 2013). Polgreen and Simpson (2011), who analyzed aggregated macro data, found a U-shaped relationship between countries' average life satisfaction and their emigration rates. Studies relying on individual data have found that the life satisfaction of migrants in destination countries is lower than that of non-migrants in those countries (e.g., Safi 2010; Bartram 2011). Moreover, life satisfaction among immigrants varies according to country of origin (Baltatescu 2007; Amit 2010; Bartram 2011). In contrast, Erlinghagen et al. (2009) found no difference in life satisfaction between emigrants and stayers at the time of migration (see also Engler et al. 2015 for similar results). There is also preliminary evidence of some increase in emigrants' life satisfaction after arriving in their destination country (Erlinghagen et al. 2009). Furthermore, there appears to be a positive correlation between emigrants' life satisfaction and how long they have already lived abroad compared to the life satisfaction of stayers who have remained in their home countries (Erlinghagen 2011; Bartram 2013). As a result, there is at least some empirical work on life satisfaction at the time of migration and after migration. However, what is lacking from a life-course perspective is an investigation of the development of life satisfaction prior to emigration. Using German panel data, the following analysis aims to contribute to this research by investigating how overall life satisfaction develops prior to emigration.

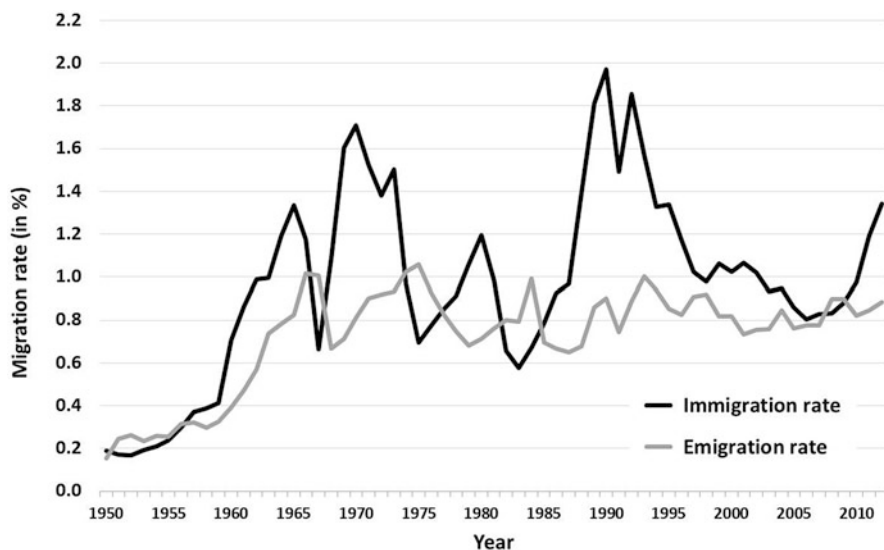


Fig. 13.1 Total immigration and emigration rates for the Federal Republic of Germany (1950–2012) (*Source:* Federal Statistical Office (author calculations))

3 Emigration from Germany

Since the turn of the millennium, steady annual emigration from Germany of around 0.8 % of the population, representing over 600,000 individuals annually, has been observed. This emigration rate has shown only moderate peaks during the last few decades. As a lagged response to increasing immigration during the 1960s, mid-1970s, and the early 1990s, annual emigration rates have historically shown a maximum rate of 1.0 %.¹ Apart from the post-World War II period of economic and social recovery in the Federal Republic of Germany (“Bonn Republic”), emigration rates have not fallen below 0.6 % since the early 1960s (see Fig. 13.1).

It is not surprising that there are considerable differences in the emigration of Germans and foreigners.² Foreigners show a much higher emigration rate from Germany than Germans do because most of Germany’s foreign residents have already experienced migration and are, therefore, often haven’t developed such deep roots in German society. They are also likely to still have a significant number of

¹For a brief overview of immigration to post-war Germany, see Carle (2007: 150–153).

²Here, “foreigners” refer to people with non-German nationality. However, only 45 % of the German population with a migration history are (still) foreigners in this sense. About 55 % of those who migrated to Germany themselves, or whose parents migrated, have German citizenship either through naturalization or through birth (Federal Statistical Office 2012: 20). However, because of data collection methods, official statistics in Germany can often differentiate migrants only by their foreign nationality and, therefore, often underestimate the number of migrants and their offspring.

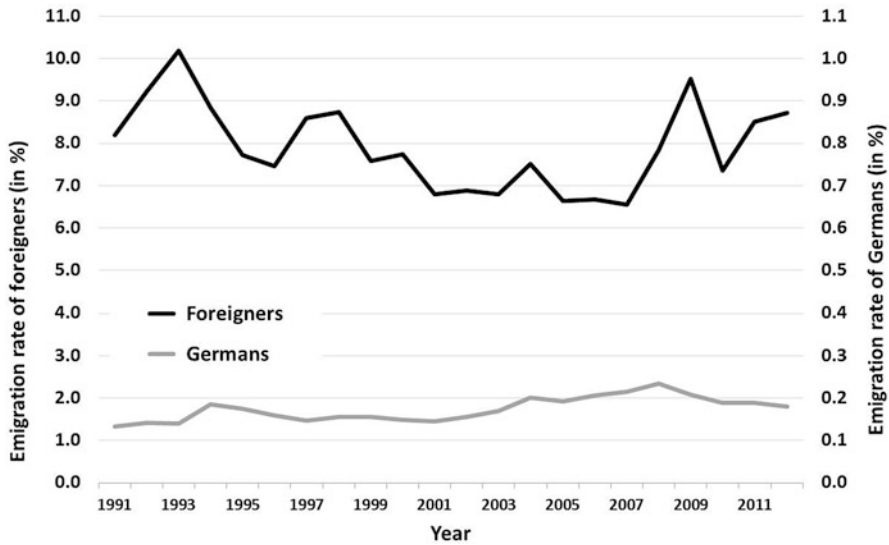


Fig. 13.2 Emigration rates of German citizens and foreign residents in the Federal Republic of Germany (1991–2012) (*Source:* Federal Statistical Office (author calculations))

friends and relatives abroad and to have retained the necessary language skills and cultural knowledge to (re)migrate to their own or their families' home countries. As can be seen in Fig. 13.2, about 9 % of the foreign population left Germany in 2012, while only 0.2 % of Germans have left their home country during this same period.

Foreigners and Germans differ not only in their emigration rates but also with regard to their emigration destinations. Table 13.1 shows that Germans primarily emigrate to other German-speaking countries such as Switzerland or Austria, or to “classical” destinations such as the USA, the UK, Australia, or Canada. In addition, Poland and the Netherlands, as neighboring countries, are among the top ten destinations. In contrast, foreign residents primarily (re)migrate to countries which are or were important sources of immigration to Germany.

In addition to differences between Germans and foreigners, there are also marked regional differences in emigration within Germany. First, emigration is relatively high from bigger cities compared with rural areas. There are also regions in southern and southwestern Germany near the French border and particularly near the Swiss and Austrian borders that show increased emigration rates (Ette and Sauer 2010: 74–76). These higher emigration rates are interpreted as an outcome of the proximity of cross-border migration in combination with cross-border commuting (for more information on cross-border commuting, see MKW 2001; Matha and Wintr 2009).

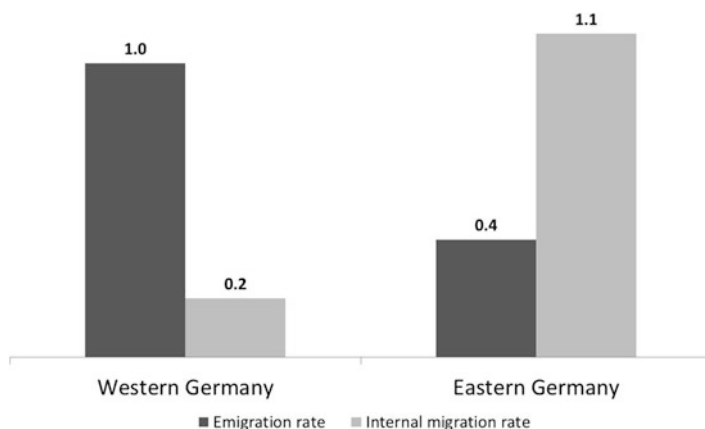
Figure 13.3 shows evidence of marked differences in emigration from Western Germany and Eastern Germany. Since the unification of Germany in 1990, internal migration from the former German Democratic Republic (GDR) to the western part of the country continues to greatly exceed that from the West to the East, even

Table 13.1 Top ten emigration destinations for Germans and non-German emigrants from Germany (2012)

	Germans			Non-Germans		
	Destination ^a	Number	Share	Destination ^a	Number	Share
1	CHE	20,826	15.6	POL	108,245	18.7
2	USA	12,803	9.6	ROU	70,470	12.2
3	AUT	11,022	8.3	BGR	33,460	5.8
4	GBR	7,802	5.9	HUN	27,727	4.8
5	POL	6,180	4.6	TUR	27,329	4.7
6	ESP	5,997	4.5	ITA	20,897	3.6
7	TUR	5,459	4.1	SRB	17,809	3.1
8	NLD	3,200	2.4	USA	16,740	2.9
9	AUS	3,154	2.4	HRV	11,513	2.0
10	CAN	2,692	2.0	RUS	8,955	1.5
	Total	133,232	100	Total	578,759	100

Source: Federal Statistical Office (author calculations)

^aISO country codes

**Fig. 13.3** Annual emigration and internal migration rates (in %) for the former West Germany and East Germany (2011–2012) (Source: Federal Statistical Office (author calculations))

though almost 25 years have passed since the fall of the Iron Curtain. In parallel, we find much lower emigration rates from the East compared with those from the West. For example, in 2012, 1.0 % of the West German population, compared with only 0.4 % of the East German population, moved abroad. At the same time, only 0.2 % of the population in the western part of the country moved to the eastern part, while 1.1 % of the population in the East moved to the West (Fig. 13.3). This indicates that for East Germans, the western part of the country serves as a kind of substitute emigration destination, resulting in their emigration rates being much lower compared with those of West Germans.

4 Migration and Life Satisfaction: Theoretical Background

Considering individuals as boundedly rational actors trying to maximize their utilities (Simon 1957), it can be suggested that emigrants should aim to improve their individual living conditions by leaving their home countries. At first glance, improved living conditions could be achieved through higher individual incomes or better employment situations within the destination countries. However, according to Social Production Function theory (SPF), individuals' ultimate objectives are to maximize overall subjective well-being (SWB) (Lindenberg and Frey 1993; Ormel et al. 1999). Thus, improving living conditions through emigration should ultimately lead to an improvement in SWB. This should be the case particularly with respect to emigration from wealthy industrialized countries because we can assume that such emigrants search for a "better life" in a broader sense and not only for better income opportunities or protection against poverty, discrimination, or persecution. Thus, we may propose that emigrants are interested in maintaining or increasing their SWB by maintaining or increasing their overall life satisfaction.

To determine whether the outcome of migration is an increase or decrease in life satisfaction, we have to consider the development of individuals' life satisfaction *in advance* of the emigration event. Frijters et al. (2011: 200) point out that individuals "do actively anticipate good and bad events." This implies that analyses "based on the effect of a life event in the year of occurrence (which implicitly defines the effect as the change in life satisfaction between last year and this year) could substantially underestimate the importance of life events." Against this background, we can hypothesize different trends for the evolution of life satisfaction in advance of the emigration event. Let us start with very simple assumptions. First, there may be no association between the development of life satisfaction and the decision to migrate. Therefore, life satisfaction remains at a baseline level during the entire pre-emigration period. This could be the case if, for example, migration is a long-planned, usual, and expected feature of an individual's career. Thus, the decision to migrate is specifically related to events and episodes in an individual's employment history, but has no notable relationship to individual life satisfaction. A second possibility is that life satisfaction steadily shrinks during the pre-emigration period. Imagine an individual who becomes more and more dissatisfied with his or her life because of consistently bad or worsening job opportunities, or other unfavorable living conditions. A third alternative is continually improving life satisfaction during the pre-emigration period. This could be the case if we understand emigration to be neither a usual and expected feature of the life course nor an emergency solution for opting out. Alternatively, we suggest that the act of emigration requires not only economic and social resources but also mental resources. Therefore, individuals have to garner motivation until a certain threshold level before they are sufficiently motivated to leave the familiarity of their home country. In other words, only individuals who are satisfied have the power and strength to leave their homes to discover new living perspectives beyond their familiar environments.

These three very simple models of the development of life satisfaction during the pre-emigration period assume that the decision to migrate and the actual migration event coincide. This seems unrealistic, and we expect that there may be an initial incubation period until an individual makes a decision to migrate, and that this incubation would be followed by a second period of personal preparation (Heckhausen and Gollwitzer 1987: 103; Dolan and White 2006; Kley 2011). These considerations lead to more sophisticated models of the development of life satisfaction during the pre-emigration period. Drawing on the preceding arguments, the development of life satisfaction may be graphically depicted as hump shaped, with an increase during the incubation period, followed by a decrease during the preparation period. This could be the case if individuals gradually develop the idea of emigrating and look forward to the anticipated post-migration experiences that could lead to an increase in life satisfaction. However, after they make the decision, this initial dreaming phase ends and is followed by a stressful and exhausting preparation and planning process that may now cause a reduction of life satisfaction until the event of emigration. In contrast, we can also imagine a U-shaped relationship between life satisfaction and the process of emigration. In this case, life satisfaction would shrink until the final decision to migrate has been made. Subsequently, an increase in life satisfaction would again be evident until departure from the home country has actually occurred. In this case, it is possible that an individual may suffer increasingly because of his or her living conditions that lead not only to a decline in satisfaction, but also trigger the decision to leave the country and seek a better life abroad. After this migration decision has been made, a feeling of relief may be experienced, and during the preparation period that follows, satisfaction should then constantly increase.

As we can see, there are several possible ways in which life satisfaction during the pre-emigration period could evolve. Whatever the particular correlation between the development of life satisfaction and the migration process, in recent years researchers have become increasingly interested in what Dolan and White (2006) have termed the process of “dynamic well-being.” Notably, some researchers with an interest in set-point theory have focused specifically on adaptation processes relating to individuals’ well-being after the occurrence of certain life events, such as the birth of a child, marriage, divorce, becoming unemployed, or the death of a partner (see Clark et al. 2008; Frijters et al. 2011; Headey et al. 2013 for a literature review).

A smaller number of studies that have focused on anticipatory processes have also examined the development of life satisfaction prior to important events that occur during the life course of individuals. From their analysis of German panel data, Clark et al. (2008) have presented evidence of negative anticipation effects of future unemployment, lay-offs, and bereavement on current life satisfaction. Conversely, positive anticipation effects have been found for marriage and the birth of a child. Gerstorf et al. (2010) have presented evidence of declining life satisfaction prior to death, using German, US, and British panel data. From Australian panel data, Frijters et al. (2011) have demonstrated significant negative anticipation effects on overall life satisfaction for financial problems, injuries, separation, and moves;

significant positive anticipation effects are found for the birth of a child. Using German panel data, Pagan-Rodriguez (2012) analyzed the relationship between the occurrence of disability and the anticipation and adaptation of satisfaction within different life domains. He revealed significant negative anticipation effects for upcoming disability, not only regarding overall life satisfaction, but also in relation to an individual's satisfaction with housing, job, and (for obvious reasons) health (see also Powdthavee 2009 for similar results in the British context). However, as far as we know, no prior research exists on how anticipatory life satisfaction before emigration. Two related studies, Frijters et al. (2011) and Nowok et al. (2013), present some results on how life satisfaction developed in advance of moving (internal migration). From those results, it is possible that there is a U-shaped anticipation effect. Because empirical results are lacking, the following analyses are primarily exploratory. Using individual panel data, we aim to provide some information regarding the development of life satisfaction in advance of migration and to determine whether and how individuals' demographic and socioeconomic characteristics may influence this development.

5 Data and Method

Our analyses are based on data obtained from the Socio-Economic Panel (SOEP) (Wagner et al. 2007). SOEP is a representative annual survey of households in Germany that has been carried out every year since 1984. In addition to providing data on households by surveying the heads of household, SOEP also provides information on individual members of the household. Individuals aged over 17 years are surveyed. This enables analysis of both household- and individual-level data. Additionally, because of the panel nature of the survey, both cross-sectional and longitudinal analyses can be carried out.

During the first year of administration (1984), SOEP collected information on around 12,000 respondents from just under 6,000 households. In 1990, the survey was extended to cover the territory of the former GDR. Consequently, about 6,000 people (among 2,200 households) were added. To counter problems of panel attrition while simultaneously improving the analytical scope, a total of eight supplementary random samples were added over the next few years. The latest available wave from 2012 covers 22,000 people within 12,500 households (see Kroh 2012 for information on the size of the random sample and panel attrition in SOEP). SOEP is one of the few internationally available panel data sets that allows for dynamic analysis of the development of individuals' life satisfaction from a life-course perspective (see, for example, Clark et al. 2008; Gerstendorf et al. 2010; Pagan-Rodriguez 2012; Headey et al. 2013).

As our dependent variable, we use a question that asked SOEP participants to rate their overall life satisfaction on an 11-point scale, ranging from 0 (completely dissatisfied) to 10 (completely satisfied). This question was the following (official English version):

In conclusion, we would like to ask you about your satisfaction with your life in general. How satisfied are you with your life, all things considered?

This question has been asked every year since the inception of the SOEP in 1984. Therefore, we can rely on consistent data that have been collected for almost 30 years. This was important for ensuring that we cover a sufficient number of emigrants in our data so that we do not face the issue of having too few cases.

Because it is possible to investigate the reasons for “panel attrition,” emigrants can be identified from the data. Moreover, it is possible not only to identify which survey participants have emigrated but also to analyze their life situation in Germany before they moved. It is important to note that the term “emigration” or “emigrant” is problematic, mainly because it is difficult to differentiate between a temporary stay abroad – such as a long vacation or an internship – and a permanent change of residence to another country. This means that identifying whether the participant is truly an “emigrant” must be decided on a case-by-case basis. In this study, we consider a person to have emigrated when he or she had moved abroad and could not be reached in Germany to participate in further SOEP surveys, regardless of how long this individual was actually staying abroad.³

Official emigration records can be problematic⁴ and do not necessarily provide a benchmark for checking the quality of the data collected through a survey such as the SOEP. Even painstaking address searches do not identify all individuals who are emigrants, with many cases recorded as “cause for panel attrition unknown.” Unsurprisingly, comparison of the information obtained through the SOEP with the official records on emigration rates revealed that the SOEP underestimates the number of emigration cases from Germany. Over time, differences between the official records and the SOEP calculations vary. However, no distinct trend in relation to either the systematic decrease or increase in these method-related differences has been identified. Last, it should be noted that SOEP, as a national panel survey, contains information about individual life courses only until the respondent leaves the scope of the survey; therefore, we have no information about the destination country and no information about the living conditions of emigrants after they have left Germany.

We restrict our analyses to people aged between 17 and 79 years. Later, we additionally exclude all emigrants having a single observation in our longitudinal data. Observations with missing information about life satisfaction or any of the control variables are also excluded (Brüderl 2010). We truncate our data to a

³There are similar terminological problems with the word “immigration,” as here too, no clear time limitation can be set that would serve to define who is an immigrant and who is not. The term “remigration” is also problematic as it has no clear definition of the duration of the “waiting period” before a move is categorized as either remigration or emigration.

⁴Experience has shown that some emigrants do not give notice of their departure, such as non-EU citizens who do not want to lose their right of residence.

Table 13.2 Descriptive statistics for emigrants in the last (observed) year before emigration

	Share (in %) or mean*		Share (in %) or mean*
Life satisfaction	6.9*	Single household	12.5
Age (in years)	41.1*	Couple, no children	26.0
Men	50.4	Single parent	4.8
Women	49.6	Couple, 1 child	20.6
Unskilled	56.7	Couple, 2 children	17.9
Skilled	30.3	Couple, ≥ 3 children	9.8
Graduates	13.0	Other household	8.5
Non-migrants	24.5	Working	47.0
Migrants	75.5	Not working	31.9
West Germany	93.0	Student	10.6
East Germany	7.0	Unemployed	10.5
17–29 years	33.7	Monthly net income (€)	2,108*
30–49 years	31.2		
≥ 50 years	35.1		
		<i>n</i>	1,231

Source: SOEP 1984–2012 (author calculations)

maximum of five observations per individual. As a final step, emigrants who had migrated from East to West Germany, or vice versa, before they left the country are eliminated from our analyses. Thus, we retain 1,231 emigrants (4,856 observations) within our data set (see Table 13.2 for descriptive statistics).

We are interested in the question of whether and how individual life satisfaction changes in advance of emigration. Therefore, we estimate fixed effect regression models (see Wooldridge 2002: 265; Rabe-Hesketh and Skrondal 2005). To investigate the effect of time on changes in life satisfaction, we adopt the approach suggested by Clark et al. (2008): As mentioned above, we restrict our panel data to a maximum of five observations per individual and included only individuals with a minimum of two observations in our data set. This results in the creation of five binary dummy variables, each indicating the time (in years) that would elapse prior to the final emigration event. During the years t_{-5} to t_{-1} , each corresponding dummy variable was 1, whereas the other four dummy variables remain at 0. Consider, for example, the case of an individual 3 years before emigration. Here the corresponding variable, t_{-3} becomes 1 and the other variables (t_{-5} , t_{-4} , t_{-2} and t_{-1}) are equal to 0. If we have an observation 2 years before emigration, then the corresponding variable t_{-2} becomes 1 and the other variables (t_{-5} , t_{-4} , t_{-3} and t_{-1}) are equal to 0 and so on (t_{-5} will serve as the default year in the fixed effects regressions). We later control for changes in employment, qualifications, and partnership status; the birth of a child; and changes in household net income. In addition to overall estimations, we conduct separate analyses on gender, qualification, age, and migration status.

6 Results

The first row in Table 13.3 provides the fixed-effects regression coefficients for our entire data set. No significant change in life satisfaction, relative to baseline life satisfaction, is seen until 3 years before emigration. However, between 3 and 2 years before emigration, a clear and significant decline in life satisfaction can be observed. This is followed by a slight recovery of life satisfaction during the next year, so that during the last year before emigration, life satisfaction is nominally, but not statistically significantly, lower than the baseline value.

Table 13.3 also shows results for regressions for Western and Eastern Germany considered separately. The overall pattern, with a temporary decline in life satisfaction as described above, is observed for West Germany only, and not for East Germany. However, the East German results have to be interpreted with caution because of the very small number of cases included in our data. As an effect of much lower emigration among the East German population (see Fig. 13.3 above), we had information about only 93 East German emigrants (379 observations) in our data. Thus, to achieve robust results we restrict further investigations to the population in West Germany.

Figure 13.4 summarizes the findings of the separate estimations for different subgroups. Each graph represents the fixed-effects regression coefficients (with 95 % confidence intervals) of the time-dependent dummy variables under the control of the same variables as reported in Table 13.3. The first row contains results that have already been presented in more detail in Table 13.3. Considering all of the other findings, a clear pattern of decline in life satisfaction, occurring 3–2 years before emigration, can be observed in almost all analyzed subgroups. The only exceptions are emigrant graduates, for whom we observe no decline in life satisfaction prior to emigration. However, even where a general pattern of temporary decline in life satisfaction can be broadly observed, this pattern is statistically significant for only women, unskilled individuals, people at least 50 years old, and migrants relative to baseline life satisfaction 5 years before emigration. However, a year-on-year comparison of the coefficients, showed that life satisfaction 2 years before emigration was significantly lower than during the previous year, even for West German males and skilled workers.

7 Conclusion

Our aim was to investigate the circumstances pertaining to the decision to migrate, and particularly migration from highly industrialized countries. Beside socio-economic and socio-demographic characteristics and the given institutional, economic and social context it can be assumed that also overall life satisfaction might have an impact on individuals' decision whether to migrate or not. To investigate

Table 13.3 Fixed-effects regression coefficients on life satisfaction prior to emigration

	All	West Germany	East Germany
Time to emigration			
5 years	(Reference)	(Reference)	(Reference)
4 years	0.002 (0.072)	0.006 (0.075)	−0.071 (0.256)
3 years	0.028 (0.071)	0.002 (0.074)	0.271 (0.263)
2 years	−0.171* (0.072)	−0.208** (0.075)	0.289 (0.277)
1 year	−0.146 (0.075)	−0.162* (0.078)	0.001 (0.291)
Controls			
With partner	−0.054 (0.115)	0.055 (0.122)	−0.664 (0.338)
Child born	0.199 (0.150)	0.136 (0.156)	1.004 (0.541)
Not working	−0.335** (0.121)	−0.325** (0.124)	−0.640 (0.504)
Unemployed	−0.571** (0.103)	−0.594** (0.108)	−0.250 (0.335)
In training	0.133 (0.130)	0.172 (0.141)	0.159 (0.344)
Skilled	0.120 (0.206)	0.164 (0.234)	−0.149 (0.457)
Graduate	0.292 (0.347)	0.223 (0.339)	0.355 (0.787)
Household net income (in 100 €)	0.014** (0.004)	0.014** (0.004)	0.018 (0.014)
Observations	4,856	4,511	345
Individuals	1,231	1,145	86
Mean observation per individual	3.9	3.9	4.0

Source: SOEP 1984–2012 (author calculations)

Note: standard errors in parentheses; Reference categories of control variables: never had a partner, no child born, working, no change in qualification degree

*Significant at 5 % level; **Significant at 1 % level

this, we used German panel data to explore a suggested relation of development of life satisfaction with the decision to migrate and the migration process up to actually emigrating. From a theoretical perspective, life satisfaction could evolve in any of several distinct patterns during the pre-emigration period. Our analyses provided evidence that there was no significant change in life satisfaction (relative to baseline satisfaction 5 years before emigration) until 3 years before emigration. However, between 3 and 2 years before emigration, a clear and significant decline in life satisfaction was observed. This was followed by a slight recovery of life

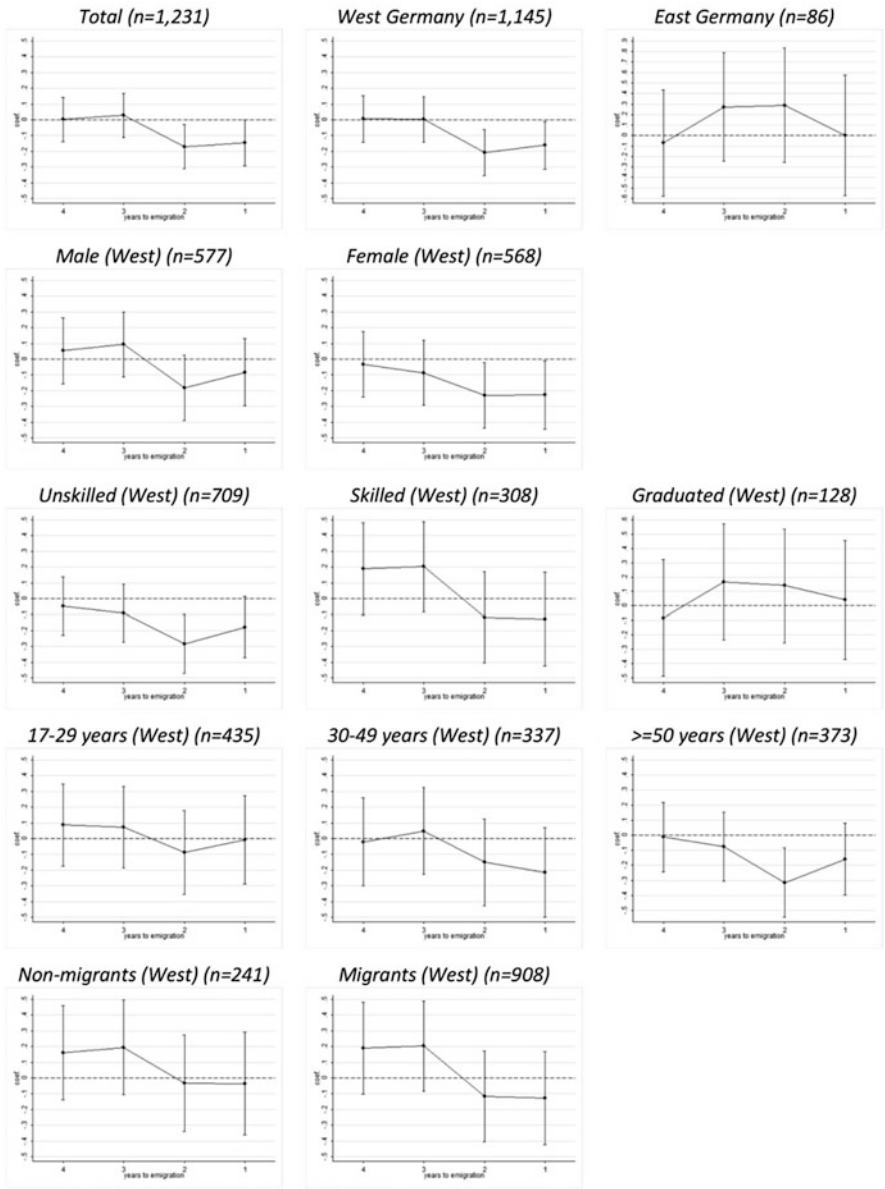


Fig. 13.4 Estimated evolution of life satisfaction before emigration for different subgroups (fixed-effect regression coefficients; bars indicate 95 % confidence intervals) (*Source*: SOEP 1984–2012 (author calculations). Note: Controls as in Table 13.3 (except regressions for educational subgroups for which skill related variables were omitted)

satisfaction during the following year so that during the last year before emigration, life satisfaction was nominally but not significantly lower than the baseline value. This pattern of a clear decline in life satisfaction between 3 and 2 years before emigration was observed in almost all subgroups. The only exceptions were graduated emigrants, for whom we observed no decline of life satisfaction prior to emigration.

The overall observed pattern of an initial decline and then recovery of life satisfaction during the period before emigration was surprising because gender, education, age, and ethnic origin are still important determinants of stratification and should also, therefore, result in differences in individuals' migration motives. Germany has relatively low female employment rates and still shows a very high gender pay gap (this is particularly the case in West Germany; OECD 2012). The unemployment risk of unskilled workers is fourfold than that of skilled workers, and almost sevenfold that of graduate workers (Hummel et al. 2012). Furthermore, immigrants and their offspring still face discrimination in several domains (Granato and Kalter 2001; Koogan 2007; Kaas and Manger 2010). Thus, we propose that emigration motives differ in relation to individuals' social, economic, and cultural inclusion or exclusion from German society. Even if, up to now, we have lacked a clear conception of whether and how life satisfaction develops in advance of emigration (see the theoretical background section above) we would at least expect some socioeconomic differences (e.g., on gender, education, or ethnicity) in the course of the pre-emigration process. Currently, we have no convincing way of explaining this overall homogeneous pattern of declining and then slightly rising life satisfaction. However, we can hypothesize that this result helps us to better understand migration from a life-course perspective. Thus, the decline of life satisfaction could be interpreted as an indicator that the decision to leave the country has been made at least 2 years prior to the individual's actual departure from the country. The 2 years that precede emigration could, thus, be interpreted as a period of preparation. However, given the current status of research in this field, this initial attempt to interpret the findings we have presented here, and to combine the anticipation of life satisfaction with the individual migration process is largely speculation. Further theoretical and empirical research is needed to acquire deeper insights into the complex correlation between life satisfaction and the migration process. In particular, an analysis of the evolution of satisfaction within different life domains would probably help to solve this puzzle (see Erlinghagen 2015 for more on this).

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Chapter 14

Does City Size Affect Happiness?

Yoshio Itaba

1 Introduction

Several geographical factors influence the extent to which people appear to feel happy. This study examines city size in particular. In large cities, agglomeration economies occur, bringing benefits that can be characterized as one of three types, according to Glaeser and Gottlieb (2009). The first type emphasizes the gains from the reduced cost of moving goods across space, the second emphasizes labor-market pooling and the benefits of moving people across firms, and the third argues that cities speed up the flow of ideas, creating human capital at the individual level and facilitating innovation. However, there are also costs in large cities, such as commuting expenses and increasing land prices. Wirth (1938) has mentioned aspects of cost, such as size, density, and heterogeneity in big cities, or the consequences for social life, such as impersonality, isolation, and the decline of primary group membership.

Given these trade-offs, we must ask whether city size affects the happiness of residents within a country.

Several earlier happiness studies have focused on the relationship between happiness and city size. Berry and Okulicz-Kozaryn (2009) concluded that there is no evidence that either rural or big-city living is associated with variations in happiness or unhappiness, although there are higher levels of life satisfaction in big cities in Asia. Easterlin et al. (2011) analyzed whether the differential impact of economic development on income and occupational structure in urban and rural areas lead to differences in happiness over a wide cross-section of countries.

Y. Itaba (✉)

Faculty of Economics, Doshisha University, Kyoto, Japan

e-mail: yitaba@mail.doshisha.ac.jp

Their main finding was that in less-developed countries happiness is considerably greater in urban settings, but that this urban–rural differential tends to disappear in developed countries.

Although the above studies conducted their analyses between multiple countries, other articles have employed a within-country analysis. Morrison (2007) used survey data to compare subjective well-being in 12 different locations in New Zealand, and examined whether people feel differently about their lives depending on where they live. He found that there were considerable place effects, suggesting that the characteristics of local areas may have an independent impact on well-being. Albouy (2008) used data from the United States and concluded that once amenities such as mild seasons and sunshine are accounted for, quality of life does not depend on city size. Ballas and Tranmer (2012) employed multilevel modeling with data from the British Household Panel Survey and the United Kingdom Population Census, finding that happiness was significantly different at area levels before all individual, household, and area characteristics are controlled for. However, the variation in happiness and well-being is reduced after controlling for these characteristics. Berry and Okulicz-Kozaryn (2011) used data in the United States, finding that the rural–urban happiness gradient remains statistically significant even after controlling some variables such as age, income, and European residential areas. However, they found the rural–urban happiness gradient tends to become weak if the number of controlled variables increases. From Japanese data, Tiefenbach and Kohlbache (2013) concluded that women feel happier in large cities than they do in towns and villages.

These results from within-country analyses generally support the view that the variation in happiness between areas tends to become weak or disappear if the number of controlled variables increases. This means that the effect of added variables in happiness trumps the effect of areas on happiness. While these analyses find no empirical relationship between city size and happiness, this does not definitively prove that there is no causal relationship.

The present analysis uses data collected via an Internet survey in 2011 to examine the relationship, in Japan, between city size and happiness, while considering the psychological model of the Big Five personality traits. Florida (2008) describes the relationship between the Big Five and places people choose to live. For example, people with higher openness are most likely to live in large urban areas. These personality traits are capable of explaining a significant portion of any variance in innovation, human capital, income, and other factors. We can easily imagine that personal characteristics affect happiness, and it is very interesting to consider the Big Five in an analysis of happiness.

We start with a data description. The present analysis contains many control variables and samples in comparison with Tiefenbach and Kohlbache (2013). Our results show no relationship between happiness and city size. However, these results do not definitively prove that there can be no causal relationship. The significance of several interaction terms of city size with the Big Five allows us to infer that there might be some causal relationship between city size and happiness. Therefore we

examine this potential causal relationship using structural equation modeling (SEM) and conclude that there are causal relationships between city size and happiness.

2 Data Description

The present analysis uses data compiled in the research project “The Economics of Happiness” funded by a Grant-in-Aid for Scientific Research (“Kakenhi,” in Japanese) No. 22243028, in which the chief researcher was Professor Toshiaki Tachibanaki.

2.1 Outline of the Survey

- Survey title: “A survey on the living environment in a region and the sense of happiness”
- Survey period: 01/31/2011–02/02/2011
- Survey method: Internet survey (Goo Research)
- Sample controls: Sampling was controlled so that the age distributions and income distributions of the survey were close to the real distributions.
- Number of samples: 10,826
- Collection rate: 40.6 % (10,826/26,660)

2.2 Descriptive Statistics of the Survey Results

Table 14.1 shows descriptive statistics of the variables. These variables were used in the following happiness analysis, and short remarks on some variables are made below.

The ratio of men in the survey was 56.9 %, and that of women was 43.1 %. The average age was 45, and the average individual income before tax was about 3 million yen.

The survey asked respondents to make a comparison with an average home, using the following question:

How do you think your home life compares to that found in an average home?

This question asks about the respondent’s relative position where the reference group is defined by each respondent. The modal response is the average, and the distribution is a little positively skewed.

The distribution of financial assets was as follows: 60 % of respondents had less than 5 million yen, and 26 % of the respondents had more than 5 million yen in

Table 14.1 Descriptive statistics of variables

Nominal variable (question)	Variable description	Freq.	%	Mean	Std. dev.	Min	Max
Gender	Men (=1)	6,156	56.9	0.569	0.495	0	1
	Women (=2)	4,670	43.1	0.431	0.495	0	1
Age	20–29 years old (=1)	2,025	18.7	0.187	0.390	0	1
	30–39 years old (=2)	2,387	22.1	0.220	0.415	0	1
	40–49 years old (=3)	2,029	18.7	0.187	0.390	0	1
	50–59 years old (=4)	2,382	22.0	0.220	0.414	0	1
	60 or above (=5)	2,003	18.5	0.185	0.388	0	1
Income	Nothing (=1)	1,424	13.2	0.132	0.338	0	1
	Less than 1 million yen (=2)	1,540	14.2	0.142	0.349	0	1
	1 million to 2 million yen (=3)	1,186	11.0	0.110	0.312	0	1
	2 million to 3 million yen (=4)	1,757	16.2	0.162	0.369	0	1
	3 million to 4 million yen (=5)	1,067	9.9	0.099	0.298	0	1
	4 million to 5 million yen (=6)	882	8.1	0.081	0.274	0	1
	5 million to 6 million yen (=7)	719	6.6	0.066	0.249	0	1
	6 million to 7 million yen (=8)	519	4.8	0.048	0.214	0	1
	7 million to 8 million yen (=9)	459	4.2	0.042	0.202	0	1
	8 million to 10 million yen (=10)	512	4.7	0.047	0.212	0	1
	10 million to 12 million yen (=11)	200	1.8	0.018	0.135	0	1
	12 million to 14 million yen (=12)	99	0.9	0.009	0.095	0	1
	14 million to 16 million yen (=13)	48	0.4	0.004	0.066	0	1
	More than 16 million yen (=14)	77	0.7	0.007	0.084	0	1
	I do not wish to answer (=15)	337	3.1	0.031	0.174	0	1

Comparison with average home (how do you think your home life compares to that found in an average home?)	Far below average (=1)	961	8.9	0.089	0.284	0	1
	Below average (=2)	3,293	30.4	0.304	0.460	0	1
	Average (=3)	4,395	40.6	0.406	0.491	0	1
	Above average (=4)	2,074	19.2	0.192	0.394	0	1
	Much better (=5)	103	1.0	0.010	0.097	0	1
Assets (what is the total value of your financial assets (savings, securities, etc.)?)	Less than 5 million yen (=1)	6,565	60.6	0.606	0.489	0	1
	More than 5 million yen (=2)	2,782	25.7	0.257	0.437	0	1
	I do not wish to answer (=3)	1,479	13.7	0.137	0.343	0	1
	I hold some liabilities (debt) (=0)	4,135	38.2	0.382	0.486	0	1
Debt (does your household hold any liabilities (debt)?)	I don't hold any liabilities (debt) (=1)	6,467	59.7	0.597	0.490	0	1
	I don't know (=2)	224	2.1	0.021	0.142	0	1
	I do not have any children. (=1)	4,621	42.7	0.427	0.495	0	1
	My youngest child is 3 years old or younger (=2)	935	8.6	0.086	0.281	0	1
Children (please select the best response concerning your youngest child)	My youngest child is 4–6 years old (=3)	488	4.5	0.045	0.207	0	1
	My youngest child is an elementary school or junior high school student (=4)	1,199	11.1	0.111	0.314	0	1
	My youngest child is a high school student or higher and is single (=5)	2,485	23.0	0.230	0.421	0	1
	My youngest child is married (or divorced) (=6)	1,098	10.1	0.101	0.302	0	1

(continued)

Table 14.1 (continued)

Nominal variable (question)	Variable description	Freq.	%	Mean	Std. dev.	Min	Max
Social capital	Neighborhood activities (how frequently do you meet your neighbors?)						
	Never (=1)	1,085	10.0	0.100	0.300	0	1
	Hardly ever (greetings only) (=2)	5,652	52.2	0.522	0.500	0	1
	We stand around and talk on a daily basis (=3)	3,304	30.5	0.305	0.461	0	1
Traits	We consult with each other and lend each other daily supplies, etc. We cooperate with each other to make our lives better (=4)	785	7.3	0.073	0.259	0	1
	Sociable activities (activities designed to promote relationships between people in the area, such as neighborhood groups and associations)						
	Never (=1)	5,512	50.9	0.509	0.500	0	1
	Hardly ever (=2)	2,449	22.6	0.226	0.418	0	1
	Yes, occasionally (=3)	2,006	18.5	0.185	0.389	0	1
	Yes, often (=4)	859	7.9	0.079	0.270	0	1
	Sports activities (sports, hobby, and amusement activities, such as various types of sporting activities, and artistic and cultural activities)						
	Never (=1)	6,106	56.4	0.564	0.496	0	1
	Hardly ever (=2)	2,257	20.9	0.208	0.406	0	1
	Yes, occasionally (=3)	1,522	14.1	0.141	0.348	0	1
	Yes, often (=4)	941	8.7	0.087	0.282	0	1
	Volunteer activities (volunteer, NPO, civic, and other similar types of activities)						
	Never (=1)	7,789	72.0	0.719	0.449	0	1
	Hardly ever (=2)	1,914	17.7	0.177	0.382	0	1
	Yes, occasionally (=3)	727	6.7	0.067	0.250	0	1
	Yes, often (=4)	396	3.7	0.037	0.188	0	1
	Risk aversion (when watching a weather forecast, what chance of rain percentage would normally prompt you to bring an umbrella when going out?)						
	Less than 20 % (=1)	459	4.2	0.042	0.202	0	1
	20–29 % (=2)	403	3.7	0.037	0.189	0	1
	30–39 % (=3)	1,872	17.3	0.173	0.378	0	1
	40–49 % (=4)	2,092	19.3	0.193	0.395	0	1
	50–59 % (=5)	3,103	28.7	0.287	0.452	0	1
	60–69 % (=6)	1,175	10.9	0.109	0.311	0	1
	70–79 % (=7)	943	8.7	0.087	0.282	0	1

	80–89 % (=8)	455	4.2	0.042	0.201	0	1
	More than 90 % (=9)	324	3.0	0.030	0.170	0	1
Trust (on a scale from 0 to 10, please tell us how much you basically trust people)	0 (I do not trust people at all)	122	1.1	0.011	0.106	0	1
	1	146	1.4	0.013	0.115	0	1
	2	424	3.9	0.039	0.194	0	1
	3	1,021	9.4	0.094	0.292	0	1
	4	963	8.9	0.089	0.285	0	1
	5	2,678	24.7	0.247	0.432	0	1
	6	1,823	16.8	0.168	0.374	0	1
	7	2,301	21.3	0.213	0.409	0	1
	8	1,089	10.1	0.101	0.301	0	1
	9	188	1.7	0.017	0.131	0	1
	10 (I trust people a great deal)	71	0.7	0.007	0.081	0	1
Sleeping hours per day		10,826	6.48	1.150	1	17	
Alcohol (how often do you drink alcohol and how much? Please select the best response)	I never drink alcohol (=1)	1,872	17.3	0.173	0.378	0	1
	I hardly ever drink alcohol (=2)	2,266	20.9	0.209	0.407	0	1
	I sometimes drink alcohol (=3)	3,816	35.3	0.352	0.478	0	1
	I usually drink the equivalent of one 350 ml can of beer each day (=4)	1,569	14.5	0.145	0.352	0	1
	I usually drink the equivalent of three 350 ml cans of beer each day (=5)	1,115	10.3	0.103	0.304	0	1
	I usually drink the equivalent of five 350 ml cans of beer or more each day (=6)	188	1.7	0.017	0.131	0	1

(continued)

Table 14.1 (continued)

Nominal variable (question)	Variable description	Freq.	%	Mean	Std. dev.	Min	Max
Human nature (on a scale from one to seven, please select the level that best represents your outlook on human nature)	1 (human nature is essentially evil)	410	3.8	0.038	0.191	0	1
	2	531	4.9	0.049	0.216	0	1
	3	1,300	12.0	0.120	0.325	0	1
	4	4,030	37.2	0.372	0.483	0	1
	5	2,688	24.8	0.248	0.432	0	1
	6	1,324	12.2	0.122	0.328	0	1
	7 (human nature is essentially good)	543	5.0	0.050	0.218	0	1
Religious involvement (I do not conduct any practices that are related to my religion or faith)	Nothing (=0)	2,782	25.7	0.257	0.437	0	1
	Something (=1)	8,044	74.3	0.743	0.437	0	1
	Strongly unhealthy (=1)	350	3.2	0.032	0.177	0	1
	Unhealthy (=2)	795	7.3	0.073	0.261	0	1
	If pressed to say, I would say "unhealthy" (=3)	2,531	23.4	0.234	0.423	0	1
	If pressed to say, I would say "healthy" (=4)	3,415	31.5	0.315	0.465	0	1
	Healthy (=5)	2,844	26.3	0.263	0.440	0	1
Home owner dummy	Strongly healthy (=6)	891	8.2	0.082	0.275	0	1
	Not a home owner (=0)	5,400	49.9	0.499	0.500	0	1
	Home owner (=1)	5,426	50.1	0.501	0.500	0	1
	Single (=1)	3,176	29.3	0.293	0.455	0	1
Marital status	Married (=2)	6,939	64.1	0.641	0.480	0	1
	Divorced (=3)	557	5.2	0.051	0.221	0	1
	Widowed (=4)	154	1.4	0.014	0.118	0	1
	Junior high school (=1)	241	2.2	0.022	0.148	0	1
Education	High school (=2)	5,120	47.3	0.473	0.499	0	1

Job	University and graduate school (=3)	5,414	50.0	0.500	0.500	0	1
	Others (=4)	51	0.5	0.005	0.068	0	1
	Top level manager, executive (=1)	350	3.2	0.032	0.177	0	1
	Regular employee (=2)	3,503	32.4	0.324	0.468	0	1
	Civil servant (=3)	485	4.5	0.045	0.207	0	1
	Contract employee/fixed-term employee (=4)	8.44	48.5	0.084	0.278	0	1
	Part-time employee (=5)	1,205	11.1	0.111	0.315	0	1
	Self-employed (=6)	770	7.1	0.071	0.257	0	1
	Student (=7)	421	3.9	0.039	0.193	0	1
	Unemployed (includes homemakers) (=8)	2,998	27.7	0.277	0.448	0	1
	Other (=9)	180	1.7	0.017	0.128	0	1
	Conscientiousness	10,555		0.0	1.0	-4.639	4.285
	Neuroticism	10,555		0.0	1.0	-4.410	4.315
	Openness	10,555		0.0	1.0	-3.644	4.107
Subjective well-being	Extraversion	10,555		0.0	1.0	-3.840	3.961
	Disagreeableness	10,555		0.0	1.0	-3.706	5.435
	0 (very unhappy)	148	1.4	0.014	0.116	0	1
	1	130	1.2	0.012	0.109	0	1
	2	305	2.8	0.028	0.165	0	1
	3	731	6.8	0.068	0.251	0	1
	4	782	7.2	0.072	0.259	0	1
	5	1,964	18.1	0.181	0.385	0	1
	6	1,645	15.2	0.152	0.359	0	1
	Happiness						

(continued)

Table 14.1 (continued)

Nominal variable (question)		Variable description	Freq.	%	Mean	Std. dev.	Min	Max
		7	2,240	20.7	0.207	0.405	0	1
		8	1,860	17.2	0.172	0.377	0	1
		9	701	6.5	0.065	0.246	0	1
		10 (very happy)	320	3.0	0.030	0.169	0	1
		Domains of happiness	10,826		0.0	0.886	-3.646	5.228
		Positive thinking in life (NT)	10,826		0.0	0.905	-3.852	3.800
		Negative thinking in life (NT)	10,826		0.0	0.858	-3.694	4.053
		Enjoyment and fun in life (EF)	3,953	36.5	0.365	0.481	0	1
		Large city (population of one million or larger) (=1)	1,499	13.9	0.138	0.345	0	1
		Medium-sized city (population of less than one million) (=2)	4,301	39.7	0.397	0.489	0	1
City size		Small city (=3)	813	7.5	0.075	0.264	0	1
		Town or village (=4)	260	2.4	0.024	0.153	0	1
		I do not know (please enter the name of the place) (=5)						

assets. In addition, 60 % of the respondents had no debt, which is higher figure than that found in other countries such as the USA and France, although the debt includes mortgages.

Overall, 42.7 % of the respondents had no children and 57.3 % had children.

We considered four areas of social capital: neighborhood activities, social activities, sports activities, and volunteer activities. Each question was as follows:

- Neighborhood activities: *“How frequently do you meet your neighbors?”*

The following three questions start with the following sentence: *“This question is about neighborhood activities that you participate in. Do you currently participate in any of the following activities?”*

- Social activities: *“Activities designed to promote relationships between people in the area (such as neighborhood groups and associations).”*
- Sports activities: *“Sports, hobbies, and amusement activities (e.g. sporting activities and artistic and cultural activities).”*
- Volunteer activities: *“Volunteer, NPO, civic, and similar activities.”*

According to the table, not many respondents were involved in social activities.

The survey included the following question that asked respondents their degree of risk aversion:

When watching a weather forecast, what percentage chance of rain would normally prompt you to bring an umbrella when going out?

The probability of bringing an umbrella is inversely correlated with the degree of risk aversion. The mean and median risk aversion responses were higher than 50 %.

The survey included the following question asking respondents their degree of trust:

On a scale from 0 to 10, please tell us how much you tend to trust people.

This question was answered on a scale where 0 means that the respondent does not trust at all and 10 means that he/she trusts a great deal. The modal response was 5, although the mean was 6.5. There was a negative skew in the distribution of trust.

Outlook on human nature was measured using the following question:

On a scale from 1 to 7, please select the level that best represents your outlook on human nature.

This question was answered on a scale where 1 means human nature is essentially evil and 7 means human nature is essentially good. The modal response was 4 (the median), and the distribution was slightly negatively skewed.

Religious involvement is known to be tied to subjective well-being; about 74 % of respondents were involved with a religion.

The distribution of marital status was as follows: 29.3 % unmarried, 64.1 % married, 5.1 % divorced, and 1.4 % widowed.

For highest level of education, 50 % of respondents had attained a university education or higher, whereas 47.3 % had attained a high-school-level education.

2.3 *Psychological Characteristics: The Big Five*

The survey questionnaire included questions for examining the psychological characteristics of the respondents. The questions used in the survey were prepared using the English Big Five Inventory (BFI) items (see Benet-Martinez and John 1998 for details). A factor analysis was used to obtain factors for each respondent using an orthogonal rotation (i.e. varimax rotation). Five factors were derived from the rotated factor matrix, which is a matrix of the factor loadings of each variable. Table 14.2 shows the varimax-rotated five-factor structure for the BFI items, which are conscientiousness, neuroticism, openness to experience, extraversion, and disagreeableness. Conscientiousness was defined using the characteristics *trustworthy, efficient, smart, and kind*. Neuroticism was defined through the words *moody, worrying, nervous, and diligent*. Openness to experience was defined using *creative, imaginative, intelligent, and curious*, and extraversion was defined through *outgoing, energetic, active, and talkative*. Finally, disagreeableness was defined using *aggressive, rude, forgetful, and argumentative*.

The correlations of subjective well-being and conscientiousness, neuroticism, openness to experience, extraversion, and disagreeableness were 0.16, -0.19 , 0.07, 0.24, and -0.14 , respectively, and thus consistent with previous findings (Weiss et al. 2008).

Weiss et al. (2008, see p. 205) noted that numerous studies have shown that subjective well-being is related to the Big Five and that at a psychological level, several plausible mechanisms have been proposed to explain the relationship between personality and subjective well-being. For example, some researchers have emphasized the roles of extraversion and neuroticism in reward and punishment systems, respectively. Others have proposed that the relationship arises from indirect instrumental effects of personality on the experiences an individual encounters.

2.4 *Happiness: General Happiness and the Three Domains of Happiness*

In the survey questionnaire, there were two types of questions concerning the degree of respondents' happiness. One was single and direct, asking: "*As a whole, how do you feel about your degree of happiness?*" Then the dataset included questions about satisfaction with life as a whole. We termed this aggregate concept general happiness (GH), which was measured using the following question:

On a scale from 0–10, please rate your overall level of happiness.

This question was answered on a scale of 0–10, where 0 means extremely dissatisfied and 10 means extremely satisfied. The overall distribution of happiness is shown in Table 14.1. Here, there is evidence of a negative skew in the distribution

Table 14.2 Big five

	Factor				
	1. Conscientiousness	2. Neuroticism	3. Openness	4. Extraversion	5. Disagreeableness
I am trustworthy	0.718	−0.026	0.158	0.041	−0.221
I carry out my work until it is completed	0.710	−0.032	0.046	0.096	−0.107
I am a trusted worker	0.700	−0.047	0.093	0.110	−0.126
I am a perfectionist when it comes to work	0.693	−0.126	0.061	0.026	0.145
I deal with matters efficiently	0.664	−0.195	0.185	0.018	0.060
I carry out my plans	0.643	−0.161	0.079	0.003	0.033
I am thoughtful and kind	0.612	0.113	0.272	−0.043	−0.274
I am smart	0.548	−0.203	0.294	−0.022	0.154
I am quite enthusiastic	0.546	−0.182	0.314	0.339	0.028
I am kind to others	0.496	0.164	0.244	0.194	−0.355
I like to cooperate with others	0.488	0.073	0.199	0.352	−0.271
I am easygoing	0.451	−0.196	0.159	−0.397	−0.162
I become nervous easily	0.097	0.703	−0.114	−0.183	−0.079
I worry about many things	0.097	0.701	−0.096	−0.125	0.158
I am emotionally insecure	−0.170	0.624	−0.003	−0.086	0.349
I am bashful	0.075	0.615	−0.054	−0.385	−0.103
I have problems in concentrating	−0.247	0.592	0.040	0.070	0.227
I am a bit careless	−0.303	0.532	0.092	0.216	0.011
I tend to be lazy	−0.422	0.469	0.032	−0.042	0.182
I remain calm even in stressful situations	0.290	−0.465	0.306	0.094	0.123
I am moody	−0.183	0.464	0.106	0.042	0.440
I am emotionally secure	0.364	−0.438	0.123	0.076	−0.306
I am a nervous person	0.276	0.412	−0.024	−0.213	0.341
I like uncomplicated work	−0.133	0.397	−0.149	−0.140	−0.040
I value artistic and esthetic experiences	0.069	0.067	0.757	−0.029	0.021
I have artistic sense	0.090	−0.092	0.724	−0.021	0.026
I am creative	0.270	−0.137	0.690	0.089	0.163

(continued)

Table 14.2 (continued)

	Factor				
	1. Conscientiousness	2. Neuroticism	3. Openness	4. Extraversion	5. Disagreeableness
I have a good imagination	0.301	0.125	0.629	0.150	0.095
I like to create my own ideas	0.366	−0.142	0.622	0.209	0.159
I come up with new ideas	0.363	−0.183	0.601	0.148	0.156
I have a wide variety of interests	0.328	0.022	0.478	0.300	−0.028
I have little interest in art	0.098	0.094	−0.439	0.011	0.164
I am a quiet person	0.179	0.124	0.104	−0.722	−0.194
I am talkative	0.161	0.074	0.143	0.712	0.067
I am outgoing	0.226	−0.128	0.246	0.651	−0.041
I am conservative	0.090	0.315	−0.023	−0.643	−0.262
I am energetic	0.330	−0.234	0.188	0.596	−0.094
I lack energy	−0.210	0.362	−0.034	−0.544	0.224
I am aggressive	0.054	0.023	0.138	0.178	0.732
I am stuck up	−0.054	0.029	0.146	−0.076	0.634
I tend to argue with others	0.076	0.013	0.073	0.211	0.625
I find faults in others	−0.036	0.299	−0.056	0.142	0.527
I am rude to others	−0.319	0.114	0.007	−0.076	0.518
I am forgetful	0.259	−0.137	0.283	0.097	−0.411

Extraction method: principal component analysis

Rotation method: Varimax with Kaiser Normalization

Nine rotations converged in nine iterations

of happiness. Most people were on the “satisfied” end of the spectrum. The modal happiness response, the mean, and the median are around 7.

Another survey instrument used was a set of 29 questions on the state of respondents’ feelings related to happiness, from which happiness measurements were derived through factor analysis (see Hills and Argyle 2002). This factor analysis is provided in Table 14.3, from which three factors are extracted. The point of inflexion is used to determine how many factors to extract, and an orthogonal rotation is used in order to avoid a multicollinearity problem in the later estimation.

Table 14.3 shows the rotated factor matrix where the questions are listed in order of their factor-loading size. We labeled factor 1, factor 2, and factor 3 “positive thinking in life” (PT), “negative thinking in life” (NT), and “enjoyment and fun in life” (EF), respectively, according to the characteristics of the questions that load highly on each factor. These three concepts were designated as the three domains of happiness.

Table 14.3 Three domains of happiness (pattern matrix)

	Factor		
	1	2	3
I have a positive impact on things	0.694	−0.225	0.336
I am competitive no matter what I do	0.665	−0.179	0.241
My life is full of vitality	0.634	−0.308	0.367
I am clever and never caught off guard	0.581	−0.020	0.058
Whatever I take on, I always give it my all	0.576	−0.065	0.392
I always uplift the spirits of others	0.556	−0.112	0.440
I do not have a hard time making decisions	0.553	−0.179	0.049
I look for the beauty in things	0.508	−0.120	0.445
I make time for things that I want to do	0.439	−0.118	0.251
I am often in a good mood	0.310	0.079	0.241
I don't really have the amount of control over my life that I want to have	−0.213	0.690	−0.113
I do not end up doing what I want	−0.112	0.613	0.010
I am not completely satisfied with my personal life at the moment	0.049	0.566	0.014
I am pessimistic about the future	−0.016	0.544	0.008
I do not regard myself as an attractive person	−0.330	0.505	−0.157
I do not think that the world is a wonderful place	−0.090	0.504	−0.395
I have very few happy memories from the past	−0.094	0.502	−0.430
I am very satisfied with my life	0.309	−0.502	0.445
I sleep normally but still feel tired	−0.076	0.486	−0.060
I am not healthy	−0.129	0.483	−0.249
My life does not have any particular aim or purpose	−0.162	0.436	−0.333
My life is wonderful	0.361	−0.351	0.656
My life is very rewarding	0.377	−0.321	0.595
I laugh often	0.306	−0.104	0.550
I am very happy	0.261	−0.399	0.550
I enjoy most things	0.440	−0.222	0.523
I have warm relationships with most people	0.376	0.026	0.505
I do not go out with others for socializing	−0.103	0.327	−0.370
I am deeply concerned about others	0.165	0.201	0.317

Extraction method: principal axis factoring

Rotation method: Varimax

2.5 Types of City Size

Japan is administratively divided into 47 prefectures, with cities, towns, and villages comprising the lower administrative levels. Generally speaking, the population of a city must be 50,000 or larger and that of both towns and villages must be less than 50,000. For the purposes of this study, “cities” were divided into four categories: cities can be divided into large (cities with population of one million or

larger, as well as the Tokyo special wards), medium cities (prefectural capital cities with population less than one million), small cities (cities that are not prefectural capitals and that have population less than one million), and towns/villages. The largest number of respondents lived in small-sized cities. A total of 260 respondents declined to answer this question, but they were included in the analysis to maintain the sample number.

3 Methodology

First, we considered an explanation of general happiness in an orthodox manner, where we selected city size and a number of variables as explanatory variables. This type of analysis is the most common in happiness studies. The basic regression estimated is as follows:

$$y_i = a + b_1x_{i1} + b_2x_{i2} + \cdots + b_kx_{ik} + e_i, \quad i = 1, \dots, n$$

where y_i is general happiness for each respondent i , x_{ij} ($i_j = 1, \dots, k$) are explanatory variables, and i indexes the n sample observations. The explanatory variables include the ones mentioned in the data section. The term e is a random disturbance.

Second, we considered general happiness regarded as an aggregate of the three separate domains of happiness. Each domain makes a specific contribution to general happiness. Furthermore, some characteristics, such as age, gender, and city size affect these three domains.

Happiness is considered a broad category of phenomena that includes people’s emotional responses, domain satisfactions, and so on (see, Diener et al. 1999). We have taken the approach employed by Hills and Argyle (2002) which proposes that general happiness can be regarded as an aggregate of all the separate domains of happiness. The model can be explained as shown in Fig. 14.1. In this figure, the basic model is a two-layer model, where the first layer is the three domains of

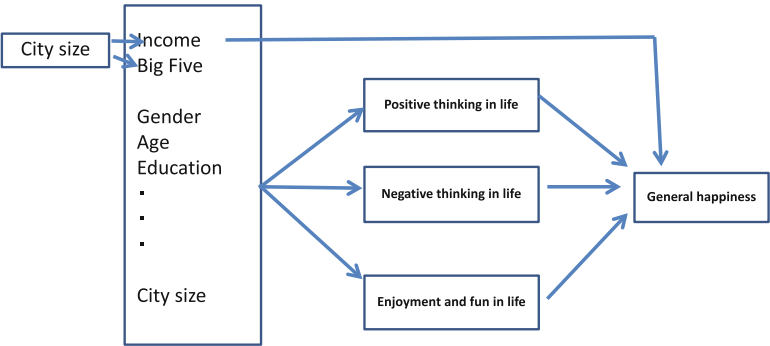


Fig. 14.1 Two-layer model

happiness and the second layer includes variables such as age, income, and city size. In this model, we include not only the direct effect of city size on both income and the Big Five, but also the direct effect of income on general happiness. It is interesting to see whether city size affects the distribution of each of the Big Five in the model, because the distribution of each of the Big Five depends in turn on city size. Furthermore, it is already known that income affects happiness. One of the advantages of using the two-layer model is to find the mechanism by which city size affects happiness.

As previously mentioned, we used SEM in the analysis. SEM uses various types of models to depict relationships among observed variables. More specifically, various theoretical models can be tested with SEM that hypothesizes how sets of variables define constructs and how these constructs are related to each other. The goal of SEM is to determine the extent to which a theoretical model is supported by sample data. (Schmacker and Lomax 2010, p. 2) Next, we considered path models, the logical extension of multiple regression models.

Arrows directed from one variable to another denote direct effects. Indirect effects are the effects of one variable on another through any other variable, such as those effects of “age” on “general happiness” through “positive thinking in life” depicted in Fig. 14.1. The total effect of a variable equals the sum of its direct and indirect effects.

4 Analysis

4.1 First Approach

The estimate results are shown in Table 14.4. We conducted the regression not only for the whole sample (1) but also separately for women (2) and men (3). A Stata 13 software package was used for data analysis. Columns (4)–(6) include the interaction effects of city size with the Big Five, although Columns (1)–(3) do not. Significance at the 0.1 %, 1 %, and 5 % levels is indicated by ***, **, and *, respectively. Prefectures are controlled in each equation, although their estimated parameters are not shown. The adjusted R-squared are around 0.4, which is relatively high in studies of this kind.

Women are about 0.267 times happier than men (1). We also find a strong age effect, where GH follows a U-shaped curve. The minimum GH is reached at age 48 for men and 44 for women, after which it starts rising with age. The same U-shaped curve effect has been found in many happiness studies.

Differences in assets and debt reject the null hypothesis at the 5 % level. The coefficients for over 5 million yen in assets are significant, except for women cases (3) and (6). That is, people are happier without debt.

Having children aged 3 years or younger affects GH by 0.237 points in Column (1), although having children over 3 years old might lower GH.

Table 14.4 Regression results

		Happiness Whole (1)	Happiness Men (2)	Happiness Women (3)	Happiness Whole (4)	Happiness Men (5)	Happiness Women (6)
Gender	Variable						
	Men	Reference group					
Age	Women	0.266***					
	Age	0.267***					
	Age squared	−0.441***	−0.417**	−0.454**	−0.451***	−0.440**	−0.465**
	Income	0.046***	0.043*	0.051**	0.048***	0.046**	0.053**
Income	Income	0.773***	0.844***	0.726***	0.774***	0.842***	0.739***
	Comparison with average home	0.048*	0.073**	0.038	0.047*	0.071**	0.047
	Income × comparison with average home	−0.018**	−0.026***	−0.017	−0.018**	−0.026***	−0.02
Asset	Less than 5 million yen	Reference group					
	More than 5 million yen	0.148***	0.181***	0.091	0.149***	0.178**	0.089
	I do not wish to answer	0.094	0.092	0.087	0.093	0.096	0.086
Debt	I do have debt	Reference group					
	I don't have any debt	0.183***	0.192***	0.158**	0.180***	0.193***	0.149**
	I don't know	0.005	0.032	−0.024	−0.012	0.042	−0.038
Child	I do not have any children	Reference group					
	My youngest child is 3 years old or younger	0.237***	0.376***	0.098	0.231**	0.379***	0.084
	My youngest child is 4–6 years old	0.026	0.14	−0.119	0.027	0.135	−0.108
	My youngest child is an elementary or junior high school student	−0.203**	−0.214*	−0.184	−0.206**	−0.208*	−0.203*
	My youngest child is a high school student or higher and is single	−0.135*	−0.141	−0.148	−0.136*	−0.14	−0.164
	My youngest child is married (or divorced)	−0.026	0.025	−0.198	−0.032	0.017	−0.226
	Neighborhood activity	0.101***	0.134***	0.06	0.102***	0.137***	0.059
Social capital	Sociable activity	0.005	−0.01	0.02	0.005	−0.01	0.022
	Sports activity	0.005	0.021	−0.014	0.003	0.018	−0.017
	Volunteer activity	−0.028	−0.044	−0.013	−0.03	−0.045	−0.015

Traits	Risk aversion	0.015	0.005	0.030*	0.013	0.003	0.025
	Trust	0.247***	0.250***	0.244***	0.245***	0.250***	0.242***
	Sleeping hours per day	0.104***	0.092***	0.116***	0.103***	0.091***	0.115***
	Alcohol	-0.029*	-0.035*	-0.021	-0.028*	-0.034*	-0.022
	Human nature	0.164***	0.152***	0.186***	0.164***	0.152***	0.188***
	Religious involvement	0.298***	0.306***	0.272***	0.302***	0.309***	0.284***
	Health	0.195***	0.168***	0.232***	0.195***	0.169***	0.231***
	Home owner dummy	-0.06	-0.028	-0.099	-0.06	-0.034	-0.09
	Home owner dummy						
	Single	-0.640***	-0.602***	-0.678***	-0.643***	-0.602***	-0.684***
Marital status	Married	Reference group			Reference group		
	Divorced	-0.435***	-0.529***	-0.339**	-0.441***	-0.532***	-0.334**
	Widowed	-0.204	-0.346	-0.003	-0.221	-0.347	-0.031
	Junior high school	-0.115	-0.125	-0.039	-0.105	-0.109	-0.027
	High school	Reference group			Reference group		
	University and graduate school	-0.067	-0.066	-0.044	-0.065	-0.064	-0.039
	Others	-0.398	-0.576	-0.194	-0.399	-0.578	-0.196
	Top level manager, executive	-0.084	-0.011	-0.319	-0.081	-0.007	-0.308
	Regular employee	Reference group			Reference group		
	Civil servant	0.171*	0.162	0.183	0.166*	0.152	0.173
Job	Contract employee/fixed-term employee	-0.044	-0.054	-0.04	-0.044	-0.054	-0.049
	Part-time employee	-0.076	-0.127	-0.071	-0.071	-0.134	-0.063
	Self-employed	-0.031	0.03	-0.252	-0.03	0.03	-0.253
	Student	0.123	0.197	0.059	0.124	0.184	0.056
	Unemployed (includes homemakers)	-0.058	-0.029	-0.062	-0.056	-0.025	-0.067
	Other	0.279*	0.373*	-0.013	0.287*	0.377*	-0.038

(continued)

Table 14.4 (continued)

	Variable	Happiness		Happiness		Happiness		Happiness		Happiness	
		Whole	Men	Women	Whole	Men	Women	Whole	Men	Women	
		(1)	(2)	(3)	(4)	(5)	(6)				
City size	Large	0.09	0.038	0.169	0.071	0.049	0.128				
	Medium	0.063	−0.026	0.184	0.04	−0.014	0.117				
	Small	0.102	0.07	0.156	0.08	0.076	0.076				
Big Five	TV (town and village)	Reference group			Reference group			Reference group			
	No answer	0.134	0.223	0.137	0.063	0.222	−0.059				
	Conscientiousness	0.097***	0.102***	0.089***	0.09	0.035	0.184*				
	Neuroticism	−0.151***	−0.167***	−0.132***	−0.305***	−0.317***	−0.274**				
	Openness	0.100***	0.100***	0.106***	0.248***	0.263***	0.254**				
	Extraversion	0.128***	0.110***	0.144***	0.141*	0.123	0.159				
	Disagreeableness	−0.064***	−0.066**	−0.053*	−0.077	−0.047	−0.123				
	Large × conscientiousness				0.004	0.074	−0.114				
	Medium × conscientiousness				0.054	0.128	−0.076				
	Small × conscientiousness				−0.016	0.037	−0.111				
Interaction between city size and Big Five	TV × conscientiousness				Reference group			Reference group			
	No answer × conscientiousness				0.081	0.355*	−0.188				
	Large × neuroticism				0.173**	0.180*	0.136				
	Medium × neuroticism				0.135	0.141	0.095				
	Small × neuroticism				0.157*	0.145	0.18				
	TV × neuroticism				Reference group			Reference group			
	No answer × neuroticism				0.381**	0.284	0.461**				
	Large × openness				−0.169**	−0.153	−0.207*				
	Medium × openness				−0.051	−0.161	0.061				

	Small × openness								
	TV × openness								
	No answer × openness								
	Large × extraversion								
	Medium × extraversion								
	Small × extraversion								
	TV × extraversion								
	No answer × extraversion								
	Large × disagreeableness								
	Medium × disagreeableness								
	Small × disagreeableness								
	TV × disagreeableness								
	No answer × disagreeableness								
	Constant	1.672***	1.556***	1.891***	1.745***	1.603***	1.987***		
	Controlled for prefecture	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Adjusted R-squared	0.42	0.432	0.386	0.421	0.432	0.39		
	N	10,231	5,855	4,376	10,231	5,855	4,376		

*p<0.05, **p<0.01, *** p<0.001

Income and comparison with the average home are significant and have positive effects. The interaction effects of income with comparison with the average home are also significant except for Columns (3) and (6). The standardized coefficients of comparison with the average home, which are not shown here, are the largest among other standardized coefficients. The introduction of comparison with the average home raises the adjusted R-squared. This result supports the view that people care about their relative position (Luttmer 2005).

Social capital was defined by Putnam (1993) as the relationship between individuals, that is, as a social network and the norm of reciprocity and reliability from that network. The existence of social capital is said to influence economic performance and happiness. We consider four social capitals, but only neighborhood activities positively affect GH, except for women.

Greater alcohol consumption is negatively correlated with happiness except for women cases, (3) and (6). Alcohol consumption works as a depressant in this case.

Risk aversion is not a strong factor, and the coefficient is significant for women as shown in Column (3). Risk aversion is positively correlated with happiness. More risk-averse people increase their self-control so that they decrease the likelihood of negative incomes. These results support the conclusion of Frey et al. (2007), which states that individuals with incomplete control over their own behavior feel happier.

Trust, sleeping hours per day, human nature, religious concerns, and health positively and significantly affect GH. It has already been reported that individuals seem to benefit from religious involvement, with religious individuals tending to be happier than the non-religious, all else being equal (e.g. Lelkes 2006). Married people are happier as well. Differences in education background do not reject the null hypothesis at the 5 % level, and civil servants have significantly more GH than employed workers do.

Columns (4)–(6) add the interaction effects of city size and the Big Five. Coefficients of general happiness (GH) for city size are zero at the 5 % level, identical to those reported in Columns (1)–(3). The coefficients of GH in the Big Five change, and so many coefficients for conscientiousness, extraversion, and disagreeableness become zero at the 5 % level, but several interaction terms are still significant at this level. For example, the coefficient for Large \times neuroticism is 0.173 in (4), which is significant at the 5 % level. While this analysis finds no empirical relationship between city size and GH, it does not definitively prove that there can be no causal relationship. The significance of several interaction terms of city size with the Big Five allows us to infer that there might be some causal relationship between city size and GH. We examine this point using a second approach.

4.2 Second Approach

Estimation results are shown in Table 14.5. Jobs, social activities, sports activities, volunteer activities, and the 47 prefectures are omitted in the SEM estimation, because most of these parameters were not found to be statistically significant in

Table 14.5 SEM results

	Whole	Men	Women
Happiness			
Positive thinking in life (PT)	0.095***	0.096***	0.105***
Negative thinking in life (NT)	−0.434***	−0.414***	−0.455***
Enjoyment and fun in life (EF)	0.375***	0.361***	0.352***
Income	0.031***	0.125***	−0.019
Constant	3.495***	3.298***	3.668***
Positive thinking in life (NT)			
Income	0.024**	0.008	0.022*
Conscientiousness	0.536***	0.558***	0.509***
Neuroticism	−0.228***	−0.205***	−0.244***
Openness	0.417***	0.395***	0.446***
Extraversion	0.249***	0.252***	0.243***
disagreeableness	0.034***	0.043***	0.024*
Age	−0.182***	−0.210**	−0.248***
Age squared	0.170***	0.179**	0.250***
Health	−0.074***	−0.076***	−0.070***
Large	−0.022	−0.037*	−0.004
Medium	0.013	0.007	0.024
Small	−0.003	−0.012	0.005
No answer	−0.011	−0.007	−0.011
Neighborhood activity	0.008	0.005	0.007
Comparison with average home	−0.011	−0.008	−0.009
Sleeping hours per day	0.002	−0.001	0.007
Human nature	0	0.004	0
Religious involvement	−0.013*	−0.013	−0.008
Alcohol	0.004	0.014	−0.016
Risk aversion	0.007	0.009	0.008
Home owner dummy	−0.012	−0.014	−0.014
Single	0.022**	0.019	0.005
Divorced	0.019**		
Widowed	0.007		
More than 5 million yen	0.001	0.013	−0.015
I do not wish to answer	0.001	0.009	−0.008
I don't have any debt	−0.001	−0.004	0.001
I don't know about debt	0.013	0.022*	0.003
Junior high school	0.025***	0.041***	0.003
University and graduate school	0.01	0.015	−0.004
Others	0.002	0.011	−0.011
Constant	0.454***	0.582***	0.491***
Negative thinking in life (NT)			
Income	0.008	−0.027*	0.031*
Conscientiousness	0.100***	0.121***	0.067***

(continued)

Table 14.5 (continued)

	Whole	Men	Women
Neuroticism	0.377***	0.385***	0.362***
Openness	0.057***	0.087***	0.035**
Extraversion	−0.031***	−0.037***	−0.034**
disagreeableness	0.061***	0.054***	0.071***
Age	0.289***	0.255**	0.017
Age squared	−0.304***	−0.343***	−0.006
Health	−0.372***	−0.375***	−0.377***
Large	−0.015	0.004	−0.031
Medium	−0.004	0.008	−0.018
Small	0.01	0.023	−0.003
No answer	−0.011	−0.007	−0.016
Neighborhood activity	−0.019*	−0.026*	−0.031*
Comparison with average home	−0.170***	−0.163***	−0.183***
Sleeping hours per day	−0.079***	−0.078***	−0.077***
Human nature	−0.094***	−0.091***	−0.102***
Religious involvement	0	0.002	−0.004
Alcohol	0.009	0.013	0.009
Risk aversion	−0.011	−0.002	−0.027*
Home owner dummy	−0.003	−0.013	0.015
Single	0.082***		
Divorced	0.041***	0.008	0.049***
Widowed	0.009		
More than 5 million yen	−0.023*	−0.016	−0.031*
I do not wish to answer	0.005	0.01	−0.001
I don't have any debt	−0.033***	−0.022*	−0.025*
I don't know about debt	0.009	0.013	0.017
Junior high school	−0.001	−0.009	0.011
University and graduate school	0.022**	0.018	0.033**
Others	0.003	0.019*	−0.015
Constant	2.177***	2.399***	2.685***
Enjoyment and fun in life (EF)			
Income	−0.025**	0	−0.027*
Conscientiousness	0.243***	0.259***	0.231***
Neuroticism	0.156***	0.141***	0.158***
Openness	0.202***	0.218***	0.174***
Extraversion	0.364***	0.345***	0.377***
Disagreeableness	−0.228***	−0.199***	−0.259***
Age	−0.331***	−0.11	−0.438***
Age squared	0.178**	0.001	0.311***
Health	0.121***	0.120***	0.128***
Large	0.01	0.002	0.012
Medium	0.002	0.007	−0.003

(continued)

Table 14.5 (continued)

	Whole	Men	Women
Small	0.025	0.028	0.021
No answer	0.018*	0.02	0.017
Neighborhood activity	0.043***	0.056***	0.046***
Comparison with average home	0.069***	0.086***	0.056***
Sleeping hours per day	−0.003	−0.012	0.012
Human nature	0.129***	0.135***	0.119***
Religious involvement	0.066***	0.064***	0.074***
Alcohol	−0.011	−0.011	0
Risk aversion	0.014	0.011	0.021
Home owner dummy	−0.025**	−0.039***	−0.007
Single	−0.073***		
Divorced	−0.024**		
Widowed	−0.004	0.003	−0.012
More than 5 million yen	−0.004	−0.001	−0.005
I do not wish to answer	−0.003	0.006	−0.012
I don't have any debt	−0.008	−0.02	−0.015
I don't know about debt	0.005	−0.007	0.007
Junior high school	0	0.011	−0.014
University and graduate school	0.012	0.004	0.033**
Others	−0.011	−0.02	0
Constant	−0.512***	−1.000***	−0.561***
Income			
Large	0.111***	0.164***	0.065*
Medium	0.011	0.044*	0.013
Small	0.102***	0.120***	0.027
No answer	−0.044***	−0.015	−0.033
Constant	1.420***	1.859***	1.422***
Conscientiousness			
Large	0.064***	0.060*	0.071*
Medium	0.017	0.011	0.028
Small	0.051**	0.062*	0.027
No answer	0.021	0.021	0.026
Constant	−0.100**	−0.071	−0.139*
Neuroticism			
Large	−0.053**	−0.062*	−0.041
Medium	0.007	−0.008	0.012
Small	−0.027	−0.029	−0.002
No Answer	0.035**	0.009	0.042*
Constant	0.049	−0.09	0.217***
Openness			
Large	0.064***	0.059*	0.070*
Medium	0.044**	0.047*	0.045

(continued)

Table 14.5 (continued)

	Whole	Men	Women
Small	0.042*	0.043	0.034
No answer	−0.014	−0.007	−0.014
Constant	−0.104**	−0.063	−0.152**
Extraversion			
Large	0.032	0.027	0.041
Medium	0.007	0.007	−0.007
Small	−0.009	0.009	−0.01
No answer	0.004	0.012	−0.023
Constant	−0.017	−0.194***	0.184***
Disagreeableness			
Large	−0.009	0.014	−0.04
Medium	−0.018	−0.006	−0.026
Small	−0.014	0	−0.046
No answer	−0.016	−0.004	−0.019
Constant	0.028	0.09	−0.045
var (e.happy)			
Constant	0.634***	0.654***	0.621***
var (e.pt)			
Constant	0.412***	0.412***	0.411***
var (e.nt)			
Constant	0.570***	0.557***	0.595***
var (e.ef)			
Constant	0.612***	0.638***	0.607***
var (e.income)			
Constant	0.988***	0.989***	0.996***
var (e.conscientiousness)			
Constant	0.998***	0.998***	0.998***
var (e.neuroticism)			
Constant	0.996***	0.998***	0.996***
var (e.openness)			
Constant	0.998***	0.998***	0.997***
var (e.extraversion)			
Constant	0.999***	1.000***	0.997***
var (e.disagreeableness)			
Constant	1.000***	1.000***	0.999***
N	10,231	5,855	4,376
Log likelihood	−303,425	−168,039	−129,311
rmsea	0.083	0.091	0.075
srmr	0.056	0.062	0.051
cfi	0.689	0.637	0.717

Coefficients are standardized parameters

p<0.05, ** p<0.01, *** p<0.001

the first approach. The model fit criteria commonly used: the chi-square (χ^2), the goodness-of fit-index (GFI), the standardized root mean square residual (SRMR), and the root mean square error of approximation (RMSEA). The chi-square (χ^2) model fit criterion is sensitive to sample size. If sample size generally is above 200, the χ^2 statistic tends to indicate a significant possibility level. Our sample size is over 10,000. The GFI measure is also affected by sample size, and thus these two measures, the χ^2 statistics and the GFI measure, are not mentioned here. The comparative fit index (CFI) is used for comparing alternative models.

SRMR is an absolute measure of fit and is defined as the standardized difference between the observed and predicted correlations. The SRMR values are 0.051–0.062, which is below the acceptable level for this measure of fit (i.e. 0.08). The RMSEA values are 0.075–0.091, which are also below the acceptable level for this measure of fit, 0.1. The CFI values are 0.689–0.717. Although there is room for improvement, we have concluded that our models are acceptable.

Direct, indirect, and total effects among the main variables are shown for both men and women in Fig. 14.2, where only significant (i.e. 5 % level) paths are shown.

City size affects income where town and village is used as a reference variable. As for income, large, medium, and small cities positively affect income for men, whereas only large cities affect income for women. Income

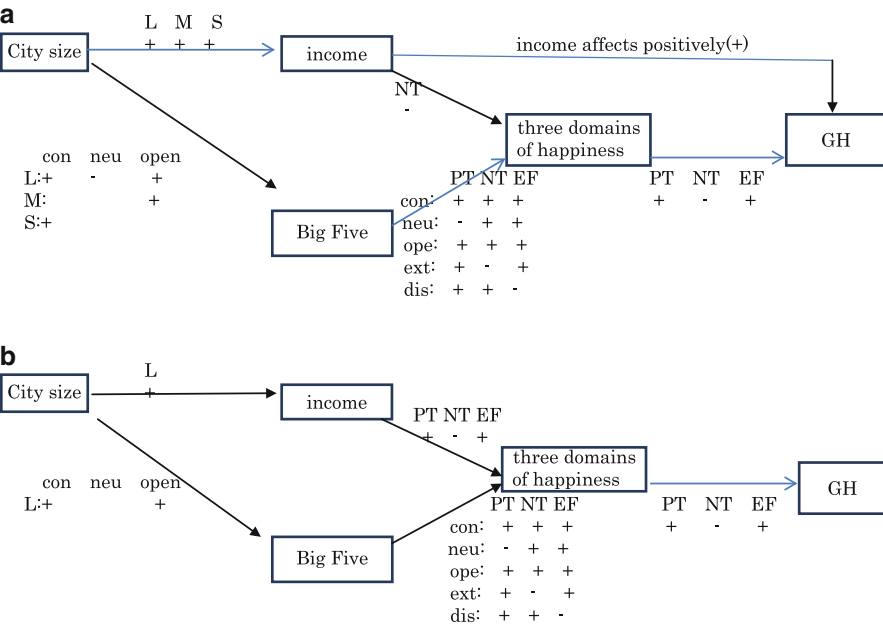


Fig. 14.2 Two-layer model. Only significant (5 % level) paths are shown. (a) Men: total effect (large and small cities affect positively (+)), (b) Women: total effect (large cities affect positively (+))

positively affects GH for men but not for women. Thus we can observe the positive effects of city size on GH through income for men.

There is some relationship between the Big Five and the city size in which people choose to live. People exhibiting conscientiousness and openness are likely to reside in large cities for both men and women, although people exhibiting neuroticism are reluctant to reside in large cities for men. For men, types displaying openness are likely to live in medium cities, although types displaying conscientiousness are likely to live in small cities. This result means that the number of those people who exhibit conscientiousness and openness tends to increase in larger cities, and the number of those who show neuroticism tends to decrease in larger cities.

The effects of the Big Five on the three domains of happiness are the same for both men and women. All of the Big Five are significantly associated with PT, NT, and EF. Recent literature on this topic includes McCrae and Costa (1991), DeNeve and Cooper (1998), and Gutierrez et al. (2005), among others. According to the standardized estimates (which are not shown here), conscientiousness is the most important predictor of PT, although extraversion is the most important predictor of PT in Gutierrez et al. (2005). Neuroticism is the most important predictor of NT, the same result as in Gutierrez et al. (2005). Extraversion is the most important predictor of EF.

In terms of the effects of the three domains of happiness on GH, PT and EF positively affect GH, and NT negatively affects GH for both men and women. The effects of NT and EF are the same in their absolute value for men, so each effect is canceled out, and thus the plus effect of PT increases GH. The result is the same for women, although the effect of NT for women is a little larger than that of EF in its absolute value.

The total effects of city size on GH are as follows: Large and small cities affect GH positively for men, but only large cities do so for women. Therefore, we can conclude the presence of a causal relationship between city size and GH.

5 Conclusion

Albouy (2008) has already indicated that happiness does not tend to depend on city size once a full set of individual, household, and area characteristics are controlled for, and we have observed the same phenomena in the present analysis.

We found significance in several interaction terms of city size with the Big Five, which allows us to infer that there might be some causal relationship between city size and happiness. We examined this causal relationship using SEM, and we concluded that there are causal relationships between city size and happiness, in particular that large cities positively affect happiness. However, we could not find a city size-happiness gradient where the total effects of city size on happiness become higher as city size grows larger.

Nevertheless, using a two-layer model we did find one mechanism by which city size affects happiness. Large cities attract residents who are in the Big Five

conscientious and open-to-experience personality types, thereby increasing the three domains of happiness (positive thinking in life, negative thinking in life, and enjoyment and fun in life) and leading to an increase in happiness.

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Chapter 15

Can Work-Life Balance Policies Foster Happiness Within the Family? A Comparison of Traditional Versus New Family Arrangements

Álvaro Martínez-Pérez

1 Introduction

This chapter investigates the extent to which self-reported well-being, as measured by life satisfaction, for parents living in traditional (coupled mothers and fathers with dependant children) and new family arrangements (lone mothers and fathers) is affected by the use of work-life balance arrangements (WLB, henceforth) (formal and informal) as a coping strategy with the time pressures derived from their labour market responsibilities.

This study offers a new contribution to the study of the determinants of life satisfaction at least for two different reasons. On the one hand, it examines how the household organization itself contributes to parents' well-being. On the other hand, and related with the former, it examines the importance of the availability and use of various types of WLB arrangements in mediating the impact of that family structure on life satisfaction. Previous research on life satisfaction had been traditionally focused on other individual factors overlooking the importance of family life, especially for parents with dependant children whose labour market decisions, influencing the quality of life of the family, may well be affected by whether childcare is at hand. In my view, work and family decisions are now much more intimately related for both men and women, even though this relationship may not be of the same importance for lone parents and couples.

It is in this context in which at the beginning of the 1990s the European Union (EU) launched its first package of legislation to encourage member states to develop national programs of WLB policies (Aybars 2007). The stated goal of such policies was to help workers (particularly women) make working compatible with family

Á. Martínez-Pérez (✉)

Department of Sociological Studies Elmfield, The University of Sheffield,
Northumberland Road, Sheffield S10 2TU, UK

e-mail: a.martinez-perez@sheffield.ac.uk

responsibilities (Houston 2005). However, the relevance of these policies goes beyond the simple reconciliation of work and family activities. As Hakim shows women's preferences have changed in the last decades with an increasing majority of women wishing to develop a professional career together with their role as mothers (1996, 2000). WLB policies help to make compatible these two goals (Esping-Andersen 2002).

For the present study the last wave of the European Quality of Life Survey (EQLS) carried out in 2011 is used. This survey covers a representative sample of adult individuals living in 34 European countries. Respondents are asked about a wide range of subjective indicators of quality of life as well their individual and family characteristics including (for those with dependant children aged 12 years old or less) the use of childcare arrangements. In addition, the questionnaire also includes rich information on their labour market trajectories. Overall, the scope and richness of the data allows me to appropriately address the triangular relationship between life satisfaction, family structure, and WLB arrangements.

In the next section an overview of previous research on the relevant issues is presented. Sect. 3 presents the data and the methodology used. In Sect. 4 the findings of the empirical analysis, both descriptive and multivariate are discussed. In order to facilitate the interpretation of the results, where appropriate, some predicted marginal effects were estimated. Finally, Sect. 5 concludes and discusses the policy implications that can be drawn from this research.

2 Background

The fact that labour market and family decisions are closely connected in contemporary society has been well established across disciplines in a number of relevant studies. Overall, they show that decision-making within the family contributes to the different roles men and women still play in the two spheres (Becker 1991; Lundberg and Pollack 1993; England and Farkas 1986; Shelton and Daphne 1996). Yet currently the workplace has become a central arena in women's lives as much as it used to be for men during the decades in which the male breadwinner model was the rule in the organization of the family (Hochschild 1997). For this reason, it is not surprising that in the existing research on subjective wellbeing that has look into the role of the family much of this inquiry has focused on job satisfaction and not on life satisfaction overall. For instance, some contributions that do consider the effect of family characteristics on the level and variation of workers' job satisfaction are Dyer 1956; Benin and Nienstedt 1985; Hanson and Sloane 1992; Booth and Van Ours 2007. Yet, it is clear that job satisfaction is one of the key indicators, perhaps the most important, of subjective life satisfaction. It is for this reason that most of the findings in the literature on job satisfaction that has considered the role of the family living arrangements applies also to the research presented in this chapter.

The classical standpoint in this literature is that satisfaction with one's job is traditionally regarded as an economic variable related to productivity at the workplace (Freeman 1978). From this perspective, highly satisfied workers were also the

most productive ones. There are exceptions to this pattern though. Some authors, for instance, pointed out that job satisfaction is related with other dimensions of satisfaction such as life and family satisfaction (Stapel 1950; Benin and Nienstedt 1985; Booth and Van Ours 2007) or with overall values and orientations towards work (Kalleberg 1977). In this vein, a comprehensive definition of job satisfaction, as Kalleberg pointed out, should go beyond a single concern with productivity to include the personal values system of the worker as well as the quality of her life outside the work role (1977: 124).

Scholars interested in understanding what might explain the differences in job satisfaction amongst workers at a given point in time as well as on how one's own satisfaction varies over time have provided an array of individual and structural characteristics of the workplace which altogether would account for such variation. Among the former, sex, age, education, tenure, income, occupation, job position and hours worked have been the main dimensions analyzed. As for the latter firm size, industrial sector and gender or ethnic composition of the workplace are the variables traditionally considered. Although for some of these dimensions the findings are not conclusive, a significant part of the literature agrees that women are more satisfied than men (Kaiser 2005; Booth and Van Ours 2007), perhaps because they value more the fact that they are working (subjective evaluation) than the specific conditions of work (objective evaluation) (Weaver 1978; Varca et al. 1983); older workers have higher levels of satisfaction than younger ones (Janson and Martin 1982; Kalleberg and Loscocco 1983); the relationship is also positive for education (Glenn and Weaver 1982; Gruenberg 1980) while negative for the hours worked. The findings are more complex for occupation and related also to the employment conditions, skills and employee values and orientations (Rose 2003). Finally, sociological explanations of job satisfaction have emphasized the effect of the structure and the social context in which the worker is embedded. Interesting examples focused on the ethnic and the gender composition of the workplace (the more heterogeneous it is the less satisfied the worker is) (Wharton et al. 2000) and the effect of the social networks developed at work (Marks 1994).

Finally, the spillover model, which argued that satisfaction in one domain of life overflows onto other areas of life, has provided a theoretical framework for some authors to study the effects of the family structure on job satisfaction as well as the interconnection between job satisfaction, marital and life satisfaction (Dyer 1956; Benin and Nienstedt 1985). Very relevant for the purpose of this study is the effect of having children on the job satisfaction of working mothers and fathers. Whilst results have tended to be inconclusive, some authors reported a negative effect of having younger children on women's job satisfaction (Booth and Van Ours 2007) while others find no effect (Hanson and Sloane 1992).

Academic research concerned with the promotion of gender equality distinguished two different scenarios: one that seeks to harmonize motherhood and careers by helping women to resolve the trade-offs inherent in the interplay of the two spheres. The other, instead, aims to make gender absolutely neutral in the allocation of women's opportunities. Although more ambitious, the latter is a much less precise objective, and therefore more difficult to accomplish. The first one is

more specific and feasible. WLB policies belong to this objective. They are the tool through which harmonization is implemented (Esping-Andersen 2002: 69–70).

As stated in the previous section, the strong interdependence that nowadays exists between work and family requires attention to be paid to household as well as workplace characteristics. Very often this interdependence explains the negative spillover effects (particularly in terms of time pressures) from work to home found for working mothers (Hyman et al. 2005). Gender, therefore, appears to be important in understanding time constraints. Van der Lippe, for instance, showed in a recent study analyzing time pressures using a sample of Dutch workers that “men are more influenced by their workplace characteristics, while women are more influenced by their household characteristics” (2004: 707).

Consensus around what constitutes a basic ‘women-friendly’ package includes generous maternity and paternity leave arrangements, affordable childcare facilities and significantly the availability of flexible working time. The importance given to each of these key elements varies across the European welfare states but altogether they are considered to facilitate reconciliation (Moss and Korintus 2008; Cousins and Tang 2004). Since the seminal work of Esping-Andersen (1990, 1999) the institutional framework is recognized to play a significant role in the design and implementation of public policies. This is also the case in recent works devoted to the analysis of WLB in a comparative perspective (OECD 2005; Aybars 2007).

In particular, the development of formal WLB policies varies considerably across countries in Europe. For instance, in the UK is characterized by a heavy reliance on agreements reached at the firm level. The New Labour government launched its agenda to promote ‘women-friendly policies’ as early as in 1997. After 10 years of public action relevant authors depict the British model of WLB policies as one in which public intervention, following the traditional approach of a liberal welfare regime, has been more oriented to exhort employers to adopt WLB policies in their establishments rather than to intervene through regulation or public spending (Crompton et al. 2005). All in all, some improvements have been introduced concerning mainly leave arrangements (for both mothers and fathers in length and financial coverage) and flexibility in working time. However, there still remains a persistent low availability of childcare facilities at the workplace (Lewis and Campbell 2007). WLB policies are to a large extent unevenly distributed across industrial sectors. Whilst some show high rates of coverage (this is particularly the case in large organizations, in the public sector, and where unions are recognized and there is a human resources department), in others improvements are certainly needed (those in which there is no high commitment in managerial practices, no equal opportunities policies or the proportion of women among the workforce is low) (Healy 2004; Hoque and Noon 2004). Another strategy more commonly found among Southern European countries is to rely on informal childcare provision within the family context (for instance, grandparents looking after their grandchildren while the parents are out for work). This is a pervasive characteristic of the so-called Mediterranean welfare model (Ferrera 1996). Finally, the Nordic model of welfare provision relies more heavily on formal mechanisms which translate, in the case of childcare, for almost universal nurseries and kindergartens (Esping-Andersen 1999).

Among all the elements reviewed here, the one that seems to be more responsible for making it more difficult to better reconcile family and work spheres is a pervasive characteristic of the labour market across all advanced societies: the unequal distribution of hours of work between women and men. Men traditionally overwork (more than 40 h a week) while women are concentrated among part-timers (Bonney 2005). Part-time work makes it difficult for women to be independent and provokes spillover effects in their role in the family which may affect their overall life satisfaction. The analysis below will investigate whether this is actually the case. Some would argue that this unequal share of work should be the first goal that a government aimed at promoting work-life balance of employees should address, especially if the labour market involvement is a key determinant of job and overall life satisfaction (Dex and Bond 2005). It is important though to do it in a combined strategy that takes into account both women and men. After all, when analyzing why and for whom WLB arrangements are needed we are dealing with workers that are mothers and fathers either in couples or as sole parents. As couples the joint consideration of their interests and aspirations is a key element in helping them to be close to their children (Bonney 2007). Obviously, this joint consideration implies to add men in the equation of parenthood. Together with the well-established change in women's gender roles towards more equality in partnership and motherhood, there is a parallel switch in the men's side of the coin towards a greater involvement in rearing their children (Smeaton 2006; Gambles et al. 2006). For lone mothers and fathers clearly work-life balance arrangements are even more important as their difficulties to reconcile work and family are more pressing as it is their need to go out to work in order to support their families. There is well-established evidence that lone parenthood, in particular lone motherhood, is one of the key factors associated with higher risks of poverty. It is for this reason that supporting the labour market involvement of lone parents is so important as a way to tackle poverty (Esping-Andersen 2002).

3 Data, Methods, and Variables

3.1 Data

The European Quality of Life Survey (EQLS) is an established cross-country comparative tool for documenting and analysing quality of life in the EU. First carried out in 2003, the EQLS explores issues pertinent to the lives of European citizens, such as employment, income, education, housing, family, health, work-life balance, life satisfaction and perceived quality of society. The information gathered looks at the relationship between subjective and objective measures, between reported attitudes and preferences on one side, and resources and living conditions on the other. The third survey used in this chapter carried out in 2011 gives an authentic picture of living conditions and the social situation in the EU, enabling a

comparison of experiences and conditions across Member States. The 2011 wave includes information on childcare arrangements which is a key explanatory variable in the analysis presented in the next section. Respondents are also asked about their labour market experiences and their living arrangements. Finally, and very importantly, information on their overall life satisfaction is also collected. Together with these key explanatory variables other relevant control variables used in the analysis are also included in the questionnaire. The analysis is carried out separately for the four living arrangements analysed: coupled mothers, coupled fathers, lone mothers, and lone fathers. In addition, taking advantage of the multilevel technique used key results, using postestimation techniques, are shown for the 34 countries that comprise the sample of the 2011 EQLS.¹ Interestingly, as the analysis below will show these countries represent well the wide heterogeneity found in Europe with regards to family types, childcare arrangements and working patterns.

3.2 Methods

In order to investigate the relationship between family structure, childcare arrangements and life satisfaction I apply multilevel techniques to the data. Respondents to the survey are clustered within different European countries. This results in a hierarchical dataset that requires account for the impact of this multilevel structure for a proper estimation of standard errors. This is what a multilevel regression adds to a standard one-level regression which only includes a single residual term (Snijders and Bosker 2012).

Of all possible options of adding random elements to model variation between groups I use the simplest one: a logistic *random intercept model*, which only adds a single random parameter for each of the second-order units (countries) in which respondents are clustered. In a multilevel regression, the intercept is composed of an average value for the groups γ_{00} (countries) and a random one which reflects the variation across these groups U_{0j} (countries).

$$\beta_{0j} = \gamma_{00} + U_{0j}$$

To this basic formulation, I add individual-level variables to explain variation in the composite intercept²:

¹The countries are: Austria (AT), Belgium (BE), Bulgaria (BG), Cyprus (CY), Czech Republic (CZ), Germany (DE), Denmark (DK), Estonia (EE), Spain (ES), Finland (FI), France (FR), Greece (GR), Croatia (HR), Hungary (HU), Ireland (IE), Iceland (IS), Italy (IT), Lithuania (LT), Luxembourg (LU), Latvia (LV), Montenegro (ME), Macedonia (MK), Malta (MT), Netherlands (NL), Poland (PL), Portugal (PT), Romania (RO), Serbia (RS), Sweden (SE), Slovenia (SI), Slovakia (SK), Turkey (TR), United Kingdom (UK), Kosovo (XK).

²Multilevel analysis is especially suited to introduce country-level variables to investigate their impact on life satisfaction and also (through cross-level interactions) to analyse whether the impact

$$\beta_{0j} = \gamma_{00} + \gamma_{10}x_{1j} + \dots + \gamma_{q0}x_{qj} + U_{0j}$$

Thus, the final model specification, including the individual-level variables, will be as follows:

$$y_{ij} = \gamma_{00} + \gamma_{10}x_{1i} + R_{ij} + U_{ij}$$

where the random effects are R_{ij} (the unexplained individual-level residual) and U_{0j} (the country-level one). γ_i are the coefficients for the individual level variables. Accordingly, X_j are the vectors of individual-level variables that will be used to explain variations in life satisfaction of parents living in traditional and new family arrangements across the 34 countries included in the 2011 EQLS. Given that life satisfaction is asked in a 10-point Likert scale, the multivariate multilevel models presented below use a linear specification which also facilitates the use of the postestimation techniques to introduce the key results of the analysis.

3.3 Variables

The *dependent variable* measures the overall life satisfaction of the respondent in a 10-points Likert scale with 1 meaning being very dissatisfied and 10 very satisfied.

Childcare arrangements is a categorical variable adding up the information of two different variables: whether respondent receives help from someone in the household to look after the children and whether she has made use of formal childcare services in the last 12 months. With this information category 1 of the variable group those respondents who have not used any type of childcare arrangements, category 2 those who have used only formal services, category 3 groups those who rely on informal services, and category 4 for those parents who report using both.³

Working pattern is a categorical variable with three categories. Category 1 is for those respondents who do not work, category 2 is for part-timers (those who work less than 30 h a week) and category 3 groups full-timers (those who work more than 30 h a week).

As for the control variables, based on existing research, they have been selected to control for the total time committed into different activities as well as for key individual and household characteristics of the respondents or the area where they live:

of individual-level variables on life satisfaction varies across certain country-level characteristics. Yet, for this chapter I do not consider the role of country-level characteristics directly. Although, variations in self-reported childcare arrangements by respondents have surely to do with how accessible these arrangements are in each country through public policies.

³Unfortunately, given the reduced sample size for the multivariate analysis in the next section formal childcare arrangements have to be merged with informal childcare arrangements into a single category for both childcare arrangements.

Partner's working pattern: Although the EQLS is not a household-level dataset it includes a key information regarding the partners of the respondents: their weekly working time. I use this information to create a key control variable for the analysis of coupled mothers and fathers using the same specification as for the respondents' working pattern above.

Housework: a categorical variable asking the respondent her views on whether the share of housework they do is more than fair load, just a fair load or less than a fair load.

Education: a categorical variable coding the level of education of the respondent into primary or less, secondary and tertiary.

Age and age squared: a continuous variable and the quadratic transformation for the age of the respondent.

Volunteering: a categorical variable for the frequency that the respondent participates in volunteering activities from not volunteering, doing it occasionally or regularly.

Household size: a continuous variable for the number of persons in the household.

Household income (natural log): the logarithmic transformation of the household income expressed in parity purchasing power Euros.

Size of the area of residence: a dummy variable with value 0 for respondents living in the country side or a village and value 1 for those living in a city.

Finally, to carry out the analysis below across the family arrangements analysed, I have also created a variable to group respondents according to whether they live in traditional or new family arrangements with dependant children (aged 0–12 years old).⁴ In this chapter traditional family arrangements are defined as coupled mothers and fathers with children under 12 years old whereas new family arrangements are lone mothers and fathers. This variable is used to select the sample for the multivariate analysis in the next section.

4 Results and Discussion

4.1 Descriptive Analysis

Figure 15.1 below shows the varying distribution of traditional and new family arrangements across the European countries included in the 2011 wave of the EQLS. In order to ease the interpretation each graph shows the corresponding cross-countries average as a straight line. Thus, starting by coupled mothers, the countries above the average of 39 % are: Austria, Cyprus, Spain, Greece, Croatia, Iceland,

⁴Given the sample size it is not possible to distinguish further by the age of children. In any case, 0–12 years old is traditionally regarded, in research on childcare arrangements, as the age of dependant children.

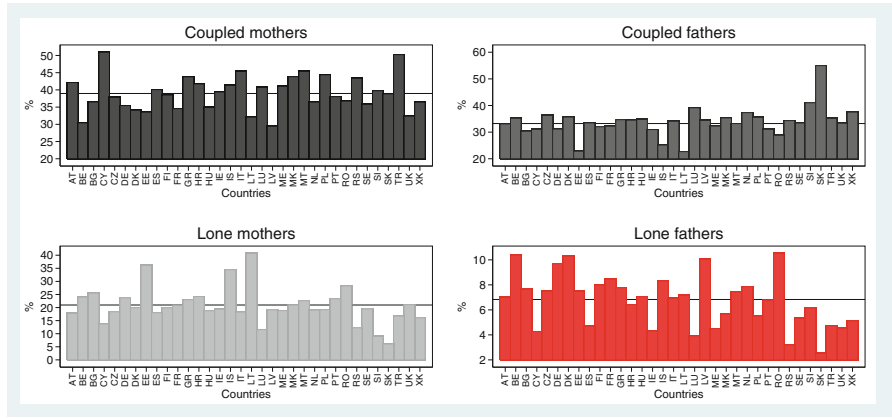


Fig. 15.1 Distribution of traditional and new family arrangements across Europe (Source: EQLS 2011. Own calculations)

Italy, Luxembourg, Montenegro, Macedonia, Malta, Poland, Serbia, and Turkey. On the other hand, those well below the average are: Belgium, Germany, Denmark, Estonia, France, Hungary, Lithuania, Latvia, Netherlands, Romania, Sweden, and the United Kingdom. The remaining countries fall within the cross-countries average, A very similar distribution of countries above and below the cross-countries average of 33 % is found for coupled fathers. Instead the opposite distribution of countries applies for the distribution of lone motherhood and fatherhood. Clearly, lone parenthood is more common where the traditional nuclear family of two adults with dependant children is less widespread. Hence, lone motherhood above the average of 22 % in Belgium, Bulgaria, Germany, Estonia, Iceland, Lithuania and Romania. In the same vein, lone fathers are more commonly found (the average across countries is 7 %) in Belgium, Bulgaria, Czech Republic, Germany, Denmark, Estonia, Finland, France, Iceland, Latvia, Netherlands, and Romania. Overall, these results suggest that there is a clear divide in Europe with traditional family arrangements more common in Southern Europe and some few Central and Eastern European countries and new family arrangements more widespread among Nordic countries and Central and Eastern Europe. Altogether results also confirm that, although with significant variation across countries, the traditional nuclear family is still predominant in Europe and that lone parenthood is clearly a women's responsibility.

Figure 15.2 below reports the average life satisfaction by traditional and new family arrangements of the respondents living in the 34 European countries analysed. As before the cross-countries average life satisfaction is also provided to better interpret the results. In this case, the cross-countries average indicate that there is a clear divide in life satisfaction between traditional and new family arrangements and not so much within them. Thus, the average life satisfaction of coupled mothers and

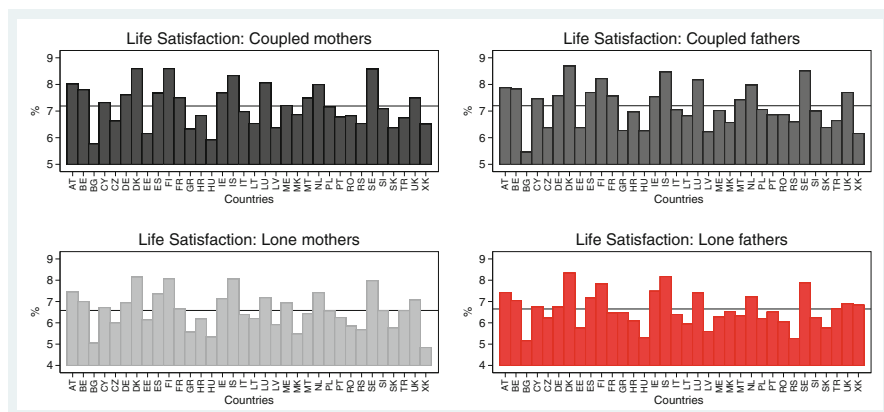


Fig. 15.2 Average life satisfaction for respondents in traditional and new family arrangements across Europe (*Source: EQLS 2011. Own calculations*)

fathers is very much alike (7.19 and 7.20, respectively) as it is that of lone mothers and fathers (6.58 and 6.65, respectively). That is, lone parents are less satisfied with their life overall than those living in couples. Interestingly, keeping in mind these varying levels of life satisfaction it seems that there is no so much variation by family type in the countries that fall above or below the overall cross-country average. Thus, above the average, irrespectively of the family arrangements, are always Austria, Belgium, Germany, Denmark, Spain, Finland, France, Ireland, Ireland, Luxembourg, Malta, Netherlands, Sweden, and the United Kingdom. Conversely, independently of the family type, countries below the overall average are: Bulgaria, Czech Republic, Estonia, Greece, Croatia, Hungary, Italy, Lithuania, Latvia, Montenegro, Portugal, Romania, Serbia, Slovakia, Turkey and Kosovo. Therefore, overall this descriptive analysis suggests two somehow contradicting findings. On one hand, family structure does seem to affect the overall life satisfaction of mothers and fathers, and, on the other hand, there seem to be some ‘country effects’ that rank consistently the mothers and fathers living in those countries as more or less satisfied than the average across Europe for each of the four family arrangements considered.

Figure 15.3 reports the average distribution of weekly hours worked for respondents living in traditional and new family arrangements across the 34 countries analysed.⁵ As it was the case for the analysis on life satisfaction reported in Fig. 15.2 here also a double pattern emerges but in this case also cross-cut by the gender of the respondent. On one hand, overall parents in couples worked longer hours than lone parents (coupled mothers worked an average of 16 h a week, coupled fathers 24 h, lone mothers 9 h and lone fathers 14 h). Yet, as the numbers show men,

⁵For the sake of simplicity to present the results in this descriptive section, given the large number of countries analysed, here I use the self-reported hours of work in its continuous format instead of the categorical variable used in the multivariate analysis in the next section.

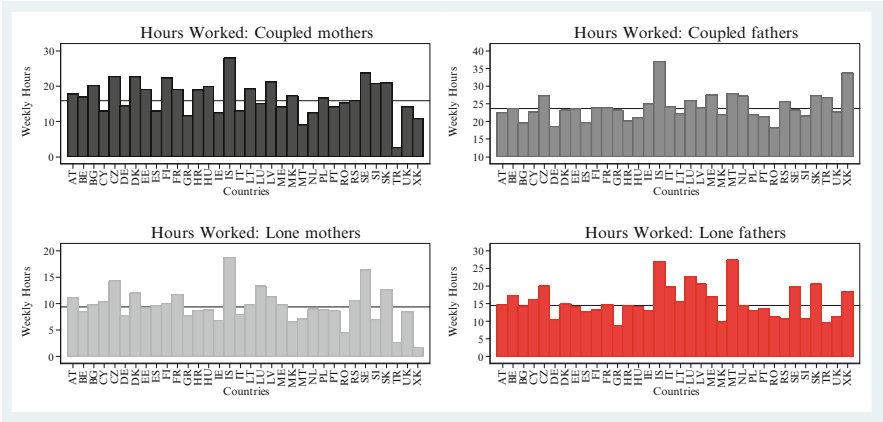


Fig. 15.3 Average hours worked for respondents in traditional and new family arrangements across Europe (*Source: EQLS 2011. Own calculations*)

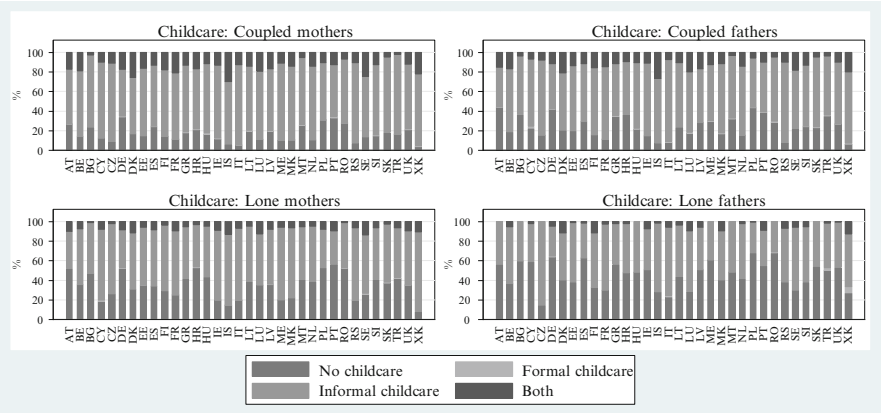


Fig. 15.4 Distribution of childcare arrangements for respondents in traditional and new family arrangements across Europe (*Source: EQLS 2011. Own calculations*)

irrespectively of their family type, consistently work more hours than their women counterparts. In addition, as it also was the case for the analysis on life satisfaction here again there seem to be some ‘country effects’ that within the average difference found for each family type make always respondents living in those countries either work above or below the overall European average. Interestingly, this fairly corresponds with the above and below country classifications found for life satisfaction which suggest that number of hours worked has a direct bearing on life satisfaction. Specifically, the more hours mothers and fathers work the more satisfied they are with their lives overall.

Finally, Fig. 15.4 reports the distribution of childcare arrangements across the 34 European countries preset in the 2011 wave of the EQLS. Although the four

graphs indicate that there are remarkable differences in the distribution of childcare arrangements by family type. Overall, informal childcare arrangements are the most common, followed by no childcare and a combination of both informal and formal childcare arrangements. Finally, formal childcare arrangements are almost of none use by parents as the single childcare arrangement to look after their dependant children.

4.2 *Multivariate Analysis*

Table 15.1 below reports the results of the multilevel analysis to predict life satisfaction for parents living in traditional and new family arrangements. I first begin with an empty model which allows predicting the variation in life satisfaction that is due to country-level differences. The constant in these models represent the overall cross-countries average in life satisfaction. These overall means confirm the results found in the descriptive analysis above with coupled parents more satisfied than lone parents. Whereas the random disturbance around this constant represent the variation around the cross-country average that is due to country-specific effects. This information is used in Figs. 15.5 and 15.6 to predict the ranking of life satisfaction for traditional and new family arrangements families living in the 34 European countries analysed. Finally the intra-class correlations (ICC) provided indicate how much of the differences in life satisfaction are due to differences across countries (the remaining being how much of the variance in life satisfaction are due to individual differences). Thus, the ICC class correlation in the empty models indicates that around 10–13 % of the variance in life satisfaction is attributable to differences across countries. As expected this percentage falls considerably after the individual level predictors are introduced in the full models. For this latter case, the variance in life satisfaction due to country differences ranges between 3 and 5 %.

As for the full models, results will also be presented using postestimation techniques in Figs. 15.5 and 15.6. Therefore, for the sake of space limitation, I will only focus here on the results for childcare arrangements and the respondent's working pattern. For coupled mothers having access to informal childcare arrangements has a positive association on their life satisfaction. For coupled fathers the same result is found, but in this case also combining both informal and formal childcare arrangements is positively associated with life satisfaction. Instead for lone mothers and fathers none of the childcare arrangements is associated with their life satisfaction. Finally, the respondent's working pattern, as discussed in the descriptive analysis, is positively associated with life satisfaction, at least for coupled mothers and fathers and for lone mothers. The non-significant results found for lone fathers may be due to the reduced sample size.

Figure 15.5 presents, using postestimation techniques suited for multilevel analysis (Cebolla 2013), the ranking of life satisfaction across European countries for the empty and full models shown in Table 15.1 below. The overall predicted life satisfaction average across the 34 European countries for each of the family

Table 15.1 Linear multilevel regression for life satisfaction of parents in traditional and new family arrangements

	Coupled mothers		Coupled fathers		Lone mothers		Lone fathers	
	M1	M2	M3	M4	M5	M6	M7	M8
	Empty	Full	Empty	Full	Empty	Full	Empty	Full
Childcare (no childcare)								
Informal		0.24***		0.27***		0.07		−0.16
		(0.06)		(0.06)		(0.16)		(0.26)
Both		0.04		0.21**		−0.07		−0.07
		(0.09)		(0.09)		(0.29)		(0.75)
Working pattern (no working)								
Part-time		0.27***		0.49***		0.82***		−0.48
		(0.08)		(0.13)		(0.30)		(0.59)
Full-time		0.19***		0.44***		0.48***		0.26
		(0.06)		(0.06)		(0.18)		(0.31)
Partner's working pattern (no working)								
Part-time		0.02		0.17**				
		(0.13)		(0.08)				
Full-time		0.20***		0.01				
		(0.06)		(0.06)				
Housework load (more than a fair load)								
Just a fair load		0.35***		0.36***		0.30*		0.79***
		(0.05)		(0.09)		(0.15)		(0.31)
Less than fair load		0.02		0.26***		−0.15		0.24
		(0.10)		(0.09)		(0.25)		(0.41)
Education (primary or less)								
Secondary		0.05		0.17**		0.19		0.08
		(0.07)		(0.08)		(0.19)		(0.40)
Tertiary		0.27***		0.32***		0.34		0.11
		(0.09)		(0.09)		(0.25)		(0.50)
Age		−0.10***		−0.08***		−0.06**		−0.12**
		(0.01)		(0.01)		(0.03)		(0.05)
Age (squared)		0.00***		0.00***		0.00***		0.00***
		(0.00)		(0.00)		(0.00)		(0.00)
Volunteering (no volunteering)								
Occasionally		0.20***		0.11**		−0.03		1.02***
		(0.06)		(0.06)		(0.19)		(0.32)
Regularly		0.23***		0.22***		0.39		1.11***
		(0.08)		(0.07)		(0.27)		(0.43)
Household size (2 persons)								
3 persons		−0.26***		−0.37***		−0.00		0.42
		(0.06)		(0.07)		(0.16)		(0.29)
4 persons or more		−0.31***		−0.41***		−0.04		−0.39
		(0.06)		(0.06)		(0.18)		(0.35)

(continued)

Table 15.1 (continued)

	Coupled mothers		Coupled fathers		Lone mothers		Lone fathers	
	M1	M2	M3	M4	M5	M6	M7	M8
	Empty	Full	Empty	Full	Empty	Full	Empty	Full
Household income (log)		0.48*** (0.03)		0.44*** (0.03)		0.67*** (0.08)		0.51*** (0.13)
Urban area		−0.17*** (0.04)		−0.17*** (0.05)		−0.22 (0.13)		−0.17 (0.25)
Constant	7.18*** (0.13)	5.50*** (0.34)	7.16*** (0.13)	4.94*** (0.38)	6.55*** (0.14)	2.34** (0.92)	6.60*** (0.14)	4.26** (1.67)
Random disturbance (constant)	0.56*** (0.14)	0.21*** (0.05)	0.58*** (0.14)	0.21*** (0.06)	0.68*** (0.17)	0.18** (0.08)	0.54*** (0.15)	0.19 (0.18)
ICC (%)	12	5	13	5	12	3	10	4
Observations	12,378	8,616	10,544	7,560	6,649	1,227	2,165	291
Countries	34	34	34	34	34	34	34	34
χ^2		593.89		512.92		133.32		69.41
Prob > χ^2		0.00		0.00		0.00		0.00

Source: EQLS 2011. Own calculations
Standard errors between parentheses
Significant at * p < 0.1; ** p < 0.05; *** p < 0.01

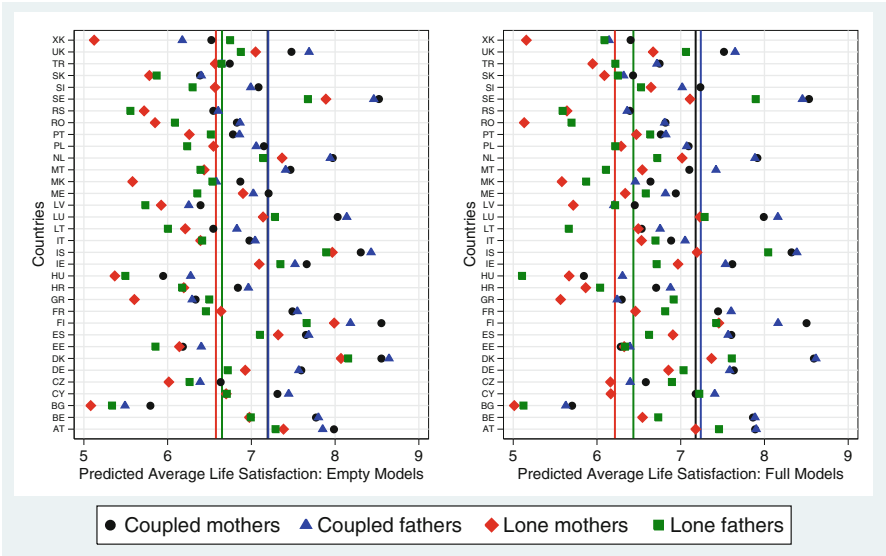


Fig. 15.5 Predicted life satisfaction by family structure across Europe: empty and full models (Source: EQLS 2011. Own calculations)

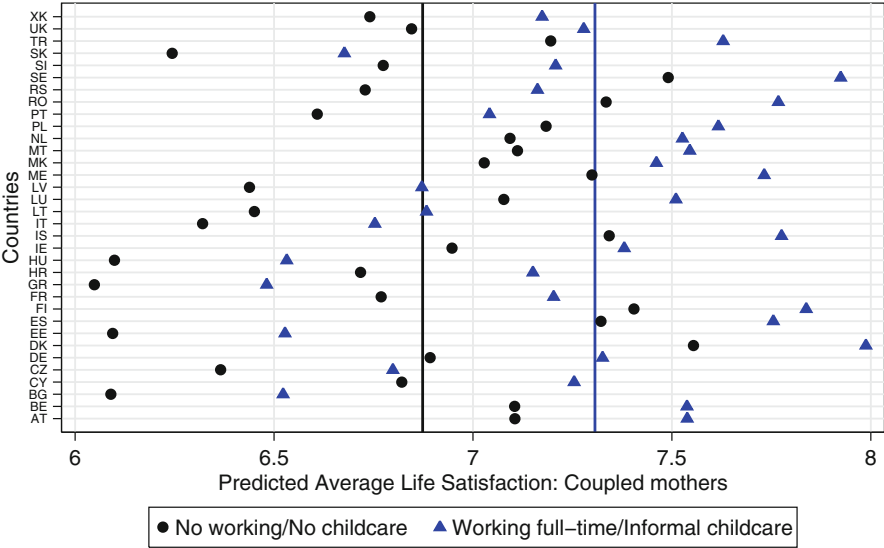


Fig. 15.6 Predicted life satisfaction for coupled mothers across Europe: interaction model (Source: EQLS 2011. Own calculations)

types (coupled mothers, coupled fathers, lone mothers, and lone fathers) is marked by four vertical lines with the same color as the markers corresponding to each family type (the lines for coupled mothers and fathers are overlapped as the overall averages are 7.19 and 7.20, respectively). The left graph in Fig. 15.5 is based on the empty models above. Results for the empty models match those of Fig. 15.2 above but here we are able to compare differences in satisfaction by family type in each country as well as how they compare with the overall average and with the other countries as well (ordered alphabetically). Thus, for instance, focusing on representative extreme cases, in Bulgarian parents are estimated to have the lowest level of life satisfaction with all family types consistently below the cross-country European averages. However, within this overall trend coupled mothers appear to be the most satisfied with their lives, followed by coupled fathers, whereas lone fathers and mothers are predicted to be the least satisfied with their lives. Other countries with predicted very low levels of life satisfaction, consistently below the European averages, for all family types, are Estonia, Greece, Hungary, and Latvia. Yet, for instance, the specific ordered by the level of life satisfaction highlighted for Bulgaria, does not necessarily apply for the other countries as well which suggest that country-level factors, different from one another, play a great deal to account for the specific country rankings in life satisfaction by family type. For instance, in Hungary and Estonia coupled fathers are estimated to have higher levels of life satisfaction than coupled mothers (whereas in Bulgaria it was the opposite). On the other extreme, parents in Austria, Denmark, Finland, Iceland and Sweden are estimated to have life satisfaction higher than the European average for all family types. Again, there are though, some variations in the specific ordering by family

type for each country confirming the importance of country-level determinants that may help or hinder work and family reconciliation for parents facing different pressures in this regard.

The right graph in Fig. 15.1 reports the predicted levels in life satisfaction by family structure for the full models of Table 15.1. Most of the previous comments applied also here. However, some important differences are also apparent once the key independent and control variables are introduced. Thus, across Europe coupled mothers and lone mothers are reportedly less satisfied than their male counterparts as compared with the empty models (this is shown by the wider gaps between the corresponding vertical lines). This suggests that mothers across Europe (either in couples or singles) are the ones carrying the bulk of the burden to reconcile work and family responsibilities. In the same vein, the predicted changes observed for the levels of life satisfaction at the country level for each family type appear to confirm this: there is a worsening in the predicted levels of life satisfaction across the 34 countries as compared to their male counterparts although the extent of this suggests there are country-specific factors which seem to matter, most likely in relation to the existence and availability of work life balance policies.

Finally, the last analysis addresses a key aspect discussed in the theoretical section: whether there exist conditional effects of the type of childcare arrangements used on parents' life satisfaction according to their working commitments and whether, as suggested above, there are country-specific effects of how parents manage to reconcile work with family commitments. In order to explore this relationship in Table 15.2 below I run two interaction models for coupled mothers and fathers (the ones for which both key explanatory variables were significant) between the respondent's working pattern and the childcare arrangements used. Results indicate that there are some conditional effects for both coupled mothers and fathers. For the former, although the interaction term is only marginally significant ($p < 0.15$), it suggest that coupled mothers' life satisfaction working full-time and relying on informal childcare arrangements is lower than that of non-working mothers who care for their dependant children themselves (no childcare arrangements used). Yet, the total net effect of the interaction (taking into account all constitutive elements of the interaction indicates that coupled mothers working full-time and relying on informal childcare arrangements have higher levels of life satisfaction than non-working mothers caring for their children while their partners, most likely go out to work). For fathers, the existence of conditional effects are slightly stronger than those found for coupled mothers but in this case for coupled fathers working full-time who rely both on informal and formal childcare arrangements. For them their life satisfaction appears to be higher than that of non-working fathers who are the main carers of their dependant children. Finally, the increase in the χ^2 of the interaction models as compared to the full specification in Table 15.1 is also indicative that the interaction actually improves the overall fit of the models to predict parents' life satisfaction. That is, it suggests the existence of conditional effects between self-reported childcare arrangements and parents' working pattern on life satisfaction.

Table 15.2 Linear multilevel regression for life satisfaction of parents in traditional and new family arrangements

	Coupled mothers	Coupled fathers
	M9	M10
	Interaction	Interaction
Childcare (no childcare)		
Informal	0.31*** (0.07)	0.25*** (0.07)
Both	−0.03 (0.12)	−0.11 (0.16)
Working pattern (no working)		
Part-time	0.43** (0.20)	0.45 (0.37)
Full-time	0.32** (0.13)	0.35*** (0.11)
Interaction: childcare*working pattern		
Informal*part-time	−0.22 (0.21)	−0.03 (0.40)
Informal*full-time	−0.20‡ (0.14)	0.07 (0.11)
Both*part-time	−0.01 (0.25)	0.59 (0.50)
Both*full-time	0.06 (0.18)	0.44** (0.19)
Constant	5.16*** (0.34)	4.51*** (0.37)
Random disturbance (constant)	0.20*** (0.05)	0.21*** (0.06)
ICC (%)	5	5
Observations	8,616	7,560
Countries	34	34
χ^2	600.34	520.20
Prob > χ^2	0.00	0.00

Source: EQLS 2011. Own calculations

Standard errors between parentheses

Estimation of the models is based on the full specification including all control variables. However, for the sake of simplicity only coefficients for the constitutive elements of the interactions are shown

*Significant at ‡ $p < 0.15$; * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Using the same postestimation method as for the empty and full models above, in Figs. 15.6 and 15.7 below I show the variations in life satisfaction for coupled mothers and fathers across Europe for those significant effects found in the two interaction models (in relation to the reference category in both cases). Thus, for coupled mothers' life satisfaction Fig. 15.6 shows two overall trends across the 34 European countries analysed. Firstly, full-timers relying on informal childcare

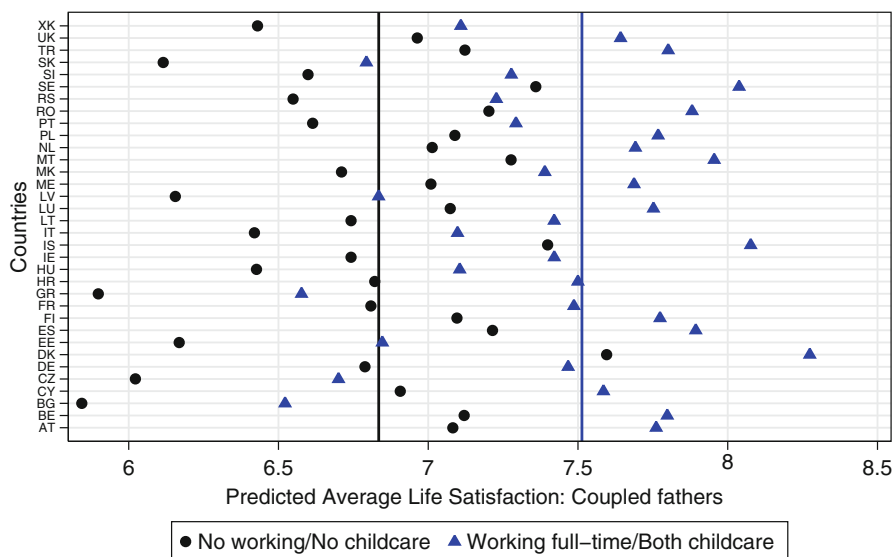


Fig. 15.7 Predicted life satisfaction for coupled fathers across Europe: interaction model (*Source*: EQLS 2011. Own calculations)

arrangements are more satisfied than their counterparts who do not work and care for their children. This suggests that even if the trade-offs faced to balance work and family are significant, working-full time has a remarkable positive impact for women. Secondly, this overall positive gap in the life satisfaction of working mothers translates into each of the 34 countries analysed where coupled mothers working full-time and using informal childcare arrangements are always more satisfied than their non-working counterparts. Yet remarkable differences are still found in the life satisfaction of couple mothers among countries which points out that country differences in how easy for mothers is to reconcile work and family tasks are still large. Three main groups of countries can be observed in the figure: (1) Those in which the predicted life satisfaction of coupled mothers (who work and do not work and who use informal childcare arrangements or are the carers of their children) is below the overall low satisfaction for the non-working mothers (Bulgaria, Czech Republic, Estonia, Greece, Hungary, Italia, Latvia, Lithuania, and Slovakia). In general these are Eastern and Southern European countries with very familialistic welfare states in which the family receives little support and all caring duties have to be dealt with within the family putting a considerable pressure when parents (especially mothers) decide or need to work for the wellbeing of the family; (2) A second group is made up by those countries in which both working and non-working mothers are estimated to have a life satisfaction above the average threshold for working mothers using informal childcare arrangements (Denmark, Spain, Finland, Iceland, Romania, Montenegro, and Sweden). In this case (with the exceptions of Spain, Romania, and Montenegro), it is clear that the Nordic

model is behind the high levels of life satisfaction of coupled mothers. (3) Finally, a third group of countries is made up of an heterogeneous group (most of them belonging to the conservative and liberal welfare models plus some Eastern and Southern countries) of countries where support for work life balance is provided but not up to the level that would be required to solve the trade-offs faced by working mothers (Austria, Belgium, Cyprus, Germany, France, Croatia, Ireland, Luxembourg, Macedonia, Malta, Netherlands, Portugal, Serbia, Slovenia, Turkey, United Kingdom, and Kosovo). Conservative welfare regimes still place the bulk of the burden associated to work and family reconciliation on women making difficult for mothers to pursue a full-time professional career; also tax systems still penalized double full-time earner couples. Alternatively, liberal welfare regimes with their heavy reliance in the market to solve the trade-offs associated with work and family reconciliation increase the opportunity costs of the family if labour income does not guarantee buying out the childcare required for women to work full-time.

Finally, for coupled fathers the postestimation results presented in Fig. 15.7 confirm that overall across European countries full-timers relying on informal and formal childcare arrangements are more satisfied than their non-working counterparts who care for their children. Also the same positive gaps hold across countries. Yet, results at the country-level highlight a remarkable difference with regards to coupled mothers: non-working fathers are significantly less satisfied than their female counterparts. Thus, in this case only Danish non-working parents appear to be even more satisfied than the life satisfaction European average for working fathers. This suggest that social expectations associated with the gender roles of men as the main family providers are very pervasive to be changed through policy interventions. On the other hand, similar country groupings by the levels of satisfactions of fathers (working full-time or not) are also found with Nordic countries ranking first, followed by countries representing the continental and liberal welfare regimes, whereas Southern and, especially, Eastern European countries ranking the last in the life satisfaction continuum of coupled fathers' life satisfaction confirm that, despite the importance of the expectation associated to gender, variations in how policy interventions deal with the trade-offs of work and family responsibilities also matter to men.

5 Conclusions

This chapter has investigated the impact of childcare arrangements, and whether this is conditional on the working pattern they choose, on mothers' and fathers' life satisfaction comparing traditional (the nuclear family) with new (lone parenthood) family types. The analysis is based on the 2011 wave of the European Quality of Life Survey interviewing a sample of representative adult individuals in 34 European countries. For the analysis both descriptive and multivariate techniques are used.

The analysis has shown remarkable differences across European countries in the extent that the traditional nuclear family is still predominant across Europe as lone parenthood has become more widespread across some Central, Eastern,

and, above all, Nordic countries. In addition, the family structure itself appears to have an impact on the self-reported life satisfaction of mothers and fathers underscoring the time pressures that lone parents face to reconcile work with family responsibilities. Thus, lone parents across Europe report lower levels of life satisfaction than those living in traditional families. With regards to the availability of childcare arrangements, the descriptive analysis for the sample of 34 countries has highlighted that there is a wide variation in the extent of informal and formal childcare arrangements across Europe and that this variation is most likely not independent of the family type with lone mothers and fathers, for instance, having to rely more on informal childcare arrangements given their income constraints. But also that public policy surely plays an important role in the specific mix of childcare arrangements found across countries in Europe. Likewise, the variation found in the working pattern parents choose may well be the result of personal constraints (by family type, for instance) and of the public policies regulating the labour markets across the 34 European countries analysed.

Finally, results of the multilevel analysis have highlighted some interesting findings. There appears to be some country-specific effects leading to persisting differences in life satisfaction that are independent of family structure with Eastern and Southern European countries consistently ranking low in the life satisfaction of coupled and lone parents and Nordic countries reporting the highest level of life satisfaction of parents with dependant children. Results of the interaction models have provided evidence that a good deal of this persistent country-specific effects on life satisfaction for parents with dependant children can be accounted for by childcare arrangements and the working pattern parents choose. More importantly, results of these models have also shown that the existence of conditional effects (at least for coupled mothers and fathers) between childcare arrangements and parents' working pattern is likely to be a key factor behind the persistent country rankings found. Yet social expectations associated to gender, especially for fathers, are still very important to explain the low levels of life satisfaction for non-working fathers. All in all, these results suggest the key role played by public policies supporting working parents both with regards to the availability and quality of childcare and the possibility to reconcile work and family responsibilities through flexible working arrangements, especially in a context of increasing participation of women in the labour market and the extension of lone parent families who face more important constraints to look after their dependant children. Also that these policies should seek to especially target neutralising socially constructed gender roles in order to bring about a true swift towards greater gender equality.

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Chapter 16

Accessing Suicidal Ideation from Responses to Queries on Subjective Well-Being

Susumu Kuwahara, Teruyuki Tamura, Akiko Kamesaka, and Toshiya Murai

1 Introduction

Japan's suicide rate rose after the Asian Crisis and the subsequent economic downturn, and has remained high since. In 2009, the male suicide rate was the third highest among OECD countries, and the female suicide rate was the second highest. According to the National Police Agency, more than 30,000 people committed suicide on average in each year from 1998 to 2011; in 2013, 27,283 people killed themselves in Japan. In addition, the National Police Agency (2014)¹ reported that the major reasons for committing suicide in 2013 were health conditions (13,680 cases), financial difficulties (4,636 cases), family problems (3,930 cases) and work

¹There were 2,749 other cases that were not included in any of these categories.

S. Kuwahara

Economic and Social Research Institute (ESRI), Cabinet Office, Government of Japan,
Tokyo, Japan

T. Tamura

School of Economics and Management, Kochi University of Technology, Kochi, Japan

A. Kamesaka (✉)

Economic and Social Research Institute (ESRI), Cabinet Office, Government of Japan,
Tokyo, Japan

School of Business Administration, Aoyama Gakuin University, Tokyo, Japan

e-mail: akiko@busi.aoyama.ac.jp

T. Murai

Department of Psychiatry, Graduate School of Medicine, Kyoto University, Kyoto, Japan

issues (2,323 cases) in Japan. The methods used to commit suicide, in 2009, were²: hanging (19,700), gas poisoning (4,337), jumping from a great height (2,360), drowning (886), incision (683), other poisons (663), jumping in front of trains (643), and other suicide methods (1,150). Suicide also generates a negative externality; the WHO (2000) indicates that on average each suicide intimately affects at least six other people. Thus, suicide prevention programs should also include postvention to those who are mentally affected.

Finland was the first to establish a suicide prevention program at the national level, which was enacted in 1992. In Australia, the Commonwealth Department of Health and Aged Care established a National Youth Suicide Prevention Strategy in 1995. The United States adopted a National Strategy for Suicide Prevention in 2001. There was no nationwide suicide prevention programme in Japan until recently: However, the Japanese Government enacted a “Basic Act for Suicide Prevention” in 2006, adopted the General Principles of Suicide Prevention in 2007, and established the Fund for the Urgent Enhancement of Local Suicide Prevention Measures to take measures to reduce the suicide rate.

Despite the importance of this issue, large-scale individual-level data are lacking, especially in Japan,³ partially because asking questions directly related to suicidal ideation is a sensitive matter. Thus, understanding the relationship between responses to queries on subjective well-being and suicidal ideation has practical value, because it allows us to infer suicidal ideation from replies on subjective well-being.

In this study, we show a relationship between the responses to the queries on general subjective well-being and respondents’ suicidal ideation, and investigate the predictive power of subjective well-being for suicidal ideation.

We here use Japanese internet survey data collected in 2012 by the Economic and Social Research Institute (ESRI), Cabinet Office of Japan, which includes a question on “suicidal ideation.” The wording of the “Suicidal ideation” questionnaire is: “Have you ever attempted suicide or had serious suicidal intent?”

Previous studies have reported that subjective well-being is associated with suicide risk. Koivumaa-Honkanen et al. (2001) reported that respondents who reported low subjective well-being had an increased risk of suicide 20 years later, using nationwide sample in Finland, that controlled for individual characteristics and substance use. Chang and Sanna (2001) reported that subjective well-being is correlated with suicidal ideation across nations: low levels of national subjective well-being are associated with higher rates of suicide (DiTella et al. 1997; Helliwell 2007).

We think that our analysis here may provide some clues to screen out people who have a higher risk of committing suicide, which may give us a way to provide effective interventions at an early stage.

²Further information is available at <http://ikiru.ncnp.go.jp/ikiru-hp/english.html>

³There are empirical studies on suicide based on prefecture-level data in Japan, see Watanabe et al. (2006), Chen et al. (2012), and Schaeda (2013).

2 Method

2.1 *The Outline of the Survey*

2.1.1 Background of the Japan Quality of Life Survey FY 2011 (Online)

The OECD and several other countries have been promoting efforts to measure well-being and social progress beyond GDP. As part of Japan's contribution to that effort, the ESRI of the Cabinet Office of Japan conducted the Japan Quality of Life Survey from 2012 to 2014. The survey includes questionnaires on subjective well-being and related covariates. The Japan Quality of Life Survey FY 2011 was conducted in March 2012 via online as well as direct-visit and self-completion survey. The original purpose of the online survey was to supplement the direct-visit/self-completion survey by collecting answers on questionnaires, such as depression scale and suicidal ideation, etc. which are difficult to collect through the direct-visit and self-completion methods.⁴ The online survey drew its respondents from individuals registered with an online survey agency, whose demographic characteristic were controlled to reflect national averages in terms of regional population, sex, age, and job classification. The online survey has the advantage of being able to be implemented quickly and with low cost, but is generally more prone to sampling bias.⁵

2.1.2 Survey Methodology and Summary Statistics

The online survey's respondents were chosen from individuals with an online survey agency, yielding panel data for as many as 1,603,000 individuals as of March, 2012. The sex ratio of the respondents was 45.8 % male, 54.2 % female. Most respondents were in their 30s and 40s, as shown in Table 16.1.⁶

The coverage of the survey, number of samples and sampling methodology were as follows:

1. Coverage: Japanese nationals between the age of 15 and 69.
2. Number of samples: 10,000
3. Sampling: Invitation emails were sent to panel respondents. Respondents were asked to answer the prefecture they live in, their sex, age, and industry category

⁴The questionnaires included in the surveys were selected and adjusted by the ESRI staffs under the guidance of the Commission on Measuring Well-being, Cabinet Office, Government of Japan.

⁵It should be kept in mind that respondents' answers might be affected by the mode of the survey. To make it clear how differences in survey mode give rise to sampling differences, the ESRI compared the results of the two surveys; this offered some guidance when evaluating the limitations of the online survey.

⁶The online survey's respondents were chosen from the registered individuals on the online survey agency, whose panel respondents include as much as 1,603,000 (March, 2012).

Table 16.1 Age structure of the registered respondents of the online agency

Age groups of panel respondents	Men (%)	Women (%)
15–19	2.2	2.5
20–29	17.2	21.6
30–39	29.0	37.6
40–49	28.2	26.1
50–59	15.1	9.4
60–69	8.3	2.9
Total	100	100

Table 16.2 Number of sampled respondents by sex and age

	Number of respondents		Number of respondents allocated on population distribution in the 2010 census		Difference (num.)		Difference (%)	
	Men	Women	Men	Women	Men	Women	Men	Women
15–19	356	322	365	347	–9	–25	–2.4 %	–7.1 %
20–29	738	687	816	793	–78	–106	–9.6 %	–13.4 %
30–39	1,078	943	1,076	1,051	2	–108	0.2 %	–10.3 %
40–49	1,122	986	989	979	133	7	13.5 %	0.7 %
50–59	1,065	894	950	963	115	–69	12.1 %	–7.2 %
60–69	1,217	1,061	1,037	1,103	180	–42	17.3 %	–3.8 %
Total	5576	4893	5233	5236	343	–343	6.6 %	–6.6 %

Table 16.3 Percent of sampled respondents by labor force status

Labor force status	2010 census (age 15–69) (%)	Sampled respondents (%)
Employees	63.5	65.7
Unemployed	4.4	1.3
Housewives/ Husbands	14.1	8.4
Students	7.3	4.5
Other not in the labor force	5.1	5.7
Unable to be classified	5.6	14.3
Total	100	100

of their job. Responses were sorted in chronological order according to region, sex, age groups (by 5 years), and Census industry categories. Responses were collected until they reached the required number.

The resulting number of sampled respondents, compared with the national population distribution, are as follows (Tables 16.2 and 16.3).

Table 16.4 Suicidal ideation and attempt

	Number of respondents	Percent
I have attempted suicide	1018	9.7
I have considered suicide seriously	1409	13.5
Never	7290	69.6
Do not want to answer	752	7.2
Total	10469	100.0

2.1.3 Caveat

The discrepancy between the questions used for sampling and those used for the survey resulted in a difference between the demographics of survey respondents and the demographics of all non-employed census respondents. Since the data from the survey results were not made public, there were many respondents who could not be classified. The survey also found fewer respondents who were students, housewives/husbands and unemployed than did the census.

The sex and age structure is fairly representative of the national population. However, we should point out that the original panels of the survey agency include relatively few elderly people. Thus, as the survey may not be as representative for the elderly as for younger generations.⁷

2.1.4 Questionnaire on Suicidal Ideation and Attempts

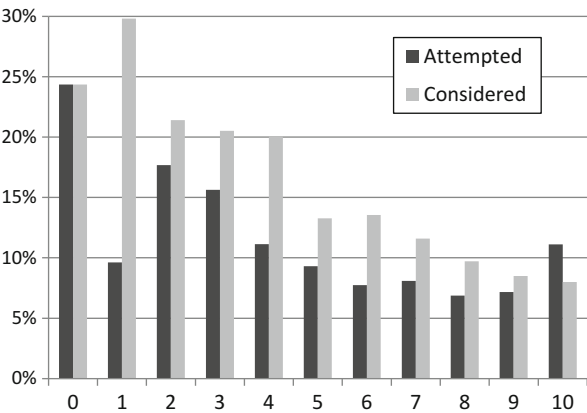
The wording of questionnaire on suicidal ideation in the online survey, and the survey results, are as follows.

Q34. Have you ever attempted suicide or had serious suicidal intent?” Please choose one answer that applies to you (Table 16.4).

As proof of the reliability and validity of the responses to these sensitive questions, we cite two pieces of evidence. First, in the Survey of Attitudes toward Suicide Prevention, which the Cabinet Office separately conducted in January 2012, 23.4 % of the respondents answered that they have had suicidal intent when asked the question “Have you ever had serious suicidal intent?” This result was consistent with the result from the online survey when the responses of “I have attempted suicide” and “I have considered suicide seriously” were added (23.2 %).

⁷The ESRI found that the average subjective well-being reported by younger people in the online survey is lower than those in the direct-visit-and-self-completion survey, suggesting that we may need to consider possible biases when analyzing responses from younger respondents, as well as respondents of old age.

Fig. 16.2 Suicidal ideation and subjective well-being



Please score the degree of your happiness between 10 (Very happy) and 0 (very unhappy)”

From Fig. 16.2, we see that replies on subjective well-being do correlate to some extent with suicidal ideation. The figure presents the proportion of respondents who have “attempted” or “considered” suicide, arranged into groups by the level of their subjective well-being. The percentage of respondents who had suicidal ideation were 48.7 %, 39.4 % and 39.1 %, respectively for those who answered 0, 1, or 2 on the happiness question.¹⁰

Table 16.5 shows the descriptive statistics of the variables we used in our regression model. The whole sample size is 6,450 (52 % male and 48 % female). The mean of the suicidal ideation variable for males and females is 2.70 and 2.66, respectively. Similarly, the mean of subjective well-being is 5.99 and 6.52. About 60–70 % of respondents are married and about 20–30 % are single. About 10–20 % of our respondents replied that they have no friends.

The results of our regression on suicidal ideation and subjective well-being equation appear in Table 16.6. From these results we see that similar variables seem to affect both suicidal ideation and subjective well-being. According to the Cabinet Office (2014), the suicide rate for young people has tended to rise recently, although the rates for middle-aged and elderly people have decreases. In addition, elderly respondents reveal higher levels of subjective well-being than young respondents in our data: by age, the average score of current happiness declined from the teens to the 20s, but then increased with age (Cabinet Office 2012, Graph 2 on Page 6). Therefore, we controlled for the age effect in our estimation, taking 60s as our base case.

As for marital status, we took those who are married as our base case. Divorced respondents, both male and female, tend to have higher suicidal ideation and also

¹⁰There were no clear gender differences regarding the correlation between happiness and suicidal ideation.

Table 16.5 Descriptive statistics

Variables	Male		Female	
	Mean	Std. dev.	Mean	Std. dev.
Suicidal ideation	2.70	0.62	2.66	0.65
Subjective well-being	5.99	2.15	6.52	2.11
Anxiety: unemployment	3.15	1.30	3.34	1.29
Anxiety: overwork	3.77	1.11	4.03	1.01
Anxiety: lonely death	3.44	1.24	3.36	1.24
Anxiety: one's old age	2.24	1.12	2.06	1.05
Anxiety: health	3.41	1.07	3.53	1.06
Age 15–19	0.01	0.11	0.01	0.11
Age 20–29	0.12	0.32	0.11	0.32
Age 30–39	0.20	0.40	0.20	0.40
Age 40–49	0.22	0.41	0.22	0.41
Age 50–59	0.21	0.41	0.20	0.40
Age 60–69	0.24	0.43	0.25	0.43
Married	0.66	0.47	0.70	0.46
Single	0.28	0.45	0.20	0.40
Divorced	0.05	0.21	0.07	0.25
Widowed	0.01	0.11	0.03	0.17
lnHousehold_income	6.21	0.73	6.17	0.69
Edu: Junior high school	0.03	0.16	0.02	0.13
Edu: High school	0.27	0.44	0.33	0.47
Edu: 2-year college	0.15	0.36	0.37	0.48
Edu: University	0.49	0.50	0.26	0.44
Edu: Graduate	0.06	0.24	0.02	0.14
No friends	0.21	0.41	0.15	0.36
Hokkaido	0.05	0.21	0.05	0.21
Tohoku	0.07	0.26	0.08	0.26
Kitakanto	0.06	0.24	0.06	0.24
Minamikanto	0.27	0.45	0.27	0.44
Hokuriku	0.06	0.25	0.07	0.25
Tokai	0.12	0.33	0.12	0.32
Kinki	0.16	0.37	0.17	0.37
Chugoku	0.06	0.23	0.06	0.23
Shikoku	0.03	0.18	0.03	0.17
Kyushu-Okinawa	0.11	0.31	0.11	0.31

Note: Male (N = 3364), Female (N = 3086)

lower subjective well-being. Our results are consistent with those of Stack (1990), which found that individuals who are divorced have higher risk of committing suicide. Also, our results indicate that single males face a higher risk of having suicidal ideation.

Table 16.6 Regression results: suicidal ideation and subjective well-being

	Male		Female	
	Suicide	SWB	Suicide	SWB
Age 15–19	−0.232	0.371 *	−0.804***	−0.016
Age 20–29	−0.226**	0.081	−0.723***	0.093
Age 30–39	−0.358***	−0.164***	−0.606***	−0.009
Age 40–49	−0.298***	−0.266***	−0.435***	−0.034
Age 50–59	−0.244***	−0.310***	−0.360***	−0.149***
Single	−0.220***	−0.743***	−0.109	−0.459***
Divorced	−0.276**	−0.599***	−0.521***	−0.210***
Widowed	0.149	−0.798***	0.017	−0.016
lnHousehold_income	0.072**	0.146***	0.039	0.149***
Edu: Junior high school	0.122	−0.118	−0.469**	0.135
Edu: 2-year college	−0.018	−0.003	0.139**	0.083*
Edu: University	0.156***	0.064	0.115*	0.164***
Edu: Graduate	0.244**	0.220***	−0.195	0.250*
No friends	−0.206***	−0.256***	−0.290***	−0.419***
Hokkaido	−0.202*	0.123	−0.082	−0.027
Tohoku	−0.050	−0.132*	−0.172*	−0.086
Kitakanto	0.035	0.098	−0.241**	0.112
Hokuriku	−0.011	−0.023	−0.023	−0.058
Tokai	−0.017	0.130**	0.052	0.028
Kinki	0.066	−0.004	0.074	0.068
Chugoku	−0.230**	0.054	−0.047	−0.004
Shikoku	0.049	0.147	0.025	−0.007
Kyushu-Okinawa	0.043	0.033	0.003	0.077
Log pseudo-likelihood	−2151	−6885	−2110	−6297
Sample size	3364	3364	3086	3086

Note: Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Household income plays some role in preventing suicide for males, and also improve subjective well-being for both males and female. For education, we took the control group as high school graduates. Males with higher education (“university” and “graduate”) have lower risk of having suicidal ideation. Female junior high school graduates have significantly higher risk of having suicidal ideation, while university graduates have lower risk. Our results are consistent with previous studies that showed that higher education is associated with lower risk of committing suicide (see Stack 2000; Denney et al. 2009).

We also analyzed the relationship between suicidal ideation and “social support”. To measure social support, we use the question: “*How many friends do you have who would help you when you are in trouble?*” The respondents who have no friends tend to have higher suicidal ideation and show lower subjective well-being. We here note that there is a possibility of reverse causality – that is, people who have suicidal ideation and lower levels of subjective well-being tends to have fewer

friends. However, we this does not alter our conclusion that those who have replied that they don't have any friends are at a higher risk of committing suicide.

With regard to regional dummies, we took the control group as the "Minamikanto" region that includes the Tokyo metropolitan area. Males living in the "Hokkaido" and "Chugoku" regions had higher risk of suicidal ideation, and females living in the "Tohoku" and "Kitakanto" regions had higher risk of suicidal ideation.

Tables 16.7 and 16.8 present regression results regarding the effect of five variables on anxiety levels. The five variables are: unemployment, death by overwork, lonely death, living expenses in old age, and health. The proportion of respondents who were anxious about each of these factors are as follows (on a 5-point scale, the

Table 16.7 Regression results: anxiety about five domains for male

	Unemployment	Overwork	Lonely death	One's old age	Health
Age 15–19	0.223	−0.518**	0.942***	1.046	0.615***
Age 20–29	−0.395***	−0.395***	0.687***	0.318	0.537***
Age 30–39	−0.812***	−0.536***	0.153**	−0.272	0.102*
Age 40–49	−0.963***	−0.635***	−0.129**	−0.419	0.012
Age 50–59	−0.814***	−0.458***	−0.201***	−0.384	−0.061
Single	−0.321***	−0.026	−1.009***	−0.162	−0.245***
Divorced	−0.219**	0.025	−0.846***	−0.191*	−0.195**
Widowed	−0.437**	−0.425**	−1.233***	−0.390**	−0.375**
InHousehold_ income	0.210***	−0.045	0.095***	0.193	0.043
Edu: Junior high school	−0.009	−0.018	−0.006	0.040	−0.220*
Edu: 2-year college	0.022	−0.036	0.036	−0.052	0.019
Edu: University	0.052	0.076*	0.066	0.118**	0.029
Edu: Graduate	0.258***	0.026	0.163*	0.408	0.115
No friends	−0.128***	−0.025	−0.270***	−0.163	−0.150***
Hokkaido	0.092	0.137	−0.077	0.156	−0.112
Tohoku	0.062	−0.094	−0.071	−0.051	−0.162**
Kitakanto	0.119	−0.095	0.060	0.163**	0.050
Hokuriku	0.067	−0.115	−0.004	0.045	−0.051
Tokai	0.183***	0.015	0.174***	0.106*	0.041
Kinki	0.023	−0.058	0.097*	0.113*	−0.060
Chugoku	0.029	−0.074	−0.035	0.011	−0.102
Shikoku	0.234**	−0.086	−0.002	0.133	−0.093
Kyushu- Okinawa	0.100	0.081	0.044	0.078	−0.041
Log pseudo- likelihood	−5061	−4657	−4847	−4626	−4681
Sample size	3364	3364	3364	3364	3364

Note: Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 16.8 Regression results: anxiety about five domains for female

	Unemployment	Overwork	Lonely death	One's old age	Health
Age 15–19	0.108	0.151	1.092***	0.587***	0.558***
Age 20–29	−0.569***	−0.024	0.573***	−0.196**	0.205**
Age 30–39	−0.733***	−0.054	0.123**	−0.478***	0.216***
Age 40–49	−0.917***	−0.229***	−0.177***	−0.668	0.101*
Age 50–59	−0.756***	−0.111*	−0.162***	−0.463***	−0.022
Single	−0.496***	−0.179	−0.913***	−0.019	−0.146**
Divorced	−0.451***	−0.155*	−0.644***	−0.088	−0.071
Widowed	0.038	−0.043	−0.768***	0.081	−0.037
lnHousehold_ income	0.145***	0.025	0.114***	0.200***	0.119***
Edu: Junior high school	0.070	−0.159	−0.156	−0.084	−0.358**
Edu: 2-year college	0.068	0.010	−0.011	0.041	0.063
Edu: University	0.173***	0.123**	0.045	0.254***	0.140***
Edu: Graduate	0.191	−0.213	−0.149	0.329**	0.035
No friends	−0.320***	−0.041	−0.313***	−0.239***	−0.331***
Hokkaido	−0.049	−0.099	0.020	−0.122	−0.077
Tohoku	−0.011	−0.042	0.036	−0.175**	−0.059
Kitakanto	0.123	0.071	−0.031	−0.100	−0.165**
Hokuriku	0.009	0.072	0.012	−0.015	0.002**
Tokai	0.151**	−0.017	−0.041	0.054	0.033
Kinki	0.064	0.030	−0.002	0.011	0.067
Chugoku	0.084	−0.063	−0.035	−0.008	0.013
Shikoku	0.183	0.026	0.136	−0.083	0.184
Kyushu- Okinawa	0.220***	0.080	0.126*	0.239***	0.022
Log pseudo- likelihood	−4560	−3949	−4496	−3954	−4192
Sample size	3086	3086	3086	3086	3086

Note: Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

sum of “always anxious” and “sometime feel anxious”): living expenses in old age (65.8 % and 74.3 %, for males and females respectively), unemployment (33.5 % and 29.8 %), lonely death (26.2 % and 30.0 %), health (22.4 % and 20.2 %) and death by overwork (16.6 % and 10.4 %).

In our ordered probit model, we took the dependent variables as the five domains of anxiety, and assigned each of these variables to five levels: (1) (always anxious), (2) (sometimes feel anxious), (3) (neither anxious nor unconcerned), (4) (normally do not feel anxious), and (5) (do not feel anxious at all).

Regarding the regression results by age, all age groups except those aged 15–19 were more concerned about unemployment (both males and females) when

compared with respondents in their 60s. For males, all age groups are more anxious about death by overwork than those in their 60s. While respondents in their 40s and 50s are less concerned about lonely death, the respondents under 40 years of age have more concern (both males and females). The equation for living expenses in old age also shows the same age-dependent pattern. Being unmarried significantly increases anxiety on four domains (except overwork anxiety for males, and old age anxiety for females).

High household income significantly decreases anxiety about unemployment, lonely death, and living expenses in old age for both males and females. Even controlling for the household income, the higher-educated tend to have lower anxiety about unemployment and living expenses in old age. As regards social support, respondents with no friends revealed significantly higher levels of anxiety about four domains (except for overwork). As would be expected, respondents with no friends tend to have higher suicide ideation and lower subjective well-being, and they are also concerned about most of the domains of anxiety we analyzed here. When we look at gender differences, divorced and widowed male respondents are significantly more concerned about living expenses in old age, and about health, but this is not the case for female respondents.

4 Discussion

In this study, we attempted to establish a relationship between the responses to queries on general subjective well-being and respondents' suicidal ideation. We found that respondents who had low scores on subjective well-being questions also tended to have higher suicidal ideation. Our results indicate that it might be feasible to include questions on subjective well-being (such as "overall, how happy are you?") as part of periodic medical check-ups for employees and students, in order to identify individuals with higher risk of suicide-related behaviors or psychopathology.

In recent years, the problem of disconnection from wider society (called "muen shakai") has received a great deal of attention in Japan. There are more and more people who are afraid of facing a lonely death, and/or remaining undiscovered for a long time after their death. There are also young people without much social interaction or social connection. Our results in Table 16.6 indicated that those who have no friends they can count on when they are in trouble have higher suicidal ideation. Therefore, social capital does seem to improve subjective well-being. Helliwell (2007) also found that higher levels of social capital are associated with lower suicide rates at national level, and subjective well-being shows a negative correlation with suicide rates.¹¹

¹¹Putnam (1993) defined social capital as the features of social organization, such as trust, norms and networks, that can improve the efficiency of society by facilitating coordinated actions.

There are several stages in suicide prevention. The first stage involves improving the mental health of the general population, by checking up on their basic life habits and/or giving advice to help improve their ability to manage stress. For those who have a higher risk of committing suicide and/or having mental health problems, and are thus in the second stage, we may need to think of introducing some interventions. Kawanishi et al. (2014) suggested that assertive case management is feasible in real-world clinical settings for those who are in the third stage, and has shown that it was indeed effective for up to 6 months for those who had attempted suicide.

Our finding of a negative correlation between responses to queries on general subjective well-being and respondents' suicidal ideation might be integrated into an earlier stage of suicide prevention. By identifying high-risk populations, we can pay greater attention to them and may be able to provide special intervention programs, e.g. effective stress-management and communication skills.

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Chapter 17

Do the Arts and Culture Have a Positive Impact on Happiness? Beyond Methodological Issues

Nobuko Kawashima

1 Introduction

Over the last few decades the development of studies which investigate the impact of economic development on people's happiness has been phenomenal. This edited volume is only one piece of evidence showing that there is much interest amongst researchers from various countries and that they take diverse research approaches to the topic. This chapter aims to make a small, yet unusual and hopefully refreshing, contribution to the growing area of happiness studies from the perspective of 'cultural policy' research. More of an explanation of cultural policy will follow, but, for the time being, it can be understood as public policy intervention in the arts and culture sector—areas such as the performing arts, museums, and broadcasting—for the purpose of encouraging excellence and wide dissemination.

It must be noted, however, that culture and the arts have rarely featured in the study of happiness. Even the broader concept of 'leisure activities' or 'personal activities' seldom appears as a factor contributing to happiness. One reason for this absence may be that personal activities, including arts and culture, are so various that they are not easily included in social surveys. Another reason might be that such leisure activities are chosen by individuals because they know that they will enjoy them, and the choice is under their control. Therefore, perhaps it is not important to examine whether leisure activities make people happier.

Section 5 of this chapter draws on part of my previous work (Kawashima 2006).

N. Kawashima (✉)

Faculty of Economics, Doshisha University, Kyoto, Japan

e-mail: nkawashi@kta.att.ne.jp

The above reasons for the low profile that culture and the arts enjoy in happiness research are only speculative and I do not intend to go into them further in this paper. However, whether culture and the arts can make people happy or not is important *to cultural policy* for two reasons. One is that cultural policy has at least implicitly assumed that its ultimate purpose is to make people happy. For example, in Japan during the 1980s, when the need to develop cultural policy had emerged as an issue, government documents and the media repeatedly used the phrase ‘from material wealth to mental richness.’ Since then, this motivation behind cultural policy development has established the view that, by means of the development of cultural policy, our ‘mental richness’ (a direct translation from the Japanese *kokoro no yutakasa*) will be achieved: namely, people will be happier. The existence of a linear correlation between cultural policy and happiness has thus generally been taken for granted. As another example, in the U.K. the Department for Culture, Media and Sport—the major ministry responsible for cultural policymaking—defined its mission as follows: ‘to improve the quality of life for all through cultural and sporting activities, to support the pursuit of excellence and to champion the tourism, creative and leisure industries’ (quoted by Galloway 2006).¹

The other reason for the importance of the correlation between the arts and culture and happiness is that cultural policy has often suffered from the lack of a strong rationale. Unlike policy areas where people generally support governmental intervention, such as health and education, cultural policy has only a weak basis of justification (at least in the English-speaking countries and in Japan, which this chapter considers). Cultural policy has thus resorted to claims that culture makes economic contributions and that culture helps social inclusion. Cases of this kind are still being made, but it would be nice for cultural policymakers and for cultural organizations that receive public funding if it were proven that culture also contributes to people’s well-being.

The purpose of this chapter is to examine the argument that culture and the arts make people happy. Given that this discussion, not to mention evidence to support the argument, has scarcely appeared in happiness studies, the chapter will not be able to draw any definitive conclusion as to whether the argument holds up. Rather, the chapter will try to go beyond the question of whether the supposition can be proved and challenge the notion itself by critically examining some of the inherent problems and dilemmas of cultural policy and its paradoxical nature, as these are in conflict with the happiness that cultural policy is supposed to promote. It will be suggested that, rather than devising various ways of measuring the value of culture on its own (often called the intrinsic value of culture) and in association with other policy purposes (often called the instrumental value), culture should be seen as an integral part of the whole economic and social system and as indispensable infrastructure for economic development and social sustainability.

¹Galloway found this mission statement in the DCMS website on 19 December 2006, but it seems to be no longer obtainable.

For such purposes, this chapter is structured in the following way. In the next section, I will discuss the background to the recent attention paid to the impact of culture and the arts on people's happiness by explaining the economic and social justifications that have previously been made for cultural policy. I will then discuss the little research that exists on the relationship between participation in the arts and culture and the degree of happiness. The final section will unfold the paradoxes of cultural policy by discussing the function of culture in making social distinctions and the pernicious means by which culture can institutionalize divisions among different classes and groups of people. In the concluding section, a new perspective envisioning the contribution of culture to society will be proposed.

Before going further, it will be necessary to explain briefly some of the key terms for this chapter, including culture and the arts, cultural policy and happiness. The term 'culture' in this paper is used to refer to recorded or expressed activities and products of intellectual and cultural quality, but not broadly to mean a way of life, behavior, and values specific to a group of people, as would be the case in anthropology. Used interchangeably with the phrase 'arts and culture,' culture in this chapter includes, *inter alia*, visual arts, the performing arts, museums, heritage-based endeavors, literature, film, the media, design, and architecture. These can be seen as economic activities in the sense that they are produced with source material and labor, and edited for presentation, exhibition, and distribution to be consumed by the public. Cultural policy in its simple sense is a set of government (and other actors') actions (and inactions) aiming to promote the supply of creative activities, to preserve historical heritage and the cultural landscape, and to disseminate the products of creative/cultural activities or to encourage the consumption of creative products by the widest possible segment of the public.

Until the early twentieth century, before the construction of the welfare state, culture and the arts was supported and consumed by those classes in power, namely, royalty, the nobility, wealthy merchants, and religious leaders. Since the end of the Second World War, however, the state has become a major patron of the type of arts and culture that cannot be sustained in a market economy (i.e., it would otherwise be doomed by 'market failure'), while leaving some other sectors (such as most of the media and popular entertainment) to the market. The degree of commitment varies from one country to another: for example, France is one of the most active, spending about 1 % of the total public expenditure on cultural policy, whilst Japan is one of the most inactive, at less than 0.1 % of the total public expenditure. Despite such a gap in cultural spending, the importance of culture tends to be strongly recognized by the general public. In Europe, 77 % of the respondents in the Eurostat survey agreed that culture was important to them (Eurostat 2011: 143), while in Japan likewise 78.7 % of those in a public opinion survey agreed that supporting culture and the arts would lead to the creativity and vitality of society (Cabinet Office of Japan 2009).

Happiness is exceedingly difficult to define and measure, and other concepts such as life satisfaction, quality of life and subjective well-being have been used in existing literature aimed at the study of happiness. I am not in a position to engage in a discussion on the differences among these terms, and this chapter will use these terms in a loose and interchangeable way according to the specific

literature quoted. Happiness in the context of cultural policy is not, however, limited to temporary excitement and joy but rather is inclusive of a broader state of mind like life satisfaction. The last note before we go into a more substantial discussion is about this chapter's geographical scope. Though written by a Japanese academic, this chapter does not solely consider the case of Japan, but rather draws on my previous research into British and European cultural policy, with discussion and implications crossing national borders.

2 Justifications of Cultural Policy

Although it seems that cultural policy only implicitly assumes a relationship between culture and happiness, sooner or later it will become necessary for cultural policy to be more explicit about this, and with evidence. This is because governmental public policies are nowadays driven by the results of cost-benefit analyses into the public services they provide, as public management developed since the 1980s requires enhanced accountability. Accordingly, policies must be 'evidence-based,' indicating a quantitative demonstration of the benefits derived from inputs (see Selwood 2002 for a critique of this policy trend). This injunction has been a thorny issue for cultural policy, since cultural products and services are often intangible and not immediately amenable to hard measurement.

One solution cultural policy has found has been to show the economic impact of public investment in the arts and culture. Many reports have been written quoting the numbers of new jobs created and estimating consumer/visitor spending in areas redeveloped by means of culture (e.g. the opening of a branch of the Guggenheim Museum in Bilbao, Basque Spain). Very often the aggregates of such 'multiplier' effects tend to exceed the amount of public money that has gone into the funding of these cultural facilities and events. In fact, the use of culture for urban (re-)development has been remarkable over the last three decades, starting in Western Europe and North America and spreading to many regions and cities in the world. Former centers of manufacturing have invested in culture and the arts in the belief that they can help reinvent the cities as service-led or Intellectual Property-intensive economies. The understanding that culturally vibrant cities tend to enjoy relatively higher economic growth, put forward by Richard Florida (2004), a geography academic-cum-consultant in the U.S., has also been a major influence on local and regional governments.

However, criticism has been leveled at such studies and at the claim itself. Many commentators (e.g. Holden 2004) have pointed out flaws in methodology that produce overestimates (see Gergaud and Ginsburgh 2015) as well as the limitations of relatively established methods of measuring non-market goods, such as travel costs and contingency evaluation models. In addition, there has been an argument that it is self-defeating for cultural policy to make such a case because objects offering a more economically effective investment are abundant elsewhere, such as investing in a football stadium. There is even empirical evidence that many residents

of the host city of the European Capital of Culture were actually made less happy by the city's cultural events (presumably because of traffic congestion etc., Steiner et al. 2014). A paper by the cultural economist Trine Bille (1995) makes a good argument that the economic value of cultural investment must not be identified in relation to direct effects such as job creation because the arts and culture are not intended for that purpose. Instead, she argues, it is more important for us to understand culture's contribution to the economy through its triggering of innovation and creativity and its improvement of the quality of life.

Another line of justification is related to the social impact of the arts and culture. This view has risen quickly in cultural policy thinking, particularly since the late 1990s when 'social inclusion' was high on policy agendas. A Europe-wide policy goal has been to tackle the inter-related problems of poverty, housing, unemployment, crime and so on as a whole and to get disenfranchised people back into the main political, social and economic arenas of society. Cultural organizations in the U.K., when expected to make contributions to social inclusion by government, have responded by devising a large variety of social programs (Long and Bramham 2006). For example, museums would contact local immigrant communities and plan exhibitions together to tell the story of these people after settlement and to celebrate their original cultures, or dance companies would visit prisons, hospitals and care houses, where people generally lack good access to the arts. In some cases cultural organizations would hold workshops to help unemployed, single mothers gain skills with which to improve their employability. Often as a condition for funding these specific projects, cultural organizations have started to evaluate the impact the projects have made on the beneficiaries or recipients of such services. Again, however, numerous commentators have severely criticized such impact studies for their lack of methodological rigor and for the inflated figures and conflated claims made in their reports (Merli 2002). They have also attacked cultural organizations and cultural policy for emphasizing this 'instrumental' value of the arts at the expense of any 'intrinsic' value (Belfiore 2002).

Whilst the debate over the value of culture has intensified, another call has been made requiring every area of government policy to consider the extent to and the way in which it can contribute to people's well-being (see Bache on the U.K. in this volume). The rise of 'happiness' as a policy objective is in this way seen throughout the world in all areas (Frey and Gallus in this volume), but it is of particular relevance to cultural policy because, as has been mentioned, culture occupies only a weak position in government policy. Cultural policy may enjoy more prominence in countries that are keen to unify people, such as former Communist countries, or in countries with a long and extensive tradition of patronage, such as France and her neighbors in Europe, rather than in English-speaking countries and Japan, which this chapter focuses on.

In order for policy makers and cultural organizations to claim that culture contributes to happiness, a search for evidence has begun. If such evidence were sufficient and convincing, it would be comforting for cultural economists too, since the previous methods of evaluating culture as non-market goods have had methodological and philosophical concerns. Traditional economic tools of

evaluation, such as travel costs and contingency evaluation models, while they may be useful for evaluating specific projects, are of limited use in evaluating cultural policy for people as a whole. However, the potential of relying on people's self-reported well-being has been acknowledged by governments and economists in the evaluation of policy outcomes for many public policy areas that deliver non-market, public goods (Frey and Stutzer 2002).

3 The *Positive* Impact of the Arts and Culture on Happiness?

Thus it is no wonder that the Scottish Executive commissioned Susan Galloway and her colleagues to undertake a large-scale literature review on the impact of culture and the arts on subjective well-being (Galloway 2006).² The researchers implemented a cross-disciplinary search of academic journals as well as the reports of consultancies and public agencies published in the English language between 1995 and 2006. At length they identified only 17 articles with a specific focus on the arts and/or culture and quality of life, out of which 8 examined QOL at an individual level as opposed to a community level. Furthermore, only half of the 8 articles had the specific focus on culture that we are interested in, whereas the other half discussed culture as part of leisure activities.

It must be noted that there are at least two relevant, growing areas of research. One is the contribution of music making and listening to physical and mental health, and hence to quality of life (see Biset-Bentchikou et al. 2014), and the other is the role of various leisure activities in enhancing quality of life for the elderly (Galloway 2006: 325). These studies tend to show the effectiveness of cultural activities in therapeutic use, on specific groups of people in specific settings, but they are not always suitable for generalization for the population as a whole. Galloway's report to the Scottish Executive (Scottish Executive 2005) indeed highlight the issue of generalizability, warning that it is wrong to assume any cultural activity applied to anyone always leads to the same results. Thus they argue that, firstly large-scale studies are needed to examine whether people who participate in the arts and culture are happier than those who participate less or not at all, and secondly that comparisons need to be made between different art forms, between cultural and non-cultural participative activities and between people in different social and individual circumstances (339).

Since their writing, the results of a few large-scale studies have become available. A study by Brown et al. (2015) on the impact of participation in leisure activities on life satisfaction in the U.K. has interesting findings: the importance to high life satisfaction of 'active' leisure activities (e.g. moderate sports) and the role played by social interaction as embedded in certain leisure activities. In addition, a study

²In England, too, Arts Council England commissioned a consultancy company to conduct similar research (Arts Council England 2014).

conducted in South Korea suggests those who frequently participate in a number of cultural activities are relatively happier than those who do not (Kim and Kim 2009). Overall, however, empirical studies are still missing and those available are limited in application, some of them showing only very weak associations between cultural participation and happiness (e.g. Michalos and Khalke 2008). Such a disappointing result is in a way obvious when one considers the large number of cultural forms that exist (e.g. dance, music, etc.), and the wide variety of presentations and performances offered to and experienced by the consumer. Another reason may be the lack of a strong theoretical base to support the relationship between culture and happiness. The typical problem of reverse causality (happy people tend to participate more in cultural activities) may well apply here too, but there is no knowing yet if this is correct.

Thus cultural policy finds itself at an impasse (Holden 2006). Unless it is proven that any form of participation and engagement in any type of cultural activity makes people happy, to resort to the argument that culture makes an invaluable contribution to happiness cannot be fruitful. Even if an ideal proof is found, there then remains the important question posed by Frey and Gallus in this volume, namely, how much more public funding for culture is necessary or effective. In general, it is very difficult for policy to put the findings of evaluation research into non-market goods into operation, but for cultural policy there are additional difficulties. The next section will discuss some of the inherent paradoxes of cultural policy.

4 The *Negative* Consequences of Culture

It is all very well to suggest that culture makes people happy, but one could claim that this is a rather naïve argument. To start with, it is useful to draw our attention to the social division that culture creates and reproduces over generations. Sociologists such as Bourdieu in his numerous works (e.g. Bourdieu 1984), and also cultural economists such as Scitovsky (1976) and Klammer (2004), have argued that cultural consumption is possible with an inbred, acquired and trained capacity to do so. In order to enjoy the arts and culture, particularly those in the publicly supported domain, i.e. 'high' culture, one needs 'consumption skills' or 'cultural capital' (Klammer 2004; Bourdieu 1984) with which to decode the messages inscribed in the artistic products. Decoding is taught informally by parents and formally through education, particularly through higher education. Arts consumption can be fun for those who have already understood how to do it, and the more one gets used to it, the easier and the more pleasurable it becomes (Colbert et al. 1998: 14; Throsby 1994: 3–4). In addition, access to information about arts events through social networks is an influential factor in determining attendance patterns. People in a privileged social class tend to be more exposed to a variety of information on the arts and culture and are capable of processing a greater amount of information to make informed choices than are their counterparts in a different class, who inhabit a different sphere (DiMaggio and Useem 1978: 151).

The above sociological theory seems to be powerful at least in explaining the mechanism through which arts attenders and museum visitors continue to be over-represented by well-educated, well-to-do people, a phenomenon that has bothered policymakers of culture throughout Europe. There may well be a lot of pre-performance lectures, gallery talks and tours that aim to help audiences to understand and enjoy the arts better. These 'audience development' programs are, however, most effective when given to improve further the appreciation skills of those who already possess some such skill. These offerings can also help audiences who already possess consumption skills in specific art areas to apply them to other areas unfamiliar to them. At any rate, the beneficiaries tend to have a basis on which to build something new. However, the acquisition and development of cultural competence by those possessing little in the first place takes a long time, so that the majority of audience development projects cannot tackle the root cause of this issue.

As an extension of the above reasoning, it can be argued that culture is strategically used by the privileged classes to make a clear distinction between themselves and others, and also to make subtler differentiations among themselves (Bourdieu 1984). This challenges the generally acclaimed benefit of culture in forming social capital as encapsulated by the following: 'Cultural activities can be pivotal to social cohesion and social change, helping to generate community identity and pride . . . and improve educational attainment' (Department for Culture, Media and Sport, UK 2000: 9). This line of reasoning is helpful for cultural policy proponents as the importance of social capital is relatively well-received as a factor that strengthens people's subjective well-being.

However, in the context of sociology and cultural studies, it is argued that culture is a social construct which mirrors 'Us' in opposition to 'Others.' Distinction by culture is a powerful social force, and when a new group catches up with the culture which has so far been the domain of the established class, the previous owners of that culture move on to generate another culture so as to freshen up their identity and solidarity (Bouder-Pailler 1999: 8). The prospect of social cohesion through the use of culture works insofar as it is a disguised form of social control which promises access to the culture of the ruling class. But the permit is always half-hearted and tokenistic, and by the time the access becomes substantial, the privileged class will have established another culture with which to identify themselves and exclude others.

The discussion so far in this section leads to the view that one of the functions of culture is actually to legitimize and enhance social inequality (Jordan and Weedon 1995). Let us take museums and art galleries as an example. Museums are far from neutral in their value judgments: what they choose to preserve and the ways in which selected objects and art works are displayed are the very site of cultural politics. The malign role played by museums and art galleries in institutionalizing inequality has been openly noted not only by academics but also by museum professionals.

An interesting anecdote has been reported by the then Head of the Museums and Galleries in Glasgow (O'Neill 2002). He was the subject of bitter criticism when

the Gallery of Modern Art, one of the sites under his directorship, showed works of naïve and self-taught artists alongside works by more established artists (31). He had intended that Gallery should start undermining the middle-class strategy of distinction by juxtaposing one kind of art with which middle-class people feel comfortable and another with which they do not. But a strong retaliation from the 'intellectual' quarter came to the fore. In a separate exhibition, the Gallery used videos and manikins to evoke the atmosphere of the landscapes and scenes of the paintings on display (31–2). Art critics were furious. They cried in terror, in O'Neill's view, that this kind of exhibition was no longer for them, who belonged there, but for others who did not (32).

If the above sounds typical of 'the intellectual nihilism of the cultural left' as depicted in a polemic by Appleton (2001: 16), it is instructive to refer to Hooper-Greenhill, an academic specialist in museum education: 'Culture is not an autonomous realm of words, things, beliefs and values. It is not an objective body of facts to be transmitted to passive receivers. It is lived and experienced; it is about producing representations, creating versions, taking a position, and arguing a point of view' (Hooper-Greenhill 2000: 19). Hooper-Greenhill goes on to relate this argument to museum displays capable of constructing frameworks for social understanding (20). Cultural theorists have attacked museums in Britain for being driven essentially by the values of the white, the imperialist, the male and the straight. The long absence of a female perspective, or the views of people in the areas imperial excavators ventured into, may have been gradually rectified, but the point here is that even museum exhibitions about great civilizations cannot pretend to be value-neutral as they constitute forums where different cultures negotiate their representations (Mason 2004).

This line of argument finally leads us to a radical proposition that the cultural sector can at least partly be responsible for the cause of unhappiness. In the public discussion on social inclusion, cultural organizations have been asked to make a positive contribution to *combating* the problems of poverty, crime, unemployment, poor housing and so on. A number of practitioners in the cultural sector have resented such policy pressure, arguing that culture should not be used for social purposes per se and wondering why they need to divert their scarce resources to solving problems they did not create in the first place. They have also pointed out that these problems can be solved more efficiently by other agencies specifically created for that purpose. However, a statement by Sandell (1998: 406) that self-worth, dignity and community identity, if damaged, can lead to social disintegration, suggests that cultural organizations are indeed not as innocent as they want to have us believe: if the problem of social exclusion is inter-related through economic, social, political and cultural dimensions, then it is possible to argue that the cultural dimension contributes to *perpetuation* and *exacerbation*, if not generation, of social exclusion. Museums, theaters and opera houses have not caused poverty, but by being culturally exclusive they may have helped to institutionalize social exclusion in a pernicious way.

5 A Way Forward?

Although the above argument may look bleak and depressing, I do not mean to suggest that cultural policy is meaningless. On the contrary, this chapter aims to go one step further by proposing that cultural policy should not remain an isolated area for the sake of the arts and culture *per se* but rather be an open system and an integral part of other public policy areas. A forerunner in this respect may be environmental policy. Compared to cultural policy, this area has attracted much attention from researchers, who have produced numerous evaluative studies, but in general it has suffered for decades from not being a priority when other, particularly economic, issues have been more pressing. Today, however, environmental policy is a much more established area on its own right and it has, moreover, permeated many other areas of public policy, business activities and the lives of people globally. It is no longer a discrete policy area that we can afford only when material wealth is achieved, but is widely understood as a key concern for our future. In the same way, cultural policy in the twenty-first century should not remain within the confines of welfare economics, whereby market failure and economically quantified values in excess of ‘cost’ may serve as the basis of justification, but instead it should try to go beyond and be integrated with other areas of public policy and business action, as an indispensable concern. In other words, the adjective ‘cultural’ should become somewhat like ‘sustainable,’ and ubiquitous in all kinds of discussions that involve public issues and policy concerns.

It must be noted that this is not a repetition of the previously discredited arguments that culture makes economic and social contributions wherein culture and other areas of public policy remain distinctive. My argument is that culture should be incorporated in all aspects of public life as an inalienable part. This is not a novel idea insofar as it has been advocated in town and city planning, in which culture is pivotal (Evans 2001); but here I am suggesting a broader application. The importance of culture as a perspective in economic and human development has also received international recognition by UNESCO and the United Nations (UN 2013). A recent development in New Zealand exemplifies such a move. In the Local Government Act 2002 the N.Z. government has required that ‘cultural’ well-being must be an important factor, together with economic, social, environmental well-being, in composing the core of local policymaking. It states that ‘well-being is enhanced when the four equidistant types of well-beings—social, cultural, economic, and environmental—move efficiently around the center; and all of the four well-beings are interdependent and equal in “weight”’ (Ministry for Culture and Heritage, New Zealand [n.d.](#)).

With this comes the term ‘creative economy,’ which is indeed the series title in which this edited volume will be included. The term suggests that for a new economy in the twenty-first century creativity is critical, and thus to nurture the cultural sector would obviously help. Design, for example, would differentiate between manufactured products and add high value to those deemed good. According to the evolutionary economist Jason Potts, the ‘creative industries’ that range

from subsidized culture to commercial, for-profit culture (often denigrated as entertainment) are not just like other industries with some economic importance. The creative industries have, in fact, dynamic economic value through their contribution to the national system of innovation, much in the way engineering did in the nineteenth century and information technology has been doing in recent decades (Potts and Cunningham 2008). As such, in today's global economy the importance of copyright and other Intellectual Property rights has increased and international trade negotiations can become heated over issues concerning these rights.

Although this argument is only emerging and it may take a while before it becomes more fully fledged, the advantage of this thinking is twofold. One is its indifference to the distinction between subsidized and commercial, for-profit cultures, a demarcation that has so far limited the scope of cultural policy and its justifications. The other advantage of the creative economy thesis is that it does not separate culture out from other products and services, as well as public policy areas, by arguing that culture is an integral part of what we may tend to assume are mundane economic and social activities. It will open cultural policy up from being a self-contained area within the welfare state and embed culture as an operating system in the whole economy and society, in which sustainable development and cultural values are respected.

Sociologists have suggested for quite some time that our social and economic life is full of symbolic signs (Lash and Urry 1994), something followed up by the economic geographer Allen Scott (2000) with his 'cultural economy of cities' notion. With the advance of communication technologies, the amount of information we receive, send out, search, retrieve and process has become enormous, and most of its content is in fact cultural. The mentality of cultural policy has, however, not much changed since the days of Baumol and Bowen (1966), who pointed out the 'cost disease,' or the productivity lag, of the cultural sector relative to other modern industries, leading to the argument that non-market support is needed. We seem to have progressed little since, merely changing the rhetoric of cultural policy from time to time, when what should be done is radically to switch perspective and look at the value of culture.

6 Conclusion

This chapter has examined the debate on the value of culture with reference to the weak position of cultural policy within government and with a particular focus on the development of the discussion in the U.K. Earlier times saw simplistic calculations of the multiplier economic effects of investing in culture, which were followed by social impact studies of the arts and culture. Although these instrumental approaches to culture have often been dismissed by academic commentators, in practice governments at all levels continue to make efforts to improve the techniques of their social cost-benefit analyses. The impact of culture on happiness has raised some hopes and expectation that this could be a helpful resort, but for a variety

of reasons, including the technicalities involved in measurement and the lack of a guiding theory, it seems a remote dream or just an illusion. This chapter has then questioned whether the assumption that culture can make people happy is naïve. Drawing on research from sociology and critical cultural studies, I have discussed the inherent problems and paradoxical function of culture when it unites people and at the same time divides them into groups.

To conclude, two policy implications drawn from the preceding discussion can be put forward. Firstly, cultural policy, cultural organizations, artists, creators and other relevant professionals need to be constantly aware of such a paradox and to try taking stock of what they offer people as a whole, as well as examining whether their internal structure and operations are culturally inclusive. They have been too busy in quantitatively demonstrating value, when what they ought to do is to become more inclusive and responsive to the communities of people they exist to serve.

The second implication is that cultural policy conceived in the framework of welfare economics may well be in crisis. When it is seen within the newer perspective of the creative economy thesis, which admittedly is still emerging and in need of more sophistication through theoretical and empirical research, cultural policy may be released from the straightjacket it has put itself in. Beyond measuring the value of culture as something discrete, the creative economy thesis suggests that culture is an integral part of the new economy and that it drives all sorts of industries. In a way, culture can be seen as an infrastructure for innovation, in the same way as are science and education. In this manner, the creative economy thesis can rescue cultural policy from its self-contained domain in the welfare state and reconceive culture as embedded in the whole economy and society, where sustainable development and cultural values are respected. Such contributions may be measurable or may not, but it is clear that insufficient public investment in culture will eventually disadvantage the economy, society and people at large.

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Chapter 18

Arts and Happiness

Lasse Steiner

1 The Economics of Art and Culture

Despite the importance of the cultural sector in today's society, there are considerable gaps in the literature on the economics of culture and the arts, especially with respect to the relation of culture and well-being. Regardless of its definition, culture holds a prominent place in the lives of many people. In a special Eurobarometer survey on cultural values conducted in 2007, over three quarters 77 % of all Europeans stated that arts and culture were important to them; only 22 % considered culture to be unimportant (Eurostat 2011). Complementing the subjective responses given in the Eurobarometer survey, several financial statistics underline the significance of the cultural sector. In 2005, the cultural and creative sectors in the European Union created a turnover of almost € 700 billion and employed a minimum of 5.8 million people (UNCTAD 2010). On average, culture accounted for 3.9 % of total household expenditure in the European Union member states in 2005, which is larger than the share of health expenditures, at 3.4 %, or education, at 1.1 % (Eurostat 2011).

Besides private expenditure, direct government support serves as a measure of the importance of the arts. In 2011, the direct government support for the arts in Europe in 2011 varied widely between countries, from only € 45 per capita in Greece, up to € 117 in Germany, € 235 in Switzerland and € 446 in Norway (Council of Europe/ERICarts 2013). In 2009, the total annual public spending for the cultural sector on all federal levels added up to over CHF 2.4 billion (€ 1.6 billion) in Switzerland (Tedeschi and Torche 2010) and to almost € 8.5 billion in Germany (Destatis 2012). The size is comparable to spending on science, research and development, or health, environment and recreation. While these numbers refer

L. Steiner (✉)

CREMA – Center for Research in Management, Economics and the Arts, Zurich, Switzerland
e-mail: Lasse.Steiner@gmx.de

to direct government support only, indirect subsidies through tax exemptions and regulations such as intellectual property laws also play an important role.¹

Economists who survey the field of cultural economics usually locate its origins in 1966, when Baumol and Bowen (1966) published the first major work dedicated specifically to the economics of arts. Other forerunners in the field were Lord Lionel Robbins (1963) and Sir Alain Peacock (1969), who investigated the normative question why the state should support the arts. The governmental support of the cultural sector is one key issue in the economics of culture and the arts, since, according to economic theory, state interventions have to be justified with market failure. Over the last decades, a substantial literature has grown in which the tools of economic theory and analysis have been applied to problems of the cultural sector (for surveys see for example, Towse 2010, 2011; Hutter and Throsby 2008; Ginsburgh and Throsby 2006; Frey 2003). Today, cultural economics is recognized as an established field of economics, also including the creative industries, such as music, film, and the broadcasting and book publishing industries. The Association for Cultural Economics International holds regular conferences, and there are various journals (for example the *Journal of Cultural Economics*) and an own field classification provided by the *Journal of Economics Literature* (JEL-code: Z1).

The economics of culture and the arts generally conceive of culture as an institution or as an organization supplying artistic services and not as an attitude or a way of behaving. Culture in a broad sense can, of course, be defined in many different ways. It may, for example, be understood as a “common value system, viewpoints, conventions, rules, ways of life and practices of a certain group of people” (Krätke 2003). Culture can also be understood in a more narrow sense, namely as cultural industries comprising entertainment, the media, radio, TV, printing and publishing, design, and advertising (Frey 2008a). In this chapter, culture is defined even more narrowly, encompassing “high culture”, namely the performing arts of theatre, opera and ballet and the visual arts, comprising painting, sculpture, and music, and cultural heritage in the form of monuments and buildings. This specification has frequently been used in the field of cultural economics, see for example the monographs by Baumol and Bowen (1966), Peacock and Rizzo (1994) or recently Towse (2010).

Economists use two main approaches to conduct research on culture and the art (Frey 2003). The first approach is to study the relationship between two different sectors, or spheres of society, namely culture and the economy. The effect of culture on the economy is difficult to capture, as the endeavor to estimate the effect of a theater or a museum on regional economic activity instantly reveals. There is a great number of impact studies seeking to measure the effect of such institutions on firms located in a particular area (Langen and Garcia 2009; Herrero et al. 2006; Saayman and Saayman 2004).

¹For more statistics on the cultural sector, see www.culturalpolicies.net. This website, provided by the council of Europe, gives a detailed overview of the cultural sector for many European countries.

The second approach is to study the arts with the help of economic analysis, mostly the rational choice approach.² Understood in this way, cultural economics belongs to a more general field of the economic approach to human behavior, comprising, among others, the economics of education, health, the family, sports, or religion. The formulation of the selfishly maximizing homo oeconomicus has often been extended in cultural economics by introducing psychological and sociological elements, for example decision anomalies (Towse 2011; Bénabou and Tirole 2006; Frey 2003).

Most researchers in cultural economics consider it a sub-discipline of economics and combine the two approaches. In particular, they use the rational choice approach to analyze the effect of economic factors on the arts. Examples are the study of art markets, most prominently the rate of return on investment in art (for example, Renneboog and Spaenjers 2013), the income of artists (for example, Bille et al. 2012), or the impact of regulations (for example, Rizzo 2011). In this chapter I discuss public policy considerations in the cultural sector and address the problems of measuring the value of art and culture (Sect. 2). I then consider two possible ways to combine cultural economics with happiness research, to measure potential benefits from culture and the arts. Section 3 looks at the supply side and discusses artists' labor market choices. I show how the interdisciplinary approach established by modern happiness research enriches the neoclassical rational choice approach with procedural aspects of work. Section 4 investigates the demand side and discusses how the life satisfaction approach can be used to measure the economic impact of hosting a European Capital of Culture. Section 5 concludes.

2 Public Policy Considerations

The cultural sector is subject to strong government interventions; for example, the European Capitals of Culture are determined in a political process. Happiness economics helps to get a clearer picture of the welfare consequences of government interventions in the cultural sector. The arts in general and cultural institutions in particular, such as museums, theaters and thus indirectly artists, are strongly supported by most states. In European countries, it is not uncommon that performing arts (orchestras, operas, theaters etc.) are completely state financed and even staffed by singers and actors with civil-servant status (Towse 2010). The typical model that cultural economists deal with is that of a mixed economy of cultural and private ownership and supply. Many cultural suppliers are non-profit organizations supported to a greater or lesser extent by the state. The balance of public and private ownership and the total public finance share of cultural expenditure differ strongly between countries. For example, the United Kingdom and the United States have

²Some of the most prominent pioneers of this approach were Simon (1955), Becker (1976), and Sen (1977).

a marked history of involvement of non-profit organizations in the provision of arts and culture. Charity law confers tax advantages to these organizations, but also restricts the selection to the board of management (Netzer 2011).

Given that economic theory approves government intervention in case of market failure, a crucial aspect for cultural economists is to determine the nature and extent of such failure. Two aspects can be distinguished: the positive issue, where the extent of government interventions is analyzed, and the normative issue of whether or not these interventions should take place, and if so, to what extent. In the second case, the aim is to find a welfare-enhancing public policy. The analysis of state interventions in the cultural sector is based on welfare theory, which focuses on the questions of whether the private market misallocates the resources, and in particular whether the price system leads to an underprovision of art and if so, how. When discussing welfare policies, it must be taken into account that government intervention is also subject to failure. The economics of politics or public choice (for example, Mueller 2003) discusses many reasons why the decisions taken in the political process may deviate systematically from the preferences of the population.³

Market failures can occur on the supply as well as on the demand side. They arise, for example, due to positive or negative external effects, non-market demand or public good characteristics of cultural events. According to welfare economics, too little art is supplied if the market does not reflect all the preferences of individuals. One reason might be the existence of positive external effects in the production and consumption of art. Most sectors produce external effects, but theoretical and empirical considerations show that cultural activities produce more extensive and important positive externalities than other sectors (Hutter and Throsby 2008). There might also be non-market demand. People may value the existence of a museum or the option to visit an artistic production although, in fact, they never spend any money to actually attend in person. They might also value arts as a bequest for future generations. Furthermore, artistic production is closely identified with national identity, prestige and social cohesion (Towse 2010).

Art may be of a collective nature, in the sense that nobody (including those not paying) can be excluded from enjoying it and that its consumption by one person does not reduce consumption by other people. In economics, these properties for the classification of goods are known as non-excludability and non-rivalry. Insofar as culture is a public good, the supply is lower than socially optimal. Arguments for government support of the arts that involve aspects beyond efficiency are merit goods, lack of information, irrationality, and also distributional aspects, since individuals with higher education visit cultural venues more frequently (Frey 2003).

On the supply side, art may also be subject to increasing returns to scale, which means that additional quantities may be produced at lower average cost, and therefore marginal cost pricing leads to an unsustainable deficit (Marchi and Mietgroet 2006). Moreover, the cultural sector might suffer from a productivity

³A thorough discussion of applications of the public choice approach to the cultural sector can be found in Mazza (2011).

lag. Suppliers in the live performing arts are subject to continuous cost pressure. It is difficult, if not impossible, to increase labor productivity, but the wages have to increase similarly to those in the rest of the economy. This is known as “cost disease” (as first described by, Baumol and Bowen 1966). An egalitarian argument concerns income distribution: Artists tend to be, on average, poorer than other members of society (Alper and Wassall 2006).

The existence of market failures makes it difficult to capture the economic impact of culture. Impact studies which measure the effect of single cultural institutions or festivals in a particular area are often only able to capture the additional revenue created but not the value added which should be the object of interest from an economic point of view (Langen and Garcia 2009; Seaman 1997). The additional revenue does not account for the additional cost arising from the institution, the inputs that are provided by intermediaries, and potential external effects. Another method for capturing the influence of cultural institutions is to measure the social value created (Frey 2003). Theaters, museums, and other cultural institutions provide benefits beyond only those arising from the visit of cultural institutions. These values are not reflected on the market because they accrue to individuals not attending cultural institutions and thus not paying for them. These positive external effects of cultural institutions induce a form of market failure and justify governmental intervention.

The non-user benefits and costs in the cultural sector have been empirically measured by using three different techniques. Representative surveys have been conducted of both visitors and non-visitors of a museum. In such studies, the questionnaires are designed in order to elicit the true willingness to pay for the various social values produced by a museum. The best suited are Contingent Valuation Studies, which were originally developed to capture environmental values but are now often used to capture cultural values (see, Noonan 2003; Sunstein 2007; Saayman and Saayman 2004; Bateman et al. 2002). While the first two methods (representative surveys and contingent valuation studies) rely on stated preferences, another technique relies on the revealed behavior of individuals. The value of a cultural institution for the non-visitors is captured by observing how they act. One example for such a method is the travel cost approach. The value of a cultural object is calculated by summing the costs of the trip and the entrance fee which arise from visiting it (Blaug 2001).

The willingness-to-pay approach directly links the benefits to a particular cultural supply. This procedure risks falling prey to the “prompting effect” (Layard 2011) identified in psychology. It may happen that, as a result of questioning people in surveys, and thus focusing their attention on a certain issue, a higher value is attributed to cultural supply than would otherwise be the case. The consumption of culture is to a considerable degree an experience good, i.e. many people appreciate the good only after they have consumed it (see, Frey and Steiner 2012; Frey and Meier 2006).

In contrast, the advantage of the “life satisfaction approach” (Oswald and Wu 2010; Frey et al. 2004) is that the benefits of culture are reflected in the independently measured life satisfaction indices, which are then related to the extent

of cultural supply by econometrically estimating a happiness equation. The life satisfaction approach based on the economics of happiness has addressed the public good element of cultural supply. Due to extensive work by numerous psychologists (Diener et al. 2009; Kahneman and Krueger 2006), the measurement of well-being has made great progress. Using representative surveys, it is now possible to approximate individual utility from work or life in general in a meaningful way. With the help of a single question, or several questions on global self-reports, an individual's evaluation of his or her satisfaction or happiness can be measured (Frey 2008b). Happiness estimations are usually based on national and international surveys. Respondents are asked to provide an assessment of their overall satisfaction with life. Cross-national indicators of subjective well-being are generated, for example, by representative surveys such as the World Value Survey, in which individuals are asked: "All things considered, how satisfied are you with your life as a whole these days?" The answers are often given on a scale from 1 (dissatisfied) to 10 (satisfied).

With the means of modern happiness research, it is possible to answer the question to what extent people derive satisfaction or dissatisfaction from cultural activities or events – on the consumption as well as on the production side. In the next sections I discuss new approaches to determine the benefits and costs derived from cultural activities. Section 3 shows how modern happiness research can explain the labor market decisions of artists (also see Steiner and Schneider 2013; Bille et al. 2013). Procedural job aspects lead to increased job satisfaction for artists. This is a new approach to issues in cultural economics, where artistic labor market choice has so far been explained in standard economics in the form of superstar theory. Section 4 focuses on the economic effect of hosting a cultural event, namely the European Capitals of Culture (also see Steiner et al. 2015). Surprisingly, the life satisfaction approach reveals that (cultural) mega-events can have a negative net effect on the well-being of the local population.

3 Artists' Job Satisfaction

This section looks at the supply side and discuss artists' labor market choices. On average artists work more, earn less and have a higher risk of becoming unemployed than other employees. They experience an earnings penalty of around 10 % compared to other employees with an equal education, and the unemployment rate is 1.5 times higher than among the rest of the population.⁴ According to the literature in psychology and psychiatry, artists also suffer more frequently from mental disorder and commit suicide more often; thus it can be expected that they are less happy than non-artists (Vellante et al. 2011; Stack 1997). Creativity, a defining

⁴See the homepage of the Institut für Arbeitsmarkt- und Berufsforschung <http://bisds.infosys.iab.de>, accessed on 15.4.2013.

feature of artists, has been linked to mental illness (Rothenberg 1990). Nevertheless, the artistic labor market attracts many young people. The number of students exceeds the available jobs by far. For example in Germany, the proportion of art students is almost four times higher than that of artists in the labor force (Eurostat 2011). The classical explanations for this paradox are that artistic labor markets are superstar markets (Schulze 2011; Rosen 1981) or that artists overestimate the likelihood of future success (Towse 2006).

Two recent articles have proposed an alternative explanation for the artistic labor market paradox (see Steiner and Schneider 2013; Bille et al. 2013). They show that artistic work results in exceptionally high job satisfaction. This conjecture has been mentioned various times in the literature, but it has not been tested empirically. One reason for this gap in the literature is that economists' interest in job satisfaction is relatively recent. A study by Benz and Frey (2008), which is closely related, shows that the self-employed are more satisfied with their work than the employed. This effect is driven by their greater independence and autonomy, a result that is evidence for procedural utility. People seem to value not only outcomes but also the processes leading to outcomes.

The aforementioned papers are based on international cross section data from 47 countries and three national panel data sets. Artists are, on average, found to be considerably more satisfied with their work than non-artists. For example, in the international cross section data, the job satisfaction of artists is around 0.3 points higher (on a scale from 1 to 10) compared to other employees. The correlation between an artistic occupation and job satisfaction is sizeable and comparable to the effect of being self-employed. The correlation is not driven by differences in income or working hours. Throsby (1994) asserted that artists did not fit the standard economic model of labor supply. The work-preference model includes artistic work as an argument in the utility function. The crucial assumptions are that artists derive utility and not, as assumed by standard economics, disutility from work, and that they derive less utility from income than do other workers. Steiner and Schneider (2013) show that the effect of working hours on job satisfaction is positive for artists, unlike for non-artists. The estimated effect of income on job satisfaction is positive for artists and non-artists alike. However, the effect is substantially smaller for artists, i.e. artists derive less utility from income than do other workers.

Using the panel structure of the three national data sets, Bille et al. (2013) show that the higher satisfaction is not driven by time-invariant individual characteristics, such as personality. The higher job satisfaction can partially be attributed to the higher self-employment rate among artists. The job satisfaction difference between artists and non-artists is reduced by one third when controlling for self-employment. The remaining difference in job satisfaction is shown to be related to procedural characteristics. Increased variety, on-the-job learning and autonomy in choosing working hours and place contribute to the difference in job satisfaction. At the same time, however, a higher risk of becoming unemployed reduces individual job satisfaction significantly. Since artists have an increased risk of becoming unemployed, the satisfaction difference between artists and non-artists becomes even larger when this risk is controlled for.

How compatible are these findings with the evidence that artists are more prone to mental illness and committing suicide? A possible explanation could be that artists, while exhibiting high job satisfaction on average, over time experience particularly large fluctuations in subjective well-being. In the phase in which they are severely depressed, they tend to commit suicide more often than other individuals. In psychiatry, this phenomenon of bipolarity has been noted to apply to artists and other creative people (Tremblay et al. 2010; Vellante et al. 2011; Kyaga et al. 2011). To investigate variations in affective happiness (bi-polarity) and the relation between short-term happiness and long-term satisfaction constitute fruitful approaches for future research.

The finding that artists are more satisfied with their work than are non-artists may have important policy consequences. It might suggest that, to improve the situation of artists, a greater effort should be made in safeguarding their self-determination and autonomy, and that rules and regulations constraining them should be used with care. For example, cultural scholarships should be awarded unconditionally and should not restrict the content or working structure of the awardee. While supporting artists financially is important, it should not be the major, let alone the only, consideration.

4 Cities of Culture

This section looks at the demand side of culture by mainly discussing a recent paper by Steiner et al. (2015). Their paper analyzes whether hosting a European Capital of Culture has an impact on regional economic development or the life satisfaction of the local population. Founded in 1985, the European Capitals of Culture are now regarded as the most prestigious and popular cultural event in Europe (Mittag 2008). On average, 500 cultural projects are implemented in the year in which the event takes place. The goal of including citizens in the program leads to open-air events being held, a large number of free events, and various projects that are conducted in public spaces. Large investments in infrastructure have been made in most cities hosting a European Capital of Culture. Remodeling public spaces and transportation systems, urban renewal, and the construction of museums and concert halls are claimed to change the appearance of these cities. The total expenditure attributed to the 21 cities analyzed by Palmer (2004) between 1995 and 2004 ranged between € 3.5 and 3.75 billion.

Most studies on mega-events analyze sport events such as the Olympics or the Football World Cup, and furthermore restrict their focus to the economic consequences of these. Little is known about the impact of cultural events on society. Previous economic studies on cultural events have focused on single economic indicators, such as tourism or government spending, disregarding substitution effects or the crowding out of private investment. In contrast, Steiner et al. (2015) investigate the impact of hosting a European Capital of Culture on regional GDP per capita and economic growth. Pure descriptive statistics suggest that hosting

this event is correlated with GDP per capita and growth in the respective region. However, when estimating multivariate regressions with macro-economic control variables and fixed effects, the correlation disappears. Thus, European Capitals of Culture are hosted in regions with above average GDP per capita, but do not causally affect the economic development in a significant way.

Even a positive impact on GDP per capita would not imply a positive impact on individual utility or social welfare of the regional population. The advantage of the more comprehensive life satisfaction approach is that each individual implicitly weighs the relative importance of advantages and disadvantages of hosting such a mega-event. Surprisingly, using difference-in-difference estimations, all estimates find a negative effect on the well-being of the regional population during the event. When a region hosts a European Capital of Culture, the life satisfaction of the local population decreases by roughly 0.09 on a 4-point scale. The size of this effect equals one fourth of the effect of being unemployed (compared to being employed) and is thus quite sizeable. The negative effect during the event might result from dissatisfaction with the high levels of public expenditure, the expected tax burden, transport disruptions, general overcrowding, criminality or an increase in the general price level.

The analysis of various socio-economic groups reveals that hosting a European Capital of Culture does not have an impact on life satisfaction of more highly educated individuals. This result is plausible considering that highly educated individuals tend to attend cultural events more often. The effect on the local population's life satisfaction does not depend on income, but being unemployed roughly doubles the negative effect. On the macro-economic level, it is shown that faster growing regions suffer less from hosting the event. With respect to the long-term impact, it is shown that hosting a European Capital of Culture does not have an impact on life satisfaction in the years after the event. Endogeneity issues would arise if the events were hosted in regions that are unhappier anyway. However, hosting this event has no effect on well-being in the 4 years prior to the event, thus ruling out reverse causality problems and positive anticipation effects.

Several issues remain open for future research – besides closely investigating the impact channels of cultural events. Steiner et al. (2015) only measure the well-being of the local population. Another question is how European Capitals of Culture affect the satisfaction of visitors, i.e. domestic or foreign tourists. If the event has a positive impact on non-local visitors, the total welfare effect for the country (or for Europe) may well be positive. Collecting more extensive visitor data is needed for this purpose. Another interesting issue is whether the effect of European Capitals of Culture differs for individuals, depending on their interest in culture. A related question is whether such an event has the potential to foster long-term interest in culture. Applying happiness research to capture the value or external effects of other cultural festivals or venues besides the European Capitals of Culture constitutes an obvious path for future research.

The implication of the work by Steiner et al. (2015) is certainly not that cultural supply is unimportant and should not be increased. However, the consequences of mega-events, whether cultural or sporting, should be considered more carefully.

One approach is to use existing infrastructure to a greater extent to reduce the cost of an event. De-centralizing an event can reduce the negative consequences for the local population which arise from overcrowding of a city or region. This concept will, for example, be applied by the UEFA European Football Championship 2020, which will be hosted in several countries. The life satisfaction approach provides new insights on the impact of such mega-events or festivals.

5 Conclusion

In economics the rational choice approach is used as the basic analytical method for studying a variety of issues (Becker 1976). The interrelated concept of methodological individualism states that social phenomena can best be explained in terms of the economic agents' individual rational choices and not exclusively by the context of societal aspects. Happiness research can be seen as a direct application, since well-being is measured at the individual level and used as a proxy for utility (Layard 2011). The rational choice approach has been extended beyond the limits of existing neoclassical economics by taking insights from other disciplines into account. Happiness research and the relation of culture and well-being are obvious examples of this, in which many aspects of psychological research are considered (Diener et al. 2009; Kahneman and Krueger 2006).

Recent work by Steiner and Schneider (2013) and Bille et al. (2013) employ happiness research and shows that, in contrast to neoclassical theory, the job satisfaction of artists is not negatively related to working hours. Moreover, artists derive utility from the process and not only from the outcome of work. The importance accorded to political decisions and institutions is another extension to the neoclassical approach, in this case promoted by political economy and research on international organizations (see for example, Dreher et al. 2009; Vaubel 2006). For example, the decision to host a European Capital of Culture is based on political and bureaucratic considerations. The paper by Steiner et al. (2015) discussed in Sect. 3 shows that this decision leads to a decrease in the life satisfaction of the local population, which contradicts the benevolent dictator approach of classical welfare economics.

The role of the state in regulating and financing culture, from a positive and normative perspective, is probably the most important issue in cultural economics (Towse 2010; Frey 2003; Peacock 1969). Thus, a crucial aspect is to identify the value of culture for society and to measure externalities. Many different approaches, such as impact studies and stated and revealed preference methods have been developed and applied over the last decades. The research discussed in this chapter has applied modern happiness research to the cultural sector to empirically analyze how large the benefits and costs derived from cultural activities are. The effects of arts and culture on life satisfaction, on both the consumption and the production sides, have strong management and policy consequences and are relevant for society as a whole.

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