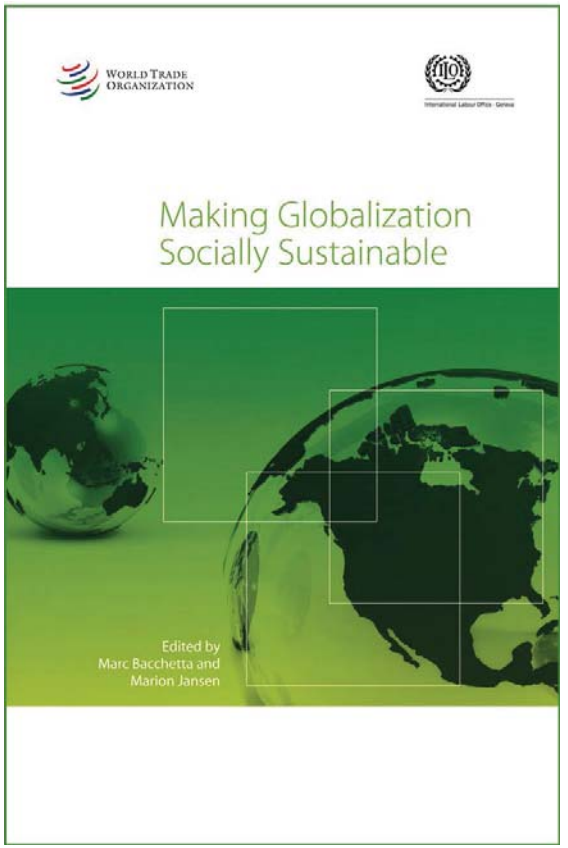
# MAKING GLOBALIZATION SOCIALLY SUSTAINABLE

Edited by Marc Bacchetta
and Marion Jansen

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# Introduction

*Marc Bacchetta and Marion Jansen*

There is a shared sense that globalization is a powerful engine that has already contributed to lifting many out of poverty and that, if properly harnessed, could further promote growth and development to the benefit of all. For many years, however, concerns have been raised regarding certain effects of globalization on jobs, wages, and job insecurity. Recent survey evidence in European countries, for instance, indicates that in most countries a majority of respondents believe that globalization provides opportunities for economic growth but increases social inequalities. A German Marshall Fund (2007) survey shows that about half of Americans and Europeans think that "freer trade" results in more job loss than job creation. Globalization has also been blamed for the recent financial crisis and its effects on employment.

In this context, a number of observers have come to question the sustainability of globalization from a social point of view. Calls for a more inclusive globalization have become more frequent, but only a few concrete proposals have been put forward. This book aims at contributing to the elaboration of relevant policy proposals to make globalization socially sustainable. It is the result of a joint project of the International Labour Office (ILO) and the World Trade Organization (WTO) and has benefited from funding by the International Chamber of Commerce Research Foundation. The nine chapters in this volume have been written by leading academic experts, who were asked to analyse the various channels through which globalization affects jobs and wages in developed as well as in developing countries and to examine whether and how policies related to trade and to labour markets should be accommodated to make globalization socially sustainable.

The chapters in this volume are organized around three main themes that have received significant attention in recent debates on the social aspects of globalization: employment, uncertainty and inequality. These themes have been chosen because arguably they reflect the labour market aspects most relevant for public opinion. Indeed, for the overwhelming majority of households around the globe, labour income represents the main source of household revenue. As a consequence, households are interested in the availability of jobs, the revenue those jobs generate and the stability of revenue from labour. Survey evidence from industrialized countries

increasingly reflects public concern about all three of these aspects, and sometimes reference is made to globalization in this context. In the United States, 40 per cent of respondents to a recent survey indicated that they expect the next generation to have lower standards of living and 62 per cent indicated that job security had declined (Anderson and Gascon, 2007).[1] In the same survey, three-quarters of respondents answered that "outsourcing overseas hurts American workers".

To shed light on the relationship between globalization on the one hand, and employment, uncertainty and inequality on the other hand, three chapters have been commissioned on each of the themes. The objective is to provide insights – based on state-of-the-art research – into the mechanisms that link globalization to each of the three labour market aspects and to provide an overview of the available statistical evidence on these linkages. In addition, a discussion of different policy options is provided under each theme. To the extent possible, relevant mechanisms, statistical evidence and policy options have been discussed from both an industrialized country and a developing country perspective.

The result is, we believe, a volume that provides an exceptionally comprehensive overview of the social aspects of globalization based on individual contributions meeting high academic standards. The book contains chapters on standard topics of the trade literature, like the chapter on globalization and inequality by Nina Pavcnik (Chapter 7) and on topics that are rarely explicitly analysed in the context of globalization, like the chapters on globalization and education policies by Ludger Woessman (Chapter 9) or on globalization and redistribution policies by Carles Boix (Chapter 8). Other topics, such as social protection (Chapter 6 by Devashish Mitra and Priya Ranjan), are familiar topics for labour market specialists interested in globalization, but much less familiar for trade economists interested in labour markets. Each chapter is a stand-alone contribution to the book and readers may choose to read individual chapters selectively. Our advice, though, would be to read the book in its entirety to take advantage of the wealth of issues covered and to appreciate the full complexity of the theme at hand.

The volume also has shortcomings, some of which we want to highlight here. From an institutional point of view, WTO experts may be disappointed about the lack of detail when it comes to the description of trade policy options. ILO experts may feel the same concerning issues related to social and labour market protection. Those familiar with the policy debate at the institutional level may sometimes find the terminology confusing, as it tends to be closer to the terminology used in academia than the terminology used in the policy debate. Most of the contributors to this book are economists, which some readers may consider a biased selection.

The structure imposed on the book is also debatable. The three themes, that is employment, uncertainty and inequality, may be appealing to most readers, but they



can also be seen as introducing a somewhat artificial distinction between closely intertwined economic effects. Indeed, policies that have an impact on wages – and thus on incomes – are also likely to have an impact on the structure and the level of employment at least in the short run. Treating "employment" and "inequality" separately may thus appear somewhat artificial. Along similar lines, the term "instability" may be interpreted in terms of job instability or earnings instability. Indeed, John Haltiwanger tends to argue in terms of job numbers in Chapter 4, while William Milberg and Deborah Winkler refer to earnings in Chapter 5. The three separate themes in this volume are, therefore, interrelated both in practice and analytically. As a consequence, readers will find the three sections sometimes overlapping. Yet these overlaps and interlinkages also highlight some of the challenges academic experts and policy-makers face when evaluating or addressing the social sustainability of globalization.

Although we hope and expect that the contributions to this volume will prove to be of value for experts and policy-makers in the long run, subject choice has admittedly been influenced by events occurring in the period when the chapters were commissioned. This is probably most obvious in the first section of this volume, the one dealing with the interlinkages between globalization and employment. Work on this volume started when the world economy was in the middle of what is by now called the "Great Recession", an event explicitly dealt with in Chapter 3 by David Bell and David Blanchflower. Another phenomenon of that period was that the labour market effects of globalization were debated from rather different perspectives in the industrialized world and in the developing world. In the industrialized world the debate focused strongly on the question of whether offshoring is hurtful for domestic workers; a concern reflected in the survey evidence mentioned above. This question is dealt with by Holger Görg in Chapter 1 of this volume. In the developing world, instead, the successful examples of emerging economies like Brazil and China have led to questions as to the determinants of successful productive transformation in the context of globalization, a theme discussed by Margaret McMillan and Dani Rodrik in Chapter 2.

In the rest of this introduction, we provide a short overview of the chapters in this volume and we point out a number of open questions. The discussion is structured around the three themes highlighted in this book: employment, uncertainty and inequality.

## Globalization and employment

The first section of the volume examines three different facets of the linkage between globalization and employment. While Holger Görg reviews the literature on

the effects of trade and offshoring on employment in developed countries, Dani Rodrik and Margaret McMillan explore the linkages between globalization, structural adjustment and growth in developing countries. David Blanchflower and David Bell complement these contributions with a discussion of the crisis and its effects on jobs. In all three chapters the policy implications of the main findings are considered. Görg emphasizes the challenges associated with the identification and the compensation of losers from globalization and Blanchflower and Bell discuss the effectiveness of policy responses to the crisis.

Following the approach taken in much of the relevant academic literature, Holger Görg, in Chapter 1 of this volume, discusses the phenomena of trade and offshoring separately. Regarding the trade–employment linkage, he finds that over the last decade the view that there should be no substantial link between employment and trade has slowly changed due to new theoretical developments and new empirical results. These results generally suggest that imports may cause job displacement in the short run, due to adjustment costs. While far fewer studies have been able to consider differences between the long and short run, those that have done so generally find that, in the long run, there appears to be a positive relationship between imports and employment. However, this may not be true for all firms that engage in importing, as suggested by a number of recent studies.

As regards the impact of offshoring on employment, Görg emphasizes that it results from the combination of a number of different effects. Offshoring frequently leads to productivity increases and expanded sales in the company that offshores. The result may be that this same company ends up employing more rather than fewer people. This is the so-called "scale effect" of offshoring. The jobs created may be of a different type, though, than those offshored. In addition, as a consequence of offshoring a company may provide its services to other businesses at lower cost, and the latter may be able to expand activity and employment (depending upon their employment–sales ratio). Finally, if offshoring results in lower prices to final consumers, their real income increases and some proportion of that real income will be spent on domestically produced goods and services, again raising overall employment in the offshoring country.

Görg's review of the literature suggests that just like trade, offshoring is likely to trigger a reshuffling of employment with some workers temporarily losing their jobs and possibly taking time to find a new one. This reshuffling can in theory lead to temporary surges in an economy's level of unemployment, but there is not much evidence that this indeed happens in practice. For the individuals losing their job, though, this is not much of a consolation as the transition may cause significant hardship for them and their family. Also, the employment effects are likely to differ across type of workers. The evidence points in the direction that low-skilled workers



are more likely to lose and high-skilled workers more likely to benefit. Very recent work also emphasizes that the effect of offshoring may differ across occupations, with workers in "tradable occupations" being more likely to lose than those in "non-tradable occupations".

Overall, Görg draws four main conclusions from the still relatively scarce literature on globalization and employment. First, globalization and, in particular, offshoring may lead to higher job turnover in the short run. Second, in the long run there is no indication that trade or offshoring leads to higher unemployment (or lower employment) overall, although employment of low-skilled workers may suffer while high-skilled employment may expand. Third, even where effects are statistically significant, the economic magnitude thereof is still debated, with many studies concluding that they are economically negligible. Fourth, there is evidence that the structural change away from manufacturing towards services sectors in advanced economies goes hand in hand with the process of globalization.

While the chapter by Görg tends to focus on the point of view of offshoring countries, the bulk of which are (still) industrialized countries, Chapter 2 of this volume has a strong focus on developing countries. In that chapter, Margaret McMillan and Dani Rodrik discuss the linkages between patterns of structural change and growth and analyse the role played by globalization in driving these patterns. In several cases – most notably China, India and some other Asian countries – globalization's promise has been fulfilled. High-productivity employment opportunities have expanded and structural change has contributed to overall growth. But in many other cases – in Latin America and sub-Saharan Africa – globalization appears not to have fostered the desirable kind of structural change. McMillan and Rodrik argue that part of the reason for this productivity-reducing adjustment is that labour has moved in the wrong direction, from more-productive to less-productive activities, including, most notably, the informal economy. When intensified import competition forced manufacturing industries in Latin America and elsewhere to become more efficient by rationalizing their operations, workers were displaced. In economies that do not exhibit large intersectoral productivity gaps or high and persistent unemployment, labour displacement would not have important implications for economy-wide productivity. In developing economies, on the other hand, the prospect that the displaced workers would end up in even lower-productivity activities (services, informality) cannot be ruled out. That is indeed what appears to have happened in Latin America and Africa.

The authors decompose labour productivity growth into two components: (i) a "within" component that is the weighted average of labour productivity growth in each sector of the economy; and (ii) a "structural change" component that captures the productivity effect of labour reallocations across different sectors. It is essentially

the inner product of productivity levels (at the end of the time period) with the change in employment shares across sectors. Results show that structural change has played an important but very different role in the three developing regions. In both Latin America and Africa, structural change has made a sizable negative contribution to overall growth, while Asia is the only region where the contribution of structural change is positive. In other words, where Asia has outshone the other two regions is not so much in productivity growth within individual sectors, where performance has been broadly similar, but in ensuring that the broad pattern of structural change contributes to, rather than detracts from, overall growth. An examination of sectoral details for specific countries provides further insight into these results, showing considerable heterogeneity between countries.

Because all developing countries in the sample have become more "globalized" during the time period under consideration, it is natural to think that globalization has played an important behind-the-scenes role in driving the patterns of structural change. However, it is also clear that this role cannot have been a direct, straightforward one. First, the detailed results presented in the chapter show a wide range of outcomes: some countries (mostly in Asia) have continued to experience rapid, productivity-enhancing structural change, while others (mainly in Africa and Latin America) have begun to experience productivity-reducing structural change. A common external environment cannot explain such large differences. Second, a large number – perhaps a majority – of jobs are still provided by non-tradable service industries. So whatever contribution globalization has made, it must depend heavily on local circumstances, choices made by domestic policy-makers and domestic growth strategies.

McMillan and Rodrik present the results of some exploratory regressions aimed at uncovering the determinants of differences across countries in the contribution of structural change. They identify three factors that help determine whether (and the extent to which) structural change goes in the right direction and contributes to overall productivity growth. First, economies with a revealed comparative advantage in primary products are at a disadvantage. The larger the share of natural resources in exports, the smaller the scope of productivity-enhancing structural change. The key here is that minerals and natural resources do not generate much employment, unlike manufacturing industries and related services. Even though these "enclave" sectors typically operate at very high productivity, they cannot absorb the surplus labour from agriculture. Second, countries that maintain competitive or undervalued currencies tend to experience more growth-enhancing structural change. In McMillan and Rodrik's view, this is because undervaluation acts as a subsidy on those industries and facilitates their expansion. Finally, there is also evidence that countries with more flexible labour markets experience greater growth-enhancing



structural change. This also does not surprise the authors, as rapid structural change is facilitated when labour can flow easily across firms and sectors.

Chapter 3, by David Bell and David Blanchflower, considers the diversity of impacts that the Great Recession has had on labour markets in different parts of the globe. The authors observe that during this recession, the performance of the labour market in the developed world has been weaker than in developing countries. Although there has been some recovery in output in the developed world, any associated increase in employment has been limited. Thus far, the recovery has been "jobless". They argue that the difference in labour market impact can be explained partly by differences in the recovery of output, characterized – for instance – by a significantly stronger recovery in newly industrialized Asian economies than in the European Union and in G7 countries. Labour mobility is another factor explaining cross-country differences. Also, employers in different countries have responded in a variety of ways to a fall in product demand.

Another key feature of the Great Recession that the authors examine is how its effects have been distributed across different groups within the population. The young, the poorly educated and ethnic minorities have borne a disproportionate share of the increase in unemployment during the Great Recession in developed countries. Evidence indicates that the Great Recession has particularly affected the young through: (a) higher unemployment rates, (b) higher levels of underemployment and (c) an increased willingness to accept lower-quality jobs. Youth unemployment is particularly likely to lead to "scarring" effects, referring to the phenomenon that adverse labour market experiences when young lead to further negative market outcomes well into the future.

Bell and Blanchflower also examine how attitudes have changed with the crisis. They find that happiness and well-being have held up reasonably well except in a few countries such as Greece. Survey evidence from 2010 also indicates that in all but one of 43 European countries surveyed the majority of people believe that while globalization is an opportunity for economic growth, it increases social inequalities. In all countries the majority of people surveyed believe that globalization is profitable only for large companies, not for citizens. When taking into account the individual characteristics of interviewees, males, the most educated and the young are most content about the positive impact of globalization on growth. The unemployed are much less likely than the employed to agree that globalization helps growth. Survey-based evidence indicates that the unemployed, the young and the least educated hold most strongly the view that it is the job of the public sector to create jobs in the midst of a financial crisis. A major concern going forward is that if the recovery is jobless there will be growing demands for protectionism, especially in countries where inequalities are widening.

Finally, the authors consider policy responses and find that in many countries public sector intervention has indeed had a significant attenuating effect on the economic and employment impacts of the crisis. The first policy response to the financial crisis has been to adjust monetary policy and to stimulate monetary expansion through means like interest rate cuts. A second response to the crisis has taken the form of the operation of automatic stabilizers. As private demand fell, government spending on a variety of social insurance schemes increased. In the immediate aftermath of the crash this took the form of increased spending on unemployment benefits, above all. The third response was the introduction of discretionary measures to boost aggregate demand, although it has been found that these made a smaller contribution to maintaining output and employment than automatic stabilizers. Last but not least, some countries have made use of new or more generous active labour market policies (ALMPs) during the crisis. Schemes to support short-time working (STW) and so avoid lay-offs have been introduced or reinstated in a number of countries. Also, measures to reduce non-wage labour costs and so encourage employers to substitute labour for capital have been introduced. However, the additional discretionary spending on these ALMPs in response to the recession has been small. It has been shown that these schemes helped preserve permanent jobs during the downturn but that they did not help maintain temporary employment.

## Globalization and uncertainty

Another concern often expressed in surveys capturing public perceptions of globalization is the concern that globalization is associated with an increased probability of job loss. The second theme of this book, therefore, deals with the relationship between globalization and uncertainty in the labour market, both real and perceived. John Haltiwanger examines how globalization affects the process of resource reallocation and results in both job destruction and job creation. William Milberg and Deborah Winkler focus on how this process of resource reallocation results in real and perceived economic uncertainty at the aggregate level in individual economies. Last but not least, the third chapter under this theme, written by Devashish Mitra and Priya Ranjan, provides insights into the design of social protection policies that want to address the economic uncertainty related to globalization. Particular attention is paid to the fact that optimal policy intervention may differ across countries with different income levels.

Chapter 4 by John Haltiwanger describes how the process of growth requires ongoing productivity-enhancing reallocation, during which firms are constantly forced to adjust and adapt to changing economic circumstances. Those that reinvent themselves will survive and grow. Those that adapt and adjust poorly will contract



and exit. In good economic times and in well-functioning economies, many workers who separate from firms experience either no or a short spell of unemployment and may experience an increase in earnings relative to their previous jobs. This is consistent with the fact that many workers reallocate away from lower-productivity firms to higher-productivity firms. As a result, in well-functioning economies, more-productive businesses end up being larger (static allocative efficiency) and resources are constantly being moved from less- to more-productive businesses (dynamic allocative efficiency). Workers who find themselves displaced from a firm with mass lay-offs (for example, due to a plant closing), however, tend to experience unemployment spells and adverse effects on their earnings. In that respect, the positive findings of improved market selection need to be balanced with the difficulties workers face in separating from bankrupt firms.

Globalization potentially plays a key role in these dynamics and in the ensuing effects on workers' earnings and employment. Empirical evidence shows that in countries that open their markets, less-productive businesses are more likely to exit and more-productive businesses are more likely to survive. This improved market selection contributes positively and substantially to productivity growth. While the economic literature thus provides strong support for the positive role of trade liberalization in improving allocative efficiency and thus growth, both theory and evidence point towards many things that can go wrong and that either mitigate or potentially limit the gains from trade reform.

Haltiwanger argues that in a highly distorted economy, there are second-best problems so that piecemeal trade reform will not be as effective. Infrastructure may not be of sufficiently high quality to ensure that the growth of existing and start-up businesses is not thwarted by bottlenecks in transportation and communications. Competition policy may not be effective enough to prevent large firms from abusing their market power. Financial markets may not be sufficiently developed to fund new and expanding businesses, and to deal with the high rate of failure among start-ups and small businesses. One possible reflection of problems in the functioning of markets and institutions is the existence of a large informal economy.

Reallocation has little chance to enhance productivity in such distorted economic environments. In extreme cases "de-coupling" can take place; a situation in which market reform induces downsizing and exit by the less-productive businesses that is not accompanied by creation and expansion by the more-productive businesses, because the latter process is delayed or derailed. In such cases, the negative effects on dislocated workers can be particularly harsh and can, in particular, take the form of long unemployment spells. All of the potential problems with dislocation are significantly exacerbated in economic downturns even in otherwise healthy economies. The recent economic crisis has also highlighted the fact that heightened

uncertainty during such crises can potentially dampen economic recovery. Haltiwanger, therefore, concludes that one of the challenges of economic and in particular trade reform is to address the impact of heightened uncertainty which can either arise as a result of economic crises or of the market reforms themselves.

In the fifth chapter of this volume, William Milberg and Deborah Winkler analyse how labour market uncertainty triggered by offshoring is reflected at the aggregate level in changes in the labour share of income. They argue in favour of using the labour share of income as a measure for economic insecurity experienced by the workforce because it captures both employment (for instance, job loss) and earnings (for instance, wage reduction) effects. The authors report evidence showing that in many industrialized countries, the increase in the labour share of income observed during the 1970s began to level off in the 1980s and turned into a downward trend at the end of the 1990s. In their chapter they analyse whether offshoring and labour market policies are among the determinants of changes in the labour share of income.

Using data for 15 OECD countries, they find that offshoring had a positive effect on the labour share over the period 1991–2008, a result that seems to be driven by the period 1991–98. When conducting the same analysis by individual countries, they find that the effect of offshoring on the labour share depends crucially on national labour market institutions. In particular, they find that offshoring is associated with a reduced labour share in sectoral value added in countries with low and medium labour support. In countries characterized by strong labour market support in terms of spending on active labour market policies and short-term unemployment replacement benefits, instead, they find that offshoring results in positive effects on the labour share of income.

As mentioned above, recent surveys show an increasing concern about income and job security in industrialized countries. In the United States, 40 per cent of respondents to a recent survey expect that the next generation will have a lower standard of living, 62 per cent said job security had declined and 59 per cent said they have to work harder to earn a decent living. Most strikingly, 75 per cent of US respondents said that "outsourcing work overseas hurts American workers". Another survey shows that about half of Americans and Europeans think that "freer trade" results in more job loss than job creation. In France, 66 per cent of respondents in a recent survey consider that free trade leads to more social and economic inequality.

In their chapter, William Milberg and Deborah Winkler compare cross-country survey evidence on the perception of globalization with the actual effect of offshoring on the labour share of income they estimated in the empirical work presented in this volume. Their findings indicate that perceptions of globalization being a threat to employment are more prominent in countries characterized by a negative estimated employment



effect of offshoring. These findings are consistent with earlier findings by Scheve and Slaughter (2003) indicating that US workers more sceptical about globalization are those more likely to be negatively affected, because of their lower skill level. They are also consistent with the evidence reported by David Blanchflower and David Bell in this volume. Milberg and Winkler conclude from this evidence that popular resistance to globalization reflected in surveys is not based on misinformation or irrationality, and that it can be mitigated by protective labour market policies.

In Chapter 6 of this volume, Devashish Mitra and Priya Ranjan focus on the possible role of social protection in ensuring that freer trade leads to an improvement in the well-being of some without hurting anybody else in the economy. They also study conditions under which social protection leads to greater political support for (or less opposition to) trade reforms. It is in this context that their chapter also deals with the choice and the design of social protection policy instruments. In their discussion, they distinguish two types of globalization-related shocks to which workers are exposed. First, changes in trade policy are themselves a form of "shock" as they trigger a reshuffling of production factors to more productive activities. Second, it has been argued in the literature that openness increases economies' exposure to external shocks as illustrated during the Great Recession.

In their chapter, Mitra and Ranjan support the idea that social protection can lead potentially to increased support for freer trade, but they emphasize that one needs to be careful in making this argument. First, decisions on social protection will have to be finalized prior to carrying out trade reforms in order to influence voter support on trade reform. Second, a focus on trade-displaced workers alone may not be enough to raise sufficient support for freer trade, as workers stuck in a declining sector may also have to be provided with transfers to win their support for trade liberalization. Policies that aim at increasing political support for trade reform may therefore need to take equity concerns into account in addition to concerns about possible job losses related to the adjustment process following trade liberalization.

The Great Recession, and the East Asian crisis before it, provide some insights into the type of policies that are likely to work in the context of the second type of shocks mentioned above, that is, unpredictable employment disruptions caused by globalization. During both crises a range of policies were introduced to mitigate the consequences of crises. Those include labour-intensive public infrastructure projects, skill-training intervention, provision of employment services and wage services. Social protection systems already existing before the crises also acted as automatic stabilizers.

Consistent with Milberg's and Winkler's findings, Mitra and Ranjan find that social protection systems based on "flexicurity"-type arrangements – combining generous

unemployment benefits with strict monitoring of job search – do well in providing protection demanded by workers but also the flexibility necessary for a smooth functioning of adjustment and growth processes. They find that those systems perform well on both the equity front and the efficiency front when it comes to smoothing possible negative labour market effects of external shocks. In their chapter Mitra and Ranjan also examine different approaches to funding social protection systems and find that they do not vary significantly across developed countries. In particular, it is the case that firms tend to contribute to the funding of social protection with the tax on firms ranging from flat to mildly progressive in the extent of worker turnover.

Mitra and Ranjan also highlight that flexicurity-type systems as known in northern European countries will be difficult to implement in most low- and even middle-income countries, in particular because of the size of the informal sector in those countries. Based on the experience in numerous East Asian countries during the financial crisis of the late 1990s, they argue that public works programmes can be very successful in mitigating the consequences of crises in low-income countries. Introducing other types of social protection systems would notably require improvements in income tax collection infrastructure; an effort the authors consider worth making.

## Globalization and inequality

A significant number of countries have experienced important increases in income inequality in recent years. The evolution of incomes in the top percentiles of the income distribution has received a lot of attention in the public debate and globalization has often been pinpointed as one of the possible causes of diverging revenues. The third section of this volume is therefore dedicated to the relationship between globalization and inequality. It starts with a chapter by Nina Pavcnik, who summarizes evidence on the evolution of within-country inequality for a large set of developed and developing economies and surveys evidence on the links between inequality and difference measures of economic openness. In Chapter 8, Carles Boix examines whether and how globalization affects governments' capacity to pursue autonomous redistribution policies at home. Last but not least, in Chapter 9, Ludger Woessmann discusses the possible role of education policies in making globalization more inclusive by increasing the number of winners from globalization.

Chapter 7 by Nina Pavcnik reviews the literature on the impact of globalization on within-country income inequality. To set the scene, Pavcnik surveys recent studies that have analysed the long-term evolution of the share of total income held by individuals positioned in the top 1 per cent of a country's income distribution for a



significant number of developed and developing countries. Almost all countries had experienced a sharp decline in the top share of income in the first half of the twentieth century. For a majority of countries for which information is available the decline continued after the Second World War. In many countries, however, both developed and developing, the trend was reversed in the 1980s when the share of the top 1 per cent started to increase. The underlying reason for the differences in the increase in the top 1 per cent share across countries since the 1980s continues to be a topic of academic debate. The literature, however, highlights a possible role of globalization in the evolution of the top incomes through changes in commodity prices or wage income.

In the 1990s and early 2000s, economists focused their analysis on the links between merchandise trade and wage inequality as predicted by the workhorse model of trade, the Heckscher–Ohlin model. Pavcnik finds that the large body of empirical research in this field, however, finds little evidence that international trade in final goods – induced by relative factor endowment differences – can account for much of the observed increase in skill premiums in developed and developing countries. The lack of evidence of wage inequality increases induced by Heckscher–Ohlin type mechanisms is often cited in support of the idea that the main driver of growing wage inequality is skill-biased technological change and not trade.

While many economists now agree that skill-biased technological change plays an important role in accounting for recent trends in wage inequality, Pavcnik reviews recent research that has uncovered evidence on new channels through which trade could have contributed to observed increases in wage inequality in developed and developing countries. In particular, the growing skill premiums in developed and developing countries could in part be driven by increases in offshore outsourcing. An increasing share of trade occurs in intermediate goods and firms increasingly engage in "global production sharing". In the mid 2000s, trade in intermediate goods accounted for two-thirds of world trade. Several theory papers have argued that the expansion of "global production sharing" could account for part of the growing wage gap between skilled and unskilled workers in both developed and developing countries. The latter would be the case because offshoring can contribute directly to skill-biased technological change in developing countries. A number of empirical studies have found evidence consistent with this theory.

Also, the recent literature on trade with heterogeneous firms suggests that trade could contribute to wage inequality via residual wage inequality, by influencing differences in wages paid to workers across firms within industries. Not much is known, however, of the relative importance of the new trade channels relative to the effect of skill-biased technological change in explaining the observed increases in wage inequality.

Overall, Pavcnik concludes that the large literature on the link between trade and wage inequality indicates that the fact that wage inequality increased significantly in a period in which many developing countries implemented large trade liberalizations does not necessarily imply that trade has been a major driver of increased inequality. Indeed, the literature on the topic has shown that the effect of international trade on wage inequality is rather nuanced and depends on the specific country in question, the nature of trade liberalization and/or the type of trade that countries engage in.

Another channel through which globalization can affect income distribution is through its effect on governments' capacity to redistribute wealth within an economy. This effect is the focus of Chapter 8 in this volume. Carles Boix structures the discussion in that chapter around three questions. (1) In the face of possible changes in the level of domestic income inequality and of a growing cross-border mobility of factors (and its associated threat of capital flight), can (and do) states develop fiscal policies to compensate those made worse off by further economic integration? (2) Are there any particular strategies that can make economic globalization and fair social policies at home (designed to share the gains from trade) compatible? (3) Does globalization erode welfare states in the medium to long run?

Regarding the first question, Carles Boix points to evidence that the size of the public sector as a percentage of gross domestic product (GDP) is correlated with the level of trade openness across the world. One is, therefore, tempted to answer the first question in the affirmative. Yet, Boix acknowledges that the correlation, which is especially well-established in the sample of developed countries, may decline under certain conditions. Because the process of globalization increases the mobility of factors and, particularly, the mobility of capital, it may jeopardize the ability of states to meet social demands for compensation (or for more redistribution in general) because the factors that would face higher taxation have the possibility to move abroad. In fact, for sufficiently high levels of capital or factor mobility, governments may simply lack the fiscal tools to offer a public spending package that makes sufficiently large numbers of voters feel comfortable with openness. As a consequence economic openness may fail to take place altogether.

One way to avoid such a situation is, according to Boix, to channel an increasing amount of public spending into productivity-enhancing economic policies, like increased spending on infrastructure, human capital or the quality of public institutions. The timing of such policies will, however, matter. In particular, it may be necessary to invest in human and physical capital formation before opening the economy as this will increase voter support for liberalization and minimize the threat that production factors leave the economy after liberalization. Boix also acknowledges that pure policies of social compensation may reduce incentives for production factors to leave, as they have the potential to reduce social conflict.



Carles Boix thus answers the second question, mentioned above, in the affirmative: strategies to make globalization and fair social policies at home compatible do exist. He acknowledges, though, that it may be hard to implement them from a political point of view. Indeed, an influential part of the literature argues that globalization triggers a tax and spending race to the bottom. Forced by the competition of emerging economies, the advanced world will have to adjust its welfare state downward. In turn, the emerging world will also have little incentive to introduce any social and labour regulations that could derail it from catching up with wealthier economies. Boix, however, argues that this scenario is relatively unlikely to happen. The historical trajectory of advanced countries shows, in his view, that as soon as developing countries have reached a certain level of prosperity, they expanded political rights and democratized. That, in turn, led to the creation of a social insurance system and the expansion of the labour income share. Boix further argues that if all countries develop along a similar institutional path, they will reach an analogous economic and political steady state. Factor returns will converge across all economies, and globalization and welfare states will be compatible, at least in the long run. Still, this may not be true in the short run: a disjointed timing between economic and political transformations in emerging economies may put considerable pressure on welfare states and the generation of employment among certain economic sectors in advanced countries.

The theme of human capital formation, already raised above, is the focus of Ludger Woessmann's chapter, the last chapter of this volume. Education and skill policies take centre stage in increasing the social sustainability of globalization. They determine whether people acquire the capabilities required to share in the gains from globalization. Currently, many low-educated people in rich countries tend to be excluded from this. Despite the large possible gains from the reuse of ideas that globalization opens up, many poor countries are excluded because they lack the skills required to adopt new technologies from abroad and to deal with the rapidly changing conditions that globalization brings about.

Recent research shows that basic cognitive skills, measured by tests in mathematics and science in primary and secondary school, are a leading predictor of economic growth. This suggests that these basic skills learned in school are a good predictor of the ability to address the constant need to adapt to new technologies and changing conditions in a globalizing world. At any given point in time, an economy clearly needs additional skills more specifically linked to certain occupations and sectors. This raises the question to what extent education systems should provide general vs. specific skills. While evidence on this topic is limited, Woessmann argues that there is an obvious rationale to expect that a general type of education provides a better foundation for sustained growth than specialized vocational education in times of globalization when new technologies emerge at a rapid pace.

Woessmann therefore argues in favour of developing specialized programmes of vocational and technical education, where they exist, in ways that provide generalizable skills – ones that will not become obsolete immediately with the changes in technology and industrial structure that globalization processes bring about. He also argues in favour of educational policies that create incentives for better educational outcomes, and that focus on the knowledge and skills actually learned rather than on the mere attendance of schools. The relevance of early childhood education receives particular emphasis in his chapter because it is a valuable input into learning processes at following stages in life. When the focus is on socially sustainable globalization, education policies in rich countries should, in Woessmann's view, aim to ensure that children from disadvantaged backgrounds receive a high-quality education. Education policies in poor countries should aim to lift the skill level of their populations in a way that allows them to profit from the international flow of ideas, which may require improvements in educational outcomes throughout.

## Open questions

The contributions in this volume provide a comprehensive overview of the economics literature on the labour market effects of globalization. They contain a lot of valuable information and insights, but also show that important knowledge gaps remain. The chapters, for instance, illustrate how economists have focused their attention on a certain number of specific questions such as, for instance, the issue of the effect of trade on the skill premium leaving other dimensions largely unexplored. For example, as noted by Holger Görg, economists have for a long time paid little attention to the possible effects of trade on unemployment. This was mainly due to the fact that traditional models of trade are based on the assumptions that labour markets are perfectly competitive and that there is full employment. Under these assumptions, it is the wage rate which adjusts and while there may be some unemployment in the short run, the long-run rate of unemployment should not be affected by trade. The view that there should be no substantial link between employment and trade has changed progressively due to new empirical results and theoretical developments. Empirical evidence regarding the link between trade and employment, however, is still relatively scarce. More research on this link is clearly needed in both developed and in developing countries.

In the case of developing countries, several contributions in this volume suggest that the analysis of the labour effect of globalization should not be limited to the formal part of the labour market. The role of the informal sector in the adjustment process following opening appears to be both important and under-researched.[2] Part of the reason for limited research is the lack of appropriate data on informal sector



employment and wages. This suggests that research efforts in this area will have to start with an important data collection effort. In developed countries, there is a need for further research on both the effects of trade and of offshoring. Görg suggests that cross-country comparisons of these effects using common methodologies would help understand the important differences in results.

The foreign direct investment (FDI)–trade linkage is a very important phenomenon, reflected in the fact that the majority of trade currently takes place within firms. The phenomenon is being discussed in a growing body of literature around the theme of offshoring. While this literature has already delivered interesting insights,[3] it remains at times confusing. At a technical level, a more consistent way of dealing with offshoring could be useful. In "new-paradigm models" it is modelled as "trade in tasks" paired with technological transfer restricted to the multinational. From the point of view of the host country this would be incoming FDI and exports of intermediate goods. Also, offshoring is often measured as trade in intermediate goods, which is clearly unsatisfactory. The different combinations of FDI and trade used to capture offshoring – in both the theoretical and the empirical literature – also lead to the question whether it still makes sense to talk about trade policies separately from FDI policies.

Another question which appears to need more attention from economists is that of structural adjustment and its linkages with globalization. Not much is known about the role of trade in driving structural adjustment in developing countries or more specifically deindustrialization in developed economies. It would be useful to assess the extent to which increased globalization has affected sectorial specialization patterns. The contribution by McMillan and Rodrik points at a number of factors that seem to affect the linkage between globalization and growth-enhancing structural adjustment, but more work is needed to get a better understanding of the role governments should play in order to maximize the benefits from globalization.

As already mentioned, the linkages between trade opening and inequality have attracted considerably more attention from researchers in the last decades than the linkages between trade and jobs. There is now a rich literature that analyses the effect of trade on the skill premium. Nina Pavcnik's review of the trade and inequality literature, however, points at a number of research gaps. One question that arises, for instance, is how much of the overall increase in inequality that can be observed in many countries is explained by global production sharing or by differential effects of trade on wages of workers across heterogeneous firms within industries in comparison with other factors such as skill-biased technical change. More research would also be needed on the linkages between trade and skill-biased technical change. If they are too closely linked, it might not be possible to identify separately their contribution to changes in wage inequality. Another question which should

remain on the agenda concerns the role of labour market institutions in mediating the effect of globalization on inequality and the effect of globalization on those institutions.

Yet another area that would need further exploration is the interaction between globalization, economic downturns and labour markets. As suggested by John Haltiwanger, little is known about the impact of globalization on the volatility associated with economic crises and the effect of this volatility on workers when markets are globalized. This is particularly true for emerging economies where the effects of heightened uncertainty associated with economic downturns and restructuring are likely to be particularly important. A priority for future research should be to understand the effects of such heightened uncertainty on workers in emerging economies. Given the particularly harsh effects of unemployment spells on the young highlighted in Bell and Blanchflower's chapter, a focus on young workers may be warranted in relevant future work.

The various contributions in this volume do not only shed light on the social effects of globalization, they also provide valuable information on the effectiveness of various policy options available to governments to make globalization socially sustainable. Yet, here again, research has focused on certain linkages leaving others almost untouched. For example, there is a rich literature on the role of labour market policies providing useful guidance to policy-makers. On the other hand, the literature on the linkages between globalization and redistribution policies or education policies is relatively thin. The discussions in Chapters 8 and 9, however, shows that these policies have an important role to play and that more research in these areas may be warranted. More generally, as suggested by John Haltiwanger's contribution, several conditions need to be in place for opening to enhance productivity without imposing high costs of reallocation on businesses and workers. The papers in this volume draw a number of useful lessons, for instance on labour market regimes, social protection or education policies. However they leave a number of questions open and raise a number of new questions. Clearly more work is needed to understand the sort of skills education systems should provide in a world where jobs can be offshored.

It has been mentioned before that the three themes discussed separately in this volume are in practice interconnected. This interconnection poses significant challenges for researchers and policy-makers alike. The discussion in this book notably leads to the question of whether the traditional focus on the wage effects of trade is justified and whether it would not be appropriate to pay more attention to employment effects both in terms of level and structure of employment. Milberg and Winkler propose to use the wage share in GDP as a measure for the labour market impacts of globalization. This measure, indeed, captures both revenue and quantity



effects, but has other shortcomings. Further discussions on appropriate ways to measure labour market effects could therefore be useful.

Several chapters in this book shed light on three policy areas relevant for making globalization socially sustainable: social protection, redistribution and education policies. Together these chapters provide important insights for coherent policy-making. They highlight the possibly important role of governments in making globalization socially sustainable. A future volume of this nature should, therefore, perhaps also include a more extensive discussion of public finance questions.

## Endnotes

**1.** See also the discussion in Milberg and Winkler, Chapter 5 in this volume.

**2.** See also the discussion on trade and the informal economy in an earlier joint ILO–WTO publication by Bacchetta et al. (2009).

**3.** Think, for instance, of the parallels drawn between the effects of offshoring and "shadow migration" in Baldwin and Robert-Nicoud (2007).

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# 1 Globalization, offshoring and jobs

*Holger Görg**

## 1.1 Introduction

The labour market consequences of globalization in general, and offshoring in particular, have been hotly debated in recent public discussions and academia, in particular in industrialized countries. One of the reasons for this may be illustrated with reference to the *World Investment Report 2004* (UNCTAD, 2004), which provides examples of recent offshoring cases in services industries in the United Kingdom, and the employment changes involved. Barclays Bank, for instance, is reported to have offshored 500 back-office staff to India. When such numbers are picked up in the media, there is a presumption that 500 jobs have been destroyed in the United Kingdom as a net effect of this offshoring. In fact, the calculation is, of course, more complicated.

These media reports go hand in hand with public perceptions that trade has negative employment effects at least for certain groups of workers. This is a concern particularly for low-skilled workers (see O'Rourke and Sinnot, 2001 and Scheve and Slaughter, 2001). Policy-makers need to take these anxieties seriously, but in order to devise appropriate policy responses they also need to consider carefully the economic arguments, from theory as well as from empirical evidence. This is what this chapter sets out to do, by examining the available theoretical arguments and empirical evidence as to the possible employment effects of globalization.[1]

Globalization is defined here somewhat narrowly; first, as total trade (that is, the flow of goods across borders) and second, as offshoring (that is, the relocation of production processes abroad, leading to trade in intermediate goods across borders).[2] In the next section, the focus is on employment responses to globalization. The first subsection looks at trade in general, while the second subsection considers specifically the literature that has studied the relationship between offshoring and jobs. Section 1.3 then takes a more long-run perspective and looks at two aspects of structural change in economies, namely, towards more high skill-intensive production

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and towards more service activities, and considers whether and how these trends may be related to offshoring. Section 1.4, finally, discusses some policy approaches which may be used to compensate potential losers from globalization, and to maximize the benefits thereof.

## 1.2 Globalization and (un)employment

### *Trade, employment and unemployment*

Economists have for a long time neglected possible links between trade and employment levels. This is mainly due to the theoretical "straitjacket" that was generally used. Traditional models of trade, such as the workhorse Heckscher–Ohlin model, are based on the assumption that there are perfectly competitive labour markets. So the prediction of the model, namely, that sectors which use the relatively abundant factor relatively intensively expand, while other sectors contract, does not imply any net employment changes in the economy. Workers in the contracting sectors may lose their jobs, but given the assumption of full employment, they will instantaneously find new employment in the expanding sectors where new jobs are being created. What may adjust, of course, is the wage rate (or more generally factor prices).

Hence, trade leads to a reallocation of labour (and other factors of production) across sectors, but it does not have any implications for overall employment levels. A quote by Paul Krugman (1993, p. 25) summarizes this idea succinctly:

> It should be possible to emphasize to students that the level of employment is a macroeconomic issue, depending in the short run on aggregate demand and depending in the long run on the natural rate of unemployment, with microeconomic policies like tariffs having little net effect. Trade policy should be debated in terms of its impact on efficiency, not in terms of phoney numbers about jobs created or lost.

Most people working on the basis of these models would probably acknowledge that there may be short-run employment effects due to adjustment costs, that is, workers may face some (short) spell of unemployment as they lose their job and search for new employment. However, in the long run, when the economy is in a new equilibrium, full employment resumes – or, more realistically and in line with Krugman's quote, the level of unemployment will be back to its natural level, which is not affected by trade. Hence, there may be short-run, but no long-run, effects of trade on levels of employment or unemployment.[3] As a result, economists largely focused on wage effects of trade – an issue that will be touched upon in greater detail in Chapter 7 of this volume.

Since the 1990s, this view that there should be no substantial link between employment and trade has slowly changed, due to new empirical results and theoretical developments. On the theoretical side, recent models take the possibility that there are long-term effects of trade on levels of unemployment more seriously. This is done by assuming that labour markets are imperfectly competitive, leading to the possibility of unemployment in the model. There are various ways of inserting unemployment into such trade models, leading to different classes of models.

For example, Davidson and Matusz in a series of papers consider search-theoretic models, where the labour market is explicitly modelled in terms of workers searching for vacancies which are posted by firms.[4] Here, costs of searching for suitable jobs and employees introduce frictions in the labour market which may lead to workers experiencing non-trivial spells of unemployment after losing their jobs. Davidson and Matusz also show in their models that trade and job turnover are linked, implying that increasing trade may have implications for levels of unemployment in the economy.

A different class of models introduces unemployment due to minimum wage, efficiency wage or fair wage considerations.[5] The key idea is that firms pay wages above the market clearing wage in order to entice workers to exert effort and avoid shirking, or because workers have a notion of what is a fair wage which depends on own efforts and outside options. Given that the equilibrium wage is not the wage at which the labour market clears, unemployment occurs in these models. These types of models have also been used to investigate the relationship between trade and employment, also yielding the result that there is a relationship as trade affects levels of unemployment in equilibrium.

While traditional models without labour market imperfections are clear in their theoretical prediction that there should be no long-run link between trade and employment, the models with imperfect labour markets produce somewhat more ambiguous results. Embedding minimum or efficiency wages into a Heckscher–Ohlin setting and assuming that the home country is relatively capital abundant, that is, being a net importer of the labour-intensive good, yields the result that increasing trade increases unemployment. This is because the more capital-intensive sector expands while labour-intensive industry contracts, and the labour market does not clear.

However, in models of monopolistic competition in production, allowing for intra-industry trade, this prediction can change. Matusz (1996) has a model of intra-industry trade in intermediate products and efficiency wages and finds that trade unambiguously reduces unemployment compared to the autarky equilibrium. Egger and Kreickemeier (2010) embed fair wages into a model with heterogeneous firms and find that employment effects of trade are ambiguous. On the one hand, output



increases which raises employment. On the other hand, however, exporting leads to higher profits and workers partake in those, implying higher wages and, hence, a cost penalty for producers. This, ceteris paribus, reduces employment. The relative importance of these two effects determines whether overall employment increases or contracts.

Empirical evidence taking the link between trade and employment seriously is still relatively scarce, certainly if compared to the large body of evidence examining how trade affects relative or absolute wages. On the positive side, however, given that the theoretical developments are relatively recent, the empirical evidence is as well.

Dutt et al. (2009) examine the link between trade protection and unemployment rates using cross-country data for 90 countries over the period 1985–2004. Their empirical estimation is based on a theoretical model with search-induced unemployment embedded in alternatively a Heckscher–Ohlin or Ricardian setting. The theoretical prediction for the H–O model is that in a relatively capital-abundant country, trade liberalization leads to increases in unemployment, while employment should increase in a relatively labour-abundant country. In the Ricardian model, trade openness and unemployment are negatively related. The empirical analysis is particularly interesting because the authors attempt to distinguish short- and long-run effects of increasing trade on unemployment.

They start off with a cross-section analysis, where they define all variables in the empirical model as averages over the 1990s and, hence, use only one observation per country. In this setting, the estimated coefficients can be interpreted as long-run effects. The estimation first considers a Ricardian setting, where countries are not distinguished by factor abundance. In this setting, the authors find the unambiguous result that trade liberalization is associated with reductions in country-level unemployment. This result is robust to different measures of trade liberalization,[6] a battery of control variables and instrumental variables techniques. In a second step the authors proceed to a Heckscher–Ohlin setting, where they allow the effect of trade liberalization to differ according to a country's relative labour abundance. To do so they include an interaction between between the measure of trade liberalization and a country's capital–labour ratio in the econometric model. The empirical results do not, however, provide any robust evidence that the effect of trade liberalization varies depending on the factor abundance. The authors interpret this not as an absence of any H–O effects, but rather that Ricardian-type productivity-related effects dominate any H–O effects. In short, their evidence shows that trade liberalization is associated with decreases in unemployment, hence, there is a positive long-run relationship between trade and employment.

The authors go further in their analysis and exploit the panel dimension in their data. This, among other things, also allows them to distinguish short-run and long-run effects in their estimation. They estimate a model of the following form

$$u_{it} = \alpha\, u_{it-1} + \beta_0\, trade_{it} + \beta_1\, trade_{it-1} + \beta_2\, trade_{it-2} + \beta_3\, trade_{it-3} + \beta_4\, trade_{it-4} + \varepsilon_{it} \quad (1.1)$$

where *u* is the unemployment rate in country *i* at time *t*, and *trade* is a dummy equal to one if a country liberalized trade.[7]

The coefficients $\beta_0$ to $\beta_4$ allow the identification of short- to medium-run effects of trade liberalization on unemployment with $\beta_0$ giving the immediate contemporary effect and, say, $\beta_2$ giving the impact of a trade liberalization on unemployment two years after the event. The authors find that the coefficient $\beta_0$ is positive, implying that trade liberalization is associated with an immediate increase in the unemployment rate. The point estimates of the coefficients suggest that this increase is about 0.6 per cent on average. In the more medium term, the increase in unemployment is, however, reversed: the coefficients $\beta_1$ and $\beta_2$ are negative. Their magnitude suggests that the initial surge in unemployment is more than outweighed: the authors' preferred specification of the model suggests that there is a decline by 3.5 per cent in unemployment three years after the liberalization. The coefficients $\beta_3$ and $\beta_4$ are statistically insignificant, indicating that there is no further adjustment in the unemployment rate after three years.

The dynamic specification of the model also allows the calculation of long-run coefficients indicating the equilibrium relationship between trade and unemployment.[8] In the above model, summing all coefficients $\beta_0$ to $\beta_4$ indicates that there is a negative relationship between trade liberalization and unemployment in the long run. In other words, unemployment will be lower in the economy in the new equilibrium after trade liberalization was implemented.

In a related paper, Hasan et al. (2009) conduct a similar exercise using panel data for Indian states. They regress unemployment rates on measures of trade protection based on tariffs and non-tariff barriers at the state level. Their results show no evidence that protection is associated with lower unemployment. Indeed, they find that unemployment declines with trade liberalization in particular in urban areas with flexible labour markets. Hence, the case study of India is much in line with the cross-country evidence by Dutt et al. (2009).

While the above two papers establish a largely negative impact of trade on aggregate unemployment, it needs to be made clear that these are aggregate data looking at net changes in unemployment. They do, however, hide a possibly large flow of workers into and out of unemployment that may or may not be caused by trade.



Examining the link between gross worker or job flows and trade has also been on the agenda of international economists. While these types of studies are particularly useful for uncovering the dynamic aspects of trade adjustment, the results generally only relate to the short run, that is giving the short-run adjustment effect of trade on employment.

A widely cited in-depth analysis of worker flows for the United States is presented by Kletzer (2000). She uses data over the period 1975–95 from the Displaced Workers Survey (DWS) of the US Department of Labor, which provides information on job displacement. The DWS is a survey that is undertaken biennially. In each survey, respondents are asked whether they had lost their job in the preceding three or five years.[9] If the answer is affirmative, they are also asked about the old job and whether or not they have already found a new job. Kletzer uses these data with a view to establishing whether there is a statistical correlation between self-reported job losses and import activity in the sector in which the individual worked. She finds that rates of job losses are particularly high in sectors with high levels of imports, and sectors with high import growth. By contrast, export activity at the sectoral level is correlated with lower rates of job losses.

In a related study, Kletzer (2001) uses data from the DWS for the period 1979–99 to investigate whether unemployment after job loss is merely transitory, and in which sectors workers find new jobs after being displaced from import-competing sectors. She finds that roughly two-thirds of workers that had lost their jobs had also found re-employment at the survey date. In other words, for these workers unemployment spells have not been longer than three to five years (possibly even much shorter) given the design of the survey questions. There are some differences between workers displaced from manufacturing and non-manufacturing industries (where the former only have a re-employment rate of 65 per cent compared to 69 per cent for the latter), but these differences are not very substantial. While this suggests that most job displacements led to only transitory increases in unemployment, it is also clear that about one-third of the displaced workers did not find new employment immediately (that is, within the survey period). As the DWS does not follow individuals over time, it is not possible to know their exact length of unemployment. It is arguably reasonable to assume that some share of these workers also find jobs in the future, hence, the re-employment rate of roughly 66 per cent may be underestimating the true level of transitory unemployment. The data also allow Kletzer to look at the sectors in which workers found re-employment. This is an issue to which we return in section 1.3, where we look at sectoral adjustment due to globalization.

Following on from the work by Kletzer (2000, 2001) other researchers have used different data and approaches to look at similar issues. Davidson and Matusz (2005) use US firm-level data from the US Census Bureau's Longitudinal Research

Database (LRD) to calculate rates of job creation and destruction at the level of the firm and analyse whether these are influenced by trade. Their results suggest that job destruction rates are negatively affected by net exports, implying that, as in Kletzer (2000), import-competing sectors may experience job displacement. They also find that there is a positive association between net exports and job creation.

Trefler (2004) uses the Canada–US free trade agreement as a "natural experiment" to consider the employment and productivity effects of trade liberalization in an industrialized country, using both industry- and plant-level analysis. He finds that the establishment of the free trade area was associated with overall employment losses. Employment in highly import-competing industries which were most affected by the liberalization experienced employment reductions of about 12 per cent, while manufacturing as a whole contracted employment by 5 per cent. These short-run adjustments were, however, compensated by productivity increases; overall manufacturing industry improved its labour productivity by about 6 per cent in the wake of the establishment of the free trade area. These productivity increases should be expected to lead to increased employment in the longer run – a question which could not be answered by Trefler, however.

While Canada and the United States have received much attention, there is also similar work for other countries available. Biscourp and Kramarz (2007) use French firm-level data to examine the impact of importing and exporting on job creation and destruction in firms. The authors look at changes in the number of jobs over a five-year period, which is somewhere between the short and long run. They find that importing is associated with lower employment growth, in particular if the firm imports finished goods rather than intermediate goods. By contrast, exporting is generally associated with job growth in the firm, a finding that is also echoed in other studies, such as Bernard and Jensen (1997).

Ibsen et al. (2010) present a similar analysis using firm-level data for Denmark. They find, in contrast to the French study, that imports of finished and intermediate goods are generally positively related to employment growth. This is true in the short run (based on annual employment changes) and the long run (which looks at changes in employment in firms over a ten-year period) with one exception: in the long run, imports are negatively associated with employment growth in large firms, which are defined in the Danish case as firms with 50 or more employees.

To summarize, although economists have for a long time neglected the link between trade and employment, this has changed recently due to new theoretical developments and new empirical results. These results generally suggest that imports may cause job displacement in the short run, due to adjustment costs.[10] By contrast, exporting is generally associated with lower rates of job losses and higher



rates of job creation.[11] While far fewer studies have been able to consider differences between the long and short run, those that have done so generally find that, in the long run, there appears to be a positive relationship between imports and employment. However, this may not be true for all firms that engage in importing, as suggested by Biscourp and Kramarz (2007) and Ibsen et al. (2010).

While research using firm-level data allows researchers to dig deeper into questions related to firm heterogeneity and how this relates to trade, it leaves out an important facet – namely, what happens to firms that are in, say, import-competing sectors but that do not trade. They may experience substantial employment adjustments which are not generally considered in the firm-level work, but which would be picked up by the approaches taken by Kletzer (2000) or Dutt et al. (2009). It is also not clear why studies for different countries such as Denmark and France produce different results – is it due to data differences, or different methodological approaches, or do they reflect differences in institutional settings in the countries? This suggests that there is scope for further research, in particular in cross-country comparisons to investigate more thoroughly the link between jobs and trade.

### *Outsourcing and jobs*

In recent years, the focus in the analysis of the link between trade and jobs has shifted somewhat towards international outsourcing or offshoring.[12] This means the breaking up of the production process, which allows the relocation of some parts abroad and increasing specialization at home. In industrialized countries, the assumption is that generally the labour-intensive parts of production are relocated abroad, allowing production at home to focus on more capital- or skill-intensive production (see, for example, Glass and Saggi, 2001). This is different from trade in final goods in an H–O model, where adjustments take place between sectors. With outsourcing, this adjustment takes place within a sector, or possibly even within a firm. Hence, employment effects may be much stronger than for trade in final goods. Also, one would expect a shift in the demand for skills within sectors or firms in industrialized countries, with outsourcing increasing the (relative) demand for skills.[13]

As pointed out in the introduction, the labour market consequences of offshoring have been hotly debated recently. One of the reasons may be that relocations of jobs abroad are attributed directly to offshoring and are presumed to be the net effects of the relocation. In fact, the calculation is, of course, more complicated than that. For example, to use the terminology of Hijzen and Swaim (2007), the 500 jobs relocated to India by Barclays Bank referred to in the introduction constitute a relocation effect. If, however, offshoring these jobs results in the business increasing productivity and operating more efficiently,[14] sales can expand, increasing employment. This is the scale effect of offshoring. Careful empirical work needs to account for both

possibilities. Note, however, that these are direct effects impacting only on the enterprise engaging in offshoring. In addition, there is a strong likelihood of indirect employment effects of two forms. First, if as a consequence of offshoring Barclays can provide its services to other businesses at a lower cost, they may be able to expand activity and employment (depending upon their employment–sales ratio). Second, if offshoring results in lower prices to final consumers their real income increases, and some proportion of that real income will be spent on domestically produced goods and services, again raising overall employment.

When offshoring occurs, there will therefore be second-order effects within the sector where the offshoring has taken place and ripple effects across the economy more widely. In principle, one should account for all of these changes in any empirical evaluation; in practice, the data requirements for full "general equilibrium" analyses are just too demanding and most analysts focus on what we refer to as the direct effects.

The final point which must be borne in mind when assessing employment effects is that offshoring is not the only phenomenon which results in separations between employer and employee: changes in technology; changes in consumers' tastes and preferences; changes in the origin of imports and in competitiveness of the environment more generally; and cyclical changes in economic activity all impact on job destruction and job creation. And the scale of churn, or turnover in labour markets, in modern dynamic economies is quite staggering. For example, Hijzen et al. (2007) estimate that in the United Kingdom 51,000 jobs are destroyed and 53,000 jobs created in the private sector, every week. This is equivalent to 2.65 and 2.76 million jobs each year, or 15–16 per cent of the private sector workforce. Thus, it is vitally important that the job losses attributed to outsourcing are appropriately contextualized.

Table 1.1, reported in OECD (2007) and based on survey work conducted by the European Restructuring Monitor (ERM), does that. This reports total jobs lost from enterprise restructuring in 2005 and job losses attributed to offshoring. Note that only relatively small percentages for France, Germany or the United Kingdom were deemed attributable to offshoring. Note also that some of the highest proportions are in economies like Ireland and Slovenia which are generally thought of as being only recipients of offshored jobs.

Unfortunately, the table is silent on jobs created due to offshoring, which would balance against jobs lost.[15] Another shortcoming is that these are self-reported employment changes, where respondents attribute jobs lost to offshoring. This may misrepresent the true effect, if the indirect employment effects are not fully captured. In order to provide more reliable estimates, and to consider job gains as well, researchers have turned to econometric analysis of industry, firm or worker data.



**Table 1.1** Total job losses due to offshoring announced in the ERM, by country, in 2005

| Total job losses | | Job losses due to offshoring | | Offshoring job losses as a percentage of total | |
|---|---|---|---|---|---|
| United Kingdom | 200,706 | Germany | 7,765 | Portugal | 54.7 |
| Germany | 108,233 | United Kingdom | 6,764 | Austria | 29.6 |
| France | 45,405 | Portugal | 2,448 | Denmark | 28.8 |
| Poland | 27,117 | France | 2,080 | Slovak Republic | 25.2 |
| Netherlands | 22,111 | Slovenia | 1,516 | Slovenia | 24.0 |
| Sweden | 16,691 | Denmark | 1,505 | Ireland | 23.6 |
| Czech Republic | 14,949 | Ireland | 1,345 | Finland | 15.9 |
| Spain | 13,963 | Italy | 1,171 | Italy | 15.7 |
| Hungary | 10,960 | Finland | 1,153 | Belgium | 10.9 |
| Italy | 7,467 | Sweden | 904 | Germany | 7.2 |
| Finland | 7,240 | Hungary | 620 | Hungary | 5.7 |
| Slovenia | 6,327 | Poland | 610 | Sweden | 5.4 |
| Ireland | 5,697 | Slovak Republic | 600 | France | 4.6 |
| Belgium | 5,266 | Belgium | 576 | United Kingdom | 3.4 |
| Denmark | 5,234 | Austria | 505 | Spain | 2.3 |
| Portugal | 4,478 | Spain | 320 | Poland | 2.2 |
| Lithuania | 3,398 | Netherlands | 160 | Czech Republic | 0.9 |
| Slovak Republic | 2,383 | Czech Republic | 130 | Netherlands | 0.7 |
| Austria | 1,708 | Cyprus | 0 | Cyprus | 0.0 |
| Estonia | 1,068 | Estonia | 0 | Estonia | 0.0 |
| Malta | 850 | Latvia | 0 | Latvia | 0.0 |
| Latvia | 600 | Lithuania | 0 | Lithuania | 0.0 |
| Cyprus | 60 | Malta | 0 | Malta | 0.0 |

*Source:* OECD (2007).

First we consider a number of industry-level studies. Amiti and Wei (2006) analyse the impact of offshoring on jobs in the United States.[16] They estimate a labour demand equation, allowing for both substitution effects and output effects (equivalent to the relocation and scale effects mentioned above). As the study is multi-industry and multi-year, they control for industry-specific characteristics (such as differences in technology). They report modest employment effects, the magnitude of which depends on how narrowly or broadly defined a sector is. When it is narrowly defined (450 sectors in their case) there is evidence of a link between job losses and outsourcing, though the numbers are small. When they consider employment change across 96 broader sectors, there is no observable link between outsourcing growth and job loss (or job gain) by sector. Intuitively this makes sense: the more narrowly defined an economic activity and the shorter the time period investigated, the more likely one is to identify a negative link because only the direct effects in general and the relocation effect in particular are being picked up. When the field of vision is broadened, both sectorally and temporally, one is more likely to pick up both direct and indirect effects.

Crino (2010a) uses data at the occupation–industry level for the United States over the period 1997–2002. He can, thus, calculate employment and wages for specific occupations in an industry. He uses this data to investigate whether offshoring of services activities at the industry level has had any implications for employment in the services industry of different occupational types in the United States. This is in contrast to most of the literature which focuses on manufacturing industries. Using the occupational dimension allows him to identify whether certain occupations are more likely to lose through offshoring than others. The expectation is that occupations that are more tradable are those that are hit hardest by offshoring, as these occupations carry out tasks that are easily transferred abroad – for example, carrying out back-office administrative tasks. His results are in line with that expectation.

First, Crino finds that services offshoring has mild negative effects on the employment of workers in low-skilled occupations, but positive effects on high-skilled occupations. Simulations based on his econometric results suggest that high-skilled services employment was 2 per cent higher than it would have been if service offshoring had remained at its initial level. Employment of medium- and low-skilled workers was lower by 0.1 per cent and 0.4 per cent, respectively. Overall his results imply net job losses of around 16,000, with 49,000 jobs created for high-skilled but 65,000 jobs being destroyed for low- and medium-skilled workers. These results are, of course, only suggestive and based on the specific assumptions of his model and the data available. Still, keeping in mind the points raised above, these total effects are quite small. Second, he finds that these effects depend on the tradability of the occupation. Independent of skill level, tradable occupations are negatively affected by service offshoring, as these can be easily relocated abroad. By contrast, complex and highly specialized non-tradable occupations tend to benefit from offshoring, possibly due to gains from specialization and improvements in productivity. Unfortunately, no comparable simulations are available to grasp the economic magnitude of these qualitative results.

Amiti and Wei (2005) investigate the link between offshoring and employment for the United Kingdom, applying a similar methodology as in their paper for the United States. They focus on 69 manufacturing industries and nine service industries from 1995 to 2001. For manufacturing, they conclude that "outsourcing does not have a negative effect on manufacturing employment at the sectoral level" (p. 337). Their services sample captures the key sectors which are most typically "headlined" in connection with offshoring, namely: telecommunications; banking and finance; insurance and pension funds; ancillary financial services; renting of machinery; computer services; research and development; legal activities; accountancy services; market research; management consultancy; architectural activities; technical



consultancy and advertising. They examine both material and service outsourcing from these service sectors and can find no negative employment effects. In fact, they conclude that jobs displaced "are likely to be offset by new jobs created in the same sector" (p. 338).

The most comprehensive multi-country analyses to date are OECD (2007) and Hijzen and Swaim (2007). The former takes as its indicator of outsourcing the share of value added in turnover by sector. In linking this to jobs, the study adopts a similar methodology to Amiti and Wei and applies it to sectoral data for 12 OECD countries (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, the Republic of Korea, Norway, Sweden and the United States), 26 industries and for two years (1995 and 2000). Using this method, they identify a job destruction effect of foreign outsourcing, albeit a small one. Thus, a 1 per cent increase in foreign outsourcing results in a 0.15 per cent decrease in sectoral employment in manufactures and 0.08 per cent in services. In both cases these are direct effects only.

Hijzen and Swaim (2007) use the same data sources and same years as OECD (2007) but refine the methodology to disentangle relocation and scale effects and extend the country coverage to 17 countries (the OECD 12 minus the Republic of Korea and plus Australia, Canada, the Netherlands, Portugal, Spain and the United Kingdom). They find that offshoring within the same industry has no overall effect on employment because the productivity effect is sufficiently strong that new jobs created by increased sales (the scale effect) offset jobs lost because production becomes less labour intensive (the relocation effect). When offshoring is inter-industry, labour intensity does not seem to be affected and the scale effect means that overall offshoring has a positive effect on employment.

An alternative approach is to use firm- or plant-level data to investigate links between labour demand and offshoring. Görg and Hanley (2005) is an example using plant-level data for the electronics industry in Ireland over the period 1990–95. They find that offshoring (measured in terms of a plant's imports of intermediate materials and components) leads to significant reductions in employment levels in offshoring plants. These, however, are the short-run effects and, as one might expect, in the short run the result of a relocation of activity abroad is a reduction in employment at home, as part of the production process is no longer carried out. However, in the medium or long run, employment may increase again, reflecting the productivity effects mentioned above. Unfortunately, the study by Görg and Hanley does not investigate long-run effects. Also, the study only considers the direct effects on the offshoring plants and neglects possible indirect effects.[17]

Hijzen et al. (2007) use information from a British data set, the Inquiry into International Trade in Services (ITIS), published by the Office for National Statistics,

which collects data at the firm level and covers 39 different kinds of services transacted. They link this to firm-level data from the Annual Business Inquiry (ABI) and attempt to identify the implications of increased offshoring of services activities for changes in employment, where these changes are defined over the seven-year period 1997–2004, that is, to capture the medium to short run. They can find no evidence that increased imports of intermediate services results in job destruction. In fact, those firms that outsource service provision actually have faster employment growth. A second interesting finding is that intra-industry trade in intermediate services takes place on a significant scale. In other words, many of the same firms that are offshoring are also "inshoring". However, due to the nature of the data, Hijzen et al. cannot consider imports of intermediate materials, which is likely to be even more important than offshoring of services.

Wagner (2011) takes a different approach in his analysis of firm-level data for Germany. He has available official German enterprise-level statistics which are linked to a special unique survey on offshoring activities of firms, undertaken by the German Statistical Office. The data relate to the period 2000–06. His research question is whether or not firms that start offshoring reduce employment in Germany. To address this question, he uses propensity score matching techniques. The idea of this approach is to compare the set of offshoring firms with a set of "control group" firms that display similar characteristics but that did not choose to offshore. Under the matching assumption any difference in performance after offshoring is due to the offshoring decision.[18] In a first preliminary comparison of offshoring firms and non-offshoring firms, he finds that the former are generally larger, more productive and more export-intensive. This suggests that a simple comparison of the two groups of firms which does not account for these *a priori* differences provides misleading estimates of a possible causal effect of offshoring, as this effect would be confounded with the effects of size and productivity, and possibly other firm characteristics. The matching approach accounts for such differences. Using this approach he finds that there are no statistically discernible effects of offshoring on employment for German firms. He finds that offshoring does have a strong and positive effect on firm-level productivity, however. Hence, any possible job losses due to offshoring (the relocation effect) are more than outweighed by the increased productivity and competitiveness in the firm, which allows it to expand employment (the scale effect).[19] These results relate to the short to medium run, being estimated for one to three years after the event.

Most of the current research takes a different approach and investigates worker-level data in order to examine whether offshoring has any impact on an individual's job security or wages. This approach has a number of advantages. First, it allows one to focus on the level of the individual where one can control for observable and unobservable characteristics that may play a role in job turnover, but that cannot be



controlled for in firm or industry data (for example, the age, tenure or marital status of a worker). Second, it provides information on the various aspects of skills of an individual, which can be exploited in the estimations. Third, relating the employment status of a worker to outsourcing activity in the industry allows one to capture also indirect effects, as the question is not what happens to workers in the offshoring firm but what happens to all workers in an industry that offshores intensively.

A number of recent studies have taken this approach. Ebenstein et al. (2009) use the Current Population Surveys in the United States over the period 1983–2002 to investigate the labour market effects of offshoring. These surveys are produced by the US Census Bureau for the US Bureau of Labor Statistics. Offshoring, importantly, is not defined in terms of imported intermediates, as in most studies using industry or micro data, but as employment in foreign affiliates of US multinationals at the industry level. This measure, thus, does not consider any outsourcing that takes place between firms that are not part of the same multinational, a fact that should be borne in mind. In terms of labour market effects, the focus of the paper is on wages, as in most of the trade literature discussed in the previous section, and also a number of studies on offshoring.[20] When investigating the impact of offshoring on employment levels, Ebenstein et al. actually discard the advantage of their worker-level data and instead aggregate employment to the education–industry level, similar to Crino (2010a). They then study labour demand in a set-up similar to Amiti and Wei (2005, 2006), as discussed above.

Their results suggest that an increase in affiliate employment in low-income countries reduces domestic employment, but this effect is economically very small: an increase in offshoring by 1 per cent leads to a reduction in employment by 0.02 per cent.[21] Offshoring in high-income countries, by contrast, increases employment, but by a similarly small number. The negative employment effects are largest for workers in highly routine industries, while the positive effects apply to the most routine and intermediate routine industries, but remarkably not to the least routine industries. The least routine industries should be similar to the non-tradable occupations in Crino (2010a), although these concepts are of course not identical.

Liu and Trefler (2008) also use the US Current Population Surveys, for the period 1996–2006. They focus on the labour market effects of outsourcing of services to China and India. In addition, they also include a measure of "inshoring", which is exports of services from the United States to China and India. They consider the effects on the workers' time spent unemployed, workers switching occupation and industry, and wages. Their estimations suggest small positive effects of services exports and smaller negative effects of services offshoring. The estimated net effect is positive. They illustrate the magnitude of their effects by engaging in a thought

experiment, assuming that services exports and imports were to grow at the rates experienced between 1996 and 2005. Their empirical model then suggests that if this were the case, workers would spend 0.1 per cent less time unemployed, or would switch occupations 2 per cent less often, or would earn 1.5 per cent more.[22] These are, thus, very small effects, although it should be kept in mind that the authors only consider outsourcing to China and India.

There are also a number of recent studies for European countries, which use econometrically sophisticated estimations based on hazard models. Geishecker (2008) analyses individual level data from the German Socio-Economic Panel for the period 1991–2000. This is a worker panel which provides monthly employment spell data. Geishecker uses this data to examine whether outsourcing affects an individual's risk of leaving employment with a micro level hazard rate model. He is also careful to evaluate the economic significance of his estimation. His empirical model predicts that between 1991 and 2000 international outsourcing increased the hazard of exiting employment by approximately 16 per cent. This is a much stronger effect than that of the other potential culprit for job losses, namely technological progress, which only raises the hazard of leaving employment by about 1 per cent. Geishecker also finds that there are no differences in the effect of outsourcing depending on skills (as found in much of the literature). Instead, tenure seems to matter. Within the first six months of employment, international outsourcing raises the hazard of leaving employment by more than one percentage point. With higher employment duration, the absolute changes in the hazard rate due to outsourcing are much smaller, as the hazard rate model is proportional and the hazard of leaving employment monotonically declines.

Bachmann and Braun (2011) use a different data source for Germany, the IAB Employment Sample for the period 1975–2004. This data is provided by the Institute for Employment Research (IAB) which is part of the German Federal Employment Agency. The underlying data source is the employment statistics of the Employment Agency which, in 1995, covers around 80 per cent of all individuals employed in Germany. This data set allows the authors to calculate employment and unemployment spells which are exact to the day. In their analysis, they consider three possible movements of workers: direct job-to-job transitions, the move from employment to unemployment, and the move from employment to out of the labour market. They find that, for workers in manufacturing sectors, outsourcing leads to lower job-to-job and employment-to-unemployment transitions, but increases the risk of moving out of the labour market. Overall, the implication is that outsourcing increases job stability, but that the effects are economically very small. By contrast, the authors find much stronger effects for the services sector, where outsourcing also increases job stability, in particular (but not only) for high-skilled workers. The authors explain this by possible productivity-increasing effects of outsourcing.



Egger et al. (2007) use worker-level panel data for the period 1988–2001 in Austria. They find that international outsourcing reduces the chance of a worker finding or staying in a job in the manufacturing sector, in particular in sectors with a comparative disadvantage. Munch (2010), using similar worker data for Denmark, reports that offshoring also increases the likelihood of an employer–employee separation in Denmark. But in both instances the effects appear to be economically small, albeit statistically significant.

By way of summarizing it seems from the literature that, in general, outsourcing may have some effects on employment in line with expectations, where low-skilled workers may be more likely to lose and high-skilled workers more likely to benefit. However, any effects of outsourcing on employment are likely to be very small – a point that needs to be brought home to policy-makers and the public. There are a couple of exceptions (for example Geishecker, 2008) that find more sizeable effects. What needs to be kept in mind, though, is that the studies alluded to above almost exclusively only consider the short run, mainly due to data availability and the nature of the econometric approaches.

Overall, an important point is that it is difficult if not impossible to evaluate single individual studies within the larger literature, as these studies differ tremendously in terms of countries, databases, empirical estimations and their ability or willingness to calculate the magnitude of the effects, rather than just reporting the sign and statistical significance of the coefficients. Hence, there is need for further research to investigate differences across countries and to examine why there are differences in results (if not qualitatively, then certainly in terms of magnitudes) even within countries using different datasets.[23] Such analyses should be based on a common methodology. Furthermore, in future more efforts should be spent on attempting to calculate the short- and long-run employment effects of outsourcing. This would, of course, necessitate the availability of a fairly long time period of data, which may not be easily available.

Uncovering true differences across countries, that are not just due to differences in data or methodology, can provide valuable information for policy-makers as to the role of institutions. Is it the case that more flexible labour markets react differently to outsourcing than those with more restrictive institutions? At a first glance at the literature cited above, this does not appear to be the case. For example, studies for Austria, Denmark, Germany and the United States based on worker-level data find little evidence for substantial adverse employment effects. Does this imply institutions do not matter? This is an unwarranted conclusion based on the available evidence, as these studies just differ too much in order to compare them and to isolate the role of one factor (institutions) for the results.

One example of comparative work that goes in this direction is Geishecker et al. (2010). The authors use worker-level data for Denmark, Germany and the United Kingdom, and evaluate the impact of offshoring at the industry level on workers' wages. They do not consider employment, however. The three countries are chosen as they represent a country with very rigid labour markets (Germany) and one very flexible (the United Kingdom). Denmark is an interim case with flexible employment adjustment but relatively rigid wage setting. The data for Germany and the United Kingdom are from the German Socio Economic Panel (GSOEP) and British Household Panel Survey (BHPS) respectively, and are similar in coverage. The Danish dataset is also at the worker level, but is based on administrative data from Statistics Denmark. The reference period is 1991–2000 in all three cases. Overall, the results suggest that there are small negative wage effects on unskilled workers in all three countries, although these effects are lower in Denmark than in the other two countries. Only high-skilled workers in the United Kingdom seem to benefit from offshoring in terms of higher wages, however, which may point at the beneficial effect of flexible labour markets. This is, however, just a first stab at the question, and as the authors conclude, more theoretical and empirical work is needed in order to pin down the role of institutions. The role of institutions is also considered in more detail in Chapter 5 of this volume.

## 1.3 Globalization and the changing industrial structure

The discussion thus far has focused strongly on total employment growth or levels, without considering in any detail whether trade or offshoring has any implications for structural adjustment. Job turnover and displacements are possible immediate responses to globalization, when workers may be forced out of jobs. In the longer term, one important implication of globalization should also be sectoral adjustment in the economy. This is, at least, what traditional trade theory would predict: following an opening up of the economy, some sectors should expand and others contract. There may also be a skill bias, as demand for one type of skill may expand at the expense of another. Perhaps another way of putting this is to ask: does globalization in general, and offshoring in particular, have any sector or factor implications?

We have already touched upon the latter point. Outsourcing leads to within-sector adjustments of factors of production and therefore has a factor bias. In Feenstra and Hanson (1996), for example, the relocation of unskilled labour-intensive parts of the production process abroad leads to increases in the relative demand for skilled workers at home. While this need not be the case in somewhat different theoretical settings,[24] there is plenty of evidence suggesting that in developed countries there has been a shift towards more skilled workers (Feenstra and Hanson, 2003).



The perhaps more neglected issue of structural adjustment is the sectoral implication. Has the increased globalization of the world economy had any effect on specialization patterns in countries or regions? Can we see a shift towards more skill-intensive services or high-tech manufacturing production in developed countries?

The question of sectoral specialization is one that economic geographers have worked on. In recent papers, for example, Brakman et al. (2005) and Aiginger and Rossi-Hansberg (2006) conclude that sectoral specialization in the European Union has increased.[25] Aiginger and Rossi-Hansberg motivate their empirical analysis with a theoretical model which shows that, in general, reductions in the costs of trade (what one may term "globalization") lead to increases in specialization of production in the home country. They, hence, intuitively explain increases in specialization in the European Union with falling trade costs, although no formal econometric analysis of this is offered. As to the underlying characteristics of the increasing specialization of production, Brakman et al. (2005) conclude that their results "lend support to the increasing importance of services as a driving force behind … specialisation trends" (p. 34), an issue that is also shown to be the case by Bickenbach et al. (2010). While these trends occur at the same time as increasing economic integration in Europe and the world, falling trade costs and increased offshoring, there is, to the best of my knowledge, no robust formal analysis of whether these phenomena are causally linked.

Hijzen et al. (2007) provide a different perspective on structural adjustment by looking at rates of job creation and destruction and comparing these in manufacturing and services sectors. Based on firm-level data for the United Kingdom for the period 1997–2004, they find that the job creation rate in the average service industry is about twice as high as that of the average manufacturing firm (81 per cent compared to 37 per cent). Also, the job destruction rate in manufacturing firms is at 45 per cent, while that of firms in services is about 30 per cent. Hence, these figures suggest a shift in employment away from manufacturing into services industries, in line with the studies cited above. In an econometric analysis of employment at the firm level they then go on to show that employment growth is higher in firms that import intermediate services (that is, offshore services activities). There is no robust evidence that exporting of services leads to employment growth, however. If importing of services were more important in service industries than in manufacturing, this may then explain a trend towards more employment in services industries. However, whether or not this is the case is not clear from their paper. In fact, a large share of services imports and exports in 2003 are transacted by manufacturing firms.

The US data used by Kletzer (2000) from the Displaced Worker Survey also allow examination of the question of sectoral adjustment. In particular, what is relevant for

this is the information displaced workers provide on their new job. Is this in the same sector as the old job, or do workers move industries? For workers displaced from manufacturing industries, Kletzer finds that only about one-third find a new job in the same broadly defined sector. Roughly another 10 per cent find a new job in related manufacturing industries. However, about 45 per cent of displaced manufacturing workers find a new job in services industries (defined as trade, transport, professional, and other services). Rates of same-sector re-employment are much higher in services sectors. For example, about 62 per cent of workers who lose a job in professional services also find a new job in the same sector. Taken together, this evidence suggests that there are indeed signs of sectoral adjustment, out of manufacturing and into services activities.

## 1.4 Policy implications

The findings of the above studies may be summarized as follows. First, globalization and, in particular, offshoring of activity may lead to higher job turnover in the short run. Second, in the long run, there is no indication that trade or offshoring leads to higher unemployment (or lower employment) overall, although employment of low-skilled workers may suffer while high-skilled employment may expand. Third, while the literature finds that these effects are statistically significant, the economic magnitude thereof is still debated, with many studies concluding that they are economically negligible. Fourth, there is evidence that the structural changes away from manufacturing towards service sectors in advanced economies goes hand in hand with the process of globalization. However, whether or not there is a causal relationship is still to be investigated.

The first policy implication that emerges is that economists and policy-makers need to try and identify the groups of society that win and lose from globalization. Generally, the high skill vs. low tech dichotomy has been employed for this, with the latter being the group that may have to expect losses. In recent work, however, this simple distinction is questioned, with new emphasis being put not only on the question of educational background, but also on the type of tasks an individual performs. To take a simple example, taxi drivers with relatively low educational attainment may not need to fear that their jobs be offshored to India, while computer programmers with university degrees may see their jobs being relocated, as they can be performed online by similarly skilled people in China. These issues have been touched upon by, for example, Blinder (2006) and, in the context of looking at wage effects of offshoring, by Baumgarten et al. (2010). However, as yet we know very little about the interplay of tasks and education for job gains or losses, or unemployment following offshoring. This is clearly an important issue for further research.



Standard theory tells us that even in the presence of losers from globalization, the overall welfare effects will be positive, as the gains to the winners should more than outbalance the losses incurred. This then opens up the possibility that losers could be compensated by the winners. While this is a strong theoretical possibility, putting this into practice is difficult, and this may reflect why it is seldom done. One of the problems is, of course, to identify who loses from globalization. How can one identify a job loss as being due to offshoring, say, rather than to other macroeconomic or industry effects? And even if one could, would it be reasonable to compensate someone who lost his job because of offshoring, while another worker who lost her job due to increased domestic competition is not compensated? These are political questions that need to be debated.

Assume that a country does decide it wants to go ahead with compensation, and can identify the losers. How should these be compensated? Here it is particularly important that mechanisms are set right so that there is an incentive to look for re-employment after job loss, rather than to rely on assistance. These incentive issues have been theoretically investigated by Davidson and Matusz (2006). In a model of trade where workers seek employment through a search process, they evaluate the effects of four different policies, namely: unemployment benefits, training subsidies, employment or wage subsidies. The first two policies are directed towards the unemployed, while the latter two policies would subsidize the employment of newly employed workers (after a spell of unemployment caused by globalization) either through a flat rate or a percentage of the wage payment. Their result is clearly that wage subsidies are the preferred policy, as they give the highest incentive to seek re-employment. This policy is in its general ideas similar to the wage insurance policy advocated by Kletzer (2004), where workers would also receive a fraction of their earnings that are lost due to globalization-induced job loss, but the payment would only start after re-employment. Again, the main idea is to give a strong incentive to gain re-employment after the job loss.

Another policy angle is to ask how one can maximize the benefits from globalization. Here, theory would broadly speaking suggest that countries with flexible labour markets should stand to gain most – or most quickly – as adjustment costs would be reduced if workers can move freely and flexibly from one employment to the other. In order to be able to do so, hiring and firing should be easy, and workers should easily be able to obtain the skills they need for their respective employment. Not an easy task for policy-makers. Countries with less flexible labour markets would inhibit the movement of workers to their most productive use, leading to inefficient allocation of workers into sectors that are no longer internationally competitive.[26]

While this theoretical argument seems sound, we know very little empirically about the role of institutions, in particular labour market institutions.[27] One reason is that

many of the recent studies are carried out with micro data for one particular country. Given the idiosyncracies of the available data in different countries, and the general tendencies of academics to make a methodological contribution in their paper, results from different countries with different data and methodologies are hard to compare. In order to judge meaningfully the importance of labour market flexibility – an issue that is generally set at the country level – researchers need to look at cross-country comparisons based on similar data for different countries and the same methodology. Incentives to do just this are, unfortunately, low in the economics profession, but this is an important angle that future research should take in order to provide relevant policy implications.

## Endnotes

**1.** The literature review does not cover every single study on these topics. Rather, the focus is on a number of studies which provide robust and reliable theoretical or empirical analyses. As to empirical studies, the focus is on studies for industrialized countries, although we also discuss some evidence relating to India. The chapter considers empirical studies published since the early 2000s, as these provide up-to-date evidence and also relate to recent theoretical advances in the literature. There are, of course, also earlier studies that look at the link between globalization and employment, such as Sachs and Shatz (1994), Wood (1994) or Rowthorn and Ramaswamy (1999).

**2.** The focus in this chapter is on trade (in final goods) and offshoring. There are also a number of papers that look at the effects of foreign direct investment on employment in the home country. We do not focus on this here, as the theoretical argumentation is largely similar to that for offshoring. In fact, the paper by Ebenstein et al. (2009), which is discussed in the second subsection to section 1.2, is about offshoring associated with multinationals investing abroad. In general, the results of studies looking specifically at the employment effects of multinationals are similar to the offshoring results, in that there may be statistically significant but small effects. See, for example, Harrison and McMillan (forthcoming) for US multinationals.

**3.** Taylor and von Arnim (2006) provide an interesting critique of some of the assumptions generally used in economic modelling of trade effects.

**4.** See Davidson et al. (2008) for a recent example and Davidson and Matusz (2004) for a survey.

**5.** See Helpman et al. (2009) and Egger and Kreickemeier (2010) for recent examples, and Kreickemeier (2008) for a survey.

**6.** The authors use in alternative specifications unweighted tariffs, an overall trade restrictiveness index from Kee et al. (2006), an index of trade barriers from the World Economic Forum's *Global Competitiveness Reports*, a measure of total import duties, and finally a measure of trade openness (exports + imports/GDP).

**7.** The model also includes a number of other control variables and country fixed effects.

**8.** This is calculated as $\beta/(1-\alpha)$.



**9.** To be precise, in early versions of the survey (up to 1992) individuals were asked whether they had lost their job in the last five years; since 1994, this period has been shortened to three years.

**10.** Chapter 4, section 4.4, also discusses some studies that look at the short-run employment effects of trade and comes to a similar conclusion.

**11.** Also, exporting may help to raise wages, as exporting firms generally tend to pay higher wages than non-exporters (see, for example, Schank et al., 2007).

**12.** There appears to be some debate in the literature on whether the concept of international outsourcing and offshoring may or may not be different, depending on whether it occurs within the same firm or not. This distinction is of no concern here, as the interest is on employment in the home country. We therefore use the term "international outsourcing" and "offshoring" interchangeably. The early literature refers to the phenomenon as "fragmentation" or "vertical disintegration" (for example Jones and Kierzkowski, 1990; Feenstra, 1998) then as "international outsourcing" (Feenstra and Hanson, 1999).

**13.** At least this is the expectation from a simple trade model such as Feenstra and Hanson (1996). To be more precise, outsourcing may, however, also increase productivity in particular in the low-skill-intensive industry, which may actually increase demand for low-skilled workers. See Arndt (1997, 1999) and, more recently, Grossman and Rossi-Hansberg (2008).

**14.** This is predicted by theory; see, for example, Glass and Saggi (2001). Empirical studies such as Amiti and Wei (2006), Görg et al. (2008) and Görg and Hanley (2011) provide empirical evidence that outsourcing leads to productivity improvements and fosters innovative activities in firms.

**15.** Of course, it is usually easier to identify job losses associated with offshoring or globalization in general than jobs attributable to it.

**16.** We focus here on studies that try to examine the absolute employment effects of offshoring. A related literature has evaluated the impact of outsourcing on relative employment of skilled and unskilled workers. Feenstra and Hanson (1999) provide one of the first empirical assessments of this kind. In their study for the United States they approximate international outsourcing by the share of imported intermediates in an industry. According to their analysis, based on industry-level data covering the period 1979–90, international outsourcing can explain between 11 and 15 per cent of the observed decline in the relative demand for unskilled labour (measured as the cost share of production labour) in US manufacturing industries. Similar analyses yielding qualitatively similar results were undertaken by Hijzen et al. (2005) for the United Kingdom and Geishecker (2006) for Germany. See also Feenstra and Hanson (2003) for a survey of the international evidence.

**17.** In somewhat related work, Senses (2010) investigates whether offshoring impacts on labour demand elasticities, using plant-level data for the United States. She finds that offshoring leads to increases in labour demand elasticities.

**18.** While propensity score matching was first used in the field of economics by labour economists it has also become quite popular recently with international economists; see, for example, Girma and Görg (2007) and Arnold and Javorcik (2009). Blundell and Costa Dias (2008) provide an excellent overview of this and other evaluation methods in economics.

**19.** Crino (2010b) uses a similar approach with firm-level data for Italy, but considers only services offshoring. He also concludes that offshoring has no effect on employment. Interestingly, he does find that offshoring changes the employment composition in favour of high-skilled workers. This is an issue that Wagner (2011) does not consider due to data availability.

**20.** See, for example, Geishecker and Görg (2008) and Baumgarten et al. (2010) also using worker-level data.

**21.** They do not find robust evidence that imports or exports at the industry level impact on employment levels.

**22.** The estimated effect for wages is very similar to that of Geishecker and Görg (2008) found using German worker-level data.

**23.** This is illustrated by the papers by Geishecker (2008) and Bachmann and Braun (2011) with the former finding quite sizeable effects, while the latter identifies only small effects. It is not immediately clear what accounts for such within-country differences, although it seems likely that the different coverage of the datasets is one possible explanation. The papers also use different econometric methodologies, however, and the period of analysis is different.

**24.** Here, most importantly, consider Grossman and Rossi-Hansberg (2008) who show that relocation of the unskilled-intensive part of the production increases productivity, which may ultimately increase the demand for unskilled workers in the home country.

**25.** As Brakman et al. (2005) and Bickenbach et al. (2010) show, however, there is a wide variety of results in different papers. These differences in results can be mainly explained by differences in data, definitions of "regions", "industries" or "specialization", and methodological issues. See Bickenbach et al. (2010) for a consistent set of stylized facts on specialization and concentration in the European Union.

**26.** Of course, more generally there is a multitude of other labour market institutions that may affect economic performance (see Freeman, 2009).

**27.** An exception is the paper by Hasan et al. (2009) using data on Indian states, which show that unemployment is reduced most after trade liberalization in states with flexible labour markets.

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# 2 Globalization, structural change and productivity growth

*Margaret McMillan and Dani Rodrik**

## 2.1 Introduction

One of the earliest and most central insights of the literature on economic development is that development entails structural change. The countries that manage to pull themselves out of poverty and get richer are those that are able to diversify away from agriculture and other traditional products. As labour and other resources move from agriculture into modern economic activities, overall productivity rises and incomes expand. The speed with which this structural transformation takes place is the key factor that differentiates successful countries from unsuccessful ones.

Developing economies are characterized by large productivity gaps between different parts of the economy. Dual economy models à la W. Arthur Lewis have typically emphasized productivity differentials between broad sectors of the economy, such as the traditional (rural) and modern (urban) sectors. More recent research has identified significant differentials within modern, manufacturing activities as well. Large productivity gaps can exist even among firms and plants within the same industry. Whether between plants or across sectors, these gaps tend to be much larger in developing countries than in advanced economies. They are indicative of the allocative inefficiencies that reduce overall labour productivity.

The upside of these allocative inefficiencies is that potentially they can be an important engine of growth. When labour and other resources move from less productive to more productive activities, the economy grows even if there is no productivity growth within sectors. This kind of growth-enhancing structural change can be an important contributor to overall economic growth. High-growth countries are typically those that have experienced substantial growth-enhancing structural change. As we shall see, the bulk of the difference between Asia's recent growth, on the one hand, and Latin America's and sub-Saharan Africa's, on the other, can be

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explained by the variation in the contribution of structural change to overall labour productivity. Indeed, one of the most striking findings of this chapter is that in many Latin American and sub-Saharan African countries, broad patterns of structural change have served to reduce rather than increase economic growth since 1990.

Developing countries, almost without exception, have become more integrated with the world economy since the early 1990s. Industrial tariffs are lower than they ever have been and foreign direct investment flows have reached new heights. Clearly, globalization has facilitated technology transfer and contributed to efficiencies in production. Yet the very diverse outcomes we observe among developing countries suggest that the consequences of globalization depend on the manner in which countries integrate into the global economy. In several cases – most notably China, India and some other Asian countries – globalization's promise has been fulfilled. High-productivity employment opportunities have expanded and structural change has contributed to overall growth. But in many other cases – in Latin America and sub-Saharan Africa – globalization appears not to have fostered the desirable kind of structural change. Labour has moved in the wrong direction, from more-productive to less-productive activities, including, most notably, informality.

This conclusion would seem to be at variance with a large body of empirical work on the productivity-enhancing effects of trade liberalization. For example, study after study shows that intensified import competition has forced manufacturing industries in Latin America and elsewhere to become more efficient by rationalizing their operations.[1] Typically, the least productive firms have exited the industry, while remaining firms have shed "excess labour". It is evident that the top tier of firms has closed the gap with the technology frontier – in Latin America and sub-Saharan Africa, no less than in East Asia. However, the question left unanswered by these studies is what happens to the workers who are thereby displaced. In economies that do not exhibit large intersectoral productivity gaps or high and persistent unemployment, labour displacement would not have important implications for economy-wide productivity. In developing economies, on the other hand, the prospect that the displaced workers would end up in even lower-productivity activities (services, informality) cannot be ruled out. That is indeed what seems to have happened typically in Latin America and sub-Saharan Africa. An important advantage of the broad, economy-wide approach we take in this chapter is that it is able to capture changes in intersectoral allocative efficiency as well as improvements in within-industry productivity.

In our empirical work, we identify three factors that help determine whether (and the extent to which) structural change goes in the right direction and contributes to overall productivity growth. First, economies with a revealed comparative advantage in primary products are at a disadvantage. The larger the share of natural resources



in exports, the smaller the scope of productivity-enhancing structural change. The key here is that minerals and natural resources do not generate much employment, unlike manufacturing industries and related services. Even though these "enclave" sectors typically operate at very high productivity, they cannot absorb the surplus labour from agriculture.

Second, we find that countries that maintain competitive or undervalued currencies tend to experience more growth-enhancing structural change. This is in line with other work that documents the positive effects of undervaluation on modern, tradable industries (Rodrik, 2008). Undervaluation acts as a subsidy on those industries and facilitates their expansion.

Finally, we also find evidence that countries with more flexible labour markets experience greater growth-enhancing structural change. This also stands to reason, as rapid structural change is facilitated when labour can flow easily across firms and sectors. By contrast, we do not find that other institutional indicators, such as measures of corruption or the rule of law, play a significant role.

The remainder of the chapter is organized as follows. Section 2.2 describes our data and presents some stylized facts on economy-wide gaps in labour productivity. The core of our analysis is contained in section 2.3, where we discuss patterns of structural change in Asia, Latin America and sub-Saharan Africa since 1990. Section 2.4 focuses on explaining why structural change has been growth-enhancing in some countries and growth-reducing in others. Section 2.5 offers final comments. The Appendix provides further details about the construction of our database.

## 2.2 The data and some stylized facts

Our database consists of sectoral and aggregate labour productivity statistics for 38 countries, covering the period up to 2005. Of the countries included, 29 are developing countries and nine are high-income countries. The countries and their geographical distribution are shown in table 2.1, along with some summary statistics.

**Table note**: Unless otherwise noted, the source for all the data in the tables is the data set described in the main body of the chapter. Abbreviations are as follows: agr = agriculture; min = mining; man = manufacturing; pu = public utilities; con = construction; wrt = wholesale and retail trade; tsc = transport and communication; firebs = finance, insurance, real estate and business services; cspsgs = community, social, personal and government services.

**Table 2.1** Summary statistics

| | Countries and territories | Code | Economy-wide labour productivity* | Coef. of variation of log of sectoral productivity | Sector with highest labour productivity | | Sector with lowest labour productivity | | Compound annual growth rate of econ.-wide productivity (%) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Sector | Labour productivity* | Sector | Labour productivity* | (1990–2005) |
| **High income** | | | | | | | | | |
| 1 | United States | USA | 70,235 | 0.062 | pu | 391,875 | con | 39,081 | 0.02 |
| 2 | France | FRA | 56,563 | 0.047 | pu | 190,785 | cspsgs | 37,148 | 0.01 |
| 3 | Netherlands | NLD | 51,516 | 0.094 | min | 930,958 | cspsgs | 33,190 | 0.01 |
| 4 | Italy | ITA | 51,457 | 0.058 | pu | 212,286 | cspsgs | 36,359 | 0.01 |
| 5 | Sweden | SWE | 50,678 | 0.051 | pu | 171,437 | cspsgs | 24,873 | 0.03 |
| 6 | Japan | JPN | 48,954 | 0.064 | pu | 173,304 | agr | 13,758 | 0.01 |
| 7 | United Kingdom | UKM | 47,349 | 0.076 | min | 287,454 | wrt | 30,268 | 0.02 |
| 8 | Spain | ESP | 46,525 | 0.062 | pu | 288,160 | con | 33,872 | 0.01 |
| 9 | Denmark | DNK | 45,423 | 0.088 | min | 622,759 | cspsgs | 31,512 | 0.02 |
| **Asia** | | | | | | | | | |
| 10 | Hong Kong (China) | HKG | 66,020 | 0.087 | pu | 407,628 | agr | 14,861 | 0.03 |
| 11 | Singapore | SGP | 62,967 | 0.068 | pu | 192,755 | agr | 18,324 | 0.04 |
| 12 | Chinese Taipei | TWN | 46,129 | 0.094 | pu | 283,639 | agr | 12,440 | 0.04 |
| 13 | Korea, Rep. of | KOR | 33,552 | 0.106 | pu | 345,055 | firebs | 9,301 | 0.04 |
| 14 | Malaysia | MYS | 32,712 | 0.113 | min | 469,892 | con | 9,581 | 0.04 |
| 15 | Thailand | THA | 13,842 | 0.127 | pu | 161,943 | agr | 3,754 | 0.03 |
| 16 | Indonesia | IDN | 11,222 | 0.106 | min | 85,836 | agr | 4,307 | 0.03 |
| 17 | Philippines | PHL | 10,146 | 0.097 | pu | 90,225 | agr | 5,498 | 0.01 |
| 18 | China | CHN | 9,518 | 0.122 | firebs | 105,832 | agr | 2,594 | 0.09 |
| 19 | India | IND | 7,700 | 0.087 | pu | 47,572 | agr | 2,510 | 0.04 |
| **Middle East** | | | | | | | | | |
| 20 | Turkey | TUR | 25,957 | 0.080 | pu | 148,179 | agr | 11,629 | 0.03 |



**Table 2.1** Continued

| | Countries and territories | Code | Economy-wide labour productivity* | Coef. of variation of log of sectoral productivity | Sector with highest labour productivity | | Sector with lowest labour productivity | | Compound annual growth rate of econ.-wide productivity (%) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Sector | Labour productivity* | Sector | Labour productivity* | (1990–2005) |
| **Latin America** | | | | | | | | | |
| 21 | Argentina | ARG | 30,340 | 0.083 | min | 239,645 | firebs | 18,290 | 0.02 |
| 22 | Chile | CHL | 29,435 | 0.084 | min | 194,745 | wrt | 17,357 | 0.03 |
| 23 | Mexico | MEX | 23,594 | 0.078 | pu | 88,706 | agr | 9,002 | 0.01 |
| 24 | Venezuela | VEN | 20,799 | 0.126 | min | 297,975 | pu | 7,392 | −0.35 |
| 25 | Costa Rica | CRI | 20,765 | 0.056 | tsc | 55,744 | min | 10,575 | 0.01 |
| 26 | Colombia | COL | 14,488 | 0.108 | pu | 271,582 | wrt | 7,000 | 0.00 |
| 27 | Peru | PER | 13,568 | 0.101 | pu | 117,391 | agr | 4,052 | 0.03 |
| 28 | Brazil | BRA | 12,473 | 0.111 | pu | 111,923 | wrt | 4,098 | 0.00 |
| 29 | Bolivia | BOL | 6,670 | 0.137 | min | 121,265 | con | 2,165 | 0.01 |
| **Africa** | | | | | | | | | |
| 30 | South Africa | ZAF | 35,760 | 0.074 | pu | 91,210 | con | 10,558 | 0.01 |
| 31 | Mauritius | MUS | 35,381 | 0.058 | pu | 137,203 | agr | 24,795 | 0.03 |
| 32 | Nigeria | NGA | 4,926 | 0.224 | min | 866,646 | cspsgs | 264 | 0.02 |
| 33 | Senegal | SEN | 4,402 | 0.178 | firebs | 297,533 | agr | 1,272 | 0.00 |
| 34 | Kenya | KEN | 3,707 | 0.158 | pu | 73,937 | wrt | 1,601 | −1.22 |
| 35 | Ghana | GHA | 3,280 | 0.132 | pu | 47,302 | wrt | 1,507 | 0.01 |
| 36 | Zambia | ZMB | 2,643 | 0.142 | firebs | 47,727 | agr | 575 | −0.32 |
| 37 | Ethiopia | ETH | 2,287 | 0.154 | firebs | 76,016 | agr | 1,329 | 0.02 |
| 38 | Malawi | MWI | 1,354 | 0.176 | min | 70,846 | agr | 521 | −0.47 |

*Note*: * 2000 PPP US$. All numbers are for 2005 unless otherwise stated.

In constructing our data, we took as our starting point the Groningen Growth and Development Centre (GGDC) database, which provides employment and real valued added statistics for 27 countries disaggregated into ten sectors (Timmer and de Vries, 2007, 2009).[2] The GGDC dataset does not include any sub-Saharan African countries or China. Therefore, we collected our own data from national sources for an additional 11 countries, expanding the sample to cover several sub-Saharan African countries, China and Turkey (another country missing from the GGDC sample). In order to maintain consistency with the GGDC database data, we followed, as closely as possible, the procedures on data compilation followed by the GGDC authors.[3] For purposes of comparability, we combined two of the original sectors (Government services and community, Social and personal services) into a single one, reducing the total number of sectors to nine. We converted local currency value added at 2000 prices to dollars using 2000 purchasing power parity (PPP) exchange rates. Labour productivity was computed by dividing each sector's value added by the corresponding level of sectoral employment. We provide more details on our data construction procedures in the appendix. The sectoral breakdown we shall use in the rest of the paper chapter is shown in table 2.2.

**Table 2.2** Sector coverage

| Sector | Abbre-viation | Average sectoral labour productivity* | Maximum sectoral labour productivity | | Minimum sectoral labour productivity | |
|---|---|---|---|---|---|---|
| | | | Country | Labour productivity* | Country | Labour productivity* |
| Agriculture, hunting, forestry and fishing | agr | 17,530 | USA | 65,306 | MWI | 521 |
| Mining and quarrying | min | 154,648 | NLD | 930,958 | ETH | 3,652 |
| Manufacturing | man | 38,503 | USA | 114,566 | ETH | 2,401 |
| Public utilities (electricity, gas and water) | pu | 146,218 | HKG | 407,628 | MWI | 6,345 |
| Construction | con | 24,462 | VEN | 154,672 | MWI | 2,124 |
| Wholesale and retail trade, hotels and restaurants | wrt | 22,635 | HKG | 60,868 | GHA | 1,507 |
| Transport, storage and communications | tsc | 46,421 | USA | 101,302 | GHA | 6,671 |
| Finance, insurance, real estate and business services | firebs | 62,184 | SEN | 297,533 | KOR | 9,301 |
| Community, social, personal and government services | cspsgs | 20,534 | TWN | 53,355 | NGA | 264 |
| Economy-wide | sum | 27,746 | USA | 70,235 | MWI | 1,354 |

*Note*: * 2000 PPP US$. All numbers are for 2005 unless otherwise stated.



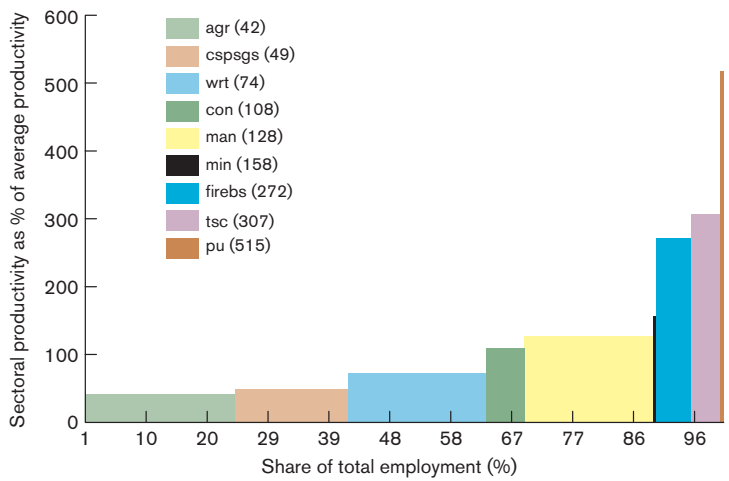
A big question with data of this sort is how well they account for the informal sector. Our data for value added come from national accounts and, as mentioned by Timmer and de Vries (2007), the coverage of such data varies from country to country. While all countries make an effort to track the informal sector, obviously the quality of the data can vary greatly. On employment, Timmer and de Vries' strategy is to rely on household surveys (namely, population censuses) for total employment levels and their sectoral distribution, and use labour force surveys for the growth in employment between census years. Census data and other household surveys tend to have more complete coverage of informal employment. In short, a rough characterization would be that the employment numbers in our dataset broadly coincide with actual employment levels regardless of formality status, while the extent to which value added data include or exclude the informal sector heavily depends on the quality of national sources.

The countries in our sample range from Malawi, with an average labour productivity of US$ 1,354 (at 2000 PPP dollars), to the United States, where labour productivity is more than 50 times as large (US$ 70,235). They include nine sub-Saharan African countries, nine Latin American countries, ten developing Asian countries, one Middle Eastern country and nine high-income countries. China is the country with the fastest overall productivity growth rate (8.9 per cent per annum between 1990 and 2005). At the other extreme, Kenya, Malawi, Venezuela and Zambia have experienced negative productivity growth rates over the same period.

As table 2.1 shows, labour productivity gaps between different sectors are typically very large in developing countries. This is particularly true for poor countries with mining enclaves, where few people tend to be employed at very high labour productivity. In Malawi, for example, labour productivity in mining is 136 times larger than that in agriculture! In fact, if only all of Malawi's workers could be employed in mining, Malawi's labour productivity would match that of the United States. Of course, mining cannot absorb many workers, and neither would it make sense to invest in so much physical capital across the entire economy.

It may be more meaningful to compare productivity levels across sectors with similar potential to absorb labour, and here too the gaps can be quite large. We see a typical pattern in Turkey, which is a middle-income country with still a large agricultural sector (figure 2.1). Productivity in construction is more than twice the productivity in agriculture, and productivity in manufactures is almost three times as large. The average manufactures–agriculture productivity ratio is 2.3 in sub-Saharan Africa, 2.8 in Latin America and 3.9 in Asia. Note that the productivity disadvantage of agriculture does not seem to be largest in the poorest countries, a point to which we will return below.

**Figure 2.1** Labour productivity gaps in Turkey, 2008

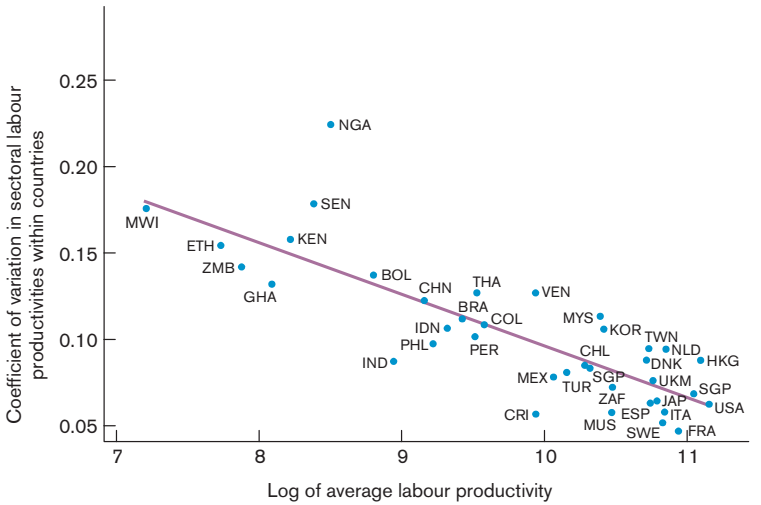



**Note**: Unless otherwise noted, the source for all the data in the figures is the data set described in the main body of the chapter. Abbreviations are as follows: agr = agriculture; min = mining; man = manufacturing; pu = public utilities; con = construction; wrt = wholesale and retail trade; tsc = transport and communication; firebs = finance, insurance, real estate and business services; cspsgs = community, social, personal and government services.

On the whole, however, intersectoral productivity gaps are clearly a feature of underdevelopment. They are widest for the poorest countries in our sample and tend to diminish as a result of sustained economic growth. Figure 2.2 shows how a measure of economy-wide productivity gaps, the coefficient of variation of the log of sectoral labour productivities, declines over the course of development. The relationship between this measure and the average labour productivity in the country is negative and highly statistically significant. The figure underscores the important role that structural change plays in producing convergence, both within economies and across poor and rich countries. The movement of labour from low-productivity to high-productivity activities raises economy-wide labour productivity. Under diminishing marginal products, it also brings about convergence in economy-wide labour productivities.



**Figure 2.2** Relationship between intersectoral productivity gaps and income levels, 2005



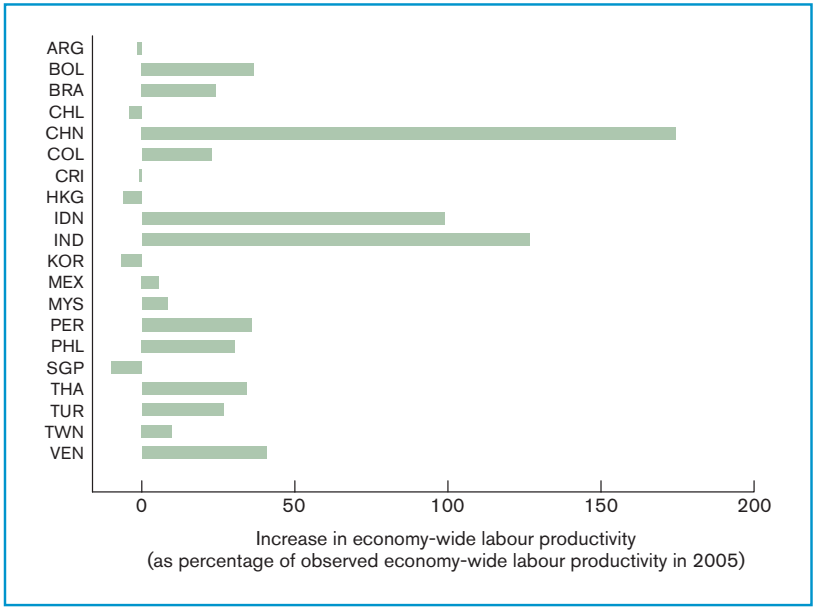

The productivity gaps described here refer to differences in average labour productivity. When markets work well and structural constraints do not bind, it is productivities at the margin that should be equalized. Under a Cobb–Douglas production function specification, the marginal productivity of labour is the average productivity multiplied by the labour share. If labour shares differ greatly across economic activities, comparing average labour productivities can be misleading. The fact that average productivity in public utilities is so high (see table 2.2), for example, may simply indicate that the labour share of value added in this capital-intensive sector is quite small, but in the case of other sectors it is not clear that there is a significant bias. Once the share of land is taken into account, for example, it is not obvious that the labour share in agriculture is significantly lower than in manufacturing (Mundlak et al., 2008). Thus the two- to fourfold differences in average labour productivities between manufacturing and agriculture do point to large gaps in marginal productivity.

Another way to emphasize the contribution of structural change is to document how much of the income gap between rich and poor countries is accounted for by differences in economic structure as opposed to differences in productivity levels within sectors. Since even poor economies have some industries that operate at a

high level of productivity, it is evident that these economies would get a huge boost if such industries could employ a much larger share of the economy's labour force. The same logic applies to broad patterns of structural change as well, as captured by our nine-sector classification.

Consider the following thought experiment. Suppose that sectoral productivity levels in the poor countries were to remain unchanged, but that the intersectoral distribution of employment matched what we observe in the advanced economies.[4] This would mean that developing countries would employ significantly fewer workers in agriculture and many more in their modern, productive sectors. We assume that these changes in employment patterns could be achieved without any change (up or down) in productivity levels within individual sectors. What would be the consequences for economy-wide labour productivity? Figures 2.3 and 2.4 show the results for the non-sub-Saharan African and sub-Saharan African samples, respectively.

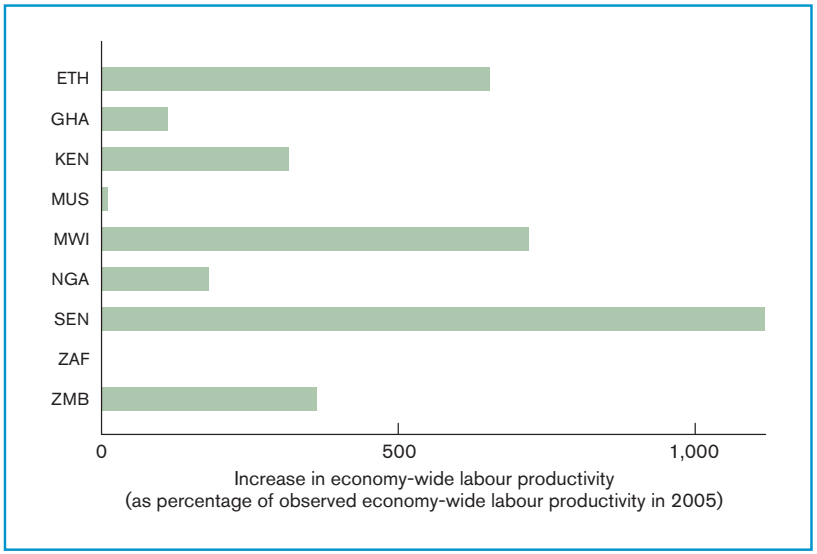
**Figure 2.3** Counterfactual impact of changed economic structure on economy-wide labour productivity, non-sub-Saharan African countries, 2005




*Note*: These figures are the percentage increase in economy-wide average labour productivity obtained under the assumption that the intersectoral composition of the labour force matches the pattern observed in the rich countries. Country codes conform to ISO Alpha-3 codes (www.iso.org).



**Figure 2.4** Counterfactual impact of changed economic structure on economy-wide labour productivity, sub-Saharan African countries, 2005




*Note*: These figures are the percentage increase in economy-wide average labour productivity obtained under the assumption that the intersectoral composition of the labour force matches the pattern observed in the rich countries. Country codes conform to ISO Alpha-3 codes (www.iso.org).

The hypothetical gains in overall productivity from sectoral reallocation, along the lines just described, are quite large, especially for the poorer countries in the sample. India's average productivity would more than double, while China's would almost triple (figure 2.3). The potential gains are particularly large for several sub-Saharan African countries, which is why those countries are shown on a separate graph using a different scale. Ethiopia's productivity would increase sixfold, Malawi's sevenfold and Senegal's elevenfold! Of course these numbers are only indicative of the extent of dualism that marks poor economies and should not be taken literally. Taking developing countries as a whole, as much as a fifth of the productivity gap that separates them from the advanced countries would be eliminated by the kind of reallocation considered here.

Traditional dual-economy models emphasize the productivity gaps between the agricultural (rural) and non-agricultural (urban) parts of the economy. Indeed, the summary statistics in table 2.1 show that agriculture is typically the lowest-productivity activity in the poorest economies. Yet another interesting stylized fact of the development process revealed by our data is that the productivity gap between

the agricultural and non-agricultural sectors behaves non-monotonically during economic growth. The gap first increases and then falls, so that the ratio of agricultural to non-agricultural productivity exhibits a U-shaped pattern as the economy develops. This is shown in figure 2.5, where the productivity ratio between agriculture and non-agriculture (that is, the rest of the economy) is graphed against the (log) of average labour productivity for our full panel of observations. A quadratic curve fits the data very well, and both terms of the equation are statistically highly significant. The fitted quadratic indicates that the turning point comes at an economy-wide productivity level of around US$ 9,000 (= exp(9.1)) per worker. This corresponds to a development level somewhere between that of China and India in 2005.

We can observe this U-shaped relationship also over time within countries, as is shown in figure 2.6 which collates the time-series observations for three countries at different stages of development (France, India and Peru). India, which is the poorest of the three countries, is on the downward sloping part of the curve. As its economy has grown, the gap between agricultural and non-agricultural productivity has increased (and the ratio of agricultural to non-agricultural productivity has fallen). France, a wealthy country, has seen the opposite pattern. As income has grown, there has been greater convergence in the productivity levels of the two types of sectors. Finally, Peru represents an intermediate case, having spent most of its recent history around the minimum point at the bottom of the U-curve.

**Figure 2.5** Relationship between economy-wide labour productivity and the ratio of agricultural productivity to non-agricultural productivity, full panel

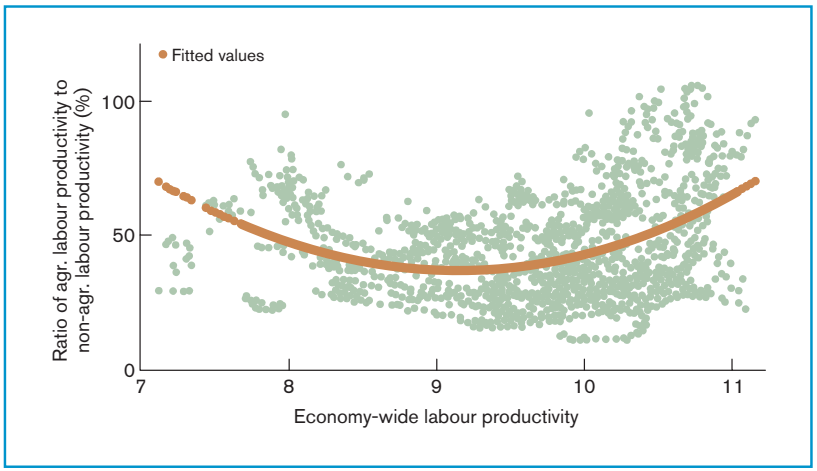
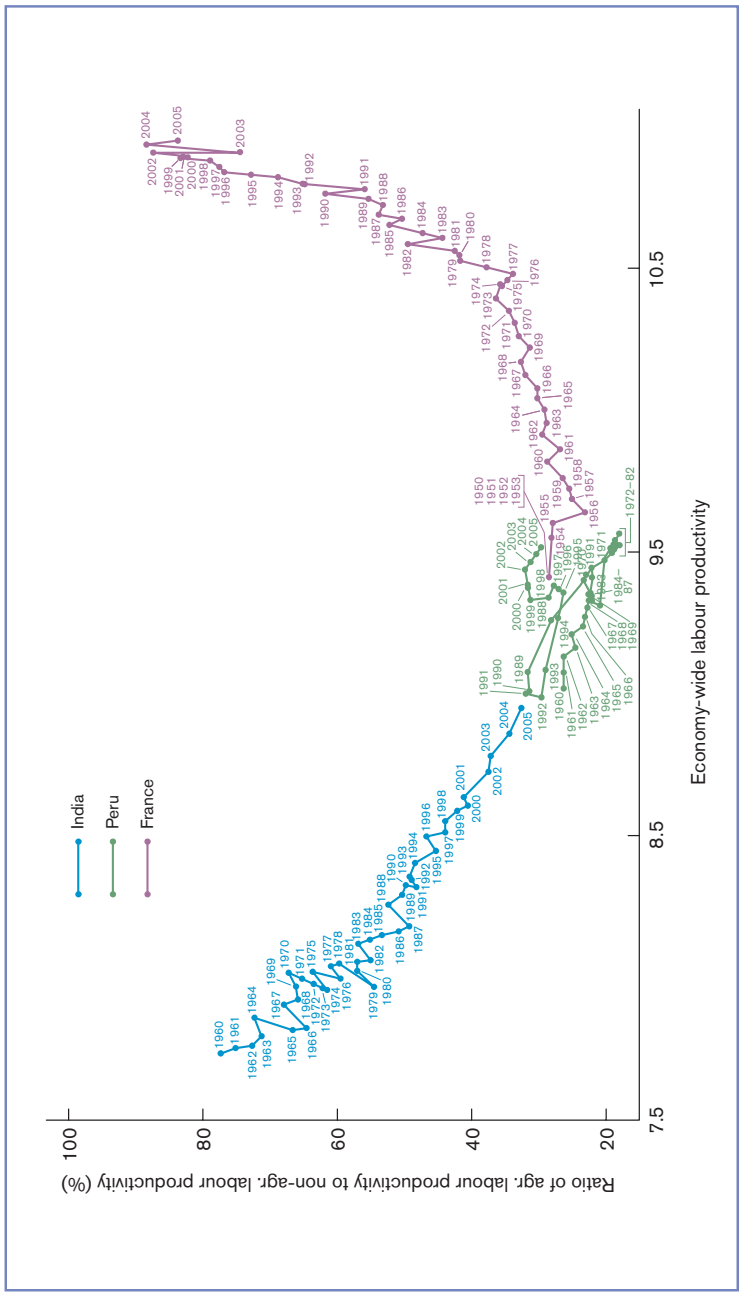





**Figure 2.6** Relationship between economy-wide labour productivity and the ratio of agricultural productivity to non-agricultural productivity, selected countries



A basic economic logic lies behind the U-curve. A very poor country has few modern industries in the non-agricultural parts of the economy, so even though agricultural productivity is very low, there is not yet a large gap with the rest of the economy. Economic growth typically happens with investments in the modern, urban parts of the economy. As these sectors expand, a wider gap begins to open between the traditional and modern sectors. The economy becomes more "dual".[5] At the same time, labour begins to move from traditional agriculture to the modern parts of the economy, and this acts as a countervailing force. Past a certain point, this second force becomes the dominant one, and productivity levels begin to converge within the economy. This story highlights the two key dynamics in the process of structural transformation: the rise of new industries (that is, economic diversification) and the movement of resources from traditional industries to these newer ones. Without the first, there is little that propels the economy forward. Without the second, productivity gains do not diffuse in the rest of the economy.

We end this section by relating our stylized facts to some other recent strands of the development literature that have focused on productivity gaps and misallocation of resources. There is a growing literature on productive heterogeneity within industries. Most industries in the developing world are a collection of smaller, typically informal firms that operate at low levels of productivity along with larger, highly productive firms that are better organized and use more advanced technologies. Various studies by the McKinsey Global Institute (MGI) have documented in detail the duality within industries. For example, MGI's analysis of a number of Turkish industries finds that on average the modern segment of firms is almost three times as productive as the traditional segment (McKinsey Global Institute, 2003). Bartelsman et al. (2006) and Hsieh and Klenow (2009) have focused on the dispersion in total factor productivity across plants; the former for a range of advanced and semi-industrial economies and the latter for China and India. Hsieh and Klenow's (2009) findings indicate that between one-third and one-half of the gap in these countries' manufacturing total factor productivity (TFP) vis-à-vis the United States would be closed if the "excess" dispersion in plant productivity were removed. There is also a substantial empirical literature, mentioned in the introduction, which underscores the allocative benefits of trade liberalization within manufacturing: as manufacturing firms are exposed to import competition, the least productive among them lose market share or shut down, raising the average productivity of those that remain.

There is an obvious parallel between these studies and ours. Our data are too broad-brush to capture the finer details of misallocation within individual sectors and across plants and firms. However, a compensating factor is that we may be able to track the economy-wide effects of reallocation – something that analyses that remain limited to manufacturing cannot do. Improvements in manufacturing productivity that come at the expense of greater intersectoral misallocation – say because employment



shifts from manufacturing to informality – need not be a good bargain. In addition, we are able to make comparisons among a larger sample of developing countries, so this chapter should be viewed as a complement to the plant- or firm-level studies.

## 2.3 Patterns of structural change and productivity growth

We now describe the pace and nature of structural change in developing economies over the period 1990–2005. We focus on this period for two reasons. First, this is the most recent period, and one where globalization has exerted a significant impact on all developing nations. It will be interesting to see how different countries have handled the stresses and opportunities of advanced globalization. Second, this is the period for which we have the largest sample of developing countries.

We will demonstrate that there are large differences in patterns of structural change across countries and regions and that these account for the bulk of the differential performance between successful and unsuccessful countries. In particular, while Asian countries have tended to experience productivity-enhancing structural change, both Latin America and sub-Saharan Africa have experienced productivity-reducing structural change. In the next subsection we will turn to an analysis of the determinants of structural change. In particular, we are interested in understanding why some countries have the right kind of structural change while others have the wrong kind.

### *Defining the contribution of structural change*

Labour productivity growth in an economy can be achieved in one of two ways. First, productivity can grow within economic sectors through capital accumulation, technological change, or reduction of misallocation across plants. Second, labour can move across sectors, from low-productivity sectors to high-productivity sectors, increasing overall labour productivity in the economy. This can be expressed using the following decomposition:

$$\Delta Y_t = \sum_{i=n} \theta_{i,t-k} \Delta y_{i,t} + \sum_{i=n} y_{i,t} \Delta \theta_{i,t} \qquad (2.1)$$

where $Y_t$ and $y_{i,t}$ refer to economy-wide and sectoral labour productivity levels, respectively, and $\theta_{i,t}$ is the share of employment in sector $i$. The $\Delta$ operator denotes the change in productivity or employment shares between $t-k$ and $t$. The first term in the decomposition is the weighted sum of productivity growth within individual sectors, where the weights are the employment share of each sector at the beginning of the time period. We will call this the "within" component of productivity growth. The

second term captures the productivity effect of labour reallocations across different sectors. It is essentially the inner product of productivity levels (at the end of the time period) with the change in employment shares across sectors. We will call this second term the "structural change" term. When changes in employment shares are positively correlated with productivity levels this term will be positive, and structural change will increase economy-wide productivity growth.

The decomposition above clarifies how partial analyses of productivity performance within individual sectors (for example, manufacturing) can be misleading when there are large differences in labour productivities ($y_{i,t}$) across economic activities. In particular, a high rate of productivity growth within an industry can have quite ambiguous implications for overall economic performance if the industry's share of employment shrinks rather than expands. If the displaced labour ends up in activities with lower productivity, economy-wide growth will suffer and may even turn negative.

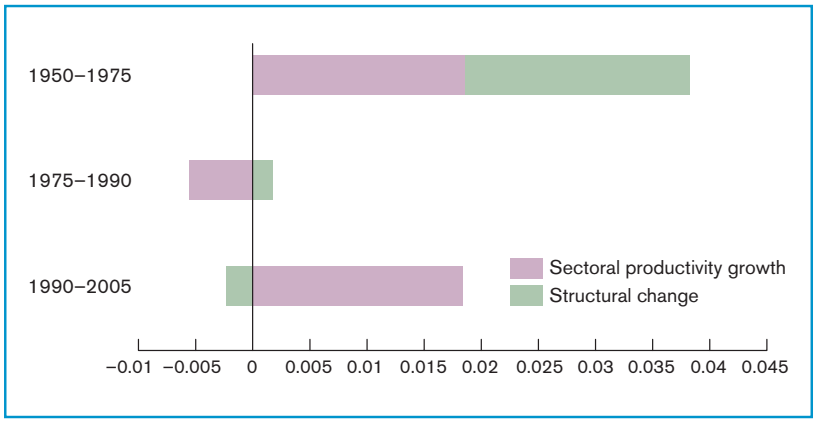
### *Structural change in Latin America: 1950–2005*

Before we present our own results, we illustrate this possibility with a recent finding on Latin America. When the Inter-American Development Bank (IDB) recently analysed the pattern of productivity change in the region since 1950, using the same Timmer and de Vries (2007, 2009) data set and a very similar decomposition, it uncovered a striking result, shown in figure 2.7. Between 1950 and 1975, Latin America experienced rapid (labour) productivity growth of almost 4 per cent per annum, roughly half of which was accounted for by structural change. Then the region went into a debt crisis and experienced a "lost decade", with productivity growth in the negative territory between 1975 and 1990. Latin America returned to growth after 1990, but productivity growth never regained the levels seen before 1975. This is due entirely to the fact that the contribution of structural change has now turned negative. The "within" component of productivity growth is virtually identical in the two periods 1950–75 and 1990–2005 (at 1.8 per cent per annum). But the structural change component went from 2 per cent during 1950–75 to –0.2 per cent in 1990–2005; an astounding reversal in the course of a few decades.

This is all the more surprising in light of the commonly accepted view that Latin America's policies and institutions improved significantly as a result of the reforms of the late 1980s and early 1990s. Argentina, Brazil, Chile, Colombia, Mexico and most of the other economies got rid of high inflation, brought fiscal deficits under control, turned over monetary policy to independent central banks, eliminated financial repression, opened up their economies to international trade and capital flows, privatized state enterprises, reduced red tape and most subsidies, and gave markets freer rein in general. Those countries which had become dictatorships during the 1970s experienced democratic transitions, while others significantly improved



**Figure 2.7** Productivity decomposition in Latin America, annual growth rates, 1950–2005




*Source*: Pagés (2010).

governance as well. Compared to the macroeconomic populism and protectionist, import-substitution policies that had prevailed until the end of the 1970s, this new economic environment was expected to yield significantly enhanced productivity performance.

The sheer scale of the contribution of structural change to this reversal of fortune has been masked by microeconomic studies that record significant productivity gains for individual plants or industries and, further, find these gains to be strongly related to post-1990 policy reforms. In particular, study after study has shown that the intensified competition brought about by trade liberalization has forced manufacturing industries to become more productive (see for example Pavcnik, 2000; Cavalcanti Ferreira and Rossi, 2003; Paus et al., 2003; Fernandes, 2007; and Esclava et al., 2009). A key mechanism that these studies document is what is called "industry rationalization": the least productive firms exit the industry, and the remaining firms shed "excess labour".

The question left unanswered is what happens to the workers who are thereby displaced. In economies which do not exhibit large intersectoral productivity gaps, labour displacement would not have important implications for economy-wide productivity. Clearly, this is not the case in Latin America. The evidence in figure 2.7 suggests instead that displaced workers may have ended up in less-productive activities. In other words, rationalization of manufacturing industries may have come at the expense of inducing growth-reducing structural change.

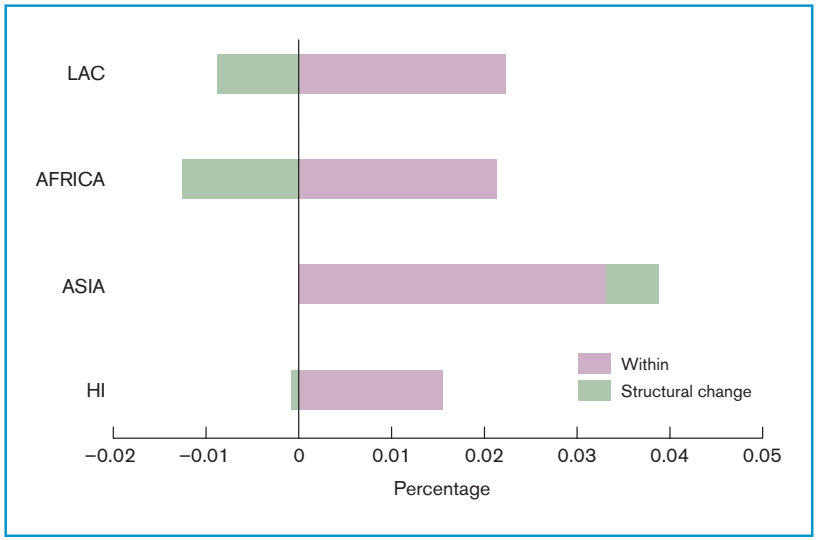
An additional point that needs making is that these calculations (as well as the ones we report below) do not account for unemployment. For a worker, unemployment is the least productive status of all. In most Latin American countries unemployment has trended upwards since the early 1990s, rising by several percentage points of the labour force in Argentina, Brazil and Colombia. Were we to include the displacement of workers into unemployment, the magnitude of the productivity-reducing structural change experienced by the region would look even more striking.[6]

Figure 2.7 provides interesting new insight on what has held Latin American productivity growth back in recent years, despite apparent technological progress in many of the advanced sectors of the region's economies. However, it also raises a number of questions. In particular, was this experience a general one across all developing countries, and what explains it? If there are significant differences across countries in this respect, what are the drivers of these differences?

### *Patterns of structural change by region*

We present our central findings on patterns of structural change in figure 2.8. Simple averages are presented for the 1990–2005 period for four groups of countries: Asia, Latin America (LAC), sub-Saharan Africa and high-income countries (HI).[7]

**Figure 2.8 Decomposition of productivity growth by country group, 1990–2005**






We note first that structural change has made very little contribution (positive or negative) to the overall growth in labour productivity in the high-income countries in our sample. This is as expected, since we have already noted the disappearance of intersectoral productivity gaps during the course of development. Even though many of these advanced economies have experienced significant structural change during this period, with labour moving predominantly from manufacturing to service industries, this (on its own) has made little difference to productivity overall. What determines economy-wide performance in these economies is, by and large, how productivity fares in each individual sector.

The developing countries exhibit a very different picture. Structural change has played an important role in all three regions. But most striking of all is the differences among the regions. In both Latin America and sub-Saharan Africa, structural change has made a sizable negative contribution to overall growth, while Asia is the only region where the contribution of structural change is positive. (The results for Latin America do not match exactly those in figure 2.7 because we have applied a somewhat different methodology when computing the decomposition from that used by Pagés (2010).[8]) We note again that these computations do not take into account unemployment. Latin America (certainly) and sub-Saharan Africa (possibly) would look considerably worse if we accounted for the rise of unemployment in these regions.

Hence, the curious pattern of growth-reducing structural change that we observed above for Latin America is repeated in the case of sub-Saharan Africa. This only deepens the puzzle as sub-Saharan Africa is substantially poorer than Latin America. If there is one region where we would have expected the flow of labour from traditional to modern parts of the economy to be an important driver of growth, à la dual-economy models, that region surely is sub-Saharan Africa. The disappointment is all the greater in light of all of the reforms that sub-Saharan African countries have undergone since the late 1980s. Yet labour seems to have moved from high- to low-productivity activities on average, reducing sub-Saharan Africa's growth by 1.3 percentage points per annum on average (table 2.3). Since Asia has experienced growth-enhancing structural change during the same period, it is difficult to ascribe Latin America's and sub-Saharan Africa's performance solely to globalization or other external determinants. Clearly, country-specific forces have been at work as well.

Differential patterns of structural change in fact account for the bulk of the difference in regional growth rates. This can be seen by checking the respective contributions of the "within" and "structural change" components to the differences in productivity growth in the three regions. Asia's labour productivity growth in 1990–2005 exceeded sub-Saharan Africa's by 3 percentage points per annum and Latin

**Table 2.3** Decomposition of productivity growth for four groups of countries, unweighted averages, 1990–2005

| | Labour productivity growth | Component due to: "within" | "structural" |
|---|---|---|---|
| Latin American countries | 0.01 | 0.02 | –0.88 |
| Africa | 0.01 | 0.02 | –1.27 |
| Asia | 0.04 | 0.03 | 0.01 |
| High-income countries | 0.01 | 0.02 | –0.09 |

America's by 2.5 percentage points. Of this difference, the structural change term accounts for 1.84 points (61 per cent) in sub-Saharan Africa and 1.45 points (58 per cent) in Latin America. We saw above that the decline in the contribution of structural change was a key factor behind the deterioration of Latin American productivity growth since the 1960s. We now see that the same factor accounts for the lion's share of Latin America's (as well as sub-Saharan Africa's) underperformance relative to Asia.

In other words, where Asia has outshone the other two regions is not so much in productivity growth within individual sectors, where performance has been broadly similar, but in ensuring that the broad pattern of structural change contributes to, rather than detracts from, overall economic growth. As table 2.4 shows, some mineral-exporting sub-Saharan African countries such as Zambia and Nigeria have in fact experienced very high productivity growth at the level of individual sectors, as have many Latin American countries. However, when individual countries are ranked by the magnitude of the structural change term, it is Asian countries that dominate the top of the list.

The regional averages we have discussed so far are unweighted averages across countries that do not take into account differences in country size. When we compute a regional average that sums up value added and employment in the same sector across countries, giving more weight to larger countries, we obtain the results shown in figure 2.9. The main difference now is that we get a much larger "within" component for Asia, an artefact of the predominance of China in the weighted sample. Also, the negative structural change component turns very slightly positive in Latin America, indicating that labour flows in the larger Latin American countries have not gone as much in the wrong direction as they have in the smaller ones. Sub-Saharan Africa still has a large and negative structural change term. Asia once more greatly outdoes the other two developing regions in terms of the contribution of structural change to overall growth.

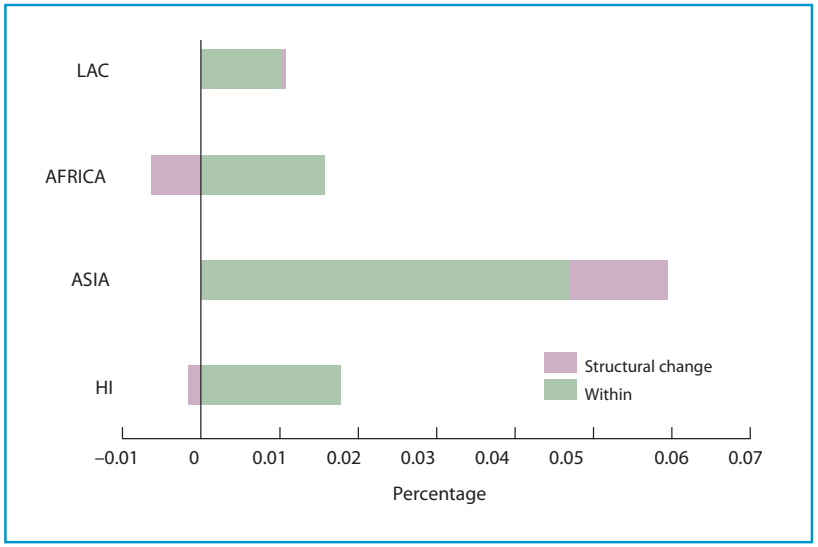


Table 2.4 Country rankings

| Ranked by the contribution of "within" | | | | Ranked by the contribution of "str. change" | | | |
|---|---|---|---|---|---|---|---|
| Rank | Country | Region | "Within" (%) | Rank | Country | Region | "Structural change" (%) |
| 1 | CHN | Asia | 0.08 | 1 | THA | Asia | 0.02 |
| 2 | ZMB | Africa | 0.08 | 2 | ETH | Africa | 0.01 |
| 3 | KOR | Asia | 0.05 | 3 | TUR | Turkey | 0.01 |
| 4 | NGA | Africa | 0.04 | 4 | HKG | Asia | 0.01 |
| 5 | PER | Latin America | 0.04 | 5 | IDN | Asia | 0.01 |
| 6 | CHL | Latin America | 0.04 | 6 | CHN | Asia | 0.01 |
| 7 | SGP | Asia | 0.04 | 7 | IND | Asia | 0.01 |
| 8 | SEN | Africa | 0.04 | 8 | GHA | Africa | 0.01 |
| 9 | MYS | Asia | 0.04 | 9 | TWN | Asia | 0.01 |
| 10 | TWN | Asia | 0.03 | 10 | MYS | Asia | 0.00 |
| 11 | BOL | Latin America | 0.03 | 11 | MUS | Africa | 0.00 |
| 12 | IND | Asia | 0.03 | 12 | CRI | Latin America | 0.00 |
| 13 | VEN | Latin America | 0.03 | 13 | MEX | Latin America | 0.00 |
| 14 | MUS | Africa | 0.03 | 14 | KEN | Africa | 0.00 |
| 15 | ARG | Latin America | 0.03 | 15 | ITA | High-income | 0.00 |
| 16 | SWE | High-income | 0.03 | 16 | PHL | Asia | 0.00 |
| 17 | UKM | High-income | 0.02 | 17 | ESP | High-income | 0.00 |
| 18 | USA | High-income | 0.02 | 18 | DNK | High-income | 0.00 |
| 19 | HKG | Asia | 0.02 | 19 | FRA | High-income | 0.00 |
| 20 | TUR | Turkey | 0.02 | 20 | JPN | High-income | –0.01 |

Note: Country codes conform to ISO Alpha-3 codes (www.iso.org).

Figure 2.9 Decomposition of productivity growth by country group, 1990 –2005 (weighted averages)

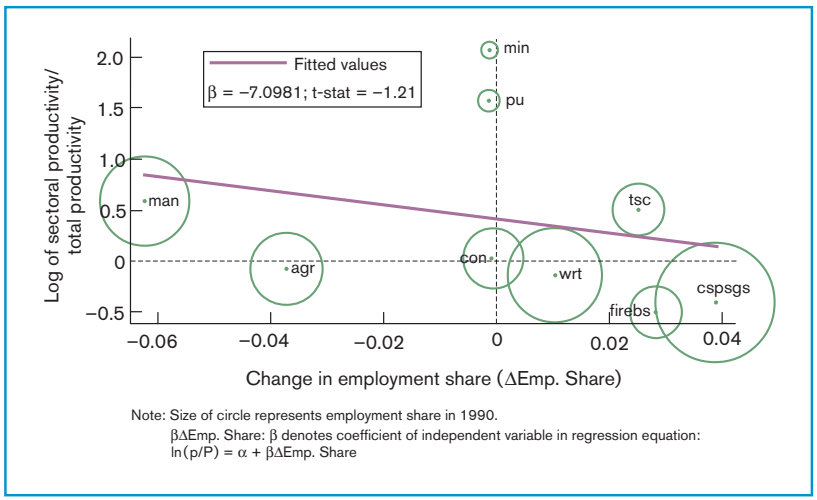


### *More details on individual countries and sectors*

The presence of growth-reducing structural change on such a scale is a surprising phenomenon that calls for further scrutiny. We can gain further insight into our results by looking at the sectoral details for specific countries. We note that growth-reducing structural change indicates that the direction of labour flows is negatively correlated with (end-of-period) labour productivity in individual sectors. So for selected countries we plot the (end-of-period) relative productivity of sectors ($y_{i,t}/Y_t$) against the change in their employment share ($\Delta\theta_{i,t}$) between 1990 and 2005. The relative size of each sector (measured by employment) is indicated by the circles around each sector's label in the scatter plots. The next six figures (figures 2.10–2.15) show sectoral detail for two countries each from Asia, Latin America and sub-Saharan Africa.

Argentina shows a particularly clear-cut case of growth-reducing structural change (figure 2.10). The sector with the largest relative loss in employment is manufacturing, which also happens to be the largest sector among those with above-average productivity. Most of this reduction in manufacturing employment took place during the 1990s, under the Argentine experiment with hyper-openness.

**Figure 2.10** Correlation between sectoral productivity and change in employment share in Argentina, 1990–2005




Note: Size of circle represents employment share in 1990.
βΔEmp. Share: β denotes coefficient of independent variable in regression equation:
$\ln(p/P) = \alpha + \beta\Delta\text{Emp. Share}$

*Note*: Abbreviations are as follows: agr = agriculture; min = mining; man = manufacturing; pu = public utilities; con = construction; wrt = wholesale and retail trade; tsc = transport and communication; firebs = finance, insurance, real estate and business services; cspsgs = community, social, personal and government services.

*Source*: Authors' calculations with data from Timmer and de Vries (2009).

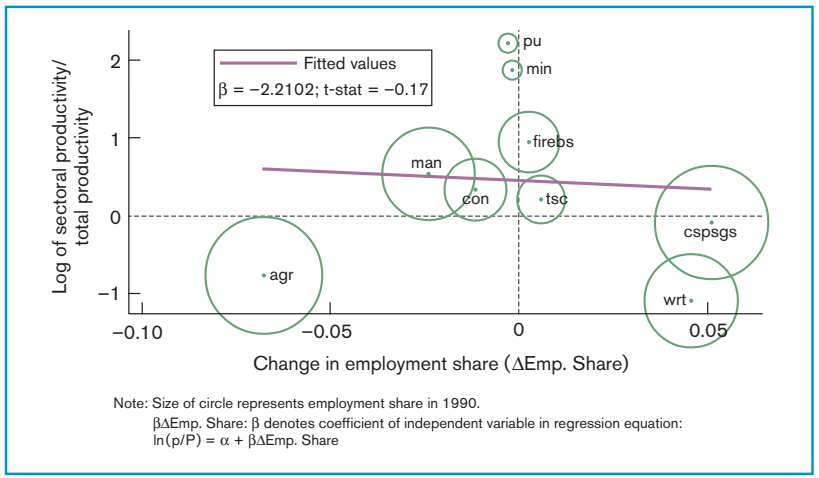


Even though the decline in manufacturing was halted and partially reversed during the recovery from the financial crisis of 2001–02, this was not enough to change the overall picture for the period 1990–2005. By contrast, the sector experiencing the largest employment gain is community, social, personal and government services, which has a high level of informality and is among the least productive. Hence the sharply negative slope of the Argentine scatter plot.

Brazil shows a somewhat more mixed picture (figure 2.11). The collapse in manufacturing employment was not as drastic as in Argentina (relatively speaking), and it was somewhat counterbalanced by the even larger contraction in agriculture, a significantly below-average productivity sector. On the other hand, the most rapidly expanding sectors were again relatively unproductive non-tradable sectors such as community, social, personal and government services, and wholesale and retail trade. On balance, the Brazilian slope is slightly negative, indicating a small growth-reducing role for structural change.

The sub-Saharan African cases of Nigeria and Zambia show negative structural change for somewhat different reasons (figures 2.12 and 2.13). In both countries, the employment share of agriculture has increased significantly (along with community and government services in Nigeria). By contrast, manufacturing and

**Figure 2.11** Correlation between sectoral productivity and change in employment share in Brazil, 1990–2005

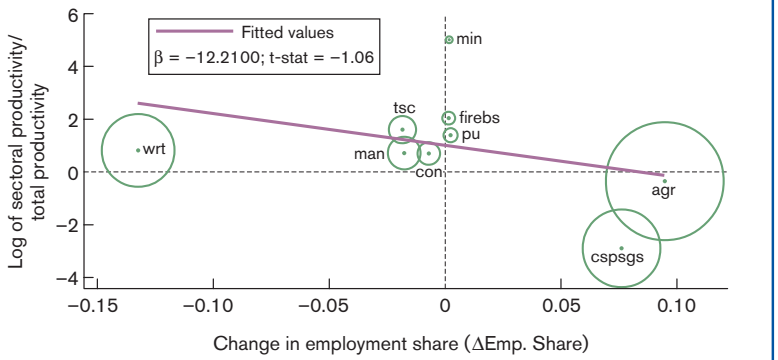



Note: Size of circle represents employment share in 1990.
βΔEmp. Share: β denotes coefficient of independent variable in regression equation:
$\ln(p/P) = \alpha + \beta\Delta\text{Emp. Share}$

*Note*: Abbreviations are as follows: agr = agriculture; min = mining; man = manufacturing; pu = public utilities; con = construction; wrt = wholesale and retail trade; tsc = transport and communication; firebs = finance, insurance, real estate and business services; cspsgs = community, social, personal and government services.

*Source*: Authors' calculations with data from Timmer and de Vries (2009).

**Figure 2.12** Correlation between sectoral productivity and change in employment share in Nigeria, 1990–2005

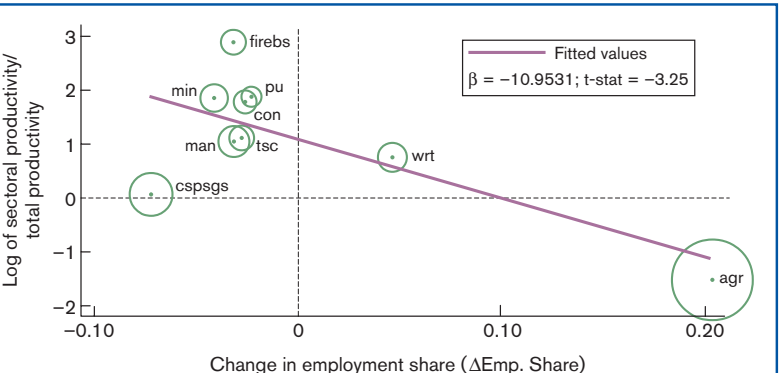



Note: Size of circle represents employment share in 1990.
βΔEmp. Share: β denotes coefficient of independent variable in regression equation:
ln(p/P) = α + βΔEmp. Share

*Note*: Abbreviations are as follows: agr = agriculture; min = mining; man = manufacturing; pu = public utilities; con = construction; wrt = wholesale and retail trade; tsc = transport and communication; firebs = finance, insurance, real estate and business services; cspsgs = community, social, personal and government services.

*Source*: Authors' calculations with data from Nigeria's National Bureau of Statistics and ILO's LABORSTA.

**Figure 2.13** Correlation between sectoral productivity and change in employment share in Zambia, 1990–2005




Note: Size of circle represents employment share in 1990.
βΔEmp. Share: β denotes coefficient of independent variable in regression equation:
ln(p/P) = α + βΔEmp. Share

*Note*: Abbreviations are as follows: agr = agriculture; min = mining; man = manufacturing; pu = public utilities; con = construction; wrt = wholesale and retail trade; tsc = transport and communication; firebs = finance, insurance, real estate and business services; cspsgs = community, social, personal and government services.

*Source*: Authors' calculations with data from CSO, Bank of Zambia, and ILO's KILM.



relatively productive tradable services have experienced a contraction – a remarkable anomaly for countries at such low levels of development, in which these sectors are quite small to begin with. The expansion of agricultural employment in Zambia is particularly large – more than 20 percentage points of total employment between 1990 and 2005, if the numbers are to be believed. These figures indicate a veritable exodus from the rest of the economy back to agriculture, where labour productivity is roughly half of what it is elsewhere. Thurlow and Wobst (2005, pp. 24–25) describe how the decline of formal employment in Zambian manufacturing during the 1990s as a result of import liberalization led to many low-skilled workers ending up in agriculture.

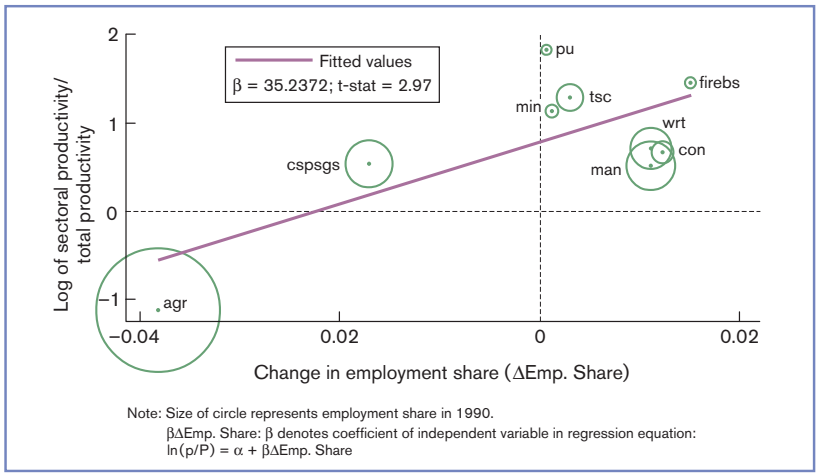
Sub-Saharan Africa exhibits a lot of heterogeneity, however, and the expansion of agricultural employment that we see in Nigeria and Zambia is not a common phenomenon across the continent. In general the sector with the largest relative loss in employment is wholesale and retail trade where productivity is higher (in sub-Saharan Africa) than the economy-wide average. The expansion of employment in manufacturing has been meagre, at around one-quarter of 1 per cent over the fifteen-year period. The sector experiencing the largest employment gain tends to be community, social, personal and government services, which has a high level of informality and is the least productive.

Ethiopia, Ghana and Malawi are three countries that have experienced growth-enhancing structural change. In all three cases, the share of employment in the agricultural sector has declined while the share of employment in the manufacturing sector has increased. However, labour productivity in manufacturing remains notably low in both Ethiopia and Ghana.

Compare the sub-Saharan African cases now to India, which has experienced significant growth-enhancing structural change since 1990. As figure 2.14 shows, labour has moved predominantly from very low-productivity agriculture to modern sectors of the economy including, notably, manufacturing. India is one of the poorest countries in our sample, so its experience need not be representative. However, another Asian country, Thailand, shows very much the same pattern (figure 2.15). In fact, the magnitude of growth-enhancing structural change in Thailand has been phenomenal, with agriculture's employment share declining by some 20 percentage points and manufacturing experiencing significant gains.

Not all Asian countries exhibit this kind of pattern. The Republic of Korea and Singapore, in particular, look more like Latin American countries in that high-productivity manufacturing sectors have shrunk in favour of some relatively lower-productivity service activities. But in both of these cases, very rapid "within" productivity growth has more than offset the negative contribution from structural change. That

**Figure 2.14** Correlation between sectoral productivity and change in employment share in India, 1990–2005

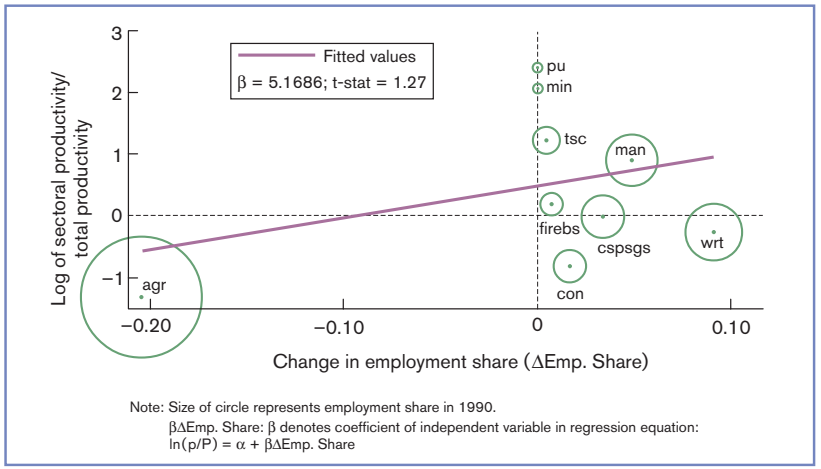



Note: Size of circle represents employment share in 1990.
βΔEmp. Share: β denotes coefficient of independent variable in regression equation:
ln(p/P) = α + βΔEmp. Share

*Note*: Abbreviations are as follows: agr = agriculture; min = mining; man = manufacturing; pu = public utilities; con = construction; wrt = wholesale and retail trade; tsc = transport and communication; firebs = finance, insurance, real estate and business services; cspsgs = community, social, personal and government services.

*Source*: Authors' calculations with data from Timmer and de Vries (2009).

**Figure 2.15** Correlation between sectoral productivity and change in employment share in Thailand, 1990–2005




Note: Size of circle represents employment share in 1990.
βΔEmp. Share: β denotes coefficient of independent variable in regression equation:
ln(p/P) = α + βΔEmp. Share

*Note*: Abbreviations are as follows: agr = agriculture; min = mining; man = manufacturing; pu = public utilities; con = construction; wrt = wholesale and retail trade; tsc = transport and communication; firebs = finance, insurance, real estate and business services; cspsgs = community, social, personal and government services.

*Source*: Authors' calculations with data from Timmer and de Vries (2009).



has not happened in Latin America. Moreover, a contraction in the share of the labour force in manufacturing is not always a bad thing. For example, in the case of Hong Kong (China) the share of the labour force in manufacturing fell by more than 20 per cent. However, because productivity in manufacturing is lower than productivity in most other sectors, this shift has produced growth-enhancing structural change.

## 2.4 What explains these patterns of structural change?

All developing countries in our sample have become more "globalized" during the time period under consideration. They have phased out remaining quantitative restrictions on imports, slashed tariffs, encouraged direct foreign investment and exports and, in many cases, opened up to cross-border financial flows. So it is natural to think that globalization has played an important behind-the-scenes role in driving the patterns of structural change we have documented above.

However, it is also clear that this role cannot have been a direct, straightforward one. First, what stands out in the findings described previously is the wide range of outcomes: some countries (mostly in Asia) have continued to experience rapid, productivity-enhancing structural change, while others (mainly in Latin America and sub-Saharan Africa) have begun to experience productivity-reducing structural change. A common external environment cannot explain such large differences. Second, as important as agriculture, mining and manufacturing are, a large part – perhaps a majority – of jobs are still provided by non-tradable service industries. So whatever contribution globalization has made, it must depend heavily on local circumstances, choices made by domestic policy-makers and domestic growth strategies.

We have noted above the costs that premature de-industrialization have on economy-wide productivity. Import competition has caused many industries to contract and release labour to less-productive activities, such as agriculture and the informal sector. One important difference among countries may be the degree to which they are able to manage such downsides. A notable feature of Asian-style globalization is that it has had a two-track nature: many import-competing activities have continued to receive support while new, export-oriented activities were spawned. For example, until the mid-1990s, China had liberalized its trade regime at the margin only. Firms in special economic zones (SEZs) operated under free-trade rules, while domestic firms still operated behind high trade barriers. State enterprises still continue to receive substantial support. In an earlier period, the Republic of Korea and Chinese Taipei pushed their firms onto world markets by subsidizing them heavily, and delayed import liberalization until domestic firms could stand on their feet. Strategies of this sort have the advantage, from the current perspective, of

ensuring that labour remains employed in firms that might otherwise be decimated by import competition. Such firms may not be the most efficient in the economy, but they often provide jobs at productivity levels that exceed their employees' next-best alternative (that is, agriculture or the informal sector).

A related issue concerns the real exchange rate. Countries in Latin America and sub-Saharan Africa have typically liberalized in the context of overvalued currencies – driven either by disinflationary monetary policies or by large foreign aid inflows. Overvaluation squeezes tradable industries further, damaging especially the more modern ones in manufacturing that operate at tight profit margins. Asian countries, by contrast, have often targeted competitive real exchange rates with the express purpose of promoting their tradable industries. Below, we will provide some empirical evidence on the role played by the real exchange rate in promoting desirable structural change.

Globalization promotes specialization according to comparative advantage. Here there is another potentially important difference among countries. Some countries – many in Latin America and sub-Saharan Africa – are well-endowed with natural resources and primary products. In these economies, opening up to the world economy reduces incentives to diversify towards modern manufactures and reinforces traditional specialization patterns. As we have seen, some primary sectors such as minerals do operate at very high levels of labour productivity. The problem with such activities, however, is that they have a very limited capacity to generate substantial employment. So in economies with a comparative advantage in natural resources, we expect the positive contribution of structural change associated with participation in international markets to be limited. Asian countries, most of which are well endowed with labour but not natural resources, have a natural advantage here. The regression results presented below bear this intuition out.

The rate at which structural change in the direction of modern activities takes place can also be influenced by ease of entry and exit into industry and by the flexibility of labour markets. Ciccone and Papaioannou (2008) show that intersectoral reallocation within manufacturing industries is slowed down by entry barriers. When employment conditions are perceived as "rigid", say because of firing costs that are too high, firms are likely to respond to new opportunities by upgrading plant and equipment (capital deepening) rather than by hiring new workers. This slows down the transition of workers to modern economic activities. This hypothesis also receives some support from the data.

We now present the results of some exploratory regressions aimed at uncovering the main determinants of differences across countries in the contribution of structural change (table 2.5). We regress the structural change term over the



1990–2005 period (the second term in equation (2.1), annualized in percentage terms) on a number of plausible independent variables. We view these regressions as a first pass through the data, rather than a full-blown causal analysis.

We begin by examining the role of initial structural gaps. Clearly, the wider those gaps, the larger the room for growth-enhancing structural change for standard dual-economy model reasons. We proxy these gaps by agriculture's employment share at the beginning of the period (1990). Somewhat surprisingly, even though this variable enters the regression with a positive coefficient, it falls far short of statistical significance (column (1)). The implication is that domestic convergence, just like convergence with rich countries, is not an unconditional process. Starting out with a significant share of the labour force in agriculture may increase the potential for growth induced by structural change, but the mechanism is clearly not automatic.

Note that we have included regional dummies (in this and all other specifications), with Asia as the excluded category. The statistically significant coefficients on Latin America and sub-Saharan Africa (both negative) indicate that the regional differences we have discussed previously are also meaningful in a statistical sense.

**Table 2.5** Determinants of the magnitude of the structural change term

| Dependent variable: structural change term | | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Agricultural share in employment | 0.013<br>(0.98) | 0.027<br>(2.26)** | 0.016<br>(1.48) | 0.023<br>(2.45)** | |
| Raw materials share in exports | | –0.050<br>(2.44)** | –0.045<br>(2.41)** | –0.046<br>(2.73)** | –0.038<br>(2.29)** |
| Undervaluation index | | | 0.016<br>(1.75)*** | 0.017<br>(1.80)*** | 0.023<br>(2.24)** |
| Employment rigidity index (0 – 1) | | | | –0.026<br>(2.64)** | –0.021<br>(2.15)** |
| Latin America dummy | –0.014<br>(2.65)** | 0.007<br>(0.74) | 0.006<br>(0.72) | 0.013<br>(1.49) | 0.007<br>(0.85) |
| Africa dummy | –0.022<br>(2.04)** | –0.006<br>(0.80) | –0.005<br>(0.83) | –0.004<br>(0.75) | –0.003<br>(0.38) |
| High-income dummy | –0.003<br>(0.66) | –0.001<br>(0.14) | 0.008<br>(0.98) | 0.013<br>(1.47) | 0.010<br>(1.06) |
| Constant | 0.002<br>(0.30) | 0.005<br>(1.11) | 0.006<br>(1.37) | 0.009<br>(2.03) | 0.014<br>(3.63)* |
| Observations<br>R-squared | 38<br>0.22 | 38<br>0.43 | 38<br>0.48 | 37<br>0.55 | 37<br>0.50 |

*Notes*: Robust t-statistics in parentheses
* significant at 1% level; ** significant at 5% level; *** significant at 10% level

We next introduce the share of a country's exports that is accounted for by raw materials, as an indicator of comparative advantage. This indicator enters with a negative coefficient, and is highly significant (column (2)). There is a very strong and negative association between a country's reliance on primary products and the rate at which structural change contributes to growth. Countries that specialize in primary products are at a distinct disadvantage.

We note two additional points about column (2). First, agriculture's share in employment now becomes statistically significant. This indicates the presence of conditional convergence: conditional on not having a strong comparative advantage in primary products, starting out with a large countryside of surplus workers does help. Second, once the comparative advantage indicator is entered, the coefficients on regional dummies are slashed and they are no longer statistically significant. In other words, comparative advantage and the initial agricultural share can jointly fully explain the large differences in average performance across regions. Countries that do well are those that start out with a lot of workers in agriculture but do not have a strong comparative advantage in primary products. That most Asian countries fit this characterization explains the Asian difference we have highlighted above.

For trade/currency practices, we use a measure of the undervaluation of a country's currency, based on a comparison of price levels across countries (after adjusting for the Balassa–Samuelson effect; see Rodrik, 2008). For labour markets, we use the employment rigidity index from the World Bank's World Development Indicators database. The results in columns (3)–(5) indicate that both of these indicators enter the regression with the expected sign and are statistically significant. Undervaluation promotes growth-enhancing structural change, while employment rigidity inhibits it.

We have tried a range of other specifications and additional regressors, including income levels, demographic indicators, institutional quality and tariff levels. However, none of these variables have turned out to be consistently significant.

## 2.5 Concluding comments

Large gaps in labour productivity between the traditional and modern parts of the economy are a fundamental reality of developing societies. In this chapter we have documented these gaps, and emphasized that labour flows from low-productivity activities to high-productivity activities are a key driver of development.

Our results show that since 1990 structural change has been growth reducing in both Africa and Latin America, with the most striking changes taking place in Latin America. The bulk of the difference between these countries' productivity performance and that of Asia is accounted for by differences in the pattern of structural change – with labour moving from low- to high-productivity sectors in Asia, but in the opposite direction in Latin America and sub-Saharan Africa.



A key promise of globalization was that access to global markets and increased competition would drive an economy's resources toward more productive uses and enhance allocative efficiency. It is certainly true that firms that are exposed to foreign competition have had no choice but to either become more productive or shut down. As trade barriers have come down, industries have rationalized, upgraded and become more efficient. But an economy's overall productivity depends not only on what is happening within industries, but also on the reallocation of resources across sectors. This is where globalization has produced a highly uneven result. Our empirical work shows that countries with a comparative advantage in natural resources run the risk of stunting their process of structural transformation. The risks are aggravated by policies that allow the currency to become overvalued and place large costs on firms when they hire or fire workers.

Structural change, like economic growth itself, is not an automatic process. It needs a nudge in the appropriate direction, especially when a country has a strong comparative advantage in natural resources. Globalization does not alter this underlying reality. But it does increase the costs of getting the policies wrong, just as it increases the benefits of getting them right.[9]

## Appendix A2.1 Data description

Our analysis is based on a panel of 38 countries with data on employment, value added (in 2000 PPP US$) and labour productivity (also in 2000 PPP US$) disaggregated into nine economic sectors (see table A2.1), starting in 1990 and ending in 2005. Our main source of data is the 10-Sector Productivity Database, by Timmer and de Vries (2009). These data are available at http://www.ggdc.net/databases/10_sector.htm. The latest update available for each country was used. Data for Latin American and Asian countries came from the June 2007 update, while data for the European countries and the United States came from the October 2008 update.

We supplemented the 10-Sector Database with data for China, Turkey and nine sub-Saharan African countries: Ethiopia, Ghana, Kenya, Malawi, Mauritius, Nigeria, Senegal, South Africa and Zambia. In compiling this extended data set, we followed Timmer and de Vries (2009) as closely as possible so that the resulting value added, employment and labour productivity data would be comparable to that of the 10-Sector Database. Our data includes information on value added, aggregated

**Table A2.1** Sector coverage

| Sector | Abbreviation | ISIC rev. 2 | ISIC rev. 3 equivalent |
|---|---|---|---|
| Agriculture, hunting, forestry and fishing | agr | Major division 1 | A+B |
| Mining and quarrying | min | Major division 2 | C |
| Manufacturing | man | Major division 3 | D |
| Public utilities (electricity, gas and water) | pu | Major division 4 | E |
| Construction | con | Major division 5 | F |
| Wholesale and retail trade, hotels and restaurants | wrt | Major division 6 | G+H |
| Transport, storage and communications | tsc | Major divison 7 | I |
| Finance, insurance, real estate and business services | firebs | Major division 8 | J+K |
| Community, social, personal and government services | cspsgs | Major division 9 | O+P+Q+L+M+N |
| Economy-wide | sum | | |

*Source*: Timmer and de Vries (2007).

into nine main sectors according to the definitions in the second revision of the international standard industrial classification (ISIC, rev. 2), from national accounts data from a variety of national and international sources. Similarly, we used data from several population censuses as well as labour and household surveys to get estimates of sectoral employment. Following Timmer and de Vries (2009), we define sectoral employment as all persons employed in a particular sector, regardless of their formality status or whether they were self-employed or family workers. Also following Timmer and de Vries, we use population census data to measure levels of employment by sector and complement this data with labour force surveys (LFS) or comprehensive household surveys to obtain labour force growth rates.

## Appendix A2.2 Supplementing the 10-Sector Database

Data on value added by sector for Turkey comes from national accounts data from the Turkish Statistical Institute (TurkStat). The latest available benchmark year is 1998 and TurkStat publishes sectoral value added figures (in current and constant 1998 prices) with this benchmark year starting in 1998 and going all the way up to 2009. These series were linked with series on sectoral value added (in current and constant prices) with a different benchmark year (that is, 1987) which yielded sectoral value added series going from 1968 to 2009.[10] This was done for sectoral value added in current and constant prices. Data on employment by sector comes from sectoral employment estimates published by TurkStat. These estimates come from annual household LFS that are updated with data from the most recent population census. These surveys cover all persons employed regardless of their



rural or urban status, formality status, and cover self-employed and family workers. Hence, they seem to be a good and reliable source of total employment by sector.

Chinese data were compiled from several *China Statistical Yearbooks*, published by the National Bureau of Statistics (NBS). The *Statistical Yearbooks* include data on value added (in current and constant prices) disaggregated into three main "industries": primary, secondary and tertiary. The NBS further decomposes the secondary industry series into construction and "industry" (that is, all other non-construction activities in the secondary sector). The tertiary industry series includes data on services. In order to get disaggregated value added series for the other seven sectors of interest (that is, sectors other than agriculture and construction) we had to disaggregate value added data for the secondary and tertiary sectors. We did this by calculating sectoral distributions of value added for the non-construction secondary industry and tertiary industry from different tables published by the NBS. We then used these distributions and the yearly value added series for the non-construction secondary industry and the tertiary industry to get estimates of sectoral value added for the other seven sectors of interest. These estimates, along with the value added series for the primary industry (that is, agriculture, hunting, forestry and fishing) and the construction sector, yielded series of value added by sector disaggregated into our nine sectors of interest.

Sectoral employment was calculated using data from the NBS. The NBS publishes reliable sectoral employment estimates based on data from a number of labour force surveys and calibrated using data from the different population censuses. Given the availability and reliability of these estimates and that they are based on and calibrated using data from the different rounds of population censuses, we decided to use these employment series to get our sectoral employment estimates. In some cases, we aggregated the NBS' employment series to get sectoral employment at the level we wanted.[11]

Our sub-Saharan African sample includes Ethiopia, Ghana, Kenya, Malawi, Mauritius, Nigeria, Senegal, South Africa and Zambia and covers almost half of the total sub-Saharan population (47 per cent) and close to two-thirds of the total sub-Saharan gross domestic product (GDP) (63 per cent).[12] The particular steps to get estimates of sectoral value added and employment for these sub-Saharan countries varied due to differences in data availability. Once again, we followed Timmer and de Vries's (2007, 2009) methodology as closely as possible to ensure comparability with data from the 10-Sector Database. We used data on sectoral employment from population censuses and complemented this with data from labour force surveys and household surveys. We took care to make sure that employment in the informal sector was accounted for. In some cases, this meant using data from surveys of the informal sector (when available) to refine our estimates of sectoral employment.

We used data on value added by sector from national accounts data from different national sources and complemented them with data from the United Nations' national accounts statistics in cases where national sources were incomplete or we found inconsistencies. Due to the relative scarcity of data sources for many of the sub-Saharan economies in our sample, our data are probably not appropriate to study short-term (that is, yearly) fluctuations, but we think they are still indicative of medium-term trends in sectoral labour productivity.

## Endnotes

**1.** See, for example, Pavcnik (2000), Cavalcanti Ferreira and Rossi (2003), Paus et al. (2003), McMillan et al. (2004), Fernandes (2007) and Esclava et al. (2009).

**2.** The original GGDC sample also includes former West Germany, but we dropped it from our sample due to the truncation of the data after 1991. The latest update available for each country was used. Data for Latin American and Asian countries came from the June 2007 update, while data for the European countries and the United States came from the October 2008 update.

**3.** For a detailed explanation of the protocols followed to compile the GGDC 10-Sector Database, the reader is referred to the "Sources and Methods" section of the database's web page: http://www.ggdc.net/databases/10_ sector.htm.

**4.** The intersectoral distribution of employment for high-income countries is calculated as the simple average of each sector's employment share across the high-income sample.

**5.** See Kuznets (1955) for an argument along these lines. However, Kuznets conjectured that the gap between agriculture and industry would keep increasing, rather than close down as we see here.

**6.** We have undertaken some calculations along these lines, including "unemployment" as an additional sector in the decomposition. Preliminary calculations indicate that the rise in unemployment between 1990 and 2005 worsens the structural change term by an additional 0.2 percentage points. We hope to report results on this in future work.

**7.** Even though Turkey is in our dataset, this country has not been included in this and the next figure because it is the only Middle Eastern country in our sample.

**8.** We fixed some data discrepancies and used a nine-sector disaggregation to compute the decomposition rather than IDB's three-sector disaggregation. See the data appendix for more details.

**9.** This is not the place to get into an extended discussion on policies that promote economic diversification. See Rodrik (2007, ch. 4) and Cimoli et al. (2009).

**10.** We linked these series with the ones having 1998 as a benchmark year using yearly sectoral value added growth rates for the 1968–98 period published by TurkStat.

**11.** Due to data availability we were only able to calculate estimates of sectoral employment for our nine sectors of interest from 1990 to 2001. We compared our sectoral employment estimates with those published by the Asian Productivity Organization (APO) in its APO Productivity Database.



Our sectoral employment estimates are identical to the ones calculated by the APO for all but the three following sectors: utilities, wholesale and retail trade, and the community, social, personal and government services sectors. Overall, these discrepancies were small. Moreover, while our sectoral employment estimates only cover the 1990–2001 period, the APO employment estimates go from 1978 to 2007. Given the close match between our estimates and those from the APO, and the longer time period covered by the APO data, we decided to use APO's sectoral employment estimates in order to maintain intertemporal consistency in the sectoral employment data for China.

**12.** Total GDP (in constant 2000 US$) and total population in sub-Saharan Africa in 2009 (World Bank, 2010).

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# 3 The crisis, policy reactions and attitudes to globalization and jobs

*David N.F. Bell and David G. Blanchflower*

## 3.1 Introduction

This chapter considers the effects of the financial crisis and subsequent recession on world labour markets. It begins by cataloguing the adverse effects on output of the sudden collapse in demand brought about by the financial crisis in what has come to be called the Great Recession. Next we look at the labour market and how employment and unemployment have been impacted and document the very different responses by country. We then move on to look at attitudinal indicators of the impact of the rising levels of joblessness that we observe across most OECD countries. We examine data on well-being and on attitudes to employment. We also examine a number of questions about the impact of globalization that respondents across many European countries were asked in 2008 and 2010. Finally, we examine the policy responses of governments, and consider what lessons might be learned from the marked differences in labour market outcomes following the recession.

## 3.2 The Great Recession

The origins of the financial crisis lay with the excessive expansion of credit by financial institutions in some countries in the 1990s and early part of this century. Due to the growth of complex financial derivatives and the global extension of capital markets, it became difficult for governments, regulators and the banks themselves to measure the underlying risks associated with their loan books. Fears that some institutions were holding large amounts of bad debt led to a collapse in the supply of credit as financial institutions tried to rebuild their balance sheets. To remain solvent, some had to be recapitalized by their governments, so jeopardizing the public finances.

The financial crisis led to a rapid contraction of demand. Further, there was a sharp reduction in the availability of trade finance. Banks and suppliers reported that lack of finance was the second major cause of the collapse in trade. However, trade finance recovered rapidly, partly as a result of the US$ 250 billion additional financing announced at the April 2009 G20 meeting (Mora and Powers, 2009).

Almunia et al. (2009) and Eichengreen and O'Rourke (2009) compare the severity of the Great Recession with the Great Depression of 1929. They argue that trade flows fell faster in the Great Recession than they did during the Great Depression. The declines in trade across countries were also more synchronized. By the end of 2008, more than 90 per cent of OECD countries had experienced a decline in trade exceeding 10 per cent. Not surprisingly, with largely coincident trade cycles, variations in output during the recession were also broadly synchronized. Araújo and Martins (2009) term this the "Great Synchronization" and argue that it is an outcome of globalization. Brown (2010) argues that this is the "first crisis of globalization". However, the mechanism linking globalization and the Great Synchronization is not clear. Baldwin (2009) argues that the drop in world trade was much larger than the drop in GDP because the fall in demand was particularly concentrated on traded goods which are disproportionately "postponable" compared with other components of GDP. Postponement of orders was a natural reaction to the increased uncertainty associated with the financial collapse. Further, the synchronicity of the decline in trade was not due to the internationalization of supply chains. The structure of these chains was not impacted by the trade collapse. Rather, companies simply cut back on the amount of product that they were selling through these chains: trading relationships remained intact. The globalization of uncertainty may perhaps be the common factor linking declines in trade across different parts of the world.

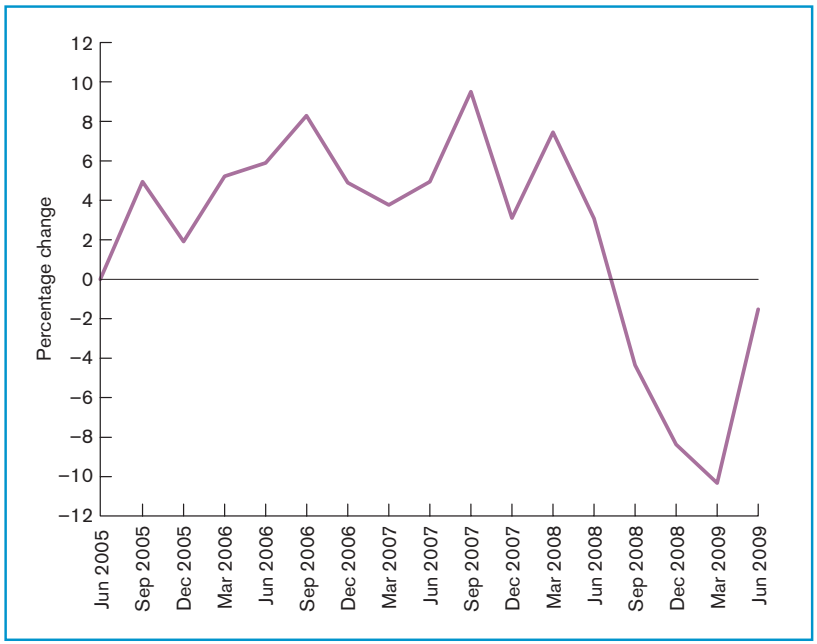
Gamberoni et al. (2010) argue that there is a significant contrast in the response of employment to debt and banking crises on the one hand and global trade crises on the other. The countries that experienced both a domestic debt crisis and the global downturn experienced much larger falls in employment than did those who "only" experienced the downturn in world demand. This may partly explain why Europe and the United States have experienced more adverse labour market consequences of the recession than have the rapidly growing economies of Asia. An additional influence, they argue, concerns the openness of the economy. Relatively open economies (for example, Germany and the Netherlands) are immediately affected by the downturn in global demand, but are capable of recovering rapidly because their domestic demand is not constrained by debt issues. Thus, relatively closed economies which suffer crises of private or public sector debt take longer to recover. Gamberoni et al. (2010) also argue that higher severance pay mitigates the reduction in employment caused by a downturn in demand and may induce employers to adjust their labour input more on the intensive (hours) margin than the extensive (jobs) margin. In addition, they suggest that countries with higher unemployment benefits experience a greater decline in employment growth, perhaps because benefits set a floor on real wages. However, the empirical support for this proposition is mixed and may be affected by measurement error in poorer countries where there is a large informal sector.



Some of the relevant recent events are captured in figures 3.1, 3.2 and 3.3. Figure 3.1 shows percentage changes in private short-term trade finance in OECD countries from 2005 to 2009. Beginning in 2008, there was a rapid retreat in the supply of private trade finance. However, these figures cannot determine the direction of causality – from trade credit to trade – or vice versa. Figure 3.2 shows the impact of the recession on trade volumes in major trading blocs. World trade declined rapidly through 2008 and early 2009 before recovering strongly from 2009Q3 onward. Figure 3.2 shows clearly that the trade cycles of the major groups of economies shared broadly the same turning points. Although the timing has been common, the extent of the recovery has varied substantially. In contrast to the Asian economies, European trade was still significantly below its pre-recession level in late 2010.

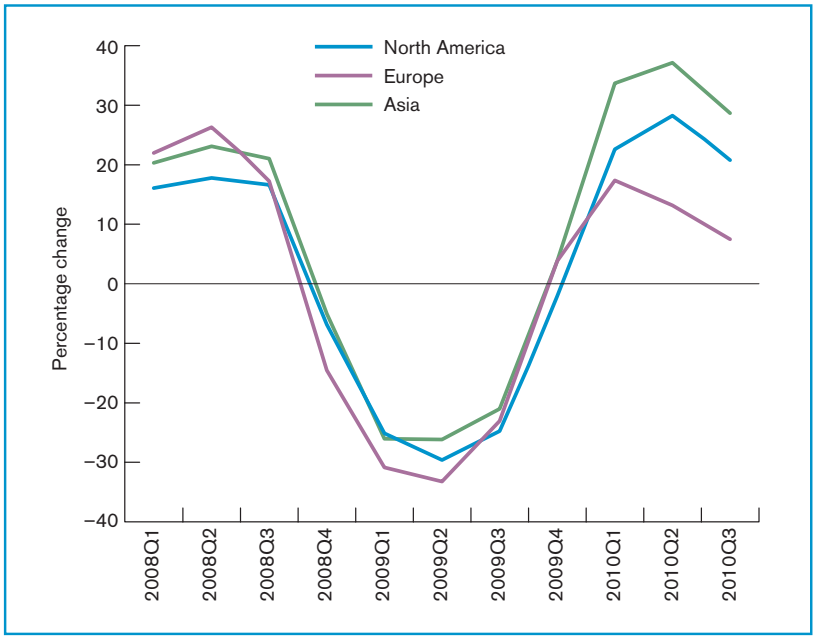
While the slump in trade affected demand, output in countries such as Ireland, Spain, the United Kingdom and the United States was also affected adversely by instability in property markets. This had a negative effect on the construction industry in

**Figure 3.1** Short-term trade finance in OECD countries, 2005–09 (quarter-on-quarter percentage change)




*Source*: OECD Factbook (2010).

**Figure 3.2** Growth in world trade, 2008Q1–2010Q3




*Source*: World Trade Organisation.

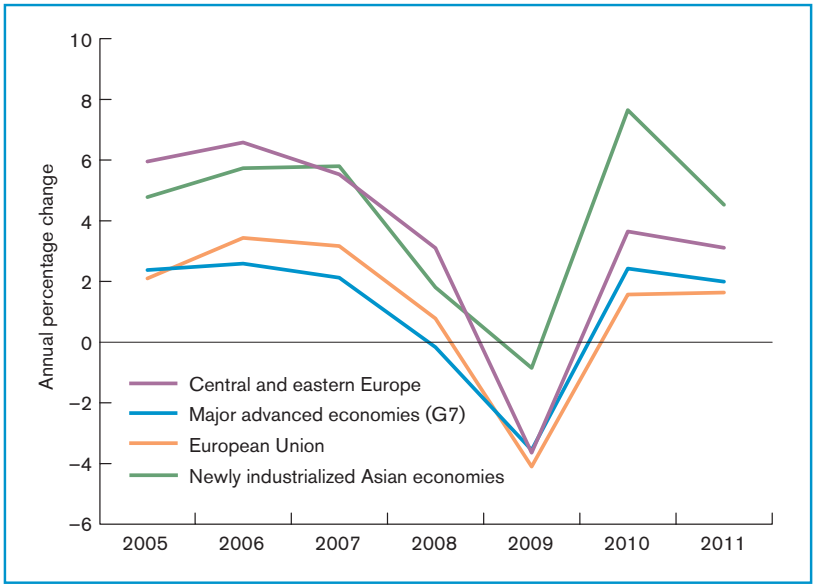
these countries. Countries with large financial sectors were also affected badly, for example Iceland, Ireland, the United Kingdom and the United States.

For most advanced countries, the decline in output was substantial. The combined output of OECD countries fell by 3.2 per cent in 2009 and at the end of 2010 was still projected to be below its 2007 level. However, the experience of less-developed countries has been markedly different. While advanced economies were in recession, output in the emerging and developing economies experienced only a temporary slowdown in growth. In 2009 their combined output increased by 2.5 per cent and is projected to have grown by 7.1 per cent in 2010. Although the recession had a significant impact on the world's advanced economies, its impact on developing countries was much less pronounced.

Figure 3.3 shows how GDP varied from 2005 in some major country groupings. Again, while the magnitude of change differs across these groups, the timings are very similar, with the nadir of the recession being reached in late 2009. Consistent with the trade data, the recovery in GDP has been weakest in the European Union,



**Figure 3.3** Gross domestic product by major economic areas, 2005–11




*Note*: Data for 2010 and 2011 are forecasts based on information available until the end of 2010.

*Source*: IMF World Economic Outlook Database (2011).

and strongest in the newly industrialized economies of Asia and Central and Eastern Europe. Declines in output were particularly marked in industries with high exposure to international trade – notably manufactured goods. Many of these countries also recovered quickly when trading conditions returned to normal.

The fall in output by country is detailed in table 3.1. Using OECD data, it shows how far output fell from 2008Q1 to the low point of the recession and how much it recovered by 2010Q3. The countries covered are OECD members and others that are monitored by the OECD. Countries are ordered by growth between 2008Q1 and 2010Q3. Those countries which show a zero in the first column experienced no drop in output and therefore no recession. With the exceptions of Poland and Australia, all of these were developing countries. We also separately show growth rates for China for 2008, 2009 and 2010. Its overall growth in this period exceeds 30 per cent. China experienced only a mild slowdown and then returned to rapid rates of growth. India fell some way behind at 15.6 per cent.

In contrast, output did fall in most OECD countries. Thus, at the other end of the spectrum, 2010 output levels in Iceland, Ireland, Hungary and Greece were

**Table 3.1** Change in output 2008Q1 to low point of recession, and from 2008Q1 to 2010Q3

| | Change in output (%) | |
|---|---|---|
| | 2008Q1–low point | 2008Q1–2010Q3 |
| India | 0.0 | 15.6 |
| Indonesia | 0.0 | 13.7 |
| Brazil | –2.0 | 8.1 |
| Poland | 0.0 | 7.4 |
| Korea, Republic of | –4.3 | 5.9 |
| Australia | 0.0 | 4.7 |
| South Africa | –1.1 | 1.8 |
| New Zealand | –1.7 | 1.2 |
| Switzerland | –2.8 | 0.8 |
| Slovak Republic | –4.8 | 0.8 |
| Turkey | –12.6 | 0.4 |
| Canada | –3.2 | 0.3 |
| Sweden | –6.6 | 0.0 |
| United States | –4.0 | –0.5 |
| Belgium | –3.7 | –0.7 |
| Mexico | –8.5 | –0.9 |
| Portugal | –3.6 | –1.2 |
| Czech Republic | –4.1 | –1.8 |
| France | –3.9 | –1.8 |
| Austria | –4.8 | –1.8 |
| Germany | –6.6 | –1.8 |
| Norway | –2.6 | –2.6 |
| Luxembourg | –7.9 | –2.6 |
| Netherlands | –5.3 | –2.8 |
| Denmark | –6.7 | –3.3 |
| Japan | –10.1 | –3.4 |
| United Kingdom | –6.5 | –3.9 |
| Spain | –4.9 | –4.5 |
| Russian Federation | –9.9 | –5.1 |
| Italy | –6.8 | –5.4 |
| Finland | –9.7 | –5.5 |
| Greece | –6.8 | –6.8 |
| Hungary | –7.9 | –7.2 |
| Ireland | –11.9 | –11.0 |
| Iceland | –12.1 | –11.1 |

*Source*: OECD Main Economic Indicators and CIA World Factbook.

substantially lower than at the beginning of 2008. Confirming the data in figure 3.3, relatively few European countries had recovered to 2008 levels of output by 2010Q3.

## 3.3 The labour market

The Great Recession was notable for the diversity of its impacts on labour markets in different parts of the globe. While there may have been a Great Synchronization in the timing of the trade cycle, labour market responses were notable for their diversity in both timing and scale. The ILO (2011) estimates that the world unemployment in 2010 stood at 205 million, equivalent to a global unemployment rate of 6.2 per cent and 27.6 million higher than in 2007. OECD (2011) estimates suggest that between 2008Q1 and 2010Q3 unemployment in the European Union rose by 5.6 million and in the United States by 6.6 million. During this recession, the performance of the labour market in the developed world has been weaker than in developing countries. Although there has been some recovery in output in the developed world, any associated increase in employment has been limited. Thus far, the recovery has been "jobless".



Table 3.2 sets out recent information on employment, unemployment and the labour force for OECD countries. The numbers largely relate to changes between 2008Q1 (which we take as the starting point of the recession) and 2010Q3. Most OECD countries outside Europe, with the exception of the United States, experienced some employment growth since 2008. In Europe, the picture is less optimistic. For example, in Ireland and Spain, countries both affected by a construction "bubble", employment fell by 13.3 per cent and 9.1 per cent respectively. In the United States, a very large drop in employment was matched by an almost identical increase in unemployment. But in the United Kingdom, unemployment rose by more than twice the fall in employment, whereas in Japan the increase in unemployment was only around half of the decline in employment. Changes in employment were not necessarily good predictors of changes in unemployment.

Those who are unable to find a job may remain unemployed or leave the labour market temporarily or permanently. In previous recessions, workers have left the labour market in large numbers. The "discouraged worker" effect attenuates increases in unemployment. What is unusual about the current recession is that the workforce has declined in only a relatively small number of countries.[1] This contrasts with, for example, the experience of the 1980s when, in countries like the United Kingdom, there was a substantial rise in inactivity associated with increased unemployment.

In Australia, Canada, Scandinavia, the United Kingdom and the United States the size of the workforce increased over the course of the recession, albeit by relatively small amounts, which is more suggestive of an "added worker" effect. In countries where the recession has had less impact, such as Turkey and Poland, the growth in the workforce has been substantial. This pattern may be reversed if the "jobless" recovery continues, leading to a significant growth in long-term unemployment which may cause workers to drift away from the labour market.

The labour force in Ireland fell by 4.2 per cent over the period, the largest decline in any OECD country. One of the key drivers of this decline has been migration. In the

**Table 3.2** Change in employment, unemployment and labour force 2008Q1–2010Q3

| | Employment | | | Unemployment | | | Labour force |
|---|---|---|---|---|---|---|---|
| | 2010Q3 | Change | % Change | 2010Q3 | Change | % Change | % Change |
| Australia | 11,291 | 534 | 5.0 | 591 | 89 | 17.8 | 5.5 |
| Austria | 4,148 | 132 | 3.3 | 191 | 16 | 9.0 | 3.5 |
| Belgium | 4,488 | 39 | 0.9 | 424 | 87 | 25.8 | 2.6 |
| Canada | 17,383 | 594 | 3.5 | 1,543 | 418 | 37.1 | 5.6 |
| Czech Republic | 4,897 | –46 | –0.9 | 374 | 130 | 53.0 | 1.6 |
| Denmark | 2,726 | –83 | –3.0 | 214 | 114 | 114.8 | 1.1 |
| Finland | 2,479 | 15 | 0.6 | 195 | 19 | 11.0 | 1.3 |
| France | | | | 2,596 | 529 | 25.6 | 2.6 |
| Germany | 38,915 | 576 | 1.5 | 2,797 | –613 | –18.0 | –0.1 |
| Greece | 4,403 | –109 | –2.4 | 622 | 215 | 53.0 | 2.2 |
| Hungary | 3,798 | –13 | –0.3 | 466 | 133 | 39.9 | 2.9 |
| Iceland | 170 | –4 | –2.2 | 12 | 8 | 178.6 | 2.1 |
| Ireland | 1,852 | –284 | –13.3 | 294 | 191 | 183.8 | –4.2 |
| Italy | 22,789 | –382 | –1.6 | 1,864 | 103 | 5.8 | –1.1 |
| Japan | 62,860 | –303 | –0.5 | 3,360 | 727 | 27.6 | –1.0 |
| Korea, Rep. of | 24,120 | 1,069 | 4.6 | 873 | 72 | 9.0 | 4.8 |
| Mexico | 44,365 | 1,375 | 3.2 | 2,466 | 695 | 39.3 | 4.6 |
| Netherlands | 8,545 | 43 | 0.5 | 368 | 94 | 34.0 | 1.6 |
| New Zealand | 2,182 | 25 | 1.2 | 145 | 49 | 50.5 | 3.3 |
| Norway | 2,500 | 19 | 0.8 | 92 | 27 | 41.5 | 1.7 |
| Poland | 16,199 | 684 | 4.4 | 1,627 | 266 | 19.5 | 5.6 |
| Portugal | 4,940 | –216 | –4.2 | 609 | 182 | 42.7 | –0.6 |
| Slovak Republic | 2,335 | –56 | –2.4 | 384 | 104 | 37.1 | 1.8 |
| Spain | 18,547 | –1,856 | –9.1 | 4,575 | 2,401 | 110.4 | 2.4 |
| Sweden | 4,639 | 119 | 2.6 | 390 | 89 | 29.4 | 4.3 |
| Switzerland | 4,618 | 113 | 2.5 | 210 | 48 | 29.4 | 3.4 |
| Turkey | 23,195 | 3,331 | 16.8 | 2,971 | 294 | 11.0 | 16.1 |
| United Kingdom | 29,244 | –193 | –0.7 | 2,545 | 943 | 58.9 | 2.4 |
| United States | 139,923 | –4,832 | –3.3 | 14,679 | 6,612 | 82.0 | 1.2 |
| Euro area | 141,558 | –2,121 | –1.5 | 15,148 | 3,438 | 29.4 | 0.8 |
| European Union | 217,923 | –1,790 | –0.8 | 22,237 | 5,605 | 33.7 | 1.6 |
| G7 | 337,028 | –4,360 | –1.3 | 29,383 | 8,718 | 42.2 | 0.9 |

*Source*: OECD.

*Notes*: Numbers and changes are measured in thousands. Data for Mexico, the Netherlands, OECD Europe and OECD total relate to Quarter 2, 2010Q2.

year to April 2009, net emigration from Ireland was 65,000. Most of the outflow comprised returning emigrants from Eastern Europe. The Economic and Social Research Institute, Dublin, has forecast that net emigration from Ireland between 2010 and 2012 will average 2 per cent of the population per annum (Barrett et al., 2010) with an increasing proportion being Irish nationals.

Worker mobility has been an important equilibrating mechanism for the US labour market, but there has been a significant reduction in worker mobility in the United States during the Great Recession. Frey (2009) shows that in 2007–08, migration rates within the United States reached their lowest post-war level. The fall was particularly sharp for long-distance moves. Ferreira et al. (2010) argue that negative home equity and high interest rates have a negative effect on residential mobility. Though worker mobility may help to equilibrate the labour market in some jurisdictions, past experience may not necessarily be a good guide to future migration patterns.



Employers in different countries have responded in a variety of ways to a fall in product demand. This has depended on the nature of employment contracts, human capital investment, the existing policy environment and any changes introduced specifically to combat the recession. Employees' responses have also depended on the nature of their contracts, joint investment in human capital and on their valuation of the next best alternative to employment.

Elsby et al. (2010) argue that a rapid fall in employment in the United States during 2009 was associated with a surge in productivity, causing a breakdown of Okun's Law. This outcome is consistent with firms using recessions as an opportunity to enhance efficiency (van Rens, 2004; and Koenders and Rogerson, 2005) but is clearly not consistent with the view that productivity is procyclical. Bauer and Shenk (2009) argue that in eight of the last nine downturns, US productivity fell during downturns due to labour-hoarding behaviour by firms. Reich (2010) suggests that a possible explanation of the very rapid decline in employment is that the willingness of US employers to hoard labour has fallen. During the downturn, employers were shedding workers more rapidly than reducing their output, leading to short-term productivity gains. At the same time, investment was falling, limiting the potential for further productivity growth.

Farber (2007) argues that tenure in private sector jobs in the United States has been falling: fewer workers hold jobs for ten years or more; in 2006, one-fifth of jobs involved tenures of less than a year. If length of tenure is an indicator of firm-specific human capital investment, then one might anticipate a more rapid increase in lay-offs and discharges during downturns. The reductions in tenure may signal some fundamental changes in the skill content of work, perhaps relating to the role of information technology (Autor et al., 2003). Tenure reductions may also be a reflection of firms' increasing efforts to reduce "slack" (Love and Nohria, 2005).

Most developed countries experienced a less dramatic decline in employment than the United States. One possible explanation is the greater use of the intensive (hours) rather than the extensive (jobs) dimension of labour market adjustment. Bell and Blanchflower (2011a) argue that in the United Kingdom, hour adjustments played an important role in moderating employment reductions. Between January

2008 and September 2010, employment in the United Kingdom fell by 1.4 per cent, but aggregate hours fell by 3.2 per cent (source: Office of National Statistics). Part of this change arises from changes in the average hours worked by full-timers. It also stems partly from an increase in the numbers working part time as opposed to full time. Part-time contracts tend to be less stable than full-time contracts. Working fewer hours may also affect eligibility for unemployment benefits.

In those countries that have experienced a substantial inflow to unemployment and low rates of outflow into employment, unemployment durations have increased substantially. The United States has experienced a particularly rapid rise in long-term unemployment. In December 2007, those who had been unemployed for 15 weeks or more comprised 18 per cent of unemployment in the United States. By December 2010, this share had risen to 44 per cent.

Have increasing rates of long-term unemployment resulted from decreasing rates of outflow from unemployment? Elsby et al. (2010) argue that recent unemployment inflow rates are typical of past recessions. Overall job separation rates changed little during the recession, but unemployment was more a result of lay-offs than from people quitting, and accounted for an increased proportion of these separations and therefore the initial rise in unemployment. However, Elsby et al. argue that a decline in the outflow rate is the main explanation for the rapid rise in long-term unemployment in the United States. Potential causes of the increasing dislocation of the long-term unemployed from the labour market include human capital depreciation and duration-contingent hiring practices on the part of employers.

Another key feature of the Great Recession has been how its effects have been distributed across different groups within the population. In previous work (Bell and Blanchflower, 2010a) we have shown that the young, the poorly educated and ethnic minorities have borne a disproportionate share of the increase in unemployment during the Great Recession in developed countries. Table 3.3, which is drawn from harmonized unemployment rates estimated by Eurostat, illustrates the differences in youth unemployment across a variety of European Union and other countries. European countries that experienced financial crises associated with property bubbles, such as the Baltic States, Ireland, Slovak Republic and Spain have particularly high youth unemployment rates.

Unemployment rates for those whose education did not go beyond lower secondary school (column 3 of table 3.3) tend to be significantly higher than the average and reach a maximum of 63.5 per cent in the Slovak Republic. In most countries there is greater excess supply of labour among the poorly educated although there are some exceptions. Greece is an example where the unemployment rates of recent graduates are above average for their age group.



**Table 3.3** Unemployment rates 2010Q3, ranked by youth unemployment rates

| | Adults (age 25+) | Youths (age 15–24) | Youths ISCED 0–2 | Youth/adult rate |
|---|---|---|---|---|
| Norway | 2.7 | 8.3 | 9.4 | 3.07 |
| Germany | 6.5 | 8.7 | 14.3 | 1.34 |
| Netherlands | 3.7 | 8.7 | 12.0 | 2.35 |
| Austria | 3.8 | 9.0 | 12.5 | 2.37 |
| Malta | 5.4 | 12.2 | 13.3 | 2.26 |
| Denmark | 6.1 | 14.7 | 16.0 | 2.41 |
| Slovenia | 6.6 | 14.8 | 18.6 | 2.24 |
| Luxembourg | 3.9 | 16.3 | 23.5 | 4.18 |
| Czech Republic | 6.2 | 18.1 | 40.4 | 2.92 |
| United States | 8.2 | 18.2 | n/a | 2.22 |
| United Kingdom | 5.8 | 19.1 | 33.6 | 3.29 |
| Turkey | 8.8 | 19.4 | 14.7 | 2.20 |
| Cyprus | 5.6 | 19.5 | 10.6 | 3.48 |
| Euro area | 8.9 | 20.1 | 26.2 | 2.26 |
| European Union | 8.3 | 20.5 | 27.0 | 2.47 |
| Finland | 6.6 | 20.9 | 20.6 | 3.17 |
| Belgium | 7.1 | 21.6 | 33.3 | 3.04 |
| Romania | 5.8 | 21.7 | 16.7 | 3.74 |
| Bulgaria | 9.0 | 22.2 | 36.8 | 2.47 |
| Portugal | 10.1 | 23.0 | 22.7 | 2.28 |
| France | 8.1 | 23.9 | 37.5 | 2.95 |
| Poland | 8.0 | 23.9 | 27.1 | 2.99 |
| Sweden | 5.8 | 24.8 | 31.5 | 4.28 |
| Hungary | 9.9 | 26.2 | 39.8 | 2.65 |
| Ireland | 12.2 | 27.1 | 44.6 | 2.22 |
| Italy | 7.0 | 27.1 | 27.3 | 3.87 |
| Estonia | 14.9 | 28.0 | 45.9 | 1.88 |
| Latvia | 16.2 | 33.3 | 42.4 | 2.06 |
| Greece | 11.5 | 33.4 | 30.6 | 2.90 |
| Slovak Republic | 12.4 | 34.3 | 63.5 | 2.77 |
| Lithuania | 16.6 | 35.2 | 44.2 | 2.12 |
| Spain | 18.4 | 42.4 | 48.7 | 2.30 |

*Source*: Eurostat.

*Note*: ISCED 0-2 covers those whose highest level of education is pre-primary, primary or lower-secondary education.

Column 4 shows the ratio of youth to adult unemployment rates in 2010Q3. There is a wide variation across countries signalling differing levels of integration of youth within the overall labour market. Germany stands out as a clear exception with youth unemployment rates only 34 per cent above adult rates. This contrasts with countries such as Belgium, Italy, Sweden and the United Kingdom where the youth to adult unemployment ratio exceeds three. The variation in the youth adult unemployment ratio is not correlated with variation in overall unemployment rates and must reflect national differences in education and employment policies and practices.

In Mediterranean countries, an important behavioural response to increased youth unemployment rates is for children to stay longer with their parents. This may lessen the impact of being unemployed (Card and Lemieux, 2000; Chiuri and Del Boca, 2008). Dolado (2010) argues that in Spain the family is the central pillar of the welfare system. Parents and children may have an implicit contract whereby parents provide extended support for their children in return for future care and support when the parents age. This behaviour may partly explain the muted political response to historically high levels of youth unemployment in countries such as Italy and Spain.

There is now widespread acceptance that youth unemployment is an acute policy issue in developed countries. We wish to draw attention to the two further issues that have been less extensively discussed. First, we have argued (Bell and Blanchflower, 2010b) that high levels of youth unemployment at present partly reflect relatively large current youth cohorts. This argument may have some validity for developed countries, where the most recent United Nations (UN) population projections for 2010 suggest that the cohort aged 15–24 is 18 per cent larger than those aged 5–14. Interestingly, in China, the older cohort is 26 per cent larger than those aged 5–14, which must in part reflect the Chinese "one child" policy. In other parts of the world, the younger cohorts predominate: among the least developed countries the 5–14 cohort is 20 per cent larger than those aged 15–24. In sub-Saharan Africa that figure increases to 23 per cent. In the world as a whole, the differences between the age groups broadly balance, so that there is no significant difference in the numbers aged 5–14 compared with those aged 15–24.

Despite the growth in the size of the youth cohort, figures from the United Nations Population Database shows that Europe still has the lowest share of its population aged under 25 and this share will probably fall further over the next decade. It is notable that the median age of the population in Egypt is 24 and 29.7 years in Tunisia compared with 44.3 years in Germany; 39.7 years in France; 39.8 in the United Kingdom and 36.8 in the United States.[2] Asia and South America have relatively high proportions of young people but their share in the overall population is expected to decline by 2020. In contrast, Africa has more than 60 per cent of its population, aged below 25 and although this share will decline slightly, the absolute number of those aged less than 25 in Africa is projected to increase by 17 per cent between 2010 and 2020. Africa does not have the extensive education and welfare support that is available in the developed world. Unless effective policies are put in place to increase employment among the young, there is a danger of increased political instability as has recently been evidenced in Tunisia and Egypt.

Second, youth unemployment data only partly capture the difficulties that young people are facing in the labour market. Our previous work (Bell and Blanchflower, 2011a) has indicated that young people are more likely to be hours constrained.



We used evidence from the United Kingdom Labour Force Survey, which asks employees whether they would wish to work more, less or the same number of hours. There is a clear contrast in responses by age. Older workers would prefer to work fewer hours, whereas the young express a strong desire to work more hours. In this sense, many of the young people who are employed are contracted to provide fewer hours than they would wish: they are underemployed.

We now establish a further result, which illustrates another aspect of the difficulties that young people face in the recession. We focus on job matches and whether the young have been disproportionately recruited into lower-skilled jobs during the recession. This adds to recent literature on the harmful effects of entering the jobs market during a recession. Kahn (2010) shows that the labour market consequences of graduating from college during a recession have large, negative and persistent effects on wages. Lifetime earnings are substantially lower than they would have been if the graduate had entered the labour market in good times. However, we particularly focus on her finding that cohorts who graduate in worse national economies tend to end up in lower-level occupations.

Giuliano and Spilimbergo (2009) suggest that the period of early adulthood (between 18 and 25) seems to be the age range during which people are more sensitive to macroeconomic conditions. They find that being exposed to a recession before age 17 or after age 25 has no impact on beliefs about life chances. However, youngsters growing up during recessions tend to believe that success in life depends more on luck than on effort; they support more government redistribution, but have less confidence in public institutions. Recessions seem to affect youngsters' beliefs adversely.

Specifically, we investigate whether job matches according to skill level change during a recession, particularly for the young. In particular, we model whether the young accept jobs that require lower skill levels during a recession. We use quarterly data from the United Kingdom Labour Force Survey (LFS) for the period from 2005Q1 to 2010Q2, a time period which encompasses the Great Recession. The LFS occupational classification (SOC, 2000) divides employment into four main skill groups – level IV (corporate managers and professionals), level III (associative professionals and skilled workers), level II (administrative and service occupations), level I (elementary trades and service occupations). We use this four-way classification of skill as the dependent variable in an ordered logit model, which includes individual characteristics as controls as well as time dummies, which capture whether the skill level of matches, conditional on individual characteristics, is changing through time. Skill levels are numbered from one (least skilled) to four (most skilled). A positive coefficient on a variable therefore implies that it is associated with higher levels of skill.

We divide the sample by age group, 16–24, 25–49 and 50+ and use gender, qualifications, region and ethnicity as controls. Quarterly time dummies are included to determine whether, conditional on their characteristics, individuals find a job match at a higher or lower skill level during a period of recession. Our results in table 3.4 show that the young were more prone than other age groups to accept lower-skilled jobs during the Great Recession. Education, ethnicity and gender are also important influences on the skill level associated with job matches. As might be expected, more education, being white and male are each associated with higher skilled occupations. However, our main result is that the trend in the time dummies since 2008 has been negative for all age groups, indicating that workers were accepting lower-skilled jobs in 2010 than in 2005, conditional on their characteristics. Figure 3.4 shows this result by plotting the full set of time dummies from 2005 to 2010. A downward trend occurs for all age groups, implying that workers of all ages are accepting lower-skilled jobs than they might have previously when the labour market was more robust, but the effect is strongest for those aged 16–24. If the state of the labour market

**Table 3.4** Skills demand and the recession: Ordered logit results (OLS)

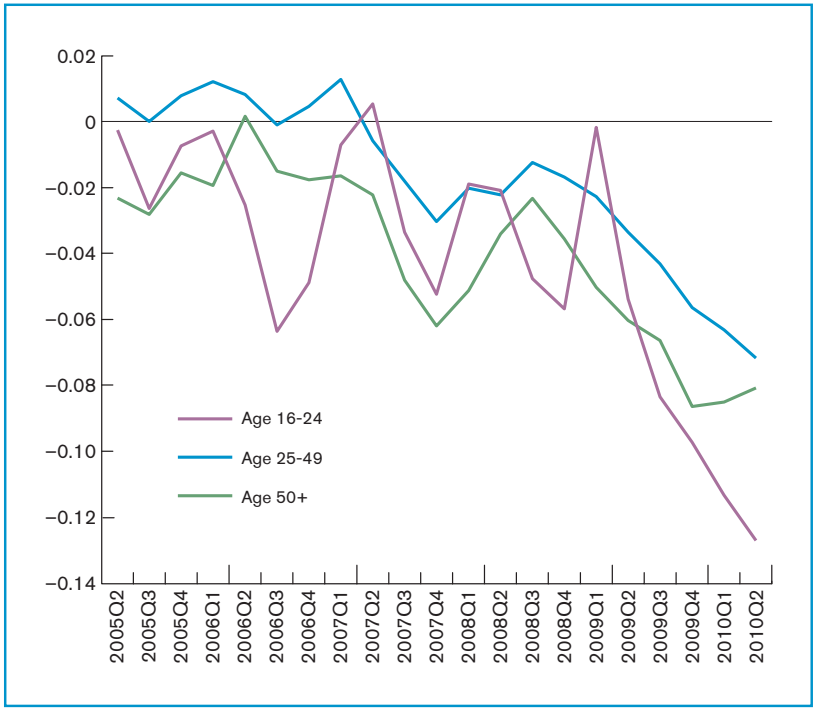
| | Ages 16–24 | Ages 25–49 | Ages 50+ |
|---|---|---|---|
| Gender | –0.463 (45.1) | –0.833 (113.6) | –0.849 (181.0) |
| First degree | –1.548 (30.7) | –0.736 (37.99) | –0.882 (82.36) |
| HNC/HND equivalent | –2.411 (44.9) | –1.501 (79.23) | –1.734 (151.7) |
| NVQ Level 3 | –2.967 (60.3) | –2.395 (129.1) | –2.408 (222.9) |
| Trade apprenticeship | –2.064 (36.8) | –2.775 (139.9) | –2.591 (189.6) |
| O–level or equivalent | –3.212 (65.2) | –2.983 (161.5) | –3.004 (280.8) |
| Other qualifications | –3.541 (68.4) | –3.546 (186.0) | –3.411 (287.8) |
| No qualifications | –3.867 (73.2) | –3.860 (201.9) | –3.786 (289.3) |
| 2008Q1 | –0.020 (0.58) | –0.052 (2.11) | –0.021 (1.31) |
| 2008Q2 | –0.021 (0.61) | –0.034 (1.40) | –0.023 (1.44) |
| 2008Q3 | –0.048 (1.37) | –0.024 (0.96) | –0.013 (0.80) |
| 2008Q4 | –0.057 (1.63) | –0.036 (1.46) | –0.017 (1.09) |
| 2009Q1 | –0.002 (0.06) | –0.051 (2.07) | –0.023 (1.45) |
| 2009Q2 | –0.054 (1.49) | –0.061 (2.46) | –0.034 (2.13) |
| 2009Q3 | –0.084 (2.31) | –0.067 (2.7) | –0.044 (2.71) |
| 2009Q4 | –0.097 (2.67) | –0.087 (3.51) | –0.057 (3.51) |
| 2010Q1 | –0.113 (3.09) | –0.085 (3.44) | –0.064 (3.92) |
| 2010Q2 | –0.127 (3.48) | –0.081 (3.28) | –0.072 (4.47) |
| cut1 | –5.020 | –6.103 | –6.126 |
| cut2 | –2.684 | –3.761 | –3.794 |
| cut3 | –0.780 | –2.169 | –2.146 |
| N | 141,232 | 310,893 | 717,591 |
| LR chi$^2$ | 18,311 | 115,505 | 240,500 |
| Pseudo $R^2$ | 0.054 | 0.141 | 0.129 |

*Source*: UK Labour Force Surveys 2005–2010.

*Notes*: HNC and HND are college-level qualifications approximately equivalent to associate degrees in the United States. Omitted categories – males, higher degree, whites, north-east of England and 2005Q1. Only the time dummies from 2008Q1 to 2010Q2 are shown. The values of the full sets of time dummies are shown in figure 3.4.



**Figure 3.4** Time dummies by age group in skills regression, 2005–10




causes better qualified applicants to accept lower-skilled jobs, there are two important consequences. First, the difficulties of unqualified job applicants increase since they find themselves in direct competition with the better qualified. Second, following Kahn's argument, if young people accept a lower-skilled job initially, there may be long-lasting negative effects on their labour market experience.

Combined with our previous work, this result leads us to the conclusion that the Great Recession has particularly affected the young through: (a) higher unemployment rates, (b) higher levels of underemployment and (c) increased willingness to accept lower-quality jobs. In recent work (Bell and Blanchflower, 2011b), we have discussed the issue of the "scarring" effects of youth unemployment. Scarring means that adverse labour market experiences when young lead to further negative market outcomes well into the future. The evidence for such scarring relies largely on cohort studies where youth unemployment is used to identify those at risk of later adverse labour market outcomes. Youth unemployment episodes are used as the marker to identify subsequent scarring. As far as we are

aware, no research has tested alternatives such as underemployment or suboptimal job matches when young to identify later scarring effects.

## 3.4 Happiness and attitudes to employment and globalization

In this section we examine how attitudes have changed during the financial crisis. It is rather early in the crisis to determine the impact of the recession. One way is to see how individuals' attitudes have changed and how that varies across countries.[3] To do so we make use of micro data at the level of the individual across the EU27 plus Croatia, Iceland, the Former Yugoslav Republic of Macedonia and Turkish Cyprus. These data are taken from two Eurobarometer Surveys conducted for the European Commission, No. 68.1 from September to October 2007 and No. 73.4 conducted in May 2010.

Comparable questions are available in both surveys on life satisfaction, employment and expectations for jobs over the following twelve months. In 2010 a special component was also included on the crisis itself and individuals reported on whether they thought the crisis was over and whether they favoured public intervention to create jobs. Finally, we examine evidence on individuals' views on the impact of globalization, on a number of outcomes including growth, inequality, prices plus its impact on citizens compared to large corporations.

What we find is that happiness and well-being has held up reasonably well to this point, but has dipped sharply in several countries including Greece. We further find evidence that the unemployed are especially unhappy and that shows no sign of improving. Over time the unemployed are becoming less optimistic about the employment situation in their country. They are especially likely to report that they expect the crisis to worsen, and unsurprisingly want the government to create jobs.

In table 3.5 we report the results of estimating a life satisfaction or happiness equation for both 2007 and 2010 (see Blanchflower and Oswald, 2004, 2011). The responses are ordered and are coded 1–4 as described in the notes to the table. The appropriate estimation procedure here is ordered logit but for ease of exposition we make use of Ordinary Least Squares (OLS). Fortunately results are broadly similar whichever procedure is used.

Happiness levels in Portugal, Spain and especially Greece have fallen sharply as well as in Latvia and Lithuania that have also seen big increases in unemployment. This is true both in the mean scores reported at the end of table 3.5 and in the regressions. The coefficient on the Irish dummy declined between 2007 and 2010 although the



**Table 3.5** Happiness and jobs, 2007 and 2010 (OLS)

| | Life satisfaction | | Employment satisfaction | |
|---|---|---|---|---|
| | 2007 | 2010 | 2007 | 2010 |
| Age 15–24 | 0.1327 (6.86) | 0.1803 (9.23) | −0.0120 (0.68) | 0.0247 (1.47) |
| Age 25–34 | 0.0488 (3.39) | 0.0587 (4.12) | −0.0064 (0.49) | −0.0138 (1.13) |
| Age 45–54 | −0.0552 (4.00) | −0.0703 (5.10) | −0.0388 (3.10) | −0.0450 (3.79) |
| Age 55–64 | 0.0034 (0.23) | −0.0216 (1.42) | −0.0205 (1.49) | −0.0271 (2.08) |
| Age ≥65 | 0.0843 (4.60) | 0.0619 (3.36) | 0.0175 (1.05) | 0.0274 (1.72) |
| Male | −0.0117 (1.39) | −0.0216 (2.56) | 0.0513 (6.64) | 0.0513 (7.03) |
| ALS 16–19 | 0.1244 (10.35) | 0.1110 (9.12) | 0.0750 (6.85) | 0.0434 (4.10) |
| ALS ≥20 | 0.2645 (19.63) | 0.2818 (20.78) | 0.1729 (14.07) | 0.1180 (10.01) |
| Still studying | 0.2811 (11.79) | 0.2777 (11.79) | 0.1996 (9.16) | 0.1211 (5.92) |
| No FT education | −0.0264 (0.61) | −0.1753 (3.89) | −0.0391 (0.96) | 0.0702 (1.73) |
| Politics 3–4 | 0.0072 (0.43) | 0.0282 (1.59) | 0.0633 (4.06) | 0.0719 (4.66) |
| Politics centre | 0.0555 (3.56) | 0.1056 (6.52) | 0.0582 (4.08) | 0.0952 (6.77) |
| Politics 7–8 | 0.0822 (4.71) | 0.1439 (8.05) | 0.1244 (7.83) | 0.1535 (9.90) |
| Politics right | 0.1516 (7.69) | 0.2019 (9.74) | 0.0993 (5.52) | 0.1319 (7.31) |
| Origin other EU | −0.0222 (0.83) | −0.0233 (0.96) | 0.0800 (3.24) | 0.1457 (6.70) |
| Europe not EU | 0.0190 (0.59) | −0.0788 (2.34) | 0.0680 (2.31) | −0.0080 (0.27) |
| Asia/Africa origin | −0.0897 (2.32) | −0.1247 (3.34) | 0.1019 (2.89) | 0.0652 (2.03) |
| USA/Japan origin | 0.1231 (1.10) | 0.1517 (1.32) | 0.1191 (1.19) | 0.0602 (0.60) |
| Home account | −0.0264 (1.58) | −0.0620 (3.61) | −0.0520 (3.41) | −0.0557 (3.73) |
| Unemployed | −0.3650 (22.99) | −0.4166 (28.23) | −0.2408 (16.74) | −0.2191 (17.27) |
| Retired | −0.0974 (6.57) | −0.1014 (6.78) | −0.0850 (6.27) | −0.0965 (7.45) |
| Austria | −0.1609 (5.16) | −0.1386 (4.77) | 0.2552 (9.01) | 0.4064 (16.35) |
| Bulgaria | −0.9219 (28.88) | −1.0384 (35.59) | −0.2403 (8.27) | −0.4921 (19.75) |
| Croatia | −0.1916 (6.10) | −0.3645 (12.39) | −0.5304 (18.57) | −0.6306 (25.29) |
| Cyprus | −0.0043 (0.11) | −0.1694 (4.63) | 0.2913 (8.28) | 0.1679 (5.29) |
| Czech Republic | −0.2577 (8.33) | −0.3766 (13.04) | −0.2296 (8.20) | −0.2882 (11.70) |
| Denmark | 0.4419 (14.17) | 0.3523 (12.18) | 0.5008 (17.70) | 0.4336 (17.50) |
| East Germany | −0.3028 (8.05) | −0.3999 (10.85) | −0.1964 (5.73) | −0.0664 (2.11) |
| Estonia | −0.4124 (13.22) | −0.5060 (17.45) | −0.2584 (9.07) | −0.2982 (12.00) |
| Finland | 0.1060 (3.42) | 0.0013 (0.05) | 0.1987 (7.07) | 0.2323 (9.43) |
| France | −0.2428 (7.89) | −0.2602 (9.08) | −0.3787 (13.57) | −0.2712 (11.06) |
| Greece | −0.7029 (22.50) | −0.9780 (33.63) | −0.5140 (18.17) | −0.5331 (21.47) |
| Hungary | −0.7658 (24.59) | −0.8158 (28.19) | −0.5758 (20.41) | −0.4147 (16.77) |
| Ireland | 0.1626 (5.18) | 0.0230 (0.79) | −0.7427 (26.15) | −0.6732 (27.17) |
| Italy | −0.5392 (17.36) | −0.4906 (16.94) | −0.3258 (11.59) | −0.2038 (8.21) |
| Latvia | −0.6826 (21.79) | −0.6463 (22.30) | −0.6729 (23.70) | −0.5350 (21.57) |
| Lithuania | −0.7067 (22.59) | −0.7812 (26.90) | −0.3956 (13.82) | −0.4273 (17.17) |
| Luxembourg | 0.2281 (5.96) | 0.0957 (2.59) | 0.2067 (5.92) | 0.4972 (15.62) |
| Macedonia, FYR of | −0.5191 (16.53) | −0.6295 (21.78) | −0.5993 (21.03) | −0.5273 (21.29) |
| Malta | −0.0288 (0.74) | −0.2566 (6.88) | 0.0712 (1.93) | 0.2021 (6.15) |
| Netherlands | 0.2927 (9.54) | 0.1163 (4.06) | 0.4157 (14.92) | 0.5284 (21.43) |
| Poland | −0.3490 (11.08) | −0.3614 (12.38) | −0.0997 (3.46) | −0.0332 (1.32) |
| Portugal | −0.6679 (20.95) | −0.8385 (28.61) | −0.5745 (19.93) | −0.4044 (16.16) |
| Romania | −0.6628 (21.23) | −1.1454 (39.42) | −0.4785 (16.66) | −0.5923 (23.69) |
| Slovak Republic | −0.3775 (2.17) | −0.3848 (13.36) | −0.3588 (12.70) | −0.2700 (10.98) |
| Slovenia | −0.0729 (2.34) | −0.1762 (6.08) | −0.1794 (6.33) | −0.3168 (12.76) |
| Spain | −0.1396 (4.45) | −0.2410 (8.28) | −0.5107 (17.96) | −0.5672 (22.83) |
| Sweden | 0.2775 (8.94) | 0.1436 (5.05) | −0.0249 (0.89) | 0.3750 (15.41) |
| Turkey | −0.5089 (15.82) | −0.4883 (16.17) | −0.4988 (17.10) | −0.1241 (4.76) |
| UK | 0.1416 (4.86) | 0.1230 (4.59) | −0.3489 (13.18) | −0.0737 (3.19) |
| West Germany | −0.0900 (2.90) | −0.1236 (4.30) | 0.0383 (1.36) | 0.1019 (4.14) |

*Continued overleaf*

**Table 3.5** *Continued*

| | Life satisfaction | | Employment satisfaction | |
|---|---|---|---|---|
| | 2007 | 2010 | 2007 | 2010 |
| Constant | 2.9592 | 3.0531 | 1.9694 | 1.8385 |
| N | 29,517 | 30,580 | 28,939 | 29,659 |
| Adjusted $R^2$ | 0.2671 | 0.2911 | 0.2624 | 0.2948 |

*Source*: Eurobarometers No. 68.1, September–October 2007 and No. 73.4, May 2010. (Regarding country denominations, see endnote 3.)

*Notes*: excluded categories, employed; Belgium; age left school (ALS) <16; age 35–44; politics – left; and origin "in our country". Asia and Africa also includes Latin America. USA/Japan means North America and also includes Oceania. T-statistics in parentheses.

Question 1. On the whole, are you: not at all satisfied (=1), not very satisfied (=2), fairly satisfied (=3) or very satisfied (= 4) with the life you lead?

Question 2. How would you judge the current situation in each of the following? The employment situation in (our country): very bad (= 1), rather bad (= 2), rather good (= 3) and very good (= 4).

| Life satisfaction scores | 2010 | 2007 | Change |
|---|---|---|---|
| Greece | 2.24 | 2.68 | −0.44 |
| Romania | 2.08 | 2.39 | −0.31 |
| Lithuania | 2.44 | 2.63 | −0.19 |
| Portugal | 2.29 | 2.47 | −0.18 |
| Spain | 2.90 | 3.07 | −0.17 |
| Turkey | 2.70 | 2.87 | −0.17 |
| Latvia | 2.59 | 2.68 | −0.09 |
| Malta | 2.93 | 3.02 | −0.09 |
| Italy | 2.72 | 2.79 | −0.07 |
| Slovenia | 3.04 | 3.10 | −0.06 |
| Turkish Cyprus | 2.76 | 2.82 | −0.06 |
| Belgium | 3.13 | 3.18 | −0.05 |
| Czech Republic | 2.86 | 2.91 | −0.05 |
| Macedonia, FYR of | 2.49 | 2.54 | −0.05 |
| Luxembourg | 3.36 | 3.39 | −0.03 |
| Estonia | 2.77 | 2.80 | −0.03 |
| Netherlands | 3.41 | 3.44 | −0.03 |
| Austria | 3.07 | 3.07 | 0.00 |
| Croatia | 2.81 | 2.81 | 0.00 |
| Hungary | 2.38 | 2.38 | 0.00 |
| France | 2.98 | 2.97 | 0.01 |
| Cyprus | 3.06 | 3.05 | 0.01 |
| Denmark | 3.66 | 3.65 | 0.01 |
| Bulgaria | 2.17 | 2.15 | 0.02 |
| Poland | 2.88 | 2.85 | 0.03 |
| Ireland | 3.24 | 3.21 | 0.03 |
| East Germany | 2.75 | 2.70 | 0.05 |
| Finland | 3.30 | 3.25 | 0.05 |
| West Germany | 3.10 | 3.05 | 0.05 |
| Sweden | 3.44 | 3.38 | 0.06 |
| United Kingdom | 3.32 | 3.22 | 0.10 |
| Slovak Republic | 2.85 | 2.74 | 0.11 |

mean score did not decline. One puzzle is the jump in the happiness levels in the United Kingdom, which was 2.91 in 2007 and 3.32 in 2010. It does seem, however, that this growth in happiness is unlikely to be sustained. The date of the 2010 survey was in May, exactly at the time of the General Election when a new coalition government was formed. Since that time business and consumer confidence has



collapsed, as have house prices, with the implementation of an austerity budget cutting public spending and raising taxes.

The results in table 3.5 are standard in that happiness is U-shaped in age (Blanchflower and Oswald, 2008a), rises with the level of education and is higher among right-wingers than left-wingers. Unemployment lowers happiness. In cross-sectional analysis, the French, Greeks, Italians, Portuguese and particularly the East Europeans are unhappy while Scandinavians are the happiest. This may to some extent reflect cultural differences, but recent evidence linking measures of self-reported well-being to objective health measurement suggests that it is not cultural differences alone that explain international differences in reported well-being (Blanchflower and Oswald, 2008b). Comparing the first two columns a number of findings stand out.

1. The unemployed have lower levels of happiness compared to the employed in 2010 than they did in 2007.
2. Happiness levels of non-natives have fallen over time.
3. There was a big drop in the happiness levels of the least educated.
4. Based on the change in the coefficients, there is a noticeable decline in the happiness levels in Greece (−0.28), Ireland (−0.14), Portugal (−0.17) and Spain (−0.10), which have been hard hit by recession and the sovereign debt crisis.

In columns 3 and 4 we model individuals' views on the "employment situation", which has clearly deteriorated over this period. Of particular note here is that residents of Austria, the Netherlands and West Germany had seen a relative improvement in their position. In both periods the Irish are especially gloomy about the job situation.

In Table 3.6 columns 1 and 2, we now look at individuals' views about what they expect to happen to employment over the next twelve months in 2007 and 2010. It should be noted that young people are especially optimistic as are right-wingers and those with more education. By 2010 the unemployed are becoming significantly less optimistic than the employed. Expectations were much lower, measured by a change in the country rankings, in France, Greece, Italy, Portugal and Spain. It is notable how the Swedes have jumped up the rankings, where despite the big drop in output, employment has risen. Residents in the United Kingdom were also more optimistic in 2010 than in 2007 and jumped up the rankings.

Column 3 estimates the probability of reporting that the worst of the jobs crisis is yet to come. The estimation technique is probit. The results reported are estimated marginal effects. Men, the optimistic young, right-wingers and the most educated are less likely to agree. The unemployed are more pessimistic. The Danes and the Swedes believe it is all over bar the shouting. The Greeks, the Irish and especially the Portuguese believe the crisis still has legs.

**Table 3.6** Expectations for jobs and public role in creating jobs, 2007 and 2010 (OLS)

| | Expectations for employment | | Job crisis to worsen | Create jobs |
|---|---|---|---|---|
| | 2007 | 2010 | 2007 | 2010 |
| Age 15–24 | 0.1641 (8.82) | 0.0929 (4.45) | −0.0579 (4.01) | 0.1261 (4.77) |
| Age 25–34 | 0.0766 (5.55) | 0.0647 (4.24) | −0.0256 (2.43) | 0.0505 (2.66) |
| Age 45–54 | −0.0332 (2.51) | −0.0669 (4.55) | 0.0198 (1.96) | 0.0265 (1.45) |
| Age 55–64 | −0.0576 (3.95) | −0.0686 (4.24) | 0.0225 (2.01) | 0.0367 (1.81) |
| Age ≥65 | −0.0192 (1.09) | −0.0469 (2.37) | −0.0056 (0.42) | 0.0566 (2.26) |
| Male | −0.0151 (1.86) | 0.0298 (3.30) | −0.0242 (3.89) | −0.0232 (2.06) |
| ALS 16–19 | 0.0227 (1.95) | 0.0076 (0.58) | −0.0408 (4.43) | −0.0155 (0.92) |
| ALS ≥20 | 0.0059 (0.45) | 0.0801 (5.47) | −0.0968 (9.47) | −0.0687 (3.74) |
| Still studying | 0.0854 (3.70) | 0.1096 (4.32) | −0.0872 (4.96) | −0.0634 (1.99) |
| No FT education | 0.0645 (1.49) | 0.0197 (0.39) | 0.0150 (0.43) | −0.0188 (0.27) |
| Politics 3–4 | 0.0257 (1.57) | 0.0651 (3.40) | −0.0583 (4.36) | −0.0711 (3.02) |
| Politics centre | 0.0356 (2.37) | 0.0821 (4.71) | −0.0877 (7.22) | −0.0749 (3.50) |
| Politics 7–8 | 0.0392 (2.35) | 0.1451 (7.55) | −0.1258 (9.38) | −0.0826 (3.51) |
| Politics right | 0.0957 (5.03) | 0.1542 (6.90) | −0.1267 (8.16) | −0.0264 (0.97) |
| Origin other EU | 0.0585 (2.25) | 0.1240 (4.59) | −0.0486 (2.67) | 0.0477 (1.49) |
| Europe not EU | 0.0357 (1.15) | 0.0299 (0.82) | 0.0238 (0.97) | 0.2660 (5.83) |
| Asia/Africa origin | 0.1717 (4.61) | 0.0136 (0.34) | −0.0412 (1.51) | 0.1168 (2.36) |
| USA/Japan origin | −0.0478 (0.46) | 0.1752 (1.44) | −0.0981 (1.10) | 0.1936 (1.22) |
| Home account | 0.0344 (2.12) | −0.0358 (1.92) | 0.0169 (1.31) | −0.0157 (0.65) |
| Unemployed | 0.0242 (1.59) | −0.0419 (2.67) | 0.0844 (7.83) | 0.0718 (3.59) |
| Retired | 0.0138 (0.97) | −0.0086 (0.54) | 0.0267 (2.42) | −0.0261 (1.30) |
| Austria | 0.1263 (4.23) | 0.1209 (3.94) | −0.0540 (2.53) | 0.1338 (3.58) |
| Bulgaria | 0.0577 (1.88) | 0.0098 (0.31) | −0.1789 (7.87) | 0.1513 (3.48) |
| Croatia | −0.0287 (0.96) | −0.2413 (7.84) | 0.0356 (1.70) | 0.2471 (6.51) |
| Cyprus | −0.1010 (2.71) | −0.3817 (9.56) | 0.1650 (6.38) | 0.0757 (1.56) |
| Czech Republic | −0.1135 (3.86) | −0.1386 (4.57) | −0.0583 (2.81) | 0.1199 (3.23) |
| Denmark | −0.0473 (1.60) | 0.4141 (13.62) | −0.1706 (8.11) | 0.2575 (6.99) |
| East Germany | −0.0459 (1.27) | −0.1988 (5.09) | 0.1489 (5.59) | −0.1595 (3.35) |
| Estonia | −0.0413 (1.38) | 0.3689 (12.04) | −0.1800 (8.57) | −0.0289 (0.74) |
| Finland | −0.0111 (0.38) | 0.1832 (6.06) | −0.0477 (2.31) | 0.2642 (7.13) |
| France | 0.1312 (4.47) | −0.0975 (3.21) | 0.1031 (5.08) | −0.2077 (5.49) |
| Greece | −0.0786 (2.65) | −0.5333 (17.48) | 0.1811 (9.00) | −0.2542 (6.80) |
| Hungary | −0.1152 (3.89) | 0.1725 (5.66) | −0.2113 (9.99) | −0.0313 (0.84) |
| Ireland | −0.2512 (8.39) | −0.1364 (4.46) | 0.0501 (2.42) | 0.3656 (9.30) |
| Italy | 0.1748 (5.88) | −0.0830 (2.71) | −0.0614 (2.86) | −0.0564 (1.44) |
| Latvia | −0.0574 (1.91) | 0.1248 (4.07) | −0.0034 (0.16) | −0.2309 (6.04) |
| Lithuania | −0.1737 (5.78) | −0.1423 (4.61) | 0.0522 (2.52) | 0.2936 (7.65) |
| Luxembourg | −0.0058 (0.16) | −0.2922 (7.46) | 0.1659 (6.51) | 0.1510 (3.17) |
| Macedonia, FYR of | 0.2362 (7.87) | −0.1000 (3.28) | −0.0949 (4.49) | 0.5913 (15.24) |
| Malta | 0.1767 (4.41) | 0.1975 (4.71) | −0.1350 (4.80) | −0.0508 (0.99) |
| Netherlands | −0.1834 (6.28) | 0.1200 (3.96) | −0.0299 (1.45) | −0.2115 (5.72) |
| Poland | 0.1107 (3.66) | 0.0476 (1.53) | −0.0820 (3.78) | 0.2080 (5.34) |
| Portugal | −0.1460 (4.77) | −0.2940 (9.47) | 0.1445 (6.93) | 0.0337 (0.84) |
| Romania | 0.0707 (2.34) | −0.4208 (13.61) | 0.1760 (8.49) | 0.3495 (8.59) |
| Slovak Republic | −0.1425 (4.80) | −0.0488 (1.61) | −0.1064 (5.09) | 0.3948 (10.57) |
| Slovenia | 0.0653 (2.19) | −0.1499 (4.90) | 0.0345 (1.67) | −0.1599 (4.30) |
| Spain | 0.1396 (4.64) | 0.0194 (0.63) | 0.0032 (0.15) | 0.0045 (0.12) |
| Sweden | 0.1257 (4.25) | 0.6434 (21.48) | −0.2109 (10.24) | 0.2917 (8.05) |
| Turkey | 0.1388 (4.48) | −0.0771 (2.37) | 0.0277 (1.25) | −0.0484 (1.18) |
| UK | −0.0216 (0.78) | 0.1069 (3.75) | 0.0215 (1.12) | 0.2064 (5.92) |
| West Germany | 0.0190 (0.64) | −0.0128 (0.42) | 0.0583 (2.81) | −0.2708 (7.32) |
| Constant | 1.3660 | 1.7551 | — | 2.628 |
| N | 28,335 | 28,872 | 28,360 | 25,418 |
| Adjusted/Pseudo $R^2$ | 0.0491 | 0.1185 | 0.0569 | 0.0627 |

*Source*: Eurobarometers No. 68.1, September–October 2007 and No. 73.4, May 2010. (Regarding country denominations, see endnote 3.)

*Notes*: excluded categories: employed; Belgium; age left school (ALS) <16; age 35–44; politics – left; and origin "in our country". Asia and Africa also includes Latin America. USA/Japan means North America and also includes Oceania. Column 3 estimated as a probit. T-statistics in parentheses.

Question 1. What are your expectations for the next twelve months: will the next twelve months be worse (=1), the same (= 2) or better (= 3), when it comes to … the employment situation in (our country)?

Question 2. Some analysts say that the impact of the economic crisis on the job market has already reached its peak and things will recover little by little. Others, on the contrary, say that the worst is still to come. Which of the two statements is closer to your opinion? "The impact of the crisis on jobs has already reached its peak" (= 0) or "the worst is still to come" (=1).

Question 3. In an international financial and economic crisis, it is necessary to increase public deficits to create jobs: totally disagree (=1); tend to disagree (= 2); tend to agree (= 3); totally agree (= 4).



In column 4 we model whether the individual believes that it is the job of the public sector to create jobs in the midst of a financial crisis. Unsurprisingly, the unemployed, the young, the least educated and left-wingers hold this view most strongly. Residents of the corporatist countries of Denmark, Finland and Sweden along with the Irish hold this view. Interestingly, residents of the United Kindom hold this view even though their government is about to embark on a strategy of firing large numbers of public sector workers.

The globalization of markets clearly played some part in the transmission of the recession. Has this experience turned the citizens in advanced economies against globalization? We provide some new evidence from Europe to provide at least a partial answer to this question. Using data from two Eurobarometer Surveys No. 69.2 for March–May 2008 and No. 73.4 for May 2010, we investigate how representative samples of citizens from European Union (EU) countries responded to four questions on globalization in 2010. The questions asked citizens for their views about whether globalization (a) increased growth, (b) increased social inequality, (c) reduced inflation and (d) only benefited large companies and not citizens. It should be noted that there are small differences in the labelling of the responses, but in both cases answers are coded from one to four. Details are at the bottom of the tables.

Table 3.7 reports the percentage of respondents who agree or totally agree in 2010 or who strongly agree or somewhat agree in 2008 for each of the four attitudes to globalization measures. In 2010 support for the proposition that globalization improves growth is highest in Denmark (91 per cent), the Netherlands (84 per cent) and Sweden (87 per cent) but is especially low in France (52 per cent), Greece (43 per cent) and Portugal (56 per cent). The vast majority of respondents believe globalization increases inequality and raises company profits, but do not believe it increases prices. The patterns are broadly similar in 2008. The one difference is that

**Table 3.7** Views on globalization: Percentage saying they agree or totally agree, 2008 and 2010

| | Growth | | Inequalities | | Prices | | Profits | |
|---|---|---|---|---|---|---|---|---|
| | 2010 | 2008 | 2010 | 2008 | 2010 | 2008 | 2010 | 2008 |
| Austria | 64 | 62 | 76 | 69 | 27 | 16 | 79 | 79 |
| Belgium | 65 | 63 | 75 | 68 | 29 | 24 | 75 | 74 |
| Bulgaria | 73 | 78 | 73 | 72 | 32 | 26 | 79 | 79 |
| Croatia | 69 | 67 | 76 | 73 | 35 | 29 | 79 | 81 |
| Cyprus | 63 | 61 | 81 | 87 | 36 | 31 | 82 | 88 |
| Czech Republic | 60 | 66 | 69 | 64 | 33 | 29 | 70 | 68 |
| Denmark | 91 | 89 | 57 | 51 | 36 | 29 | 50 | 43 |
| East Germany | 67 | 68 | 77 | 79 | 21 | 11 | 74 | 80 |
| Estonia | 75 | 77 | 64 | 60 | 30 | 29 | 65 | 67 |
| Finland | 77 | 65 | 68 | 62 | 39 | 25 | 63 | 67 |
| France | 52 | 52 | 85 | 82 | 14 | 10 | 86 | 87 |
| Great Britain | 78 | 67 | 66 | 63 | 35 | 24 | 75 | 77 |
| Greece | 43 | 40 | 84 | 77 | 21 | 17 | 83 | 85 |
| Hungary | 76 | 68 | 80 | 75 | 30 | 20 | 74 | 76 |
| Ireland | 75 | 77 | 72 | 76 | 34 | 36 | 77 | 78 |
| Italy | 62 | 61 | 65 | 62 | 45 | 37 | 69 | 72 |
| Latvia | 61 | 58 | 70 | 65 | 25 | 14 | 74 | 79 |
| Lithuania | 74 | 75 | 62 | 64 | 34 | 32 | 76 | 80 |
| Luxembourg | 67 | 62 | 75 | 81 | 27 | 17 | 72 | 82 |
| Macedonia, FYR of | 69 | 76 | 70 | 66 | 38 | 43 | 79 | 76 |
| Malta | 88 | 85 | 53 | 47 | 52 | 41 | 65 | 61 |
| Netherlands | 84 | 83 | 53 | 60 | 37 | 28 | 52 | 58 |
| Northern Ireland | 77 | 68 | 75 | 75 | 30 | 26 | 74 | 78 |
| Poland | 69 | 79 | 73 | 65 | 43 | 39 | 77 | 72 |
| Portugal | 56 | 68 | 70 | 66 | 31 | 40 | 72 | 77 |
| Romania | 68 | 79 | 70 | 73 | 42 | 48 | 71 | 79 |
| Slovak Republic | 79 | 71 | 73 | 68 | 50 | 29 | 73 | 75 |
| Slovenia | 66 | 74 | 83 | 82 | 29 | 30 | 85 | 84 |
| Spain | 67 | 73 | 78 | 75 | 37 | 41 | 83 | 81 |
| Sweden | 87 | 87 | 56 | 56 | 38 | 34 | 50 | 51 |
| Turkey | 66 | 53 | 57 | 59 | 52 | 37 | 67 | 70 |
| West Germany | 70 | 65 | 77 | 71 | 25 | 14 | 68 | 74 |

*Source*: Eurobarometer No. 73.4, May 2010 and Eurobarometer No. 69.2, March–May 2008. (Regarding country denominations, see endnote 3.)

Questions. (1) 2010 For each of the following statements, please tell me whether you totally disagree (= 1), tend to disagree (= 2), tend to agree (= 3) or totally agree (= 4)? (2) 2008 For each of the following statements, please tell me whether you strongly disagree (=1), somewhat disagree (=2), somewhat agree (=3) or strongly disagree (=4).

Column 1. Globalization is an opportunity for economic growth?

Column 2. Globalization increases social inequalities?

Column 3. Globalization protects us from price increases?

Column 4. Globalization is profitable only for large companies, not for citizens?

in almost all countries a higher proportion of respondents say that globalization has protected them from price increases. The main exceptions are the Former Yugoslav Republic of Macedonia, Portugal and Romania.

We use OLS models to identify how well individual characteristics predict attitudes to globalization. Our results are shown in table 3.8 for 2008 and table 3.9 for 2010



**Table 3.8** Views on globalization, 2008 (OLS)

| | Growth | Inequalities | Prices | Profits |
|---|---|---|---|---|
| Age 15–24 | 0.0889 (3.21) | −0.1358 (4.67) | 0.0742 (2.52) | −0.0720 (2.49) |
| Age 25–34 | 0.0395 (2.03) | −0.0425 (2.07) | 0.0518 (2.52) | −0.0346 (1.71) |
| Age 45–54 | −0.0209 (1.13) | 0.0105 (0.55) | −0.0099 (0.51) | 0.0517 (2.69) |
| Age 55–64 | −0.0251 (1.22) | 0.0089 (0.41) | −0.0512 (2.36) | 0.0821 (3.83) |
| Age ≥65 | 0.0087 (0.34) | −0.0154 (0.57) | −0.0058 (0.22) | 0.0664 (2.49) |
| Male | 0.0470 (4.09) | −0.0045 (0.38) | 0.0301 (2.48) | −0.0223 (1.87) |
| ALS 16–19 | 0.0432 (2.55) | −0.0031 (0.18) | 0.0335 (1.90) | −0.0293 (1.68) |
| ALS ≥20 | 0.1191 (6.46) | 0.0058 (0.30) | 0.0691 (3.57) | −0.1323 (6.92) |
| Still studying | 0.1933 (5.75) | 0.0515 (1.46) | 0.1167 (3.26) | −0.1728 (4.90) |
| No FT education | −0.0836 (0.65) | 0.2797 (1.92) | 0.0891 (0.62) | −0.1468 (1.06) |
| Politics (3–4) | 0.0630 (2.95) | −0.0338 (1.52) | 0.0676 (3.00) | −0.0838 (3.80) |
| Politics centre | 0.0914 (4.67) | −0.0962 (4.73) | 0.1033 (5.00) | −0.1275 (6.31) |
| Politics (7–8) | 0.1265 (5.95) | −0.1655 (7.47) | 0.1606 (7.16) | −0.2026 (9.20) |
| Politics right | 0.1051 (4.27) | −0.1154 (4.49) | 0.1305 (5.01) | −0.1670 (6.54) |
| Home account | 0.0034 (0.14) | −0.0412 (1.59) | 0.0535 (2.07) | 0.0023 (0.09) |
| Unemployed | −0.0013 (0.05) | 0.0044 (0.17) | −0.0182 (0.68) | 0.0609 (2.30) |
| Retired | −0.0256 (1.25) | 0.0032 (0.15) | −0.0110 (0.51) | 0.0605 (2.84) |
| Austria | 0.0218 (0.56) | 0.1311 (3.23) | −0.1516 (3.72) | 0.1808 (4.46) |
| Bulgaria | 0.3028 (7.17) | 0.0900 (2.01) | 0.0991 (2.18) | 0.1012 (2.30) |
| Croatia | 0.0822 (2.05) | 0.1069 (2.53) | 0.0808 (1.91) | 0.1950 (4.64) |
| Cyprus | 0.0306 (0.60) | 0.4999 (9.57) | 0.1099 (2.08) | 0.4108 (8.02) |
| Czech Republic | 0.0567 (1.46) | −0.0576 (1.41) | 0.1920 (4.67) | −0.1080 (2.65) |
| Denmark | 0.4759 (12.78) | −0.2656 (6.79) | 0.0709 (1.80) | −0.5443 (13.97) |
| East Germany | 0.1398 (3.04) | 0.2919 (6.10) | −0.3239 (6.79) | 0.1947 (4.09) |
| Estonia | 0.2181 (5.46) | −0.0950 (2.27) | 0.1479 (3.51) | −0.0662 (1.58) |
| Finland | 0.0405 (1.07) | −0.0737 (1.86) | 0.0789 (1.99) | −0.0763 (1.93) |
| France | −0.1872 (4.93) | 0.2922 (7.41) | −0.3291 (8.35) | 0.3188 (8.14) |
| Greece | −0.4050 (10.56) | 0.2950 (7.37) | −0.1722 (4.27) | 0.3937 (9.81) |
| Hungary | 0.0407 (1.02) | 0.1388 (3.34) | −0.1605 (3.85) | 0.0995 (2.41) |
| Ireland | 0.2085 (4.93) | 0.1244 (2.78) | 0.0917 (2.06) | 0.1463 (3.34) |
| Italy | 0.0319 (0.75) | −0.1005 (2.28) | 0.3201 (7.21) | 0.0235 (0.53) |
| Latvia | −0.0808 (1.94) | −0.0604 (1.38) | −0.1316 (3.01) | 0.0707 (1.64) |
| Lithuania | 0.2130 (4.47) | −0.0566 (1.12) | 0.1670 (3.33) | 0.0920 (1.84) |
| Luxembourg | −0.0797 (1.57) | 0.3348 (6.41) | −0.2535 (4.88) | 0.1848 (3.57) |
| Macedonia, FYR of | 0.3843 (9.04) | 0.1221 (2.73) | 0.3119 (6.90) | 0.1399 (3.13) |
| Malta | 0.5019 (8.62) | −0.4013 (6.30) | 0.4126 (6.46) | −0.3635 (5.76) |
| Netherlands | 0.3705 (10.08) | −0.2367 (6.11) | 0.1642 (4.21) | −0.2422 (6.30) |
| Poland | 0.2608 (6.07) | −0.0429 (0.96) | 0.3296 (7.26) | −0.0223 (0.50) |
| Portugal | 0.0976 (2.26) | −0.0463 (1.02) | 0.4005 (8.83) | 0.0351 (0.79) |
| Romania | 0.2470 (5.81) | 0.1227 (2.73) | 0.3681 (8.21) | 0.1498 (3.41) |
| Slovak Republic | 0.1194 (3.11) | −0.0181 (0.45) | 0.2103 (5.18) | −0.0172 (0.43) |
| Slovenia | 0.2054 (5.18) | 0.3655 (8.85) | 0.0918 (2.20) | 0.2893 (6.99) |
| Spain | 0.1862 (4.32) | 0.1024 (2.29) | 0.3968 (8.76) | 0.0590 (1.33) |
| Sweden | 0.4577 (12.42) | −0.2423 (6.24) | 0.1701 (4.34) | −0.4258 (11.01) |
| Turkey | −0.1518 (3.33) | −0.1627 (3.40) | 0.1889 (3.89) | −0.0102 (0.21) |
| UK | 0.0726 (1.93) | −0.0400 (1.01) | 0.0328 (0.83) | 0.0569 (1.45) |
| West Germany | 0.1064 (2.86) | 0.1779 (4.55) | −0.2603 (6.68) | 0.1132 (2.92) |
| Constant | 2.4788 | 2.9086 | 1.8050 | 3.1034 |
| N | 20,013 | 19,701 | 19,811 | 20,353 |
| Adjusted/Pseudo $R^2$ | 0.0782 | 0.0558 | 0.0666 | 0.0933 |

*Continued overleaf*

**Table 3.8** *Continued*

*Source*: Eurobarometer No. 69.2, March–May 2008. (Regarding country denominations, see endnote 3.)

*Notes*: excluded categories, employed; Belgium; age left school (ALS) <16; age 35–44; politics – left; and origin "in our country". T-statistics in parentheses.

Question. For each of the following statements, please tell me whether you strongly disagree (=1), somewhat disagree (= 2), somewhat agree (= 3) or strongly disagree (= 4).

Column 1. Globalization is an opportunity for economic growth?

Column 2. Globalization increases social inequalities?

Column 3. Globalization protects us from price increases?

Column 4. Globalization is profitable only for large companies, not for citizens?

**Table 3.9** Views on globalization, 2010 (OLS)

| | Growth | Inequalities | Prices | Profits |
|---|---|---|---|---|
| Age 15–24 | 0.0758 (3.26) | −0.0376 (1.56) | 0.0979 (3.84) | −0.0756 (3.07) |
| Age 25–34 | 0.0260 (1.55) | 0.0080 (0.46) | 0.0380 (2.07) | −0.0171 (0.96) |
| Age 45–54 | −0.0158 (0.98) | 0.0375 (2.24) | −0.0268 (1.51) | 0.0504 (2.92) |
| Age 55–64 | −0.0064 (0.36) | 0.0330 (1.78) | −0.0150 (0.76) | 0.0662 (3.48) |
| Age ≥65 | 0.0248 (1.11) | 0.0097 (0.42) | 0.0491 (2.01) | 0.0800 (3.38) |
| Male | 0.0417 (4.16) | −0.0035 (0.34) | 0.0451 (4.12) | −0.0027 (0.26) |
| ALS 16–19 | 0.0524 (3.47) | −0.0219 (1.41) | 0.0192 (1.17) | −0.0482 (3.05) |
| ALS ≥20 | 0.1473 (8.93) | −0.0698 (4.11) | 0.0337 (1.88) | −0.1719 (9.91) |
| Still studying | 0.1630 (5.80) | −0.1286 (4.40) | 0.0972 (3.15) | −0.1952 (6.54) |
| No FT education | 0.0106 (0.16) | −0.0642 (0.92) | 0.0635 (0.87) | −0.0976 (1.33) |
| Politics (3–4) | 0.0948 (4.56) | −0.1056 (4.92) | 0.0836 (3.68) | −0.1041 (4.73) |
| Politics centre | 0.0999 (5.25) | −0.1502 (7.65) | 0.1280 (6.16) | −0.1268 (6.31) |
| Politics (7–8) | 0.2030 (9.71) | −0.1981 (9.18) | 0.2064 (9.02) | −0.2256 (10.19) |
| Politics right | 0.1773 (7.24) | −0.1818 (7.20) | 0.2160 (8.10) | −0.1918 (7.41) |
| Origin other EU | 0.0211 (0.75) | −0.0138 (0.47) | 0.0857 (2.76) | 0.0071 (0.24) |
| Europe not EU | 0.0703 (1.75) | 0.1291 (3.11) | 0.0796 (1.79) | 0.0404 (0.96) |
| Asia/Africa origin | 0.0236 (0.54) | 0.0818 (1.80) | 0.2190 (4.54) | 0.1268 (2.75) |
| USA/Japan origin | 0.1764 (1.24) | 0.0134 (0.09) | 0.2783 (1.80) | −0.3396 (2.31) |
| Home account | 0.0216 (1.01) | −0.0659 (2.94) | −0.0148 (0.63) | −0.0201 (0.88) |
| Unemployed | −0.0570 (3.22) | 0.0273 (1.49) | −0.0353 (1.82) | 0.0447 (2.40) |
| Retired | −0.0216 (1.20) | 0.0216 (1.16) | −0.0338 (1.72) | 0.0165 (0.87) |
| Austria | 0.0197 (0.60) | 0.1246 (3.67) | −0.0731 (2.04) | 0.1837 (5.26) |
| Bulgaria | 0.1165 (3.30) | 0.0293 (0.81) | −0.0006 (0.02) | 0.1788 (4.85) |
| Croatia | 0.0710 (2.09) | 0.1028 (2.93) | −0.0065 (0.18) | 0.2228 (6.19) |
| Cyprus | 0.0014 (0.03) | 0.2503 (5.57) | 0.0550 (1.18) | 0.3114 (6.84) |
| Czech Republic | −0.0870 (2.60) | −0.0358 (1.04) | 0.0556 (1.53) | −0.0414 (1.17) |
| Denmark | 0.4223 (12.83) | −0.2361 (6.86) | 0.0405 (1.12) | −0.3693 (10.48) |
| East Germany | 0.1148 (2.75) | 0.1244 (2.90) | −0.2205 (4.89) | 0.0715 (1.63) |
| Estonia | 0.1477 (4.33) | −0.0996 (2.80) | −0.0272 (0.73) | −0.0701 (1.93) |
| Finland | 0.2036 (6.14) | −0.0251 (0.74) | 0.0709 (1.96) | −0.1439 (4.09) |
| France | −0.2737 (8.13) | 0.2819 (8.26) | −0.4074 (11.25) | 0.2907 (8.30) |
| Greece | −0.3430 (10.44) | 0.3562 (10.51) | −0.2363 (6.58) | 0.3485 (10.01) |
| Hungary | 0.1475 (4.43) | 0.1752 (5.07) | −0.1758 (4.83) | 0.0431 (1.22) |
| Ireland | 0.1988 (5.71) | −0.0186 (0.51) | 0.0052 (0.14) | 0.0799 (2.15) |
| Italy | −0.0503 (1.46) | −0.1606 (4.49) | 0.2020 (5.37) | −0.0936 (2.56) |
| Latvia | −0.0809 (2.33) | −0.0199 (0.55) | −0.1341 (3.53) | 0.0524 (1.43) |
| Lithuania | 0.1095 (3.06) | −0.2318 (6.19) | 0.0493 (1.26) | 0.0338 (0.90) |
| Luxembourg | −0.0184 (0.43) | 0.1029 (2.32) | −0.0955 (2.06) | −0.0326 (0.72) |
| Macedonia, FYR of | 0.1537 (4.49) | 0.0292 (0.83) | 0.1020 (2.72) | 0.2376 (6.58) |
| Malta | 0.4280 (8.73) | −0.3305 (6.36) | 0.3326 (6.03) | −0.1605 (2.93) |



| | Growth | Inequalities | Prices | Profits |
|---|---|---|---|---|
| Netherlands | 0.2457 (7.48) | −0.2755 (7.98) | 0.0927 (2.53) | −0.3232 (9.16) |
| Poland | 0.0301 (0.85) | 0.0467 (1.27) | 0.2128 (5.45) | 0.1202 (3.24) |
| Portugal | −0.1056 (3.00) | −0.1179 (3.26) | 0.0318 (0.84) | −0.0097 (0.27) |
| Romania | 0.0163 (0.45) | −0.0112 (0.30) | 0.1732 (4.38) | −0.0449 (1.17) |
| Slovak Republic | 0.1997 (5.95) | −0.0056 (0.16) | 0.3315 (9.05) | −0.0298 (0.84) |
| Slovenia | 0.0356 (1.06) | 0.3022 (8.80) | −0.0482 (1.33) | 0.3445 (9.79) |
| Spain | 0.0267 (0.77) | 0.1045 (2.90) | 0.0392 (1.01) | 0.2252 (6.11) |
| Sweden | 0.3908 (12.05) | −0.2844 (8.40) | 0.0453 (1.27) | −0.4435 (12.86) |
| Turkey | 0.1143 (3.05) | −0.1156 (2.95) | 0.3789 (9.04) | 0.0196 (0.48) |
| Turkish Cyprus | 0.4092 (9.48) | −0.0814 (1.82) | 0.3925 (8.29) | −0.1618 (3.46) |
| UK | 0.1666 (5.18) | −0.1023 (3.03) | 0.0105 (0.30) | 0.0146 (0.43) |
| West Germany | 0.1497 (4.52) | 0.1464 (4.29) | −0.1920 (5.37) | −0.0110 (0.32) |
| Constant | −2.5138 | −1.9696 | −3.0345 | −1.8884 |
| N | 25,642 | 25,468 | 25,327 | 26,070 |
| Adjusted/Pseudo $R^2$ | 0.0685 | 0.0552 | 0.0503 | 0.0798 |

*Source*: Eurobarometer No. 73.4, May 2010. (Regarding country denominations, see endnote 3.)

*Notes*: excluded categories, employed; Belgium; age left school (ALS) <16; age 35–44; politics – left; and origin "in our country". Asia and Africa also includes Latin America. USA/Japan means North America and also includes Oceania. T-statistics in parentheses.

Questions. For each of the following statements, please tell me whether you totally disagree (=1), tend to disagree (= 2), tend to agree (= 3), or totally agree (= 4)?

Column 1. Globalization is an opportunity for economic growth?

Column 2. Globalization increases social inequalities?

Column 3. Globalization protects us from price increases?

Column 4. Globalization is profitable only for large companies, not for citizens?

where we explore directly individuals' views on the benefits of globalization. It should be noted that no definition of the term globalization was given. The questions related to the effects on growth, inequality, prices and whether the benefits were given to big business or the ordinary citizen. The precise questions are presented at the end of the table.

The patterns are broadly similar to those in the earlier equations: happy people have cheerful dispositions and perhaps are happy about most things. The young are most content about the positive impact on growth (column 1). Males, right-wingers and the most educated are especially content with the benefits. Inevitably the unemployed and the least educated are the most discontented. The Danes, the Dutch, the Finns and the Swedes are most supportive. The French and the Greeks are opposed, worrying in part about the adverse effect of globalization on social inequalities (column 2) and prices (column 3) and that the benefits are mostly to big firms rather than to the man on the street (column 4). In comparing the two years, it is apparent that these patterns are very stable over time. Perhaps the biggest change is that in 2008 the unemployed were not significantly different from the employed regarding their views on growth but by 2010 the unemployed were less supportive of the benefits of globalization on growth.

The Germans, who have long been hawkish on inflation, are especially opposed to the idea that globalization protects from price increases. The unemployed are much less likely than the employed to agree that globalization helps growth. The young, the educated, men and right-wingers are especially likely to report that globalization helps growth.

## 3.5 Policy responses

The first policy response to the financial crisis was to adjust monetary policy. Interest rates were reduced to historical lows and some countries tried to offset the reduction in credit caused by the difficulties in the banking sector by monetary expansion (quantitative easing).

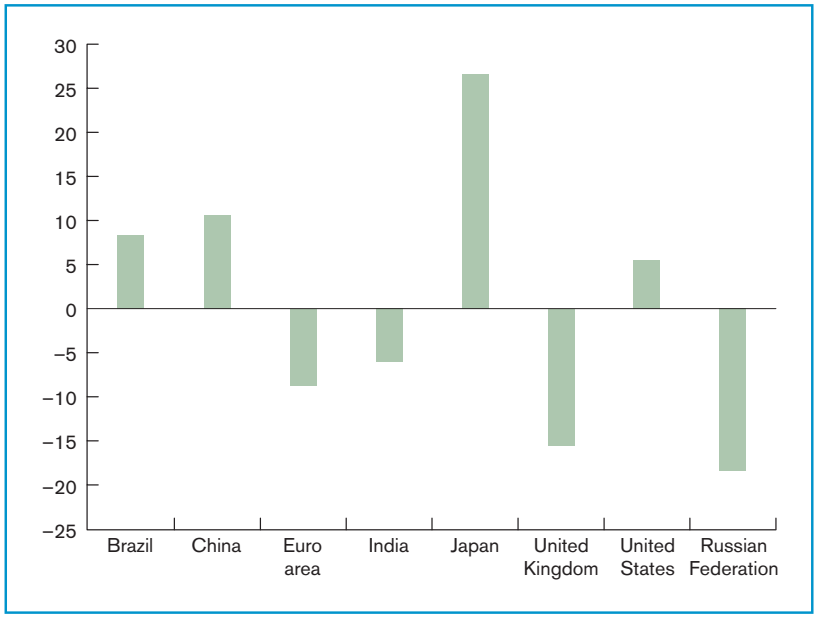
Changes in market sentiment around issues such as the probability of sovereign debt default and growth prospects led to substantial currency realignments. The change in nominal exchange rates from 2008Q1 to 2010Q3 against the SDR is shown in figure 3.5. Major changes included the appreciation of the yen. Despite having the highest national debt to gross domestic product (GDP) ratio in the G20, Japan has a very high domestic savings rate. The result of the high degree of market confidence in the yen has led to a considerable loss in competitiveness and difficulties for the Japanese labour market. The United Kingdom, in contrast, experienced a sharp devaluation, substantially reducing its relative labour costs.

There was widespread unease that countries were attempting to manipulate their currencies to boost external demand. Member countries were encouraged to avoid competitive devaluations at the G20 summit meeting in October 2010, but it is not clear whether any agreement might hold in the medium to long term unless the major imbalances in the world economy are fixed.

The second response to the crisis came as a result of the operation of automatic stabilizers. As private demand fell, government spending on a variety of social insurance schemes increased. In the immediate aftermath of the crash, the most important of these was the impact on unemployment benefits. Recent OECD research has, however, claimed that unemployment benefit expenditure is acyclic, because the increased number of claims during a recession has been offset by a reduction in the value of benefits to unemployed persons. Thus, at the same time as claims have been rising, governments have been reducing the average value of claims and in consequence the net effect on spending has been small. Thus, automatic stabilizers are likely to differ in their effectiveness. In those countries with generous social protection systems, automatic stabilizers are likely to have a stronger effect in supporting demand, so lessening the need for discretionary measures.



**Figure 3.5** Change in nominal exchange rate against SDR, 2008Q1–2010Q3




*Source*: IMF World Economic Financial Statistics.

Such countries are typically found in Northern Europe. For example, the Norwegian unemployment benefit system provides prime age unemployed workers with 72 per cent of their previous income over a period of at least five years. This contrasts with the United States, which provides only 28 per cent for one year.

The third response was the introduction of discretionary measures to boost aggregate demand. The OECD (2011) notes that these measures made a smaller contribution to maintaining output and employment than automatic stabilizers did. The scale of the intervention varied widely both in their composition in respect of spending measures, ranging from the Republic of Korea with a cumulative package worth 6 per cent of GDP over three years, to France, Portugal and Switzerland with less than 0.5 per cent of GDP. New Zealand and the United Kingdom are notable for attempting the most rapid turnaround from fiscal expansion to contraction. The impact of these measures on the labour market depends on short-run employment multipliers, which vary from country to country and on the composition of the stimulus, with increased spending likely to have a more positive effect on employment than tax reductions (OECD, 2011).

We now turn to labour market responses, focusing largely on the advanced countries where the effects of the recession have been most acute. Labour market policy responses have comprised both passive and active measures. The former largely comprise income support schemes, while the latter comprise a wide range of measures schemes intended to keep or reintegrate individuals within the labour market. In recent years OECD strategy has emphasized the benefits of Active Labour Market Policies (ALMPs) relative to passive measures. Spending on labour market policies is relatively low in countries such as Canada, Japan, the Republic of Korea, the United Kingdom and the United States which largely rely on market solutions. On the other hand Ireland, the Netherlands and the Scandinavian countries spend much more both on active and passive labour market policies. Neither group of labour markets has performed uniformly better than the other over the last three years, and in both groups spending per unemployed person actually declined during the recession (OECD, 2011).

Many OECD countries have taken measures to cushion the effect of job loss by decreasing the generosity of unemployment benefits and/or social assistance. A number of countries have also extended support for those seeking jobs. Some have increased the conditionality of income support by requiring the unemployed to increase their job search activity.

Schemes to support short-time working and so avoid lay-offs have been introduced or reinstated in a number of countries. Finally, measures to reduce non-wage labour costs and so encourage employers to substitute labour for capital. However, the additional discretionary spend on these ALMPs in response to the recession has been very small. In the United Kingdom, it measured 0.1 per cent of GDP and in the United States 0.01 per cent of GDP. The highest spenders were Portugal and Poland, who committed more than 0.3 per cent of GDP to these programmes. The OECD (2011) used cross-country variation in short-time working to identify the effects of these policies. It finds that these schemes helped preserve permanent jobs during the downturn. They did not, however, help maintain temporary employment and their effect on the responsiveness of wages to the cycle is unclear.

Reductions in social security contributions were also used as a measure to stimulate employment. The OECD evidence suggests that these may be useful in stimulating short-run demand but in the long run are very expensive as mechanisms for increasing employment, with the long-run elasticity of employment with respect to labour costs being around 0.2 for OECD countries.

Clearly there has been a strong political pressure in many countries to "do something" about the sharp rise in unemployment. Due to their expansion in recent decades, ALMPs now form part of the standard policy toolkit. But the evidence for their



efficacy is somewhat mixed. Card et al. (2010) conduct a meta-analysis of 199 different ALMPs. They find that the proportion of evaluation studies of these programmes that yield positive results rises through time. Thus while only 39.1 per cent yield significantly positive outcomes in the short term, 45.4 per cent yield positive medium-term impacts and 52.9 per cent significantly positive long-term effects. Clearly there are large numbers of programmes that are not successful in improving labour market outcomes. The speed at which the labour market dipped gave governments little time to evaluate new policy interventions. Therefore it is no surprise that ALMPs formed a large part of the discretionary response to rising unemployment.

However, some countries have placed deficit reduction as their policy imperative. Some, like Greece and Ireland, have had little option due to sovereign debt crises. The United Kingdom government argues that it will have a sovereign debt crisis unless it adopts draconian fiscal cutbacks. As a result, the United Kingdom has abandoned some ALMPs that were introduced by the previous government to assist the young such as the educational maintenance allowance (EMA), which was intended to encourage children from poorer backgrounds to stay at school to age 18. It has also cut the Future Jobs Fund which supported 150,000 jobs for those aged under 25. University places have been cut back, despite the fact that university applications are up by around one-third between 2008 and 2011, and tuition fees have increased substantially. The early signs are not good. Between May 2010 when the coalition was formed and October 2010 which is the most recent data available, total employment in the United Kingdom fell by 66,000. Over the same period employment of youngsters under the age of 25 fell by 88,000. Youth unemployment has also jumped sharply. The outcome of the United Kingdom's experiment in significantly reducing ALMPs will be viewed with interest in other countries.

## 3.6 Conclusions

The timing of the shocks to trade and output caused by the financial crisis was closely aligned across countries, leading to the Great Synchronization. However, in terms of size and persistence of the recessionary impact, it is the developed world, and particularly European countries, that have been most adversely affected. Even within Europe there is no consistent pattern. Some countries, especially those hit hard by the decline in world trade, such as Germany and Sweden, have bounced back quickly. In other European countries, output is still significantly lower than its pre-recession level. There is a widespread concern in Europe and in the United States that the recovery will be too weak to generate many jobs and therefore high levels of unemployment will persist, as they did in the 1980s.

The scale of impacts on the labour market has differed widely. For example, the United Kingdom had twice as big a drop in output as the United States, but a much smaller increase in unemployment. As yet, there is not much evidence of a "discouraged worker effect", though this may change as unemployment durations increase. Governments have responded to the crisis with monetary and fiscal policies, some of which may have helped maintain employment. Automatic stabilizers have also had an important role in maintaining demand and supporting the income of the unemployed. They have also introduced, or expanded, a wide range of ALMPs. The effectiveness of these measures undoubtedly varies widely, but the downturn in the labour market happened so rapidly that there was little time to conduct extensive evaluations. Rather, governments had to rely on evidence from pre-recession labour markets. However, the resources devoted to these measures has not increased as rapidly as has the level of unemployment, implying spend per unemployed person has fallen.

Some countries have decided to reduce spending on ALMPs, even though they are confronted by a large increase in unemployment. These encompass countries that have real sovereign debt difficulties, including Greece, Ireland, Portugal and Spain. Some countries are concerned that they may experience similar problems and have introduced fiscal austerity measures to reassure the capital markets. Labour market measures tend not to have a high political priority in times of fiscal stringency and thus are unlikely to be immune from budget cuts. For example, in the United Kingdom, spending on ALMPs has been reduced but government spending on health continues to increase.

We have added to the evidence on the impacts of the recession in a number of ways. Following our previous work showing how much those aged 16–24 have suffered in terms of greater unemployment and underemployment during the Great Recession, we have found that the young have been more likely to accept work at lower skill levels than they might had not jobs been in short supply. This may contribute to the scarring effects of joining the labour market while the economy is in recession.

We have found that the unemployed, the young and left-wingers wish governments would do more to create jobs. Those living in Mediterranean countries have become increasingly pessimistic about job prospects. The Greeks, Irish and Italians think the worst of the crisis is yet to come.

We have also discovered that in countries where output fell sharply and there was a significant deterioration in the labour market, happiness has declined and opposition to globalization increased, although Ireland is an exception. The unemployed have becoming increasingly unhappy, perhaps reflecting their increasing awareness of the difficulties of finding a job. A major concern going forward is that if the recovery is



jobless there will be growing demands for protectionism, especially in countries where inequalities are widening.

## Endnotes

**1.** Verick (2010) documents that the number of discouraged workers has risen significantly in South Africa from 1.08 million in 2008Q2 to 1.63 million in 2009Q3.

**2.** Source: CIA World Factbook https://www.cia.gov/library/publications/the-world-factbook/geos/uk.html.

**3.** References to East/West Germany, Turkish Cyprus etc. reflect the terms used by the EU Eurobarometer, which was launched in 1973. The use of such terms does not constitute or imply an expression of opinion by the WTO Secretariat or the ILO concerning the status of any country or territory, or the delimitation of its frontiers, or sovereignty.

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# 4 Globalization and economic volatility

*John Haltiwanger**

## 4.1 Introduction

Businesses and households face substantial idiosyncratic and aggregate economic risk. As a general principle, economic risk for businesses reflects the myriad of factors that impact the profitability of the business, while for individuals economic risk reflects the myriad of factors that impact the earnings and employment outcomes of household members. While aggregate risk gets most of the headlines, the volatility of profitability and income that an individual business or household faces is dominated by idiosyncratic risk. That is, of the plethora of economic shocks impacting the outcomes for households and businesses, the evidence shows that the variance of idiosyncratic shocks is at least an order of magnitude larger than the variance of aggregate shocks.[1] For example, whether a business is profitable reflects primarily idiosyncratic factors such as product quality, product mix and choice of technology, broadly defined, including the choice of business organization, factor mix, location and business-specific productivity, and cost and demand factors. Similarly, for households, earnings and employment outcomes primarily reflect the education and skills of household members as well as whether household members are well matched in the labour market.

Not only is idiosyncratic risk of critical importance at the micro level, but also recent evidence has highlighted that the manner in which an economy manages the idiosyncratic risk that households and businesses face plays a critical role in aggregate outcomes. That is, aggregate income and productivity in a country depends critically on how well the economy manages idiosyncratic risk.

In this chapter, we focus on idiosyncratic risk and associated volatility. The nature of how economies manage idiosyncratic risk is closely linked to how well they manage changes in economic conditions. Globalization is one of the core factors behind changing economic conditions and the impact of globalization on a country is closely linked to how well it manages idiosyncratic risk.

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What underlies this idiosyncratic risk to households and businesses? There are many factors, but the evidence shows that one key factor is that there are large differences in productivity across businesses even within narrowly defined sectors.[2] Moreover, while these differences in productivity are persistent, there is a process of continuous change in the distribution of productivity. In addition to this dispersion in productivity, in advanced market economies there is a high pace of ongoing reallocation of outputs and inputs across businesses. In healthy market economies, the nature and pace of reallocation is closely tied to the distribution of productivity, that is, outputs and inputs are being reallocated away from less-productive businesses to more-productive businesses. In that respect, reallocation and the accompanying volatility at the firm level has the potential to enhance both productivity and welfare. In healthy market economies (and in healthy times in such economies) the evidence shows that a large fraction of aggregate productivity growth is associated with this ongoing reallocation. One needs to be careful about making causal inferences here – it is not reallocation *per se* that yields productivity growth but rather the process of productivity growth requires ongoing productivity-enhancing reallocation. The reason is that there is need for experimentation and trial and error in developing new products and processes, as well as in adapting to changes in the economic environment.

However, by its very nature the reallocation of outputs and inputs across firms is costly – it is costly to businesses in terms of adjustment frictions and it is costly to households because workers are caught up in this reallocation and also because households own the businesses incurring costs. Workers impacted by reallocation often spend time unemployed in transition, and if this unemployment is at all prolonged they often suffer substantial earnings losses. Substantial costs are borne by businesses in terms of the time and resources used in accomplishing firm entry and exit as well as contraction and expansion. Some of these time and resource costs are an inherent component of the process of reallocation, but market structure and institutions play a critical role in determining the extent to which the reallocation enhances productivity.

How does globalization fit in with these dynamics? Globalization is one of the core factors that induce reallocation – in principle, the opening up of markets and the reduction of trade barriers permits productivity-enhancing restructuring and reallocation. The traditional view is that this permitted increased specialization into the production of products for which a country has comparative advantage. While there is some truth to this traditional wisdom, the development of rich new firm-level data that tracks trade flows at the firm level across countries (as well as at the detailed product level across countries) highlights the enormous amount of within-sector trade flows between countries. We have learned that exporting is rare at the firm level and the distribution of trading activity among firms that do export is highly

skewed. That is, most exporting firms export only a small number of products to a small number of countries. However, the bulk of trade is accounted for by the larger firms that trade in many products to many countries. In addition, we have learned that it is the most-productive firms that are engaged in trade.[3]

These firm-level trade patterns are potentially consistent with productivity-enhancing reallocation but there are potential pitfalls and caveats. First, as an economy becomes more open the transition period can involve substantial dislocation of businesses and workers with the associated costs discussed above. Second, both during the transition and as a feature of longer-run outcomes, poor market structure and institutions can act as a barrier for productivity-enhancing reallocation. Put differently, trade liberalization in an economy with many market distortions can yield especially adverse outcomes and perhaps few benefits.

Globalization also involves globalized financial markets. The increased sophistication and globalization of financial markets is again in principle favourable for productivity-enhancing reallocation. That is, amongst other things, the ongoing need for reallocating outputs and inputs from less-productive to more-productive businesses involves firm entry, firm exit, firm expansion and firm contraction. Financial markets need to be working well to allocate credit to the business start-ups and expanding businesses. Since start-ups and young businesses tend to be more experimental, thus causing them to be more volatile, the financial markets must be able to manage and accommodate not only the start-ups and expanding businesses but also the high probability of contraction and business exit. Globalization has contributed to the development of richer markets with public trading of equity funds across the globe as well as the development of hedge funds, venture capital funds and private equity funds that not only operate in advanced economies but also in emerging markets. Such richer financial markets in principle yield better allocation of financial risk through diversification and the richer financial instruments available. However, it is also clear, especially from the past few years, that global financial markets are fragile and subject to sudden collapses in some segments which can become contagious in other segments of the market. Such fragility in financial markets can act as a source of undesirable volatility and a distortion to productivity-enhancing reallocation. Put simply, when financial markets break down, a business may contract or shut down not so much because it is a low-productivity business but because financial markets are no longer able to allocate credit to even potentially profitable businesses.

In this chapter, we summarize the theoretical and empirical literature underlying the challenges of promoting allocative efficiency, on the one hand, and minimizing the disruption costs of ongoing reallocation, on the other. Following from this we discuss the role of globalization in this context. Finally, we discuss the policy challenges of addressing the issues related to globalization and economic volatility.



The chapter is structured as follows: section 4.2 provides an overview of the basic facts on firm dynamics; section 4.3 presents conceptual underpinnings; section 4.4 gives a synopsis of the empirical evidence relating globalization to economic volatility and section 4.5 discusses policy challenges. Section 4.6 provides some concluding remarks.

## 4.2 Basic facts

### *Productivity and reallocation*

It is useful to start with basic facts about the distribution of productivity and size across businesses.[4] There is much evidence that even within narrowly defined sectors there is substantial dispersion in both productivity and size of businesses. For example, Syverson (2004) shows that the interquartile range of measures of within-industry establishment-level total factor productivity is about 30 log points. Foster et al. (2008) show that the dispersion of establishment-level total factor productivity within detailed product classes that abstracts from variation in plant-level prices is at least as large.[5] Similarly, there is substantial dispersion in business size. Bartelsman et al. (2009a,b) show, for example, that in the United States within-industry firms in the top quartile of the size distribution are on average 80 times larger than firms in the first quartile of the within-industry size distribution.

The large dispersion of productivity and size provide ample scope for there to be differences across industry, countries, and time periods within countries and industries within countries in “static” allocative efficiency. By the latter we mean the extent to which in the cross-section resources are allocated to their highest valued use which in this case implies that the most-productive firms should be the largest firms. Bartelsman et al. (2009a,b) show there are large differences in the within-industry covariance of size and productivity across countries. For example, the covariance in firm size and firm productivity in the United States is high and positive while it is lower in western Europe and still lower in eastern Europe. Interestingly, while the covariance between size and productivity is low in eastern Europe it has been increasing substantially over the last couple of decades. Bartelsman et al. (2009a,b) also show that these differences in the size/productivity covariances are potentially quite important in accounting for differences in output per capita across countries.

While the variations in the within-industry cross-sectional patterns of productivity and size across countries are of critical interest and importance, they offer an incomplete picture. That is, on the basis of the cross-sectional evidence alone one might conclude that there is relatively stable within-industry size and productivity

distribution in the sense that high-productivity firms remain high-productivity firms and large firms remain large firms and so on.[6] While there is persistence in both firm size and firm productivity, there also is considerable reallocation and movements within the distributions. Estimates of the persistence of idiosyncratic of productivity shocks suggest first order yearly autocorrelation of about 0.8 (see, for example, Foster et al., 2008). Along with estimates of dispersion, this estimate of persistence implies estimates of the standard deviation of innovations to productivity shocks of about 0.20 (in terms of log total factor productivity).[7]

Along with this high variance of innovations to productivity shocks, there is a high pace of reallocation of outputs and inputs. Haltiwanger et al. (2010b) estimate an annual establishment-level gross job creation rate of about 18 per cent (as a percentage of employment) and an annual establishment-level gross job destruction rate of 16 per cent in the United States. This implies in any given year a gross job reallocation rate of about 34 per cent – that is about 34 per cent of jobs are reallocated each year in the United States. They also show that most of the establishment-level job reallocation is between firms and not between establishments within firms. Bartelsman et al. (2009a,b) show that such patterns are present in a range of advanced and emerging economies. In addition, Davis and Haltiwanger (1999) and Haltiwanger et al. (2010b) show that much of this reallocation is within industries (about 90 per cent of job reallocation in the United States is within 6-digit NAICS (North American Industry Classification System) or 4-digit SIC (Standard Industrial Classification) industries). Thus, it reflects the contribution of business entry, exit, expansion and contraction within industries.

Just as there is a relationship in the cross-sectional distribution of size and productivity, there is a relationship between the pace of reallocation and productivity shocks. In well-functioning economies, outputs and inputs are being reallocated away from the lower-productivity to higher-productivity businesses. The evidence suggests that about half of the productivity growth within a manufacturing industry over a ten-year period of time is accounted for by such reallocation in the United States (see Foster et al., 2001). In sectors like the retail trade, the evidence shows an even larger fraction of productivity growth is accounted for by reallocation (ibid.). The extent to which reallocation enhances productivity also varies across countries (see Bartelsman et al., 2009a,b).[8]

In short, in well-functioning economies there is evidence of not only static allocative efficiency (more-productive businesses are larger) but dynamic allocative efficiency (resources are being moved from less- to more-productive businesses). A key theme in the remainder of the chapter is that the extent to which a country exhibits patterns of both static and dynamic efficiency will depend on market structure and institutions. Moreover, for current purposes we are especially interested in how globalization



impacts the relationship between productivity and size in the cross-section as well as the relationship between productivity and reallocation.

In the remainder of this chapter, we focus on economic volatility within industries. We do this not only because within-sector reallocation is much larger than between-sector reallocation but also because the literature has not found much impact of globalization on between-sector reallocation (see Goldberg and Pavcnik, 2007). This latter finding is a bit of a puzzle which deserves further investigation.

One theme emphasized in this chapter is that accommodating micro volatility as evidenced by the ongoing need to reallocate workers to more efficient producers becomes disrupted in economic slumps. The nature of this disruption will be elaborated on in future sections. In addition, micro volatility can change the nature of macro volatility. For example, periods of intense restructuring in the economy can dampen aggregate activity as resources are being used for restructuring and reallocation rather than current production. In a related fashion, periods of intense restructuring are often associated with periods of heightened uncertainty which can slow down the adjustment dynamics from both aggregate and micro shocks. These relationships are also discussed in subsequent sections.

### *The impact on workers*

As noted in the introduction, ongoing reallocation is costly, with workers and businesses bearing substantial time and resource costs in accommodating the reallocation even if it does enhance productivity. Both types of resource costs need to be taken into account in evaluating the extent to which a country is achieving static and dynamic allocative efficiency.

In terms of the impact on workers, the evidence shows that in healthy times in healthy economies the impact of reallocation on workers is not too adverse in terms of employment and earnings outcomes. For this purpose, we focus on the evidence in the United States.[9] In good economic times in the United States, many reallocations of workers are associated with either no period of unemployment or a short period of unemployment and often result in an increase in earnings relative to the prior job. The latter is consistent with the perspective that the workers are reallocating away from a lower-productivity firm (and/or from the perspective of both the worker and the firm, a low-quality skills match) to a higher-productivity firm or higher-quality match.

Also consistent with these patterns is that much but not all of the job destruction in the United States is accounted for by worker quits instead of lay-offs in good economic times, although in such times there are always some firm shutdowns with

accompanying worker lay-offs. Moreover, workers who experience a lay-off often have at least a spell of unemployment, and workers who separate from distressed firms via lay-offs and unemployment often have persistent earnings losses.

All of the potential problems with dislocation are significantly exacerbated in economic downturns even in otherwise healthy economies. Not surprisingly, in an economic downturn job destruction increases and job creation decreases. Job destruction in downturns is achieved mostly through lay-offs that yield spells of unemployment that are often protracted. The current economic downturn in the United States offers ample evidence of these challenges. In normal times, the average duration of unemployment in the United States is about two months. In the current economic downturn, it is closer to 10 months. The evidence shows that the persistent earnings losses for workers who experience longer-term unemployment are worse in recessions.[10]

All of the above conditions apply to healthy, well-functioning economies. For highly distorted economies, reallocation is not well accommodated at any time. In highly distorted economies there is often an effort to stifle reallocation. One can understand why, given the concerns about long-term unemployment and the impact of displacement on earnings. However, as we discuss below, stifling such reallocation has adverse effects on static and dynamic allocative efficiency.

## 4.3 Conceptual underpinnings

### *Core models of firm dynamics*

We begin with canonical models of the determinants of the size distribution of activity, static allocative efficiency, dynamic allocative efficiency and firm and industry dynamics. One of the canonical models of the determination of firm size is based on assuming some form of decreasing returns is present given economies of scope and control (for example, Lucas, 1978). Another common model of the determination of firm size is to assume that firms face downward sloping demand curves – models of product differentiation such as those in Melitz (2003) (and many antecedents) have this feature. Such product variation need not be differences in physical products but can also include differences in the bundled goods and services of providing the good or service in question (including the location of providing the good or service). That is, it can be horizontal product differentiation rather than vertical product differentiation.

With such models as a backdrop, there are a rich set of models that help us understand the observed industry and firm dynamics. Jovanovic (1982) posits that at entry firms do not fully know their productivity (or other aspects of profitability) and



so an important part of firm dynamics especially for growing industries is the selection and learning dynamics of young firms. Those firms that learn that they have a good location, good product or process, survive and grow. Those that learn that they are not profitable, contract and exit. Since the evidence on firm dynamics shows that reallocation and restructuring is not confined to young firms, additional theories need to be used to understand such dynamics. Ericson and Pakes (1995) (and a variety of others – see the recent survey by Syverson, 2009) develop models that help account for the ongoing reallocation and productivity dynamics. Ericson and Pakes (1995) postulate that every time a firm makes a major change in its way of doing business (either by adopting a new technology or in responding to some major change in economic conditions like higher energy costs), the firm gets a new draw on its profitability and productivity with associated selection and learning dynamics.

The more general notion as illustrated in models such as Hopenhayn (1992) and Hopenhayn and Rogerson (1993) is that the productivity shocks firms face are persistent but that firms are constantly subject to new productivity and profitability shocks. Viewed from this richer perspective, firms are constantly forced to adjust and adapt to changing economic circumstances and, while their past successes can help in forecasting their ability to adjust and adapt, they are constantly required to reinvent themselves. Those that reinvent themselves well, survive and grow. Those that adapt and adjust poorly, contract and exit.

Globalization potentially plays a key role in these dynamics. As Melitz (2003) and subsequent models emphasize, trade liberalization will induce a shake-up in the allocation of activity within an industry within a country. Melitz (2003) emphasizes that trade will permit the most productive and profitable firms to further expand which in turn will drive up factor prices (or potentially drive down mark-ups as in Melitz and Ottaviano, 2008) so that marginal firms in the industry will exit. The insight from this literature is that globalization can contribute to improved productivity within industries within countries as it induces productivity-enhancing reallocation. Of course, even productivity-enhancing reallocation it is not without costs, for all the reasons discussed above.

### *Scope for misallocation*

Much of the above discussion paints a picture of the potentially important role of productivity-enhancing reallocation for economic growth and even how globalization can contribute to such growth. More recent work has emphasized all of the many factors that can go wrong as countries try to achieve both static and dynamic allocative efficiency. Banerjee and Duflo (2005), Restuccia and Rogerson (2008), Bartelsman et al. (2009a,b) and Hsieh and Klenow (2009) all emphasize that there are a host of distortions to static and dynamic allocative efficiency. Such distortions

include: barriers to entry and exit; regulations that deter job destruction; poorly functioning product, capital and labour markets; weak rules of law; poor public infrastructure for communication and transportation; as well as problems with graft and corruption or the otherwise arbitrary and capricious behaviour of governments. The consequences of such distortions can be severe. As discussed above, in an ideal setting the most-productive firms are the largest firms. In a distorted economy with poor institutions, the largest firm may not be the most productive but rather the best connected, or perhaps the best at navigating the distortions within a country.[11]

This recent literature has shown that the misallocation that results from the type of distortions discussed can account for a substantial fraction of the observed differences in proxies for allocative efficiency (such as the size/productivity covariance discussed in section 4.2) as well as accompanying differences in aggregate output and consumption per capita. Such misallocation distortions have adverse consequences in their own right but also potentially yield a variety of second-best problems for economic reforms including the potential benefits from trade liberalization. While the model of Melitz (2003) and related models make a case as to why liberalization can yield productivity-enhancing reallocation, in the presence of these distortions the impact of piecemeal economic reforms is less clear. If it is difficult to start a business, difficult to expand, difficult to avoid having rents extracted from any profits unless one stays sufficiently small (or even informal), difficult to contract and/or exit (say due to poor bankruptcy regulation and enforcement) and/or any number of other distortions, the productivity-enhancing reallocation highlighted by Melitz (2003) and others can be derailed.

In like fashion, not only might the reallocation be derailed but it may be especially costly. As emphasized by Caballero and Hammour (2000), distortions can be such that creation and destruction get decoupled in time – that is, market reform (including trade reform) might induce downsizing and exit by less-productive businesses as appropriate, but the accompanying creation and expansion by the more-productive businesses may be delayed or derailed. When there is such decoupling, the cost to workers can be especially high, since in an economy with lots of destruction but not much creation (at least for a period of time) there is by construction an economic downturn with many dislocated workers.

One caveat that has been expressed about the above arguments is that the role of reallocation for productivity growth may be more of an issue for advanced market economies than emerging economies. The argument that is made is that it is economies at the frontier of technology that are inherently engaged in the experimentation and creative/destruction process. Following this reasoning, the argument for emerging economies is that if technology could simply be brought up to levels from the past in advanced economies where methods and business



practices are well understood then this would be still be a substantial improvement. There are several reasons why this line of argument is not persuasive. First, the evidence shows that in all economies (advanced and emerging) we observe large within-sector differences in productivity across businesses (see, for example, Bartelsman et al., 2009a,b and Hsieh and Klenow, 2009). If anything, within-sector dispersion in productivity is larger in emerging economies reflecting, as Hsieh and Klenow (2009) emphasize, the effects of misallocation. The point is there is much scope for productivity-enhancing reallocation in emerging economies. Second, while the sources of within-industry differences in productivity across businesses are still under investigation, it is clear that they do not simply stem from access to different "blueprints" for how to produce specific goods and services. Rather differences in productivity reflect differences in managerial ability, organizational capital, management practices and other intangible factors (see, for example, Corrado et al., 2005) along with potentially random factors about choosing the right combination of location, products and processes. The implication is that productivity differences across businesses reflect idiosyncratic factors that are not simply a matter of blueprints – and that such differences are pervasive in high-tech and low-tech sectors as well as advanced and emerging economies.

While this discussion highlights that much progress has been made in our understanding of these issues theoretically and empirically, there are many open questions on these issues that are also active areas of research. Identifying the potential benefits in terms of improved allocative efficiency and the costs in terms of transition costs and worker dislocation from economic reforms is an active area of research.

### *Different dimensions of volatility*

Much of the discussion about volatility has focused on two dimensions of volatility. First, there is the large dispersion of productivity/profitability across businesses. Second, there is the ongoing reallocation of outputs and inputs across businesses. In terms of the latter, it is useful to note that such reallocation reflects an important form of dispersion across businesses – specifically, dispersion in output and input growth rates across businesses. That is, reallocation reflects resources from contracting businesses (those with negative growth rates in outputs and inputs) being reallocated to expanding businesses (those with positive growth rates in outputs and inputs). Entry and exit rates are at the extremes of the output and input growth rate distributions and obviously by construction contribute substantially to volatility.

It is natural to focus on dispersion in profitability/productivity on the one hand, and dispersion in output and input growth rates on the other hand. The core models

discussed in the first subsection above ("Core models of firm dynamics") largely treat the dispersion in productivity/profitability as exogenous while treating the dispersion of output and input growth rates as endogenous. As highlighted in the discussion of the first and second subsections above, a critical factor impacting aggregate outcomes is how well an economy accommodates the idiosyncratic productivity/profitability shocks – that is, are those with favourable shocks growing and those with less favourable shocks shrinking, and in turn is such reallocation accomplished without too much disruption?

There are other closely related dimensions of volatility. An obvious closely related dimension is dispersion in earnings across workers. It is well known that in advanced economies there has been an increase in the dispersion of the level of earnings across workers – and the evidence suggests this is associated with changing technology favouring more-skilled workers (that is, skill-biased technological change) as well as closely related changes in trade patterns (the offshoring of lower-skilled jobs). This rise in earnings inequality is closely related to the firm dynamics discussed in prior sections. For example, a number of studies (for example, Davis and Haltiwanger, 1991; Dunne et al., 2004; and Barth et al. 2010) have found that much of the increase in earnings inequality in the United States is associated with an increase in the between-establishment dispersion in earnings. Moreover, these studies show that the establishments with the higher earnings are the more productive, more highly skilled and more likely to have adopted advanced technology.

What do we know about changes in volatility over time as well as difference in volatility across countries? Differences across countries as well as differences within countries over time in these different dimensions of volatility may reflect many factors. Differences may reflect changes in the driving forces (such as the factors driving dispersion in productivity/profitability) as well as changes in the adjustment dynamics. For the latter, an important issue in the current context is whether the differences reflect the relative flexibility of an economy and over what dimension. Greater flexibility might take many different forms. It might be that workers in a more flexible economy are more geographically mobile so that there is even more reallocation of labour in response to a given set of shocks. Alternatively, it might be that wages become more flexibile (for instance with greater reliance on flexible pay mechanisms) so that a given set of shocks is reflected more in wages than in the reallocation of employment. The implication is that appropriate caution is needed in assessing differences in measures of volatility across time and across space.

In terms of the evidence of changes in volatility over time, the evidence is primarily for the United States which has longitudinal panels of businesses and workers over many decades to assess these issues. For the United States, there is evidence that volatility of output and employment growth rates of publicly traded firms has



increased for many decades (see, for example, Comin and Phillippon, 2006). However, interestingly, when the entire economy is considered (in the United States, publicly traded firms account for about 30 per cent of employment and 40 per cent of output), there is actually a pronounced decline in the volatility of employment growth rates (see Davis et al., 2007 and 2010a). Does this imply that the United States has become less flexible over time? This is an open research question but there is some evidence that it may reflect a different form of flexibility. Lemieux et al. (2009) show there has been a pronounced increase in the use of flexible pay mechanisms (bonus pay, stock options, and so on) in the United States, so this may reflect increased earnings flexibility. However, the evidence in Davis et al. (2007) suggests this is unlikely to be the whole story. For example, they find that this in part reflects the increasing shift in sectors like retail trade to large, national firms (for example, Wal-Mart) that are much less volatile than small family retailers. There is evidence that the shift to large, national chains reflects the type of technological change and reallocation discussed in the previous sections as large, national chains have been able to take greater advantage of advances in information technology for distribution networks and inventory control. However, it may also be that large, national chains are less nimble in adjusting to changing economic conditions. The more general point is that a decline in the pace of volatility in the United States may reflect a less dynamic US economy (which is thus less able to respond to changing economic conditions).

In terms of changes in the pace of volatility in other countries, there is much evidence that the pace of volatility increased dramatically in the 1990s in the transition economies (see, for example, Faggio and Konings, 1999; Jurajda and Terrell, 2002; and Haltiwanger and Vodopivec, 2003). It was clear this was disruptive with adverse aggregate consequences as most transition economies experienced a downturn in aggregate economic activity. Moreover, the evidence suggests that there was a non-trivial lag between the burst of job destruction and job separations early in the reforms and the subsequent recovery of job creation and hires. The patterns exhibited in the transition economy were consistent with the discussion and concerns about decoupling of job creation and destruction in the second subsection above ("Scope for misallocation"). Still, the evidence is that for the most part the transition economies weathered this storm and recovered with robust growth. It probably helped that the world economy exhibited robust growth in the second half of the 1990s.

Another issue of importance in terms of changes in the pace of volatility over time within countries is that periods of more intense restructuring are often associated with periods of heightened uncertainty. Bloom (2009) has stressed that this is important for understanding why business cycle downturns and recoveries differ due

to differences in the extent of uncertainty. Bloom et al. (2010) have emphasized that the Great Recession of 2007–09 is a period of especially heightened uncertainty due to the collapse of financial markets and the accompanying intense period of restructuring associated with this downturn (for instance, shifts away from construction activity and the restructuring of financial markets). Such heightened uncertainty contributes to especially slow recoveries since even businesses with potential profit-making opportunities are reluctant to invest and hire new workers due to the lingering heightened uncertainty during such crises.

In terms of evidence on differences in the pace of volatility across countries, this has proved to be a substantial measurement challenge as well as conceptual challenge for reasons related to the discussion above. The working conjecture is that the United States, being a very flexible economy, would have a higher dispersion of growth rates of outputs and inputs (for example, employment) than other countries. However, the evidence on this is mixed. Part of the reason for this is measurement difficulties (see Bartelsman et al., 2009a,b). However, another reason might be flexibility manifesting itself in different dimensions. As Bertola and Rogerson (1997) emphasize, countries with rigid labour regulations also often have centralized wage bargaining. The former should dampen employment volatility while the latter should increase employment volatility.

This discussion of different dimensions of volatility highlights the difficulties of simply comparing measures of volatility across countries or across time. As discussed in earlier parts of this chapter and in the next section, one approach that overcomes the measurement and conceptual challenges of comparing measures of volatility is to focus on whether the volatility (reallocation) enhances productivity. Differences across time and across countries on whether reallocation is productivity enhancing is of unambiguous importance. This is not to imply that measuring and studying differences in volatility across countries and time is not of interest or importance, but rather that the many different factors discussed in this section need to be taken into account. Another approach to identifying the impact of the business climate (including policies promoting or deterring flexibility) is to use a difference-in-difference identification approach. For example, Haltiwanger et al. (2010b) use differences in volatility across industry and size classes within countries to show that countries with more rigid labour markets have less employment reallocation. One can identify this effect not with the cross-country variation but with the within-country variation between industries and size classes.



## 4.4 What is the evidence on the impact of trade liberalization on productivity-enhancing reallocation and earnings and employment?

### *Productivity-enhancing reallocation*

The discussion thus far has been broad-based in terms of the factors impacting productivity-enhancing reallocation and the potential adverse impact of reallocation on workers. That discussion helps provide the perspective to consider the direct evidence on the impact of trade liberalization on productivity.

Our focus is on the impact of trade on productivity-enhancing reallocation. However, before turning to that issue, it is useful to note that there is a large related literature that explores the impact of trade reform on the productivity of incumbent producers. A number of papers find that the productivity of incumbents increases after trade opening, including: Levinsohn (1993) for Turkey, Harrison (1994) for Côte d'Ivoire, Tybout and Westbrook (1995) for Mexico, Pavcnik (2002) for Chile, Trefler (2004) for Canada, Topalova (2004) for India and Fernandes (2007) for Colombia. We note, however, that De Loecker (2007) corrects for unobserved prices and finds that the impact of trade on productivity halves when controlling for prices and mark-ups rather than using standard productivity measures as the above studies. Also, Lileeva and Trefler (2010) have recently shown that gains in labour productivity from trade opening in Canada were concentrated in low-productivity firms that were induced by tariff cuts to start exporting. In these studies, the precise mechanism of how trade improves within-plant and within-firm productivity is typically not identified. It might be that opening to trade enables access to richer technologies (broadly defined) and/or opening to trade increases competitive pressures.

For our purposes, we are especially interested in papers that link trade reform, reallocation (volatility) and productivity. As noted, Pavcnik (2002) has a seminal paper on this topic using high-quality establishment-level data for Chile. Pavcnik is able to track longitudinal establishment dynamics of outputs, inputs and productivity following trade reform in Chile. She finds evidence that trade reform improves within-plant productivity and also evidence that trade reform improves allocative efficiency. She also finds that trade reform in Chile is associated with increases in the size/productivity covariance that contributes substantially to productivity.

Recent work by Eslava et al. (2010b) elaborates further on the insights from Pavcnik. Using high-quality longitudinal establishment-level data for Colombia, this work explores a number of channels through which trade liberalization impacts productivity. A core feature of this work is that the measures of total factor productivity abstract from the confounding of productivity and price effects that are a feature of much of

this literature. While this may seem to be a technical detail, it is important since it may be that trade reform impacts mark-ups and as such what looks like an increase in productivity might actually be an increase in establishment-level mark-ups.

Eslava et al. (2010b) find that trade reform in Colombia increased productivity through several channels. They find that trade reform increased the likelihood that low-productivity establishments exit – a pattern consistent with the predictions of the recent models on misallocation distortions. This improved market selection contributes positively to aggregate productivity. They also find the size/productivity covariance improves with trade reforms and the within-establishment productivity growth increases.

Between these two studies using high quality longitudinal establishment data for Chile and Colombia respectively, there is evidence in favour of the hypotheses that trade liberalization can improve productivity through improved allocative efficiency. However, some caution needs to be applied given that Chile and Colombia also engaged in other market reforms that accompanied trade reform. While these studies control for these other reforms, it may be that the other reforms permitted trade reform to work. Put differently, it may have been that the second-best problems discussed above were ameliorated in these two countries. In addition, these studies do not address the costs of reallocation including the impact on workers. We turn to this topic in the next subsection.

There is also direct evidence on the relationship between trade reform and volatility. Haltiwanger et al. (2004) present evidence that the trade reforms in Latin America in the 1990s systematically increased the pace of job reallocation in Latin America over this period of time. This evidence is consistent with the more detailed within-country studies discussed above but applies to a wider range of countries.

### *Worker earnings, employment and dislocation*

There is a large literature looking at the distributional effects of trade liberalization (see Goldberg and Pavcnik (2007) for a complete review of this literature). The main focus of this literature has been on the skilled/unskilled wage differential since standard trade theory suggests that unskilled wages should increase in countries abundant in unskilled labour. Contrary to this, however, most studies find an increase in the skill premium in developing countries (for example, Borjas and Ramey, 1995; Robbins, 1996; Attanasio et al., 2004). In addition, a number of studies have found that trade liberalization is associated with a decline in wage premiums and an increase in income volatility (for example, Borjas and Ramey, 1995; Revenga, 1997; Goldberg and Pavcnik, 2004; Krebs et al., 2005). Few studies focus on the impact of trade liberalization on unemployment and households. The study by Attanasio et al.



(2004) is the only study to examine the relation between trade barriers and the likelihood of unemployment and they find no evidence of any relation. However, other studies have focused on the impact of trade protections on employment and the quality of employment. Most studies find a reduction in employment and, in particular, formal employment in sectors affected by trade liberalization (Borjas and Ramey, 1995; Revenga, 1997; Goldberg and Pavcnik, 2003). In considering these studies, note that their focus is on distributional effects (that is, which sectors or types of workers may be adversely impacted by trade) rather than on long-run economy-wide effects.

What do we know about what happened in terms of worker dislocation in these countries? Eslava et al. (2010a) explore what happened to workers in Colombia over the same period that they explored what happened to firm and aggregate productivity. They find evidence that, in general, worker dislocation has adverse effects on earnings and employment for workers who find themselves separated from a bankrupt firm. In that respect, the positive findings Eslava et al. find on improved market selection need to be balanced with the difficulties that workers face in separating from a bankrupt firm. Eslava et al. also find that the adverse effects of dislocation are not that persistent, and find only modest evidence that it is the workers in sectors with the greatest trade reform that are adversely affected. They also find evidence that is consistent with the literature on employment and earnings discussed above – that is, they find evidence that workers in sectors impacted by trade reform have lower earnings and formal sector employment and that these effects are larger for low-skilled workers.

One area of inquiry that would be useful to explore is the impact of globalization on the volatility that occurs during economic crises and in turn how workers impacted by volatility fare in globalized markets. As highlighted above in section 4.2, even in the United States job destruction has much more adverse impact on workers in economic downturns. We do not have extensive evidence on what happens to workers in economic downturns in emerging economies. However, some of the insights from the existing literature discussed in the previous sections sheds light on these questions. The evidence for transition economies suggests that wide-ranging and rapid market reforms yield an increase in the pace of restructuring and reallocation that can be quite disruptive. Virtually all of the transition economies suffered an economic downturn during the period of economic reforms. Those with rapid reform experienced sharp rises in job destruction and unemployment. However, after a period of adverse effects, the rapid reformers recovered, and an important part of that recovery was that the higher pace of restructuring was achieved through job-to-job flows (with lower rates of unemployment). At the time there was much debate about whether rapid or gradual reform made more sense – both theory and evidence provided support for both sides of this debate.

More recently much attention has been given to the role of heightened uncertainty during downturns associated with both financial collapse and intense restructuring. The theoretical and empirical evidence on these issues seems of particular importance for emerging economies. The key insight from this work is that in the recovery from downturns during periods of heightened uncertainty, businesses with profit-making opportunities are less likely to invest in capital and hire new workers. Such effects are always likely to be more important in emerging economies given the inherently greater uncertainty about the business climate in emerging economies. Also, in times of economic crises (perhaps especially those associated with a collapse in credit markets) the cautionary and delaying effects of uncertainty are likely to be that much more relevant in emerging economies. Exploring these hypotheses for emerging economies in greater detail should be a high priority for future research.

## 4.5 Policy lessons and challenges

The policy lessons in broad terms are clear but the actual implementation imposes many challenges. The broad policy lesson is that a healthy economy needs to be sufficiently flexible to permit productivity-enhancing reallocation while minimizing the disruption costs from such reallocation in manner that does not stifle the reallocation. Few countries achieve the economic environment that is consistent with this broad lesson. One could argue the United States has the market structure and economic institutions that closely approximate this objective in healthy economic times. However, the recent great recession has reminded us that even in the United States there is fragility in the system, and disruptions in key markets (like financial markets) disrupt the nature and consequences of accommodating the economic volatility that is part of the ongoing process of making technological progress. So one of the policy challenges is how to maintain the market structure and economic institutions that operate in healthy economic times, but then permit intervention when markets get disrupted. This challenge of countercyclical policy is not the primary focus of this chapter but we discuss some issues along these lines below.

For emerging economies, the challenges are potentially enormous. As Pagés (2010) and Pagés et al. (2009) discuss in great detail, one great challenge evident in many emerging economies is the role of the informal sector and what they call the "missing middle". In highly distorted economies where the burden of poor institutions and market structures weigh down on businesses, there tend to be very small businesses, very large businesses but not as many medium-sized businesses as in healthy market economies. Pagés et al. argue that the reason is that only the very large businesses have the resources to deal with the highly distorted economy (or worse are simply large because of the highly distorted economy – the businesses are well connected



in some fashion). They argue that small businesses (even those with great potential in terms of productivity) stay small to essentially fly below the radar. That is, businesses stay small and informal so they are not regulated, taxed or as subject to graft and corruption since it is difficult to extract rents from such businesses.[12]

Reallocation has little chance of enhancing productivity in such economic environments. Moreover, it is unclear that trade reform will have the effects discussed in prior sections in terms of either theoretical predictions or actual outcomes like those experienced in Colombia and Chile. Even in the latter countries, the evidence discussed above is about what happened to the formal establishments and firms in the manufacturing sector. It is certainly possible that the benefits discussed for formal firms (and the relatively modest adverse effects for formal sector workers) only apply to the formal sector. It would be quite interesting to explore how the informal sector fared in these countries over this same period.

The challenges, then, are that many components need to be in place for economies to successfully grow while opening up markets. The full list of components is long. Labour markets need to be sufficiently flexible to permit reallocating workers from less-productive to more-productive establishments without intervening long spells of unemployment. As part of this flexibility, safety nets need to be in place so that workers adversely impacted by reallocation can be assisted in finding new employment without distorting the process of reallocation. The infrastructure needs to be of sufficiently high quality to insure that existing and starting-up businesses that seek to grow are not thwarted by factors such as poor transportation and communication. Product markets need to be sufficiently competitive that firms are not large for reasons of market power (or having obtained favourable treatment from the government). Financial markets need to be sufficiently developed to provide funding to starting-up and expanding businesses and to be able to deal with the inevitable failure of young and small businesses. Regulation has to provide appropriate oversight without imposing onerous time and resource costs on starting up a business or shutting down a business. The legal system has to work sufficiently well so that property rights are well established and bankruptcy and business failure can be accommodated. The rule of law and the role of the government need to be such that graft, corruption and other forms of criminal activity do not thwart private sector businesses from starting and growing (and becoming formal). These are just examples of the many components that need to be in place. With all of these components in place, opening up to markets and competing in world markets is much more likely to enhance productivity without the costs of reallocation being too high for businesses and workers.

Getting all of these pieces in place simultaneously is obviously a challenge on many levels. Given such challenges, governments often try to intervene to facilitate growth

and/or to protect workers and businesses from some of the adverse effects of the impact of volatility (some of which stem from the opening up of markets to globalization). The message of this chapter is that policies and institutions that stifle reallocation can yield very poor outcomes. Another related message of this chapter is that well-intended industrial policies that try to aid the private sector must confront the facts associated with the large dispersion of productivity across businesses (and the associated productivity-enhancing reallocation that works in healthy market economies). Recall that dispersion of productivity in narrowly defined sectors in advanced economies like the United States is very large and even larger in less-developed economies. Industrial policies that (perhaps inadvertently) support the low-productivity businesses in a sector will lower aggregate productivity in a country and make it difficult for the country to increase its productivity over time (if, for example, it is difficult for governments to let go of companies they have supported). The government is in a no better position than the market to pick winners and, given the evidence on dispersion, the risks of picking and supporting low-productivity businesses are not trivial. As an alternative to industrial policies, policies that seek to address the distortions and market failures in the country have much more promise.

Another challenge is how to handle crises. In crises, even in otherwise healthy economies, reallocation dynamics get distorted. In crises there is a lot of job destruction but not much job creation, with accompanying high unemployment. In crises, especially like the recent financial crisis, financial markets are not facilitating reallocating resources away from less-productive to more-productive businesses.[13] Such productivity-enhancing reallocation requires, at least in part, financial markets to provide funding to start-ups and to young, small businesses that have the potential to be high-growth firms. This breaks down in recessions that are associated with financial crises.

## 4.6 Concluding remarks

The evidence in this chapter strongly supports the view that static and dynamic allocative efficiency as captured by the relationship between productivity and size in the cross-section, and productivity and resource reallocation over time, are critical for aggregate economic performance of a country. Underlying this evidence are basic facts about the distribution of size and productivity on the one hand, and ongoing resource reallocation and productivity on the other. In the cross-section, we observe a very dispersed and skewed size distribution of activity in advanced market economies that is accompanied by a very dispersed and skewed distribution of productivity. In a well-functioning economy, these two distributions should be strongly positively correlated – that is, the most-productive businesses should be



the largest businesses. In addition, in a well-functioning economy, the reallocation of resources should be reallocating resources away from less-productive businesses and towards more-productive businesses. The evidence shows there is considerable variation across countries as to the extent to which size and productivity are correlated and reallocation enhances productivity.

The evidence shows that countries that open their markets to trade have better static and dynamic allocative efficiency and in turn higher productivity. The covariance between size and productivity rises in response to trade reform and the evidence also shows that market selection improves with trade reform. By the latter, we mean that less-productive businesses are more likely to exit and more-productive businesses are more likely to survive. This improved market selection contributes positively and substantially to productivity growth.

While theory and evidence provide support for trade reform in terms of improved allocative efficiency and associated increases in productivity, both theory and evidence also point towards many things that can go wrong that either mitigate or potentially limit the gains from trade reform. In a highly distorted economy there are second-best problems which mean that piecemeal trade reform will not be as effective in such distorted economies. Distortions may arise in the legal system and the rule of law as well as in regulation and in product, labour and financial markets. A poorly functioning labour market makes the response to reallocation very costly. Reallocation yields inherent costs on both businesses and workers as it induces workers to relocate across businesses, which can be very costly in a poorly functioning labour market. Even in advanced market economies that are normally healthy, in severe economic downturns the reallocation dynamics of workers becomes distorted. Addressing how to combat the difficulties of managing reallocation dynamics during economic downturns without distorting the potential for productivity-enhancing reallocation in the long run is a continuing challenge.

Well functioning financial markets play a critical role in facilitating static and dynamic allocative efficiency. A feature of healthy advanced market economies is they are constantly reinventing themselves as businesses and households adapt and adjust to changing economic conditions and market opportunities. Part of this reinvention process involves new firms entering and exploring new products, processes and ways of doing business. Many of these new businesses fail in the first five to ten years. However, conditional on survival, young businesses grow faster than their more mature counterparts. In addition, among the young businesses are high-growth businesses that contribute disproportionately to innovation, job growth and productivity. Financial markets need to be sufficiently well developed and functioning to help provide the financing to start-ups and high-growth young businesses as well as being capable of absorbing the exit of low-productivity businesses.

The recent financial crisis highlights how this process can break down and distort reallocation dynamics. In times of financial crises, financial markets are less able to facilitate the selection and growth dynamics of businesses – for large and mature as well as young and small businesses alike. Perhaps ironically the globalization of financial markets has made the problem more challenging during economic crises given the flights to quality that increasingly spread globally during crises. Financial regulation that helps monitor the health of the financial services industry and provides safeguards against financial collapses is undoubtedly needed. Some caution about how to design such safeguards is provided by the underlying message of this chapter. The successful new, young firms need equity investors, and the development of venture capital, angel financing and other such markets that target start-ups and young and small businesses has facilitated productivity-enhancing reallocation. The message then is that financial sector reform should avoid increasing the barriers to the financial sector in finding new instruments and creative ways of providing funding to high-growth businesses and more generally to productivity-enhancing reallocation.

The recent economic crisis has also highlighted the potential importance of heightened uncertainty during economic crises being a significant damper on economic recovery from such crises. The key insight from economic theory that has empirical support, especially in the recent crisis, is that heightened uncertainty will slow down recoveries due to the effects of caution and waiting. That is, even businesses with profit-making opportunities will delay and/or reduce the amount of investment and hiring due to heightened uncertainty. Such adverse effects of uncertainty are clearly relevant for all economies, as the recent crisis has shown, but are likely especially important in emerging economies that inherently have a higher degree of uncertainty at all times. One of the challenges of economic reform including trade reform is to address the impact of heightened uncertainty due to economic crises as well as due to the market reforms themselves.

## Endnotes

**1.** See Cooper and Haltiwanger (2006) and Syverson (2009).

**2.** Of course it is also of interest to ask what induces such large differences in productivity and profitability across businesses in the same sector. As discussed earlier in the introduction, the evidence suggests this partly reflects idiosyncratic choices of product quality and mix, location of the business, organizational practices and the like. It also reflects differences in entrepreneurial and managerial ability. In addition, it most likely reflects a form of luck – being in the right place at the right time with a product and process that is of high value and can be produced in a cost-effective manner. In what follows, as a shorthand we mostly refer to all these factors as differences in productivity (broadly defined) across businesses.



**3.** See Bernard et al. (2007) for an excellent review of the evidence on firm heterogeneity and trade.

**4.** In what follows, some of the evidence is about establishments and some of the evidence is about firms. By establishments, we mean specific physical locations where production activity is located. By firms, we mean all activity under common operational control. As an example, an individual Wal-Mart store is an establishment while the firm is the activity of all Wal-Mart stores as well as other establishments owned and controlled by Wal-Mart (for example, distribution facilities). Both establishment- and firm-level evidence is relevant. For job reallocation, the establishment level is preferred since the frictions in the labour market are very much about moving workers away from one location to another. Note in addition that most establishment-level job reallocation is between-firm reallocation. For other purposes, analysing activity at the firm level is preferable. For example, in terms of discussing financial market frictions, the relevant level of activity is the firm not the establishment. The discussion attempts to be clear when the results are at the establishment level or at the firm level. Note that theoretical models often do not make this distinction – that is they do not formally model multi-establishment firms.

**5.** Foster et al. (2008) examine 11 detailed product classes for the United States where direct measurement of physical output and prices is feasible. They find that the dispersion of physical productivity is slightly larger than the dispersion of revenue productivity (essentially price times physical productivity). Interestingly, the reason is that physical productivity and price are inversely correlated at the establishment level. This latter pattern is consistent with models of product differentiation such as those in Melitz (2003) and Melitz and Ottaviano (2008).

**6.** Taking into account both the cross-sectional variation in productivity and size and the dynamics of productivity of size. For example, a recent interesting paper by Giovanni and Levchenko (2010) argues that the very skewed size distribution mitigates the impact of trade reform on aggregate outcomes because even if trade reform impacts market selection as in Melitz (2003) and Melitz and Ottaviano (2008), the large, mature firms that dominate aggregate outcomes are not much impacted. Taking into account the very skewed distribution of firm size is clearly important but this work neglects firm dynamics so that large, mature firms are essentially not subject to productivity shocks (other than perhaps a random exit shock). As discussed in this section (and at some length in Haltiwanger et al., 2010b) even large, mature firms experience a high pace of reallocation and, given this, it is important to make sure such churning enhances productivity.

**7.** This statistic is consistent with the evidence in Foster et al. (2008).

**8.** Although Bartelsman et al. (2009a,b) caution against simple cross-country comparisons of the contribution of reallocation to productivity growth. The reasons include measurement and conceptual problems. A better approach is to find some way to explore differences-in-differences that exploit both within-country and between-country variation. That is, suppose that some sectors in a country face more onerous misallocation distortions – then one would expect that it is in those sectors that we observe reallocation to play less of a productivity-enhancing role within a given country than sectors with less onerous distortions.

**9.** See Davis et al. (2010b) and references therein.

**10.** See Jacobson et al. (1993), Dardia and Schoeni (1996) and Fallick et al. (2007).

**11.** Bartelsman et al. (2009a,b) provide evidence on differences across countries on a wide range of distortions.

**12.** There may an ameliorating effect on the duration of unemployment in economies with large informal sectors to the extent that workers dislocated by restructuring and reallocation can quickly find jobs in the informal sector. It is not clear that this is indeed beneficial to the extent that it reflects workers and firms in the informal sector as being underemployed for the reasons discussed in the text.

**13.** A recent paper that explores these issues is Eslava et al. (2010c). They find that exits are less related to productivity in times of financial crises.

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# 5 Actual and perceived effects of offshoring on economic insecurity: The role of labour market regimes

*William Milberg and Deborah Winkler**

## 5.1 Introduction

Despite broad public concern with the effect of firms' offshoring behaviour on economic insecurity, there is scant research. Most analysis over the past 20 years – widely acknowledged as a period of rapid globalization – has focused on the impact of offshoring on workers depending on whether they are "skilled" or "unskilled". The main research question has been the relative contribution of trade versus technological change to the rise in wage inequality in many industrialized countries. In this chapter we seek to broaden our understanding of the effect of offshoring on economic insecurity and also to connect the question of economic insecurity to national labour market institutions and to workers' perceptions of globalization. We shift the focus to the effect of offshoring on the labour share of income rather than on its relative impact on high- and low-skilled workers. The labour share (or one minus the capital share) is affected by firm-level changes in productivity, labour demand and the distribution of value added. It is useful to capture profits and wages in the measure of economic security, since offshoring is driven by the corporations' pursuit of higher profits and greater flexibility. Moreover, the labour share comprises workers' earnings and employment, and analysis of the impact of offshoring on economic insecurity should include both.

In a second step we take into account the institutional structure of labour markets, and consider how different "regimes" of labour market regulation mediate the effects of offshoring on economic insecurity. In a sample of Organisation for Economic Co-operation and Development (OECD) countries, we identify five different regimes based on labour market programmes and the strictness of employment protection legislation. Regression analysis for a sample of countries in each "regime" reveals that the effects of offshoring on the labour share of income are positive under labour market structures commonly viewed as more supportive and negative in those groups of countries with minimal labour market support. We conclude that it is mistaken to speak of the effect of offshoring on economic insecurity in the abstract. Institutions matter crucially for how offshoring affects employment, wages and salaries.

* This chapter draws on and extends the findings in Milberg and Winkler (2009, 2010b).

In the third step, we make a comparison of "perceived" insecurity based on public surveys and "actual" insecurity based on our econometric estimates of the impact of offshoring on the labour share. We find that in general the perception of the impact of globalization or offshoring is more (less) favourable the more (less) beneficial is actual offshoring to the labour share. This is consistent with the findings of Scheve and Slaughter (2003) for the United States, who found that workers most affected by trade liberalization (low-skilled workers in their analysis) were also those workers most opposed to such policies, and indicates that popular resistance to globalization is not based on misinformation or irrationality, and that it can be mitigated by protective labour market policies.

The analysis in this chapter is premised on a distinction between economic vulnerability and economic insecurity. Economic vulnerability is the risk of a negative shock to household income or of losing a job. Economic insecurity is the result of this risk, mitigated by any buffer or insurance enjoyed by households, either privately on their own behalf or from public programmes, including labour market support and health insurance. Countries subject to the same degree of economic vulnerability due to globalization may experience very different levels of economic insecurity due to variations in social protection provided by the state or insurance obtained by households.

In section 5.2 we present indicators of economic insecurity with a focus on the workers across six major industrialized countries for the period beginning in the 1980s. In section 5.3 we consider the role of government, and specifically labour market regulation, in mediating the effect of markets on incomes and shifting the burden of risk from rapid income decline. Section 5.4 provides a brief literature review on the theoretical and empirical relation between offshoring and economic insecurity. In section 5.5 we present estimates of the effect of offshoring on the labour share for the period 1991–2008 using a sample of 21 manufacturing sectors for 15 OECD countries. In order to detect differential effects of labour market regimes, we interact offshoring with policy indicators of labour market flexibility and labour support. We find that offshoring significantly increases the labour share. However, splitting the sample into the periods 1991–99 and 2000–08 shows that this result seems to be driven by the first period. Between 2000 and 2008, a country's public expenditure on labour market programmes increases the effect from offshoring on the labour share. Also, higher short-term net unemployment replacement benefits positively influence the effect of offshoring on the labour share.

We then present estimates of the labour share equation over samples defined by the nature of the labour market regime. We find that a given increase in offshoring is associated with more economic security in those countries with more supportive labour market institutions and is associated with greater economic insecurity in areas characterized by less supportive labour market institutions. The findings support the view that labour market institutions matter in mediating the effects of globalization on workers in OECD countries.



In section 5.6, we show indicators of offshoring-induced perceived economic insecurity. We then correlate these indicators with the results of the offshoring coefficients in the labour share equations to examine if perceptions reflect reality. We find a weakly negative correlation between the effect of offshoring on the labour share and more optimism about economic openness. Section 5.7 concludes. In the absence of adequate compensation or supportive institutions, fears of globalization are not unjustified.

## 5.2 The rise of economic insecurity in the OECD

The period 1950–73 is widely referred to as the "Golden Age" of capitalism, but it might be better termed the period of rising economic security for people in the industrialized countries. Not only did the OECD countries experience rapid growth in real gross domestic product (GDP), but this was reflected in rising median wages, even more rapid improvements in median family income, relatively low rates of unemployment, falling inequality and improvements in the post-Great Depression system of social protection in most countries.

Since 1973, the major industrialized economies have grown more slowly, as productivity growth has diminished. Over the entire OECD, total factor productivity growth fell to 1.5 per cent per annum on average after 1985, from rates more than twice that during the 20 years before 1973 (Howell, 2005, table 3.2). As seen in table 5.1, six countries had higher rates of average annual GDP growth for the period 1950–73 than they did over the period 1980–2007. These countries represent a broad spectrum of the advanced industrialized world, and although all have expanded their exposure to international trade and investment they have not all experienced the same degree of increased economic insecurity. In some cases (France, Germany and Japan) the growth rate fell by more than half. Note that the United States showed the highest average annual GDP growth rate in the post-1973 period. Labour productivity growth follows a similar pattern. Thus, the rate of growth of GDP per person employed fell in all six countries, but most dramatically in France, Germany and Japan.

The post-1973 period has seen a significant increase in worker insecurity in many industrialized countries. The average rate of unemployment (on a standardized basis) has been significantly higher in the post-Golden Age era compared to the 1956–73 period, ranging from slightly higher in the United States to more than five times

**Table 5.1** Economic performance, Golden Age versus post-Golden Age, selected countries

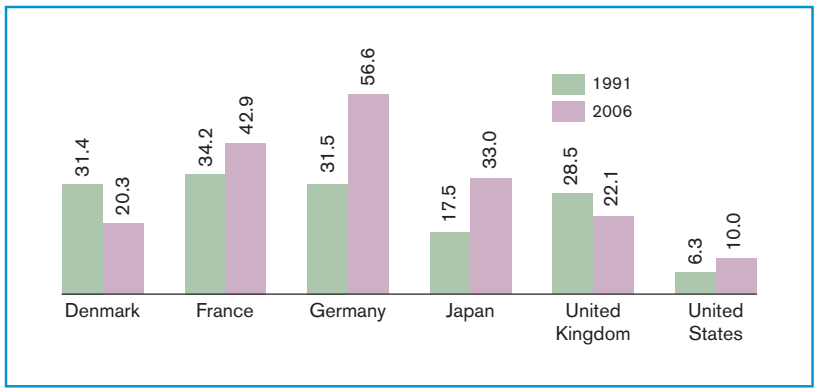
| | Denmark | France | Germany | Japan | United Kingdom | United States |
|---|---|---|---|---|---|---|
| Gross domestic product* (CAGR) | | | | | | |
| 1950–1973 | 3.8% | 5.0% | 6.0% | 9.3% | 2.9% | 3.9% |
| 1980–2007 | 2.1% | 2.0% | 2.2% | 2.3% | 2.5% | 3.0% |
| GDP per person employed** (CAGR) | | | | | | |
| 1950–1973 | 2.9% | 4.7% | 4.7% | 7.5% | 2.4% | 2.3% |
| 1980–2007 | 1.7% | 1.5% | 0.8% | 1.8% | 2.1% | 1.6% |
| Average unemployment rate (per cent of labour force) | | | | | | |
| 1956–1973 | 1.1%*** | 1.9% | 1.3% | 1.5% | 1.8% | 5.0% |
| 1980–2006 | 7.2% | 10.1% | 7.6% | 3.3% | 7.9% | 6.2% |

*Source*: Milberg and Winkler (2010b). *Data*: The Conference Board and Groningen Growth and Development Centre, Total Economy Database, January 2008. OECD Labour Force Statistics.

*Notes*: *In millions of 1990 US$ (converted at Geary Khamis PPPs). **In 1990 GK$. ***Average based on 1960, 1965, 1967, 1969–73. CAGR = compound annual growth rate.

higher in Denmark, France and Germany (see table 5.1). The incidence of long-term unemployment, defined as unemployment duration greater than one year, also rose over the post-Golden Age in many industrialized countries. France, Germany, Japan and the United States all saw long-term unemployment higher in 2006 compared to 1991, while Denmark and the United Kingdom saw a decline (see figure 5.1).

**Figure 5.1** Share of long-term unemployed in total unemployed (in per cent), selected countries




*Source*: OECD Labour Force Statistics.
*Note*: Long-term unemployed refers to more than one year.



The United States still shows lower long-term unemployment rates than most other countries.

The post-Golden Age period of slower GDP and productivity growth and higher rates of unemployment also involved a slowdown in the growth of wages. Beginning in the early 1980s, the labour share of national income began to fall across many industrialized countries. This trend in the labour share captures in a broad way the growing economic insecurity in the industrialized world. We see two turning points in figure 5.2. At the beginning of the 1980s, the increases in the labour share from the early 1970s began to level off. This can be associated with the advent of neoliberal policies, labour market deregulation and the retreat of the welfare state in some countries. The second turning point occurs at the end of the 1990s, with a clear downward trend in the labour share across the sample. This second shift has been linked to financialization and globalization, and in particular the emergence of China, India and other low-wage exporting countries.

Equally dramatic is the rise in inequality across wage earners, documented in table 5.2, which shows the ratio of wages in the top decile to the bottom decile for 1985, 1991 and 2005. Over the entire period, income inequality in the United States has been far above the others, and compression of incomes much greater in Denmark than in all the rest. Since 1985, France and Japan were the only countries of these six not to experience an increase in inequality. Japan's slow growth seems to have affected all groups proportionally. France underwent a large increase in the minimum wage, which served to compress the wage distribution (for details see Howell and Okatenko, 2010). The percentage increase in inequality over 1985–2006 was greatest in Denmark and the United States.

**Table 5.2** Wage inequality, selected countries (ratio of wages of top 10 per cent of earners to bottom 10 per cent of earners)

| | 1985 | 1991 | 2005 |
|---|---|---|---|
| Denmark | 2.2 | 2.2 | 2.6 |
| France | 3.1 | 3.3 | 2.9 |
| Germany | 2.9 | 2.8 | 3.3 |
| Japan | 3.1 | 3.1 | 3.1 |
| United Kingdom | 3.2 | 3.4 | 3.6 |
| United States | 4.1 | 4.3 | 4.9 |

*Source*: Wages per full-time employee are calculated based on OECD Labour Force Statistics.
*Notes*: 1985 wages only for former West Germany. 1990 wages for Denmark, 2004 wages for France.

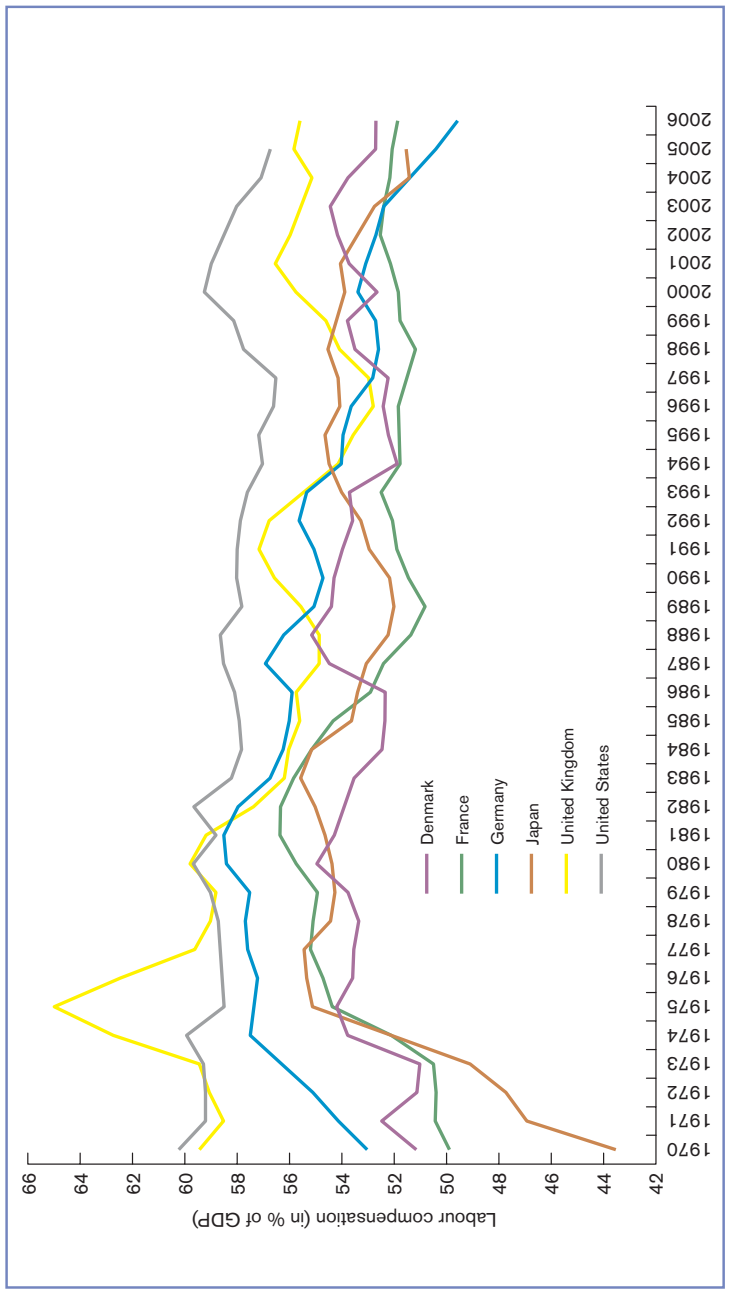



**Figure 5.2** Labour compensation (as per cent of GDP), 1970–2005/06, selected countries

*Source*: Own illustration. *Data*: OECD Annual National Accounts Statistics.



## 5.3 Mitigating economic vulnerability: The role of the state

### *Varieties of worker protection and labour market regulation*

There are private and public responses to rising economic vulnerability for workers. Despite the general rise in economic insecurity after 1980 in our sample of industrialized countries, governments have generally reduced social protection and labour market protections. The neoliberal move to deregulate markets has involved efforts to increase labour market flexibility in Europe, to bring greater fiscal constraint in the Eurozone, and to reduce the role of labour unions in the United States. Within these broad trends, there is still considerable variation across industrialized countries in the amount and form of social protection they provide. We focus on three aspects of social protection – the gross unemployment replacement rate, public expenditures on active labour market programmes and the strictness of employment protection legislation. According to these measures, there remain clear differences in governments' responses to economic insecurity.

While the United States is different from our other five countries in terms of its privatization of the burden of health insurance and pensions, in fact all countries except the United Kingdom have reduced short-term net unemployment benefits as a percentage of earnings, that is, unemployment benefits that are paid within the first year of unemployment, since 2001 (see table 5.3). All countries except Japan lowered long-term net unemployment benefits, that is, unemployment benefits that are paid after five years of unemployment. The United States showed by far the lowest net unemployment replacement rate (long-term period). Denmark's rate is far above the others.

**Table 5.3** Labour market policy indicators

| | | Denmark | France | Germany | Japan | UK | US |
|---|---|---|---|---|---|---|---|
| Short-term net unemployment replacement rate | 2001 | 80.1% | 73.9% | 68.5% | 61.4% | 49.4% | 58.8% |
| | 2007 | 77.8% | 71.4% | 66.5% | 59.7% | 57.1% | 55.7% |
| Long-term net unemployment replacement rate | 2001 | 76.8% | 53.6% | 65.0% | 55.4% | 60.9% | 28.9% |
| | 2007 | 74.1% | 53.0% | 59.5% | 55.9% | 58.9% | 24.3% |
| Public expenditures for active labour market programmes (% of GDP) | 1985 | 4.7% | 2.1% | 1.7% | n.a. | 2.3% | 0.8% |
| | 1991 | 5.9% | 2.3% | 2.9% | 0.6% | 1.5% | 0.9% |
| | 2001 | 4.1% | 2.6% | 3.2% | 0.8% | 0.6% | 0.7% |
| | 2008 | 2.6% | 2.0% | 1.9% | 0.6% | 0.5% | 1.0% |

*Source*: Own illustration. *Data*: OECD Social Expenditures and OECD Tax-Benefit Models.

*Note*: Short-term benefits refer to unemployment benefits that are paid within the first year of unemployment. Long-term benefits refer to unemployment benefits that are paid after five years of unemployment.

Between 1991 and 2008, France, Japan and the United States kept their spending on active labour market programmes as a percentage of GDP relatively constant, while Denmark, Germany and the United Kingdom reduced them quite significantly (table 5.3). Active labour market programmes include expenditures related to worker placements; worker training; job rotation and sharing; employment incentives; employment support and rehabilitation; direct job creation; and start-up incentives. The low levels of active labour market programmes in Japan, the United Kingdom and the United States stand out in the sample.

There has been a different pattern of change in terms of the strictness of employment protection legislation (EPL), which measures the regulation of hiring and firing. The OECD uses the term employment protection legislation to refer to all types of employment protection measures, whether grounded primarily in legislation, court rulings, collectively bargained conditions of employment or customary practice.[1] These are combined into an index in which six represents the most strict regulation and zero the least strict. Less strict employment protection legislation would indicate that employers would have more flexibility to hire and fire. The United States shows a constant EPL between 1990 and 2008, Denmark, Germany and Japan became less strict, and France and to some extent the United Kingdom became more strict (see table 5.4). In section 5.5 (subsection "Regression results by country and by labour market regime") we use the EPL and combine it with measures of labour support to identify five different models of labour market regulation across a broad sample of OECD countries.

### *The burden of economic risk*

Denmark and the United States represent polar opposites in terms of the political response to economic insecurity. The Danish flexicurity model has attracted a lot of

**Table 5.4** Strictness of employment protection legislation (higher values imply more strict)

| | 1991 | 2001 | 2008 |
|---|---|---|---|
| Denmark | 2.40 | 1.50 | 1.50 |
| France | 2.98 | 3.05 | 3.05 |
| Germany | 3.17 | 2.34 | 2.12 |
| Japan | 1.84 | 1.43 | 1.43 |
| United Kingdom | 0.60 | 0.68 | 0.75 |
| United States | 0.21 | 0.21 | 0.21 |

*Source*: Own illustration. *Data*: OECD Labour Statistics.

*Note*: Higher values indicate stricter regulation on hiring and firing.

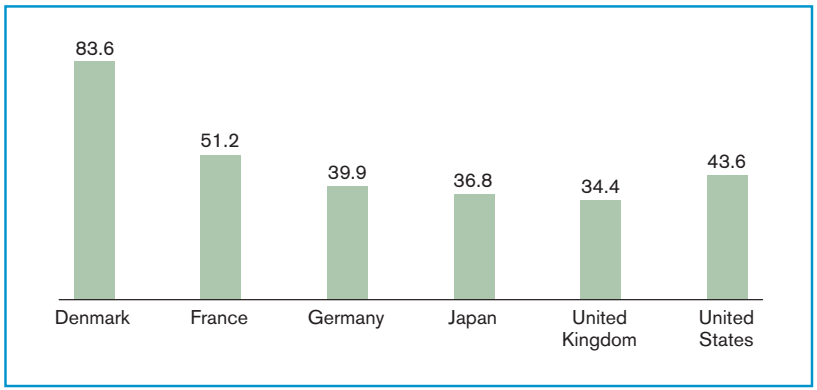


attention because of Denmark's superior performance in trade and employment and the unusual combination of policies, with flexibility in terms of hiring and firing and strong social protection for those seeking employment, including a high level of unemployment benefits and considerable levels of spending on active labour market programmes (see, for example, Gazier, 2006; Clasen, 2007; and Kuttner, 2008). Moreover, Denmark greatly exceeds the other countries in terms of pension benefits relative to lifetime earnings (figure 5.3). This system of flexicurity is in part the reason for Denmark's attainment of a high level of economic security as measured by changes in the labour share and the level of wage inequality.

Over the past 20 years, the United States has experienced a dramatic shift in the burden of risk, from government to the households themselves. This has resulted from a combination of more volatile household income and an increase in health insurance costs, a greater reliance on private (as opposed to public) pensions and a continuation of policies of low levels of unemployment benefits. Hacker (2006) describes these political changes as "the great risk shift" as governments and employers shifted the burden of insuring against a rapid decline in income to the employees and households themselves (see also Gosselin, 2008).

Households may borrow in order to insulate their spending patterns from earnings volatility and the rise in home equity loans in the United States and consumer credit in the United Kingdom are partly for this reason.[2] Household saving rates out of

**Figure 5.3** Gross pension replacement rates by earnings based on 2004 rules (per cent of median earnings)




*Source*: Milberg and Winkler (2009). *Data*: OECD pension models, taken from: OECD *Pensions at a Glance*, pp. 33–34.

*Note*: For median income earner. The figures are "estimates of the level of pension people will receive if they work for a full career and if today's pension rules stay unchanged".

disposable income fell over the 1990s for the major OECD countries (France and Germany being the exceptions), indicating the need for households to limit saving in order to maintain economic security and to incur debt for the same purpose (OECD, 2007a).

Economic security is by many measures lowest in the United States and this is supported by the unusually high perception of insecurity and fear of globalization in the United States discussed in section 5.2. We have seen that the United States, often lauded for the degree of flexibility in its labour markets, stands out in terms of its low levels of unemployment benefits and limited state spending on active labour market programmes (table 5.3). In their long-term historical analysis of income distribution in the United States, Temin and Levy (2006, p. 5) argue that the deterioration of the social safety net in the United States, combined with the decline of other institutions such as trade unions, has been a source of the bifurcation in the growth of productivity and the growth of wages:

> the recent impacts of technology and trade have been amplified by the collapse of these institutions, a collapse which arose because economic forces led to a shift in the political environment over the 1970s and 1980s. If our interpretation is correct, no rebalancing of the labour force can restore a more equal distribution of productivity gains without government intervention and changes in private sector behaviour.

As an indication of the changes in the United States, table 5.5 shows union density in our sample countries since 1981, with Denmark remaining at very high levels and the United States experiencing by far the greatest decline. The United Kingdom, following a similar model, is second in the extent of decline of unionization, but in 2001 still remained at a much higher level than the United States. France's low rate of unionization is deceptive, since bargaining coverage of union agreements has remained very broad.

**Table 5.5** Union members as share of total labour force (in per cent), selected countries

| | 1981 | 1991 | 2001 | 2008 |
|---|---|---|---|---|
| Denmark | 79.9 | 75.8 | 73.8 | 67.6 |
| France | 17.8 | 10.0 | 8.0 | 7.7 |
| Germany | 35.1 | 36.0 | 23.7 | 19.1 |
| Japan | 30.9 | 24.8 | 20.9 | 18.2 |
| United Kingdom | 50.0 | 38.2 | 29.6 | 27.1 |
| United States | 21.0 | 15.5 | 12.8 | 11.9 |

*Source*: Own illustration. *Data*: OECD Trade Union Statistics.



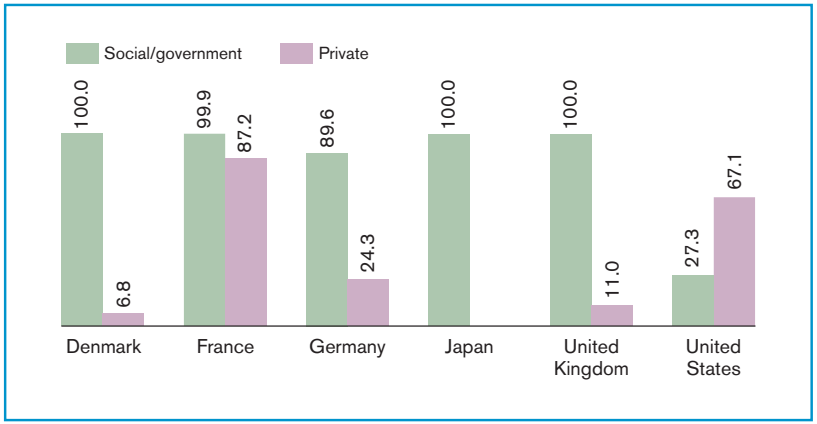
The United States also stands out in the area of health insurance. The United States, alone among our sample countries in not having universal health insurance coverage, had 47 million people uninsured in 2005, reflecting a steady increase in the number and percentage uninsured since the late 1980s (see figures 5.4 and 5.5).

## 5.4 Offshoring and economic insecurity: Theory and evidence

### *Offshoring and welfare: Rethinking potential Pareto improvement*

As in standard trade theory regarding final goods, the expansion of offshoring resulting from liberalized trade will bring winners and losers within each country (the Stolper–Samuelson effect) and the overall welfare gain to a country (a potential Pareto improvement) depends on the possibility of compensation of losers by the winners. Beginning with Wood's (1994, 1995) seminal research on the skills bias in labour demand shifts from expanded trade, to Feenstra and Hanson's (1996, 1999) path-breaking research on the measurement of offshoring and its relation to the non-production wage share, to recent studies of Germany, the United Kingdom, the United States and others, the focus of research has been the distributional effect of

**Figure 5.4** Government and private health insurance coverage in 2005 (per cent of population)




*Source*: Milberg and Winkler (2009). *Data*: OECD Health Data. Social health insurance data includes government and social health insurance data. France: Private insurance data for 2004. Japan: Governmental/social insurance data for 2004, private insurance data not available. United States: Private insurance data for 1995 and 2000 from US Department of Commerce Economics and Statistics Administration, US Census Bureau.

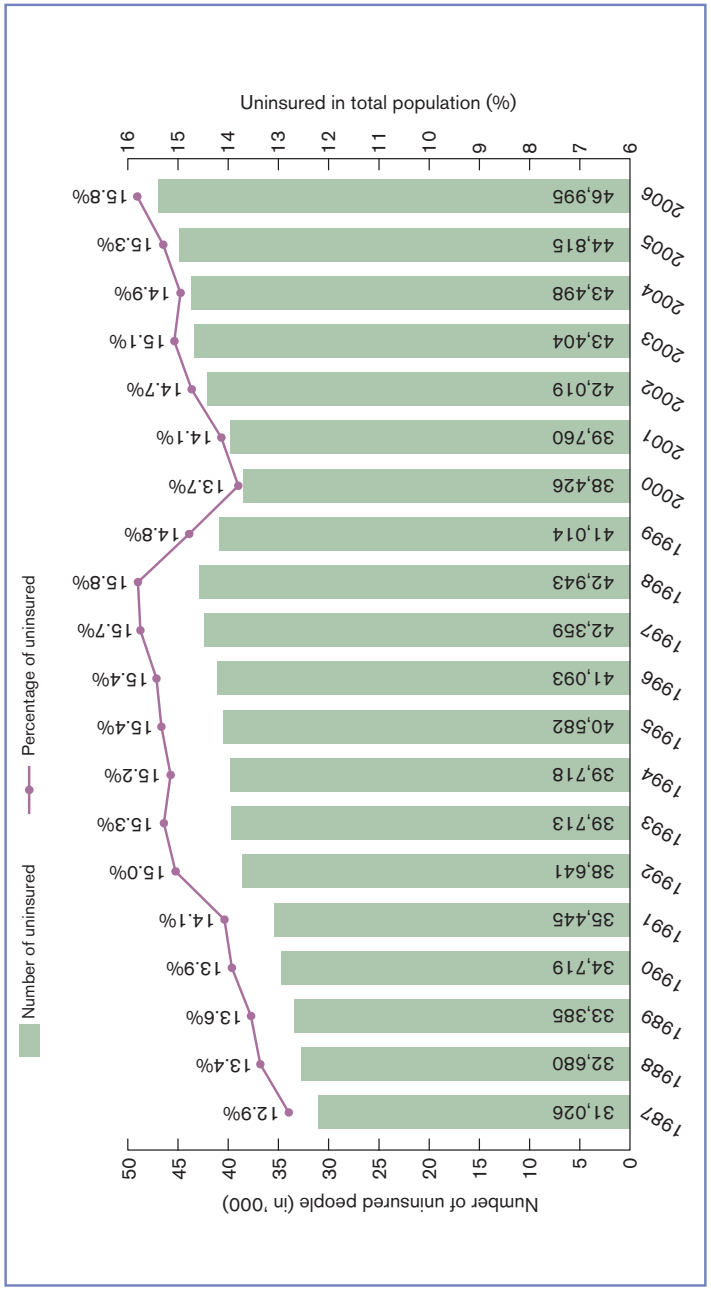



**Figure 5.5** Number of people without health insurance in the United States

*Source*: Milberg and Winkler (2009). *Data*: US Census Bureau, Current Population Survey, 1988 to 2007 Annual Social and Economic Supplements. People as of March of the following year, taken from: Income, Poverty, and Health Insurance Coverage in the United States: 2006 (2007), p. 58.



offshoring on low-skilled versus high-skilled workers. Most studies show that more offshoring is associated with higher wages and employment for high-skilled workers and a decline in employment for low-skilled workers.[3]

There are some important exceptions to these findings, however. Geishecker and Görg (2007) in a study of Germany, and Geishecker et al. (2008) in a study of Germany and the United Kingdom find that offshoring is associated with lower wages for high-skilled workers. Unlike most studies, these two papers are based on firm-level data. The most recent studies indicate that offshoring may no longer have such a skills bias in its impact on labour demand. Geishecker (2008) finds that employment duration and thus economic security is negatively affected by offshoring in Germany across all skill levels. Winkler (2009) reports that the effect of services offshoring in Germany was negative for the relative demand for high-skill German labour for the period 1995–2004.

As the volume of offshoring and intermediates trade has grown and the range of products and services being offshored has expanded, economists began to recognize that a qualitatively new form of international exchange was emerging. Grossman and Rossi-Hansberg (2006, 2008), in a widely cited set of papers, assert that globalization is no longer characterized by the traditional image of an exchange of "wine for cloth", the Ricardian example that captured the notion of final goods specialization and exchange. Today's world is characterized by what Grossman and Rossi-Hansberg call "trade in tasks". They attribute the rise of this new phase of offshoring primarily to technological improvements in transportation and communication. In their model of offshoring, the production process includes a set of intermediate tasks that can be produced by low-skilled or high-skilled labour.

A drop in the cost of offshoring – presumably due to technological improvements in transportation and communication – can affect less-skilled workers through three channels: (1) the productivity effect, (2) the labour-supply effect and (3) the relative-price effect. The productivity effect is the result of the fact that low-skill tasks in the home country are being performed with less home labour than before the increase in offshoring. This increase in productivity implies a higher marginal product of domestic low-skilled labour and thus a higher wage. The labour-supply effect occurs when the reduced demand for low-skilled domestic workers effectively raises the number of available low-skilled workers. The relative-price effect is the impact on wages from a decline in the price of the low-skill-intensive tasks and thus an improvement in the terms of trade, as the price of imports falls with increased offshoring, resulting in a decline in wages of low-skilled workers following the Stolper–Samuelson effect.

The key finding of Grossman and Rossi-Hansberg (2006) is that the productivity effect of offshoring low-skill-intensive tasks was so large in the United States over the period 1997–2004 that it offset the negative effect on wages from the relative price effect and the labour supply effect, resulting in the surprising result that increased offshoring over this period led to an increase in the wages of low-skilled domestic workers. The premise is that when the cost of offshoring declines, leading to an increase in trade in tasks, this is equivalent to an increase in productivity of low-skilled workers that generates an increase in their real wage.

If, as the Grossman and Rossi-Hansberg calculations indicate, expanded task trade leads to an increase in the wages of low-skilled workers, then the normative side of the analysis becomes a lot less sticky, since no transfers from one group to another are required to bring a Pareto improvement. If, however, there is a decline in earnings for one group, then an actual Pareto improvement would require a transfer from another group to the group suffering earnings declines. Economists have traditionally ignored the *ex post* outcome and argued that if there are earnings increases that exceed the losses then there exists a potential income transfer that could bring Pareto improvement.

Extensive econometric research over many years, including the large literature on high- and low-skilled labour discussed above, puts the Grossman and Rossi-Hansberg finding into serious doubt. Even the econometric analysis on the effect of offshoring on overall employment gives conflicting results. Amiti and Wei (2009) confirm the positive productivity effects of offshoring in US manufacturing between 1992 and 2000. Amiti and Wei (2006) also find that services offshoring in the United States over the same period reduced manufacturing employment by 0.4 to 0.7 per cent per year at a highly disaggregated level (450 industries). At a more aggregated level (100 industries), the negative effect disappears.[4] The authors attribute this result to the possibility that services offshoring increases efficiency in certain sectors, which leads to the creation of new jobs in other sectors. Winkler (2009, 2010) equally finds a positive productivity effect, but a negative effect of offshoring on German employment.

Another recent study for the United States finds that, since the late 1980s, less-productive portions moved offshore, leading to a decline in employment, while maintaining higher value-added parts. As a consequence, overall productivity has risen, while the tradable sector has generated only incremental employment (Spence and Hlatshwayo, 2011). Interestingly, Autor (2010) suggests that job opportunities in the United States only fell for middle-wage, middle-skilled jobs since the late 1980s, while high-skilled, high-wage and low-skilled, low-wage employment expanded, which he relates, among other factors, to offshoring of middle-skilled



"routine" tasks that were formerly performed mainly by workers with moderate levels of education.

Amiti and Wei (2005) test the impact of goods and services offshoring on home employment for the United Kingdom between 1995 and 2001. Including 69 manufacturing industries, they find a significantly positive correlation between service offshoring and employment citing the same explanation as in their US study. The impact of goods offshoring on employment is ambiguous and insignificant. The OECD (2007b) measures the effects of offshoring for 12 OECD countries (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, the Republic of Korea, Norway, Sweden and the United States). Three types of models are estimated, which all cover 26 manufacturing and service industries for the two years 1995 and 2000, that is, growth rates from 1995 to 2000 are used in the regressions. The results indicate a significantly negative effect of goods and services offshoring on manufacturing and service employment, respectively.

### *Beyond Stolper–Samuelson: Adjustment costs and the threat effect*

Another measure of the effects of trade on economic insecurity is the replacement of earnings for those displaced by import competition. Kletzer (2001) has done the most extensive analysis of the re-employment rate and replacement wage for workers displaced as the result of foreign trade. In a study of the United States from 1979 to 1999 she found that earnings losses of job dislocation are large and persistent over time (see table 5.6). Specifically, she found that 64.8 per cent of manufacturing workers displaced from 1979 to 1999 and one-fourth of those re-employed suffered earnings declines of greater than 30 per cent. Workers displaced from non-manufacturing sectors did a little better: 69 per cent found re-employment, and 21 per cent suffered pay cuts of 30 per cent or more.

The OECD (2005) did a similar study for 14 European countries for 1994–2001 and found that while re-employment rates in Europe were lower than in the United States, a much lower share had earnings losses of more than 30 per cent upon re-employment and a slightly higher share had no earnings loss or were earning more than before displacement, further evidence that labour market institutions and policies result in different outcomes with respect to insecurity even in the face of similar pressures on vulnerability (table 5.6). This cross-country comparison also indicates the usefulness of looking at the effect of trade on the labour share of national income. The European experience has been larger employment losses and smaller declines in wages compared to the United States.

**Table 5.6** Adjustment costs of trade-displaced workers

| Industry | Share of workers in 14 European countries: 1994–2001[a] (%) | | | United States: 1979–99 | | |
|---|---|---|---|---|---|---|
| | Re-employed two years later | No earnings loss or earning more | Earnings losses > 30 per cent | Re-employed at survey date | No earnings loss or earning more | Earnings losses >30 per cent |
| Manufacturing | 57.0 | 45.8 | 6.5 | 64.8 | 35.0 | 25.0 |
| High international competition | 51.8 | 44.0 | 5.4 | 63.4 | 36.0 | 25.0 |
| Medium international competition | 58.7 | 45.7 | 7.0 | 65.4 | 34.0 | 25.0 |
| Low international competition | 59.6 | 47.3 | 6.8 | 66.8 | 38.0 | 26.0 |
| Services and utilities[b] | 57.2 | 49.6 | 8.4 | 69.1 | 41.0 | 21.0 |
| All sectors | 57.3 | 47.1 | 7.5 | – | – | – |

*Source*: OECD (2005, Table 1.3, p. 45); and Kletzer (2001, Table D2, p. 102).

*Note*: (a) Secretariat estimates based on data from the European Community Household Panel (ECHP) for Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain and the United Kingdom. (b) Services for Europe.

In addition to labour demand shifts and job displacement, greater openness to international trade can also raise the sensitivity of labour demand to changes in domestic or foreign wages, that is, the wage elasticity of labour demand. This sensitivity of employment to both domestic and foreign wage movements is further increased as global supply chains become more developed and offshoring increases. According to Anderson and Gascon (2007, p. 2), "disaggregating the value chain has allowed US business to substitute cheaper foreign labour, increasing firms' own price elasticity of demand for labour, raising the volatility of wages and employment, which increase worker insecurity".

There have been very few estimates of the relation between trade openness and the wage elasticity of labour demand. Slaughter (2001) studied manufacturers in the United States over the period 1960–91 and found that the labour demand elasticity rose for US production workers (a proxy for lower-skilled workers) and not for non-production workers over this period. The demand for production workers rose most in those sectors with the greatest increases in offshoring, as well as those with more technical change in the form of more computer-related investment. Scheve and Slaughter (2003) found that foreign direct investment is the key aspect of globalization that raises the elasticity of labour demand. In a study of outward foreign direct investment by firms in the United Kingdom, they found that more foreign investment is associated with a higher labour-demand elasticity, and more volatility of wages and employment.



The higher elasticity of labour demand can have an indirect effect on wage formation, since it enhances the threat effect, whereby the mere threat by companies to move production overseas influences wage demands. As Freeman (1995, p. 21) notes, "It isn't even necessary that the West import the toys. The threat to import them or to move plants to less-developed countries to produce toys may suffice to force low-skilled westerners to take a cut in pay to maintain employment. In this situation, the open economy can cause lower pay for low-skilled westerners even without trade."

A few researchers have explored the importance of firms' threats to move production abroad on the bargaining power and demands of labour. The issue has received considerable attention by theorists, but has undergone little empirical analysis. Choi (2001) looked at detailed, sectoral data on outward foreign direct investment by US manufacturers and found that increased outward investment was associated with lower wage premiums for union members during the period 1983–96. Bronfenbrenner and Luce (2004), studying the United States between 1993 and 1999, focussed more narrowly on unionization campaigns as opposed to wages. They found that a firm's mobility did raise the credibility of the threat to move production offshore and that this influenced union elections, with unionization drives having a much lower rate of success in firms with a credible threat of mobility than in those considered immobile.

### *Offshoring and the labour share: Combining employment and earnings effects*

As we have seen, most research on offshoring – both theoretical and empirical – has concentrated on the differential impact of offshoring on low-skilled and high-skilled labour. We propose a shift in focus in order to get a more comprehensive view of economic insecurity. The labour share is a useful summary measure of economic security, since it captures both employment and wage and is well known to depend on a variety of economic, technological and institutional factors, including offshoring. The labour share is equal to one minus the profit share. Since offshoring is driven by firms' pursuit of higher profits and greater production flexibility, it is useful to use a measure of economic insecurity that explicitly accounts for the impact of profit-seeking. Offshoring is associated with movements in the labour share to the extent that firms' cost savings from offshoring are passed through to higher wages and labour demand and the extent to which labour demand is affected directly and indirectly by the firms' offshoring activity.

The last two decades have seen a broad expansion of the global labour supply in the global economy. Firms have expanded offshoring activity to benefit from this larger pool of labour. The international mobility of goods, services and capital has been enhanced by technological change and liberalization of trade and foreign investment.

The collapse of the Soviet Union and of communist governments throughout Eastern Europe and East Asia, the capitalist turn of communist China's (and Viet Nam's) economic planning, and even the opening and liberalization of India's economy, have all served to expand global productive capacity, international trade, foreign investment and international subcontracting. Freeman (2007) has characterized these developments as "the great doubling" of the world capitalist system's labour force, as it had added 1.3 billion people to the pool of labour seeking work under competitive conditions.

Such a labour supply expansion alone, Freeman argues, is enough to dampen wage growth in the rest of the world, including in the industrialized countries. Glyn (2007) puts an even finer point on this, noting that: "Increasing opportunities for capital to shift production overseas has given a huge bargaining advantage to employers in most of the OECD." We saw above (figure 5.2) that the labour share of national income has fallen in many industrialized nations. Has the rise in offshoring played a significant role in this? A number of recent papers have taken up the question of trade and the labour (or profit) share at the aggregate or industry level, and they have generally found globalization to be associated with a decline in labour's share of income.

Milberg and Winkler (2010a) find that offshoring is significantly and negatively associated with movements in the labour share of value added in 35 US manufacturing and service sectors over the period 1998–2006. Harrison (2002) studies the relation between the trade openness and the functional distribution across a large number of developing countries and finds that openness is generally associated with a lower labour share of national income. Harrison concludes that "rising trade shares and exchange rate crises reduce labour's share, while capital controls and government spending increase labour's share". Guscina (2006) finds globalization (measured by trade openness, and the share of FDI in GDP) are both associated with a lower labour share. The effect of trade openness is especially strong in the period from 1985 to 2000. Guscina describes the effects of technological change and globalization as contributing to a new (lower) equilibrium level of the labour share in the industrialized world.

The IMF (2007) estimates that offshoring and immigration are associated with a reduction in the labour share in continental Europe over the period 1982–2002, while in the Anglo-Saxon countries the effect of offshoring is smaller. The IMF (2005) finds that offshoring is a small but nonetheless negative and significant factor in the determination of the labour share of income for a group of OECD countries. In this same study, three aspects of globalization (related to prices, offshoring and immigration) combined to play a large role in explaining the declining labour share. A study by Ellis and Smith (2007) finds no connection between



openness and the profit share, but links the rising profit share in 19 OECD countries over 1960–95 to increased "churning" in the labour market. They write: "This greater churn strengthens firms' bargaining positions and allows them to capture a larger share of factor income" (Ellis and Smith, 2007, p. 18).

## 5.5 Offshoring and the labour share under different labour market regimes

It seems likely that the effect of such "churning" will vary depending on labour market institutions. This becomes more evident when we consider that labour market institutions, including regulations on hiring and firing, training and retraining programmes and unemployment benefits will significantly alter the relation between economic vulnerability and economic insecurity. To the extent that the mitigating role of these institutions is captured in the labour share of national income and, as we have seen above (figure 5.3), there is great variation across OECD countries in the structure of these labour market institutions, then we can assess empirically the impact of these institutions on economic security across OECD countries.

In this section, we estimate the effect of offshoring on the labour share at the sectoral level (two-digit ISIC Rev. 3) for the period 1991–2008 using a sample of 21 manufacturing sectors for 15 OECD countries. In order to detect the effect of different labour market regimes, in a second set of labour share model estimations we interact offshoring with policy indicators of labour market flexibility and labour support.

### *Offshoring intensities in the OECD*

We begin with a description of the offshoring data. We have seen that economic insecurity has increased in the industrialized world over the past 30 years. The international trading environment has also changed, and the coincidence is certainly one reason that the two are perceived as connected. In 1950, imports from low-income countries in total imports were especially high in countries with colonial ties, such as France, the United Kingdom and the United States, but also in Germany. The shares declined in the four countries between 1950 and 1991, but showed considerable positive growth after 1991 (see Milberg and Winkler, 2009).

This new wave of globalization beginning in the 1990s reflects political, economic and technological changes that have together encouraged more international trade and foreign investment, altered the structure of trade, and changed the relation between trade and foreign direct investment. Countries have become more open to trade and they have relied increasingly on sophisticated global value chains, as

companies in industrialized countries have gone offshore to perform both manufacturing and services in order to focus on "core competencies" related to marketing, finance, research and development and design (see Prahalad and Hamel, 1990). This shift is reflected both in the general growth in trade openness and in particular by the growth in industrialized countries' intermediate goods imports and goods imports from low-income developing countries.

The input–output measure of offshoring for Germany, the United Kingdom and the United States (not reported here, but see, Campa and Goldberg, 1997 and Milberg and Winkler, 2009), shows that materials and services offshoring, measured as the amount of imported inputs in total non-energy inputs, rose through the 1990s, with materials offshoring accounting for almost 30 per cent of input use in the United Kingdom, 23 per cent in Germany and over 17 per cent in the United States. In the cases of Germany and the United States, these levels reflect slow but steady growth in the reliance on imported inputs of goods, growing about 50 per cent over the period 1998–2006. For services, the level of imported inputs is much lower, but the rates of growth are generally much higher than for materials offshoring. As a number of recent studies indicate, services offshoring is likely to continue to expand more rapidly than that of materials in the years to come. These recent increases in offshoring are not new, but reflect an acceleration of a trend from the 1980s.

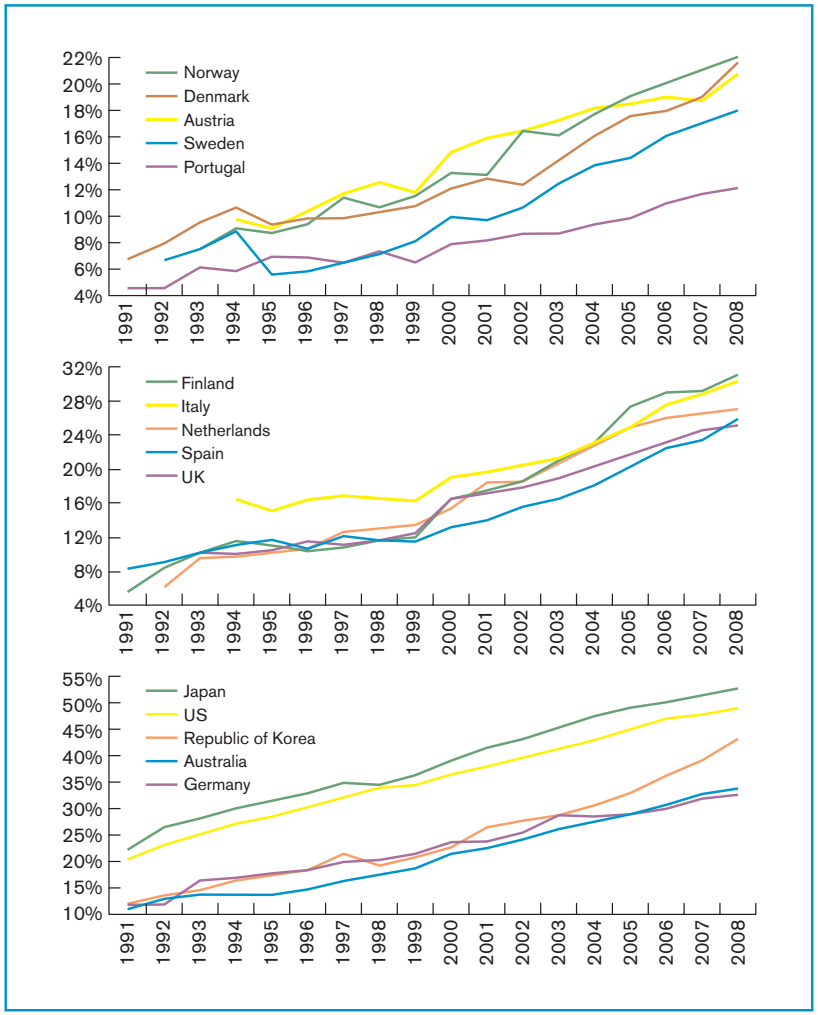
Rather than adopting the standard input–output measure of materials offshoring, which captures only intermediate materials, we use a broader measure that also includes final goods shipments from low- and middle-income countries. Specifically, we measure goods offshoring intensity as manufacturing imports from low- and middle-income countries as a percentage of total manufacturing imports. Low-income countries are used as destination countries for offshoring in order to cut production costs. However, offshore destinations also include developing countries with a middle-income level, such as Brazil, Mexico or South Africa. Moreover, China and India have recently been classified as middle-income countries.[5]

Figure 5.6 plots offshoring intensities for a sample of 15 OECD countries for the period 1991–2008. We classify countries in three groups: low, medium and high offshoring intensities. The first group includes the five countries with the lowest offshoring intensities as of 2008, namely Portugal, Sweden, Austria, Denmark and Norway. Offshoring intensities in this group grew by between 5.9 (Portugal) and 7.2 per cent (Norway) per year over the period 1991–2008, reaching offshoring intensities of between 12 per cent in Portugal and 21.9 per cent in Norway.

The second group includes the five countries with medium offshoring intensities as of 2008, namely the United Kingdom, Spain, the Netherlands, Italy and Finland.



**Figure 5.6** Manufacturing imports from low- and middle-income countries (per cent of total manufacturing imports)




*Source*: Own illustration. *Data*: UN Comtrade.

*Note*: Manufacturing imports comprise imports to sectors 15–36 at the two-digit ISIC Rev. 3 level. See Appendix table A5.1 for sectoral classification.

Offshoring intensities in this group grew by annualized growth rates of between 4.4 (Italy) and 10.7 per cent (Finland) over the period 1991–2008, resulting in offshoring intensities of between 25.1 per cent in the United Kingdom and 31 per cent in

Finland. The final group covers the five countries with the highest offshoring intensities in 2008: Germany, Australia, the Republic of Korea, the United States and Japan. Offshoring intensities reached between 31.7 per cent in Germany and 51.4 per cent in Japan. Average annualized growth rates ranged from 5 per cent (Japan) to 7.6 per cent (Republic of Korea).

China's export growth to the industrialized countries has been especially remarkable over the past ten years, reaching 10 per cent of total OECD imports in 2005, and continuing to grow since then. In 2006, the United States ran a US$ 235 billion deficit with China, based on imports of US$ 287 billion and exports of US$ 52 billion. Most of these imports were demanded directly by US corporations, such as Wal-Mart, Nike and Mattel and numerous retail, apparel, electronics and automotive companies.[6] About 25 per cent of US imports from China are "related party" imports, meaning they are between parties with at least a 5 per cent common ownership interest. Those without affiliates in China often order from large Chinese contract manufacturers or from vendors who subcontract to Chinese firms. In the electronics sector, Chinese production is dominated by foreign investors from Asia.

### *Empirical model of the labour share*

Bentolila and Saint-Paul (2003) show that movements in the labour share can be decomposed into movements along a technology-determined curve and into shifts of this curve. We adopt their model of the labour share which assumes constant elasticity of substitution technology, yielding the following expression for the labour share of income *LS*.

$$LS = \frac{(1-a)(B \cdot L)^{\gamma}}{a(A \cdot K)^{\gamma} + (1-a)(B \cdot L)^{\gamma}} = 1 - a(A \cdot k)^{\gamma} \qquad (5.1)$$

where $K$ and $L$ denote capital and labour, while $A$, $B$ and $\gamma$ represent technological parameters. Capital intensity $k$, that is, the capital–output ratio, is defined as:

$$k = \left[\frac{K^{\gamma}}{a(A \cdot K)^{\gamma} + (1-a)(B \cdot L)^{\gamma}}\right]^{1/\gamma} \qquad (5.2)$$

The capital share *KS* is defined analogously, and thus:

$$KS + LS = 1 \qquad (5.3)$$

Equation (5.1) shows that there is stable relationship between the labour share and capital intensity $k$. This relationship does not change if there are changes in factor prices (wages or interest rates), quantities or labour-augmenting technological progress $B$, since these will only result in movements along the curve described in equation (5.1). However, Bentolila and Saint-Paul (2003) identify two sources of deviation from the relationship in equation (5.1), which result in shifts of the curve: (i) capital-augmenting technological progress $A$ induced changes, for example as a result of import price fluctuations, and (ii) divergence between wages and productivity, brought on, for example, by a shift in labour bargaining power *LBP*. This leaves four explanatory variables in the model: technological progress $A$, capital intensity $k$, import prices *MP* and *LBP*. Taking logarithms we obtain:

$$\ln LS_{it} = \beta_0 + \beta_1 \ln A_{it} + \beta_2 \ln k_{it} + \beta_3 \ln MP_{it} + \beta_4 \ln LBP_{ct} \qquad (5.4)$$

where $i$ designates sectors, $c$ countries and $t$ years.

Capital intensity can have a positive or negative impact on the labour share depending on the sign of $\gamma$ in equation (5.1). (i) If labour and capital are substitutes, that is $\gamma < 0$, a higher capital intensity will reduce the labour share. (ii) If labour and capital are complements, that is $\gamma > 0$, a higher capital intensity will increase the labour share. (iii) In the Cobb–Douglas case, that is $\gamma = 0$, the labour share is $LS = 1 - a$. If the technological parameter $A$ is strictly capital-augmenting, it should have the same coefficient sign as capital intensity. If this is not the case, it suggests a more complex relation between productivity and output.

Prices of imported materials can have a positive or negative influence on the labour share, depending on three effects. (i) If import prices decline, the labour–capital ratio must fall in order to maintain a constant capital intensity, which lowers the labour share. (ii) The second effect is an indirect consequence of the first effect: it captures a rise in the wage rate induced by the lower labour–capital ratio, which has a positive effect on the labour share. (iii) If imported materials increase the marginal product of labour, a lower import price raises material imports, which increases the marginal product of labour and, thus, wages and the labour share. The net effect of import prices on the labour share is ambiguous.

The effect of increased labour bargaining power depends on the underlying bargaining model. (i) In the first model, firms and unions first bargain over wages and then firms set employment unilaterally, taking wages as given. An increase in labour's bargaining power results in a higher wage rate which increases the capital intensity as firms substitute capital for labour. But the labour share may rise or fall depending on the elasticity of substitution between labour and capital (see above). (ii) In the second model, firms and workers bargain over both wages and employment and will set employment in an efficient way. For a given level of capital intensity, higher labour bargaining power increases the labour share, since labour is paid more than its marginal product. Capital intensity remains unchanged, because of the equality between marginal product and the alternative wage (Bentolila and Saint-Paul, 2003).

The labour share is measured as a sector's compensation of employees in value added, or *wL/VA*, where *w* denotes the wage rate and *VA* value added. The technology parameter in the model is captured with labour productivity *LP*, measured as value added per employee (*VA/L*). Capital intensity is obtained by dividing a sector's capital stock by value added (*K/VA*). Import prices *MP* are captured by using goods offshoring intensities as inverse proxies for the prices of imported goods, that is, a higher intensity reflects lower imported goods prices. Offshoring is measured as the share of sectoral goods imports from low- and middle-income countries in a sector's total goods imports. We adopt union density *UND* as a proxy for labour bargaining power, which measures the percentage of union affiliation in total employment, but is only available at the country level. Detailed data description can be found in Appendix A5.1.

This gives the following equation for estimation:

$$\ln LS_{it} = \beta_0 + \beta_1 \ln LP_{it} + \beta_2 \ln k_{it} + \beta_3 \ln OFF_{it} + \beta_4 \ln UND_{ct} + D_i + D_t + \varepsilon_{it} \qquad (5.5)$$

where $\beta_0$ denotes the constant, $D_i$ the sector fixed effects, $D_t$ the year fixed effects and $\varepsilon_{it}$ the idiosyncratic error term.

### *Interaction with labour market regulations*

This completes the basic model of the labour share, expanded to allow estimation of the impact of offshoring. But recall that we also want to explore empirically the effects of offshoring under different labour market regimes. Specifically, we interact offshoring with policy indicators of labour market flexibility and labour support to detect differential effects of offshoring. Interacting offshoring in equation (5.5) with a policy indicator at the country level yields the following equation:

$$\begin{aligned} \ln LS_{it} = {} & \beta_0 + \beta_1 \ln LP_{it} + \beta_2 \ln k_{it} + \beta_3 \ln OFF_{it} + \beta_4 \ln UND_{ct} \\ & + \delta_1 \ln OFF_{it} * policy_{ct-1} + \delta_2 policy_{ct-1} + D_i + D_t + \varepsilon_{it} \end{aligned} \qquad (5.6)$$

Where the total effect of offshoring on the labour share is given by $\beta_3 + \delta_1 policy_{ct-1}$. By definition, the value of policy is positive in our sample ($policy_{t-1} > 0$). As a consequence, the total effect ($\beta_3 + \delta_1 policy_{ct-1}$) will be smaller (larger resp.) than $\beta_3$ if the coefficient of the interaction term is negative (positive resp.), that is $\delta_1 < 0$ ($\delta_1 > 0$ resp.).

We use different policy indicators to capture labour market flexibility and labour support at the country level, since none of these indicators are available at the sectoral level. Labour market flexibility is measured using the employment protection legislation index discussed above (see table 5.4).



We expect that the effects of offshoring on the labour share will be lower the more protective is a country's labour market, since firms (and sectors) will be more likely to use offshoring mainly to complement existing, domestic operations. Winkler (2009), for instance, finds that offshoring has negative employment effects in Germany, while Amiti and Wei (2005, 2009) find positive effects for the United Kingdom and the United States. Winkler (2010) attributes these differences to different degrees of labour market flexibility. Firms in more rigid labour markets, such as Germany, do not create new jobs when they expand their offshoring despite efficiency gains. The net result is a decline in employment. Moreover, re-employment rates of laid-off labour tend to be higher in the United States compared to Europe (table 5.6). As a consequence, we expect the interaction term of EPL with offshoring to be negative. That is, the overall effect of offshoring on the labour share is smaller the more protective a country is in terms of hiring and firing regulation.

We capture labour support with three different policy indicators: (i) First, we use the share of a country's public expenditure on labour market programmes as a percentage of GDP. (ii) Second, we interact offshoring with a country's short-term net unemployment benefits as a percentage of earnings for benefits paid in the first year of unemployment. (iii) We also use a country's long-term net unemployment benefits, that is unemployment benefits that are paid after five years of unemployment. The second and third indicators are only available for 2001–07. In general, we expect that more labour support should positively influence the effect of offshoring on the labour share. Thus we hypothesize that the coefficient on the interaction variables will have a positive coefficient sign, that is $\delta_1 > 0$. This hypothesis is supported by a study showing at a cross-country level that for the countries providing more labour support – based on an index (using equal weights) composed of spending on labour market programmes and unemployment replacement benefits – offshoring has a less unfavourable or more favourable effect on the labour share of national income (Milberg and Winkler, 2010a).

### *Regression results across all countries*

Our regression analysis covers 21 manufacturing sectors (at the two-digit ISIC Rev. 3 level – see Appendix table A5.1 for a sectoral classification) in 15 OECD countries over the period 1991–2008. Unfortunately, many countries did not report information on capital stock (for instance Belgium, Canada, France, Greece, Ireland and Luxembourg), which restricted our country sample to these 15 countries. However, our country sample still includes a variety of labour market regimes, which allows us to detect the differential effect of offshoring on the labour share. In a first step, we examine the effects of offshoring on the labour share using the whole country and sector sample. In a second step, we focus on the effects of offshoring by

country and country grouping following a grouping of five different labour market regimes which develop below.

For the summary statistics, see Appendix table A5.2. A scatterplot of the offshoring and the labour share data over the period 1991–2008 for 22 manufacturing sectors in 15 OECD countries gives no clear picture of the relation, but does show some outliers that might lead to biased results (see Appendix figure A5.2).[7] The regression results using the fixed effects estimator are reported in table 5.7. All regressions correct for industry fixed effects and year fixed effects, and are robust to heteroscedasticy. Standard errors are clustered at the country-year level.

The results for the whole period 1991–2008 are reported in columns (1)–(5). Capital intensity is positively and significantly associated with the labour share, suggesting that labour and capital are complements. Labour productivity does not show the same coefficient sign as capital intensity, but it is negative and statistically significant. At a given wage rate, higher productivity *per se* lowers the labour share. This suggests that the direct effect of the productivity change is dominating any indirect wage effect suggesting a more complex relation between productivity on the production function (see subsection "Empirical model of the labour share", above).

The variable of most interest, offshoring, has a positive and statistically significant coefficient. This finding is the opposite from what we found in previous research that focused strictly on the United States (see Milberg and Winkler, 2010b). However, given the heterogeneity of labour markets in our sample – what has been termed by others the "varieties of capitalism" – the discrepancy between these results and those of the United States study is not surprising.

We use interaction terms to capture the combined effect of offshoring and the particular structure of labour market regulation on the labour share. Specifically, we are interested in the interaction of offshoring with employment protection legislation and public expenditure on labour market programmes. As hypothesized, the positive effect of offshoring on the labour share is significantly reduced the more protective a country is in terms of hiring and firing (column (4)). Surprisingly, more public expenditure on labour market programmes significantly reduces the positive impact of offshoring on the labour share (column (5)).

Given these somewhat surprising results, we explored the issue further by splitting the time series into two separate periods, 1991–99 and 2000–08. The results for 1991–99 are shown in columns (6) and (7). In this case, the results from the full period sample estimation are confirmed. Most importantly, interacting offshoring with the variable on labour market programmes still shows a negative effect, and it is even larger for the sub-sample period of 1991–99 than for the full period.



**Table 5.7** Offshoring and the labour share, fixed effects estimator

| Dependent variable: $\ln LS_t$ | 1991–2008 | | | | | 1991–99 | | 2000–08 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| $\ln LP_t$ | −0.0434*** | −0.0370** | −0.0370** | −0.0596*** | −0.0438** | −0.1020*** | −0.1290*** | −0.0936** | −0.1200*** | −0.0332 | −0.0339 |
| | (0.006) | (0.016) | (0.017) | (0.000) | (0.014) | (0.001) | (0.000) | (0.039) | (0.009) | (0.601) | (0.601) |
| $\ln k_t$ | 0.0904*** | 0.0978*** | 0.0978*** | 0.0883*** | 0.1096*** | 0.1207*** | 0.1117** | 0.1658*** | 0.1649*** | 0.2484*** | 0.2508*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.003) | (0.011) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\ln OFF_t$ | | 0.0292*** | 0.0292*** | 0.1154*** | 0.0620*** | 0.0759*** | 0.0620*** | 0.0208 | −0.0172 | −0.1235 | 0.0039 |
| | | (0.000) | (0.000) | (0.000) | (0.000) | (0.002) | (0.001) | (0.556) | (0.499) | (0.173) | (0.931) |
| $\ln UND_t$ | | | 0.0004 | 0.0969* | −0.0059 | 0.0203 | −0.0701 | 0.3280 | 0.4158** | 0.1023 | 0.2197 |
| | | | (0.994) | (0.060) | (0.918) | (0.774) | (0.348) | (0.124) | (0.049) | (0.611) | (0.297) |
| $\ln OFF_t^* EPL_{t-1}$ | | | | −0.0333*** | | −0.0262*** | | 0.0006 | | | |
| | | | | (0.000) | | (0.002) | | (0.964) | | | |
| $EPL_{t-1}$ | | | | −0.0442*** | | −0.0312 | | −0.0317 | | | |
| | | | | (0.007) | | (0.302) | | (0.328) | | | |
| $\ln OFF_t^* LMP_{t-1}$ | | | | | −0.6950*** | | −1.1893*** | | 1.9128* | | |
| | | | | | (0.006) | | (0.001) | | (0.053) | | |
| $LMP_{t-1}$ | | | | | −2.6858*** | | −5.0643*** | | −1.3638 | | |
| | | | | | (0.005) | | (0.000) | | (0.631) | | |
| $\ln OFF_t^* URB\_ST_{t-1}$ | | | | | | | | | | 0.2366* | |
| | | | | | | | | | | (0.067) | |
| $URB\_ST_{t-1}$ | | | | | | | | | | 0.5585* | |
| | | | | | | | | | | (0.078) | |
| $\ln OFF_t^* URB\_LT_{t-1}$ | | | | | | | | | | | 0.0602 |
| | | | | | | | | | | | (0.422) |
| $URB\_LT_{t-1}$ | | | | | | | | | | | −0.0599 |
| | | | | | | | | | | | (0.887) |
| R-squared (within) | 0.11 | 0.09 | 0.09 | 0.11 | 0.1 | 0.16 | 0.18 | 0.16 | 0.19 | 0.18 | 0.18 |
| Observations | 4,443 | 4,234 | 4,234 | 4,073 | 3,665 | 2,201 | 1,918 | 1,570 | 1,486 | 1,268 | 1,268 |
| Countries | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Sectors | 302 | 302 | 302 | 302 | 302 | 302 | 261 | 302 | 302 | 302 | 302 |
| Fixed year effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country–year clusters | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| F-test of joint significance: | | | | | | | | | | | |
| $\ln OFF_t + \ln OFF_t^* policy_{t-1} = 0$ | | | | $p>F=$ | $p>F=$ | $p>F=$ | $p>F=$ | $p>F=$ | $p>F=$ | $p>F=$ | $p>F=$ |
| | | | | 0.0000 | 0.0001 | 0.0051 | 0.0013 | 0.5269 | 0.1060 | 0.0366 | 0.1574 |

*Source:* Own calculations. $p^*<0.1, p^{**}<0.05, p^{***}<0.01$ (*p*–values in parentheses).

Columns (8)–(11) show the results for the period 2000–08. The results are different, in three important ways: first, offshoring no longer has an effect on the labour share; second, the interaction with employment protection legislation is no longer significant (column (9)) and third, the interaction with public expenditure on labour market programmes is now significantly positive. While the effect of offshoring is insignificant, there seems to be a joint significance with the interaction variable (column (10)).

Finally, we include other variables of labour support, namely short-term and long-term net unemployment benefits as a percentage of earnings, which are only available for 2001–07 (columns (10) and (11)). Short-term net unemployment benefits show a positive and statistically significant effect. Moreover, offshoring and the interaction with short-term unemployment benefits is also positive and statistically significant (column (10)).

To sum up, regression analysis for the period 1991–2008 shows that offshoring significantly increases the labour share. The positive effects from offshoring on the labour share are significantly less, however, the more protective a country is in terms of employment protection legislation and the higher a country's public expenditure on labour market programmes. However, splitting the sample into the periods 1991–99 and 2000–08 shows that the overall results seem to be driven by the first period. Between 2000 and 2008, a country's public expenditure on labour market programmes increases the effect from offshoring on the labour share. We then added a country's short-term and long-term net unemployment replacement benefits as a percentage of earnings as alternative measures of labour support. We find that higher short-term net unemployment benefits positively influence the effect of offshoring on the labour share, while such an effect cannot be confirmed for long-term net unemployment benefits.

### *Regression results by country and by labour market regime*

Even without the outliers listed in endnote 7, the scatterplot of the offshoring and labour share data (see Appendix figure A5.2) does not give a clear picture for our full sample of 15 OECD countries over the period 1991–2008. We saw above that breaking out our sample into sub-periods gave some important insights about the change over time in the relation between offshoring and economic security (captured by the labour share), especially as mediated through labour market institutions. In this subsection we look more carefully at the country coverage, and especially the varieties of countries contained in the sample according to the taxonomy of labour market regimes discussed in section 5.2 above. We therefore run the labour share regressions by country and then by country groupings.



We define labour support as an indexed combination of public expenditure on labour market programmes and the net unemployment replacement benefit level as a share of earnings. Table 5.8 shows the average strictness of employment protection legislation (EPL) and the average levels of labour support, captured by short-term unemployment replacement benefits and public expenditure on labour market programmes, for our sample of 15 OECD countries for 2001, a year in the middle of our time period of interest and the first year for which short-term unemployment replacement rates are available. We group the countries into three categories – low, medium, and high – defining the thresholds as the 33rd and 67th percentiles.

Five distinct "models" of labour market regulation emerge, and they follow closely the groupings presented in recent discussions of "varieties of capitalism" (see, for example, Boeri, 2002; Sapir, 2006; and Hancke et al., 2007). We can identify an "Anglo-Saxon model" of low levels of regulation on hiring and firing and low levels of worker support. This group includes Australia, the United Kingdom and the United States. The "Mediterranean model" combines very strict employment legislation and medium levels of worker support. This group includes Portugal and Spain. The "flexicurity model" combines relatively flexible labour markets and high levels of worker support. Besides Denmark, we also include Finland and the Netherlands in this group. The "Rhineland model" combines medium to strict employment protection legislation and medium to high levels of worker support. Here we find Austria, Germany and Sweden.

**Table 5.8** Rank of EPL and labour support, 2001, 15 OECD countries

| Country | EPL | Group | Country | URB_ST (%) | Group | Country | LMP (%) | Group |
|---|---|---|---|---|---|---|---|---|
| USA | 0.2 | Low | UK | 49.4 | Low | Rep. of Korea | 0.4 | Low |
| UK | 0.7 | Low | Australia | 53.0 | Low | UK | 0.6 | Low |
| Australia | 1.2 | Low | Rep. of Korea | 54.8 | Low | USA | 0.7 | Low |
| Japan | 1.4 | Low | Italy | 55.0 | Low | Japan | 0.8 | Low |
| Denmark | 1.5 | Low | USA | 58.8 | Low | Norway | 1.2 | Low |
| Italy | 2.0 | Medium | Japan | 61.4 | Medium | Australia | 1.2 | Medium |
| Finland | 2.0 | Medium | Austria | 63.0 | Medium | Italy | 1.2 | Medium |
| Rep. of Korea | 2.0 | Medium | Germany | 68.5 | Medium | Portugal | 1.6 | Medium |
| Netherlands | 2.1 | Medium | Norway | 71.6 | Medium | Austria | 1.8 | Medium |
| Austria | 2.2 | Medium | Spain | 73.1 | Medium | Spain | 2.1 | Medium |
| Sweden | 2.2 | High | Netherlands | 74.9 | High | Sweden | 2.7 | High |
| Germany | 2.3 | High | Finland | 77.4 | High | Finland | 2.8 | High |
| Norway | 2.6 | High | Portugal | 78.0 | High | Netherlands | 3.1 | High |
| Spain | 3.1 | High | Sweden | 78.6 | High | Germany | 3.2 | High |
| Portugal | 3.7 | High | Denmark | 80.1 | High | Denmark | 4.1 | High |

*Source*: Own calculations. *Data*: OECD Labour Force Statistics and OECD Going for Growth 2010 Database.

*Note*: EPL is employment protection legislation, URB_ST is the short-term net unemployment replacement rate in per cent, LMP is public expenditure for active labour market programmes as a percentage of GDP.

Japan has always been difficult to categorize in these schemes because although the state supports only low levels of labour market and social protection, the private sector had traditionally supported long-term employment security. Based on our two-variable characterization, we can identify an "East Asian model", including Japan and the Republic of Korea, which both have greater employment protection than those in the Anglo-Saxon group but have less labour support than most countries. It would seem that the traditional role for the private sector in Japan has given way to a great extent, as seen by the increase in long-term unemployment and involuntary part-time employment in Japan to the levels found in Europe.

Table 5.9 gives a summary of our analysis for the sample of 15 OECD countries, which is the groupings of countries according to the combination of labour support and strictness of employment legislation. Italy cannot be classified into the "Mediterranean group" because of its higher labour market flexibility. Norway fits into neither the "flexicurity model", because of its strict labour market regulations, nor into the "Rhineland group" because of its medium–low labour support. As a result we have left them out of the sample.

The results of the country-based regressions are shown in table 5.10. As specified in column (2) of table 5.7, we used the fixed effects estimator. We report the instantaneous effect of offshoring on the labour share unless only the lagged value of offshoring had a significant impact on the sectoral labour share. In these cases, the level of significance is indicated with crosses instead of stars.

The results in table 5.10 indicate that offshoring has no clear effect on the labour share at the country level. The results for the whole period 1991–2008 are reported in columns (1) and (2). Offshoring has a significantly positive impact in Australia, Austria, Finland, Germany, Italy, the Netherlands and Norway. Note that these are mostly countries characterized by a medium–high level of labour support (see table 5.8). In contrast, the effect of offshoring is significantly negative in Japan, Spain

**Table 5.9** Taxonomy of labour market regimes

| Model | Anglo-Saxon | Mediterranean | Rhineland | Flexicurity | East Asian |
|---|---|---|---|---|---|
| Labour support | Low | Medium | Medium–high | High | Low |
| Labour flexibility | High | Low | Medium–low | Medium–high | Medium |
| Countries | Australia | Portugal | Austria | Denmark | Japan |
| | United Kingdom | Spain | Germany | Finland | Republic of Korea |
| | United States | | Sweden | Netherlands | |

*Source*: Own calculations. *Data*: OECD Labour Force Statistics and OECD Going for Growth 2010 Database.

*Note*: See footnote of table 5.8 on labour support. Labour flexibility is calculated based on the EPL index (see figure 5.3).



**Table 5.10** Offshoring and the labour share by country, fixed effects estimator

| Dependent variable: $\ln LS_t$ | 1991–2008 | | 1991–1999 | | 2000-2008 | |
|---|---|---|---|---|---|---|
| | Offshoring (1) | *p*-value (2) | Offshoring (3) | *p*-value (4) | Offshoring (5) | *p*-value (6) |
| Australia | 0.1268*** | 0.0010 | 0.1404*** | 0.0060 | −0.0414 | 0.3400 |
| Austria | 0.1246** | 0.0140 | 0.0099 | 0.5270 | 0.3045$^{+++}$ | 0.0080 |
| Denmark | −0.0021 | 0.8490 | 0.0283$^{++}$ | 0.0480 | 0.0363 | 0.4560 |
| Finland | 0.0396$^{+}$ | 0.0780 | 0.0406 | 0.3650 | −0.0989 | 0.1660 |
| Germany | 0.1255*** | 0.0000 | 0.1179*** | 0.0070 | 0.1484$^{++}$ | 0.0430 |
| Italy | 0.0503$^{++}$ | 0.0170 | −0.0449* | 0.0680 | −0.0435 | 0.2550 |
| Japan | −0.0277$^{+}$ | 0.0700 | 0.0088 | 0.6390 | −0.0868$^{+}$ | 0.0770 |
| Republic of Korea | 0.0139 | 0.3400 | 0.0502* | 0.0860 | −0.0307 | 0.1720 |
| Netherlands | 0.1390*** | 0.0080 | 0.0611 | 0.1860 | 0.2340$^{++}$ | 0.0120 |
| Norway | 0.0803** | 0.0480 | 0.0139 | 0.7670 | 0.0045 | 0.9410 |
| Portugal | −0.0269 | 0.1880 | −0.0595** | 0.0420 | −0.0769** | 0.0200 |
| Spain | −0.0331** | 0.0420 | −0.0653** | 0.0310 | −0.0931*** | 0.0000 |
| Sweden | 0.0436 | 0.1140 | −0.0009 | 0.9810 | 0.1715* | 0.0730 |
| United Kingdom | 0.0001 | 0.9980 | 0.0139 | 0.7800 | 0.0589 | 0.4770 |
| United States | −0.1369** | 0.0140 | −0.0609 | 0.2050 | −0.2268$^{+}$ | 0.0950 |

*Source*: Own calculations.

*Note*: $p^{*}<0.1$, $p^{**}<0.05$, $p^{***}<0.01$ for instantaneous effect of offshoring ($\ln OFF_t$). $p^{+}<0.1$, $p^{++}<0.05$, $p^{+++}<0.01$ for lagged effect of offshoring ($\ln OFF_{t-1}$).

and the United States, all countries with medium–low levels of labour support. We again break the time period into two parts, and columns (3) and (4) report the results for the period 1991–99. Now, Australia, Denmark, Germany and the Republic of Korea show a significantly positive relation between offshoring and the labour share, while Italy, Portugal and Spain show a significantly negative effect. While Portugal and Spain belong to the Mediterranean model with a medium labour support, the first group includes countries with both a high (Denmark, Germany) and low degree of labour support (Australia, the Republic of Korea).

In the country-level estimations of the labour share for the more recent period, 2000–08, only four countries show a positive and statistically significant coefficient on the offshoring variable, namely Austria, Germany, the Netherlands and Sweden. All of these countries have a medium–high level of labour support. Four countries have a significantly negative effect, namely Japan, Portugal, Spain and the United States, all countries with a low–medium labour support. The negative impact of offshoring on the sectoral labour share in the United States stands out in terms of coefficient size and confirms the findings by Milberg and Winkler (2010a) for 35 manufacturing and service industries between 1998 and 2006. The country-level regressions are suggestive, but our presentation above on economic security and its regulatory dimension focused on a set of five distinct labour market regimes,

defined by the two dimensions of labour market protection and by spending on labour support, and summarized in table 5.9 above.

We estimated the labour share regression as specified in equation (5.5) for the different labour market regimes. Column (1a) of table 5.11 shows the results for the Anglo-Saxon model, which includes Australia, the United Kingdom and the United States. The results of the Mediterranean model, which includes Portugal and Spain, are shown in column (2). Column (3) focuses on the Rhineland model, including Austria, Germany and Sweden. Column (4) shows the results of the flexicurity model covering Denmark, Finland and the Netherlands, while column (5) shows the results of Japan and the Republic of Korea, the East Asian model. We recognize that Australia is dissimilar from the other countries in the Anglo-Saxon group because of its position in global trade. Australia's trade structure differs from that of the United Kingdom and the United States, as Australia is a commodity exporter and manufacturing goods importer, and thus cannot be expected to be affected by offshoring in the same way as most OECD countries. Thus column (1b) is estimated for the Anglo-Saxon group excluding Australia.

Once again, this is a very standard specification of a model of the labour share, and our main interest is in the offshoring variable. Offshoring has a positive and statistically significant impact on the labour share in the Anglo-Saxon, flexicurity and Rhineland models. The coefficient is negative and statistically significant in the Mediterranean model and negative but statistically insignificant in the East Asian sample. For the Anglo-Saxon sample, the offshoring coefficient is positive and significant when Australia is included (column (1a)), but the coefficient becomes negative and statistically significant when Australia is excluded (column (1b)). In sum, these findings show that more offshoring is associated with less economic insecurity in those countries with more supportive labour market regimes (flexicurity and Rhineland) and is associated with greater economic insecurity in areas characterized by less supportive labour market institutions (Anglo-Saxon and Mediterranean). The findings support the view that labour market institutions matter in mediating the effects of globalization on workers in OECD countries.

Regarding the other variables in the model, labour productivity has a negative and statistically significant effect on the labour share for all groups except in the East Asian model. The size of the coefficient, however, seems to increase with the amount of labour support, ranging from −0.028 in the Anglo-Saxon model to −0.2606 in the flexicurity model. What would be an explanation for that? Recall that labour productivity is defined as value added per employee (*VA*/*L*), whereas the labour share is defined as the compensation of employees in value added *wL*/*VA*. By definition, an increase of labour productivity lowers the labour share to the same extent, holding the wage rate *w* constant. A simultaneous increase in the nominal



**Table 5.11** Offshoring and the labour share by labour market regime, fixed effects estimator, 1991–2008

| Dependent variable: $\ln LS_t$ | Anglo-Saxon | | Mediterranean | Rhineland | Flexicurity | East Asian |
|---|---|---|---|---|---|---|
| | (1a) | (1b) | (2) | (3) | (4) | (5) |
| $\ln LP_t$ | −0.0280* | −0.0109 | −0.1298** | −0.1971*** | −0.2606*** | 0.0048 |
| | (0.098) | (0.499) | (0.024) | (0.001) | (0.000) | (0.772) |
| $\ln k_t$ | −0.0503 | −0.1129*** | 0.1378* | −0.0233 | 0.1434*** | 0.1224*** |
| | (0.113) | (0.000) | (0.089) | (0.412) | (0.000) | (0.000) |
| $\ln OFF_t$ | 0.0472** | −0.0425* | −0.0316*** | 0.0741*** | 0.0330** | −0.0029 |
| | (0.018) | (0.078) | (0.004) | (0.000) | (0.030) | (0.798) |
| $\ln UND_t$ | 0.2498** | 0.8931** | −0.1387 | 0.3408** | 0.2680* | 0.6473*** |
| | (0.014) | (0.019) | (0.100) | (0.015) | (0.093) | (0.000) |
| R-squared (within) | 0.08 | 0.21 | 0.13 | 0.31 | 0.33 | 0.17 |
| Observations | 875 | 560 | 533 | 827 | 856 | 620 |
| Countries | Australia, United Kingdom, United States | United Kingdom, United States | Portugal, Spain | Austria, Germany, Sweden | Denmark, Finland, Netherlands | Japan, Republic of Korea |
| Fixed year effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Country–year clusters | Yes | Yes | Yes | Yes | Yes | Yes |

*Source*: Own calculations.

*Note*: $p^* < 0.1$, $p^{**} < 0.05$, $p^{***} < 0.01$ (*p*-values in parentheses).

wage rate, on the other hand, can counterbalance this drop in the labour share. Capital intensity significantly increases the labour share in the East Asian, Mediterranean and Rhineland models with coefficient sizes of similar magnitudes. Union density has a significantly positive effect on the labour share in all models except for the Mediterranean one. Moreover, the coefficient size is highest in the Anglo-Saxon model without Australia (column (1b)) and the East Asian model. This suggests that the positive effect of union density is stronger the more flexible the labour markets are.

## 5.6 Offshoring and perceptions of economic insecurity

### *Perceptions of offshoring-induced economic insecurity*

The media reported heavily on the issue of corporate downsizing in the 1980s, but offshoring did not receive a lot of media attention until the 1990s. Public concern about services offshoring exploded when the Forrester consulting firm issued a prediction that 3.3 million jobs in the United States would be lost to services offshoring over a 15-year period (McCarthy, 2002). Since the release of the Forrester study in 2003, the number of newspaper articles on services outsourcing has skyrocketed, and was particularly high during the US presidential campaign of 2004. Amiti and Wei (2005, p. 309) report 2,634 articles on services offshoring in US newspapers in the first five months of 2004, about five times the amount of coverage found in a similar period in 2001.

In the United States, the offshoring of services has added a new source of public concern about living standards because for the first time in US history it is white-collar jobs that are threatened by foreign competition. The jobs that are being moved overseas are not just the low-skilled jobs based in declining manufacturing industries, such as automobiles, footwear and apparel. These are service jobs, ranging from low-skilled call-centre jobs to high-skilled work in software development, semiconductor manufacturing, financial market analysis and radiology exam reporting. Since white-collar work was seen as the main area of future job growth (see, for example, Reich, 1991), the upsurge in services offshoring adds an additional dimension to the debate, which is the question of what sectors in the United States are most likely to provide employment in the future. Still, we can see that even in 2006 the intensity of services offshoring is still well below that for materials. The United States continues to run a trade surplus on services overall, although not in business, professional and technical services, which is the area where the fears are greatest.

Recent surveys show that about half of Americans and Europeans think that "freer trade" results in more job loss than job creation. Also France and the United States



show the most scepticism toward international trade and investment, although between 2005 and 2007 American sentiment turned against freer trade while European sentiment became less sceptical about the employment benefits of trade liberalization. Half of Americans and a slightly higher percentage of Europeans saw the growth of China's economy as a threat (see figure 5.7). Of all countries surveyed, France and the United States showed the lowest percentage who did favour foreign companies investing in their country, with only 53 per cent of Americans and 59 per cent of French. This contrasted with 69 per cent of German and UK respondents who were in favour of FDI.[8]

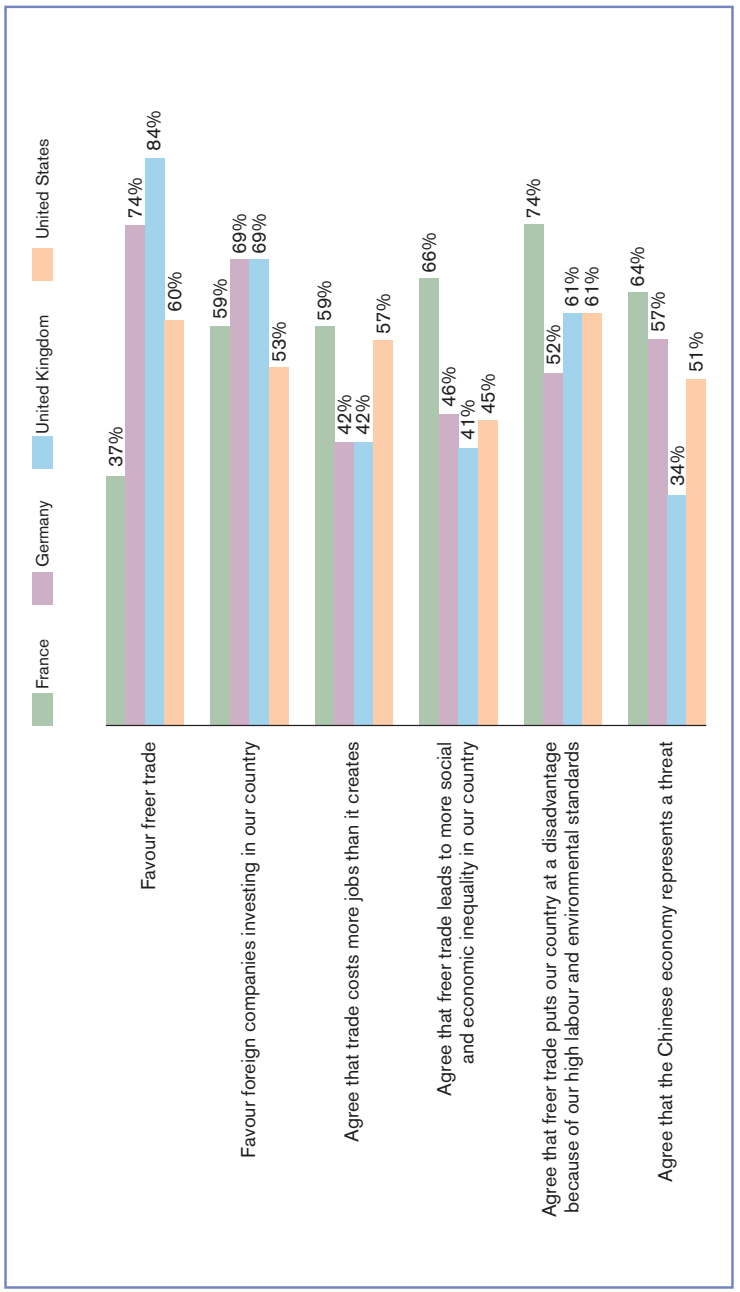
In the United States, 40 per cent expect that the next generation will have a lower standard of living, 62 per cent said job security had declined and 59 per cent said they have to work harder to earn a decent living. Most striking is that 75 per cent of Americans said that "outsourcing work overseas hurts American workers" (Anderson and Gascon, 2007, p. 1). While this expression of economic insecurity was greatest among those with less education, expressions of a rise in economic insecurity as a result of offshoring were found for all educational categories.[9]

The contrast between perceptions of globalization across different European countries is clear from the Eurobarometer survey that asked: "what comes first to mind when you hear the word 'globalization'?" Possible answers included: (i) "opportunities for domestic companies in terms of new outlets"; (ii) "foreign investments in country"; (iii) "relocation of some companies to countries where labour is cheaper"; (iv) "increased competition for country" and (v) "other". Answer (iii) reflects perceived worker insecurity with regard to cost-oriented offshoring. Figure 5.8 shows the development of this indicator across selected EU countries from Autumn 2004 to Spring 2008.

Countries with a medium–high degree of labour support strongly associate globalization with job relocations, especially France, flexicurity countries (Belgium, Finland) and Rhineland countries (Germany, Austria). Denmark is the exception. Mediterranean countries (with the exception of Greece) and Anglo-Saxon countries – both groups with a low degree of labour support – generally show a lower association of globalization with job relocations. Over the period, this negative association grew in all countries except for Denmark and Sweden, and most strongly in Germany, Ireland, Luxembourg and Spain.

The Eurobarometer survey also asked the following question: "Which of the following two propositions is the one which is closest to your opinion with regard to globalization?" Possible answers included: (i) "good opportunity for domestic companies"; (ii) "threat to employment and companies" and (iii) "don't know". Answer (ii) reflects the perceived negative effects of globalization. Figure 5.9 shows the development of this indicator across selected EU countries from Spring 2006

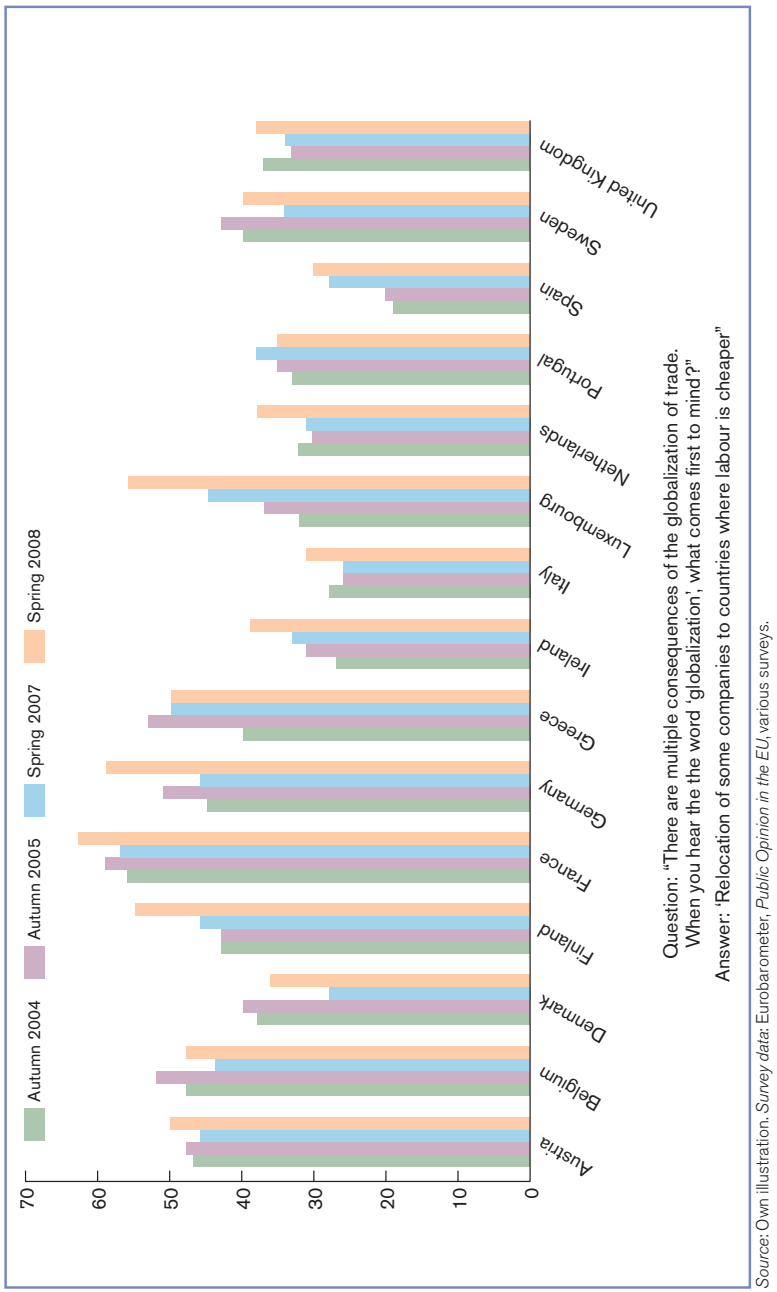
**Figure 5.7** Concerns about free trade (per cent of respondents)




*Source*: German Marshall Fund (2007), Trade and Poverty Reduction Survey, Topline Data October 2007.



**Figure 5.8** Perceptions of offshoring (per cent of respondents)




*Source*: Own illustration. *Survey data*: Eurobarometer, *Public Opinion in the EU*, various surveys.

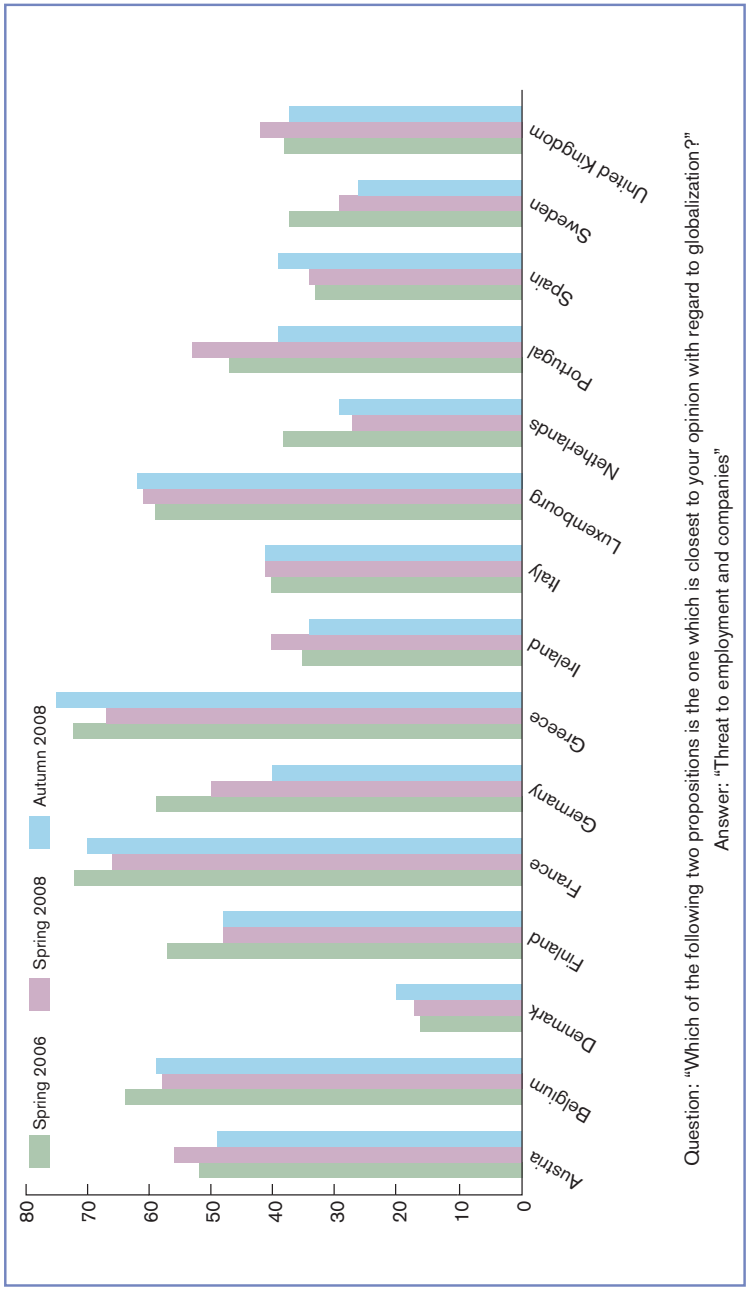



**Figure 5.9** Perceptions of globalization (per cent of respondents)

*Source*: Own illustration. *Survey data*: Eurobarometer, *Public Opinion in the EU*, various surveys.

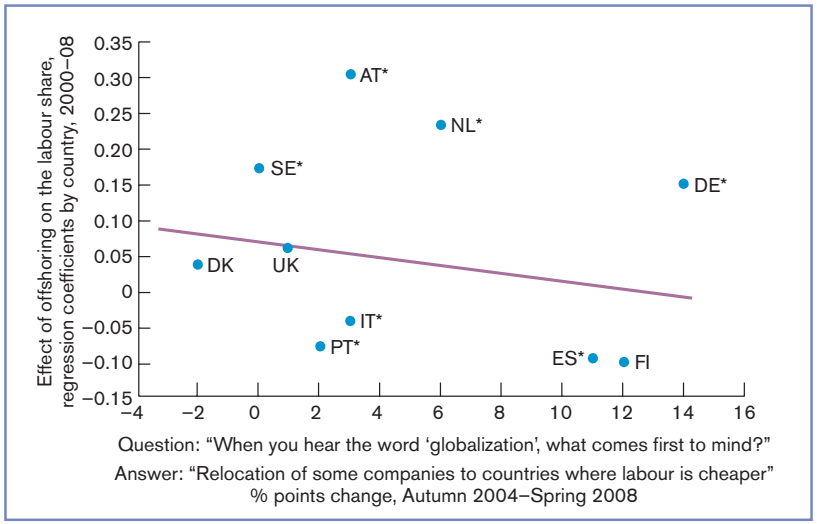


to Autumn 2008. With the exception of Denmark, countries with a high labour support, in particular Austria, Belgium and France, are generally more pessimistic about the effects of globalization. Again, Greece is more pessimistic compared to other Mediterranean countries. Over the period, pessimism fell in all countries except for Denmark, Ireland and Spain.

### *Correlations between perceived and actual economic insecurity*

Do the perceptions of the effect of globalization on economic security bear any relation to the reality? In this section, we correlate the two indicators of globalization-induced economic insecurity with the results of the offshoring coefficients in the labour share equations to examine if perceptions reflect reality. The vertical axis in figure 5.10 shows the percentage point change of perceived insecurity due to cost-oriented offshoring, while the horizontal axis shows the regression coefficients from the country regressions over the period 2000–08. There is a weakly negative correlation, that is, countries with a growing fear of globalization-induced job relocations tend to have a less positive connection between offshoring and the labour share. However, there are a few outliers. Germany, for instance, has increased its fear of offshoring-induced job relocation, although the actual effect of offshoring on the labour share is positive. The same holds for Austria and the Netherlands, but to a lesser extent.

**Figure 5.10** Correlation of actual and perceived insecurity due to offshoring



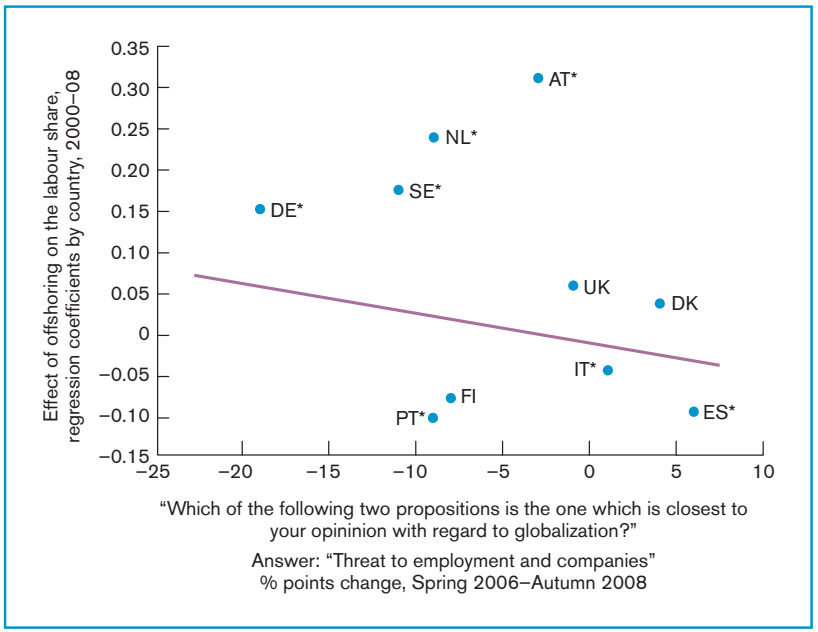

*Source*: Own illustration. *Survey data*: Eurobarometer, *Public Opinion in the EU*, various surveys.

*Note*: * Significant estimates.

Figure 5.11 shows the percentage point change of perceived insecurity due to globalization on the vertical axis. The correlation with the regression coefficients is again weakly negative, that is, countries with a growing fear of the negative effects of globalization on companies and employment seem to have a less positive actual effect of offshoring on the labour share. Outliers include Austria, where fear of globalization fell only slightly, while offshoring led to actual gains for workers in terms of the labour share. Similar developments can be observed in the Netherlands and Sweden. This weak negative correlation supports the notion that perceptions and reality are linked. It is consistent with the findings for the United States by Scheve and Slaughter (2003), in which low-skilled workers were found to be more sceptical about globalization and trade liberalization than workers with higher skills.

Perceptions of a strong link between globalization and economic insecurity are probably driven both by current reality and by predictions of the future of globalized production. A number of recent studies project potentially very significant expansion

**Figure 5.11** Correlation of actual and perceived insecurity due to globalization




*Source*: Own illustration. *Survey data*: Eurobarometer, *Public Opinion in the EU*, various surveys.
*Note*: * Significant estimates.



of services offshoring. Blinder (2006, 2007a, 2007b) has done a detailed analysis of the US labour force, looking especially at services jobs and the extent to which they are "personally delivered" or "impersonally delivered". Personally-delivered services cannot be delivered electronically, such as child care or garbage collection. Impersonally-delivered services are those that can be delivered electronically without a significant loss of quality. These would include travel reservations and computer support (Blinder, 2007a, p. 4).

Blinder estimates that 30–40 million current jobs are likely in the future to involve impersonally-delivered services and thus be potentially subject to offshoring. This estimate is equivalent to 22–29 per cent of the current American workforce (Blinder, 2007a, p. 18). Blinder's analysis is notable not just because the potential labour market displacement is large, but because the displacement affects all skill levels of the US labour force. Blinder sees the potential wave of offshoring as driving a new industrial revolution, writing that "the sectoral and occupational compositions of the U.S. workforce are likely to be quite different a generation or two from now. When that future rolls around, only a small minority of U.S. jobs will still be offshorable; the rest will have already moved off shore" (ibid.). Blinder's analysis shows that the distinction between high-skilled versus low-skilled labour which characterizes most of the research to date, may be much less relevant in the near future.

## 5.7 Conclusion

The wave of offshoring by firms in industrialized countries, which has grown steadily over the past 10–20 years has occurred during a period of greater worker vulnerability to economic loss. But vulnerability does not translate directly into economic insecurity. This depends on household efforts to reduce the risk of sudden loss and on national policies to absorb such risks. Different industrialized countries have implemented very different sets of policies, and we have identified five distinct regimes of labour market institutions. On one extreme are the Anglo-Saxon economies, including the United States, with lax hiring and firing regulations, low unemployment benefits and very limited spending on active labour market policies. On the other extreme are the countries in the Rhineland model, including Germany and Austria, who have relatively high levels of employment protection, large unemployment benefits and significant spending on active labour market programmes. Denmark (and a few other countries) seems to have found an effective combination of the two, comprising labour market flexibility with high replacement income programmes for the unemployed and extensive active labour market programmes. Austria and Germany have moved toward flexicurity, but are still quite a distance from a Danish-type system.

We adopted the labour share of national income as our main indicator of economic insecurity. This variable comprises both employment and earnings, and it is tied also to the success of the profit-seeking behaviour of firms who use offshoring as a means of raising profits. Our econometric analysis focused on the effect of offshoring on the labour share of value added in 15 OECD countries and 21 manufacturing sectors, where a fall in the labour share is an indicator of heightened economic insecurity. We found that offshoring had a positive effect on the labour share over the period 1991–2008. These results seem to be driven by the period 1991–99, while offshoring has no effect during 2000–08.

Our focus has been on the mitigating role of labour market institutions on this general outcome. We found that for those countries providing more labour market support in the form of greater spending on active labour market policies and higher short-term unemployment replacement benefits, offshoring had larger positive effect. Our regression analysis by country shows that offshoring is associated with a reduced labour share in sectoral value added and, thus, with a higher share of corporate profit in Japan, Portugal, Spain and the United States – all countries with a low and medium labour support. The regression results by country groupings show that the effect of offshoring is negative in the Anglo-Saxon (without Australia) and Mediterranean countries, while it is positive in the Rhineland and flexicurity countries.

In the final section of the chapter we turned to the relation between perceptions of globalization based on surveys and the actual effect as estimated by our labour share regressions. We found a weakly negative relation between growing enthusiasm for globalization and the effect of offshoring on the labour share. This weak negative correlation supports the notion that perceptions and reality are linked. It is consistent with the findings for the United States by Scheve and Slaughter (2003), in which low-skilled workers were found to be more sceptical about globalization and trade liberalization than workers with higher skills.



## Appendix A5.1 Data

We estimate the effect of offshoring on the labour share at the two-digit ISIC Rev. 3 sectoral level for the period 1991–2008 using a sample of 21 manufacturing sectors for 15 OECD countries. Offshoring is defined as the share of goods imports from low- and middle-income countries in total goods imports. We obtained sectoral import data from UN Comtrade.

The sectoral labour share is calculated as total compensation (nominal) in value added (nominal). We obtained the data for all countries from the OECD STAN Database except for Australia and Japan which we retrieved from the EU KLEMS Database. Labour productivity is measured as gross value added (in constant prices) divided by the number of persons engaged (in 1,000s). The data are obtained from the EU KLEMS Database except for Norway (OECD STAN Database). We used gross value added price indices with 1995 as the base year. Since value added was reported in national currencies, we converted volumes into US dollars using exchange rates from the EIU Database.

Capital intensities are obtained by dividing the sectoral net capital stock (constant prices) by sectoral value added (constant prices). Many countries did not report capital stock data (for example, Belgium, Canada, France, Greece, Ireland and Luxembourg), which restricted our sample to 15 countries. Only Austria and Germany had capital stock data available at the two-digit ISIC Rev. 3 classification. Other countries reported capital stock at the two-digit level for some sectors only. We captured missing sectors by calculating capital intensities at a more aggregated level (at most three two-digit sectors) for which capital stock data were available. This follows the assumption that capital intensities at a higher aggregation are similar to capital intensities at the disaggregated two-digit level. For example, in many countries we had to use the same capital intensity for sectors 17–19 (textiles, wearing apparel, leather and footwear), since capital stock data were not available for the individual sectors. We obtained capital intensities from the OECD STAN Database and the EU KLEMS Database.

Union density, defined as the number of union members in total employment, is based on the OECD Labour Force Statistics and is available at the country level only. The policy indicators are also only available at the country level. The EPL indicator and public expenditure on labour market programmes as a percentage of a country's GDP are retrieved from the OECD Labour Force Statistics. We obtained net unemployment replacement benefits as a percentage of earnings from the OECD Going for Growth 2010 database. The data are available for the period 2001–07 only. Short-term benefits refer to unemployment benefits that are paid within the first year of unemployment. Long-term benefits refer to unemployment benefits which are paid after five years of unemployment.

## Table A5.1 Sectoral classification

| ISIC Rev. 3 | Sector name |
|---|---|
| 15 | Food products and beverages |
| 16 | Tobacco products |
| 17 | Textiles |
| 18 | Wearing apparel, dressing and dying of fur |
| 19 | Leather, leather products and footwear |
| 20 | Wood and products of wood and cork |
| 21 | Pulp, paper and paper products |
| 22 | Printing and publishing |
| 23 | Coke, refined petroleum products and nuclear fuel |
| 24 | Chemicals and chemical products |
| 25 | Rubber and plastics products |
| 26 | Other non-metallic mineral products |
| 27 | Basic metals |
| 28 | Fabricated metal products, except machinery and equipment |
| 29 | Machinery and equipment, nec* |
| 30 | Office, accounting and computing machinery |
| 31 | Electrical machinery and apparatus, nec |
| 32 | Radio, television and communication equipment |
| 33 | Medical, precision and optical instruments |
| 34 | Motor vehicles, trailers and semi-trailers |
| 35 | Other transport equipment |
| 36 | Manufacturing, nec |

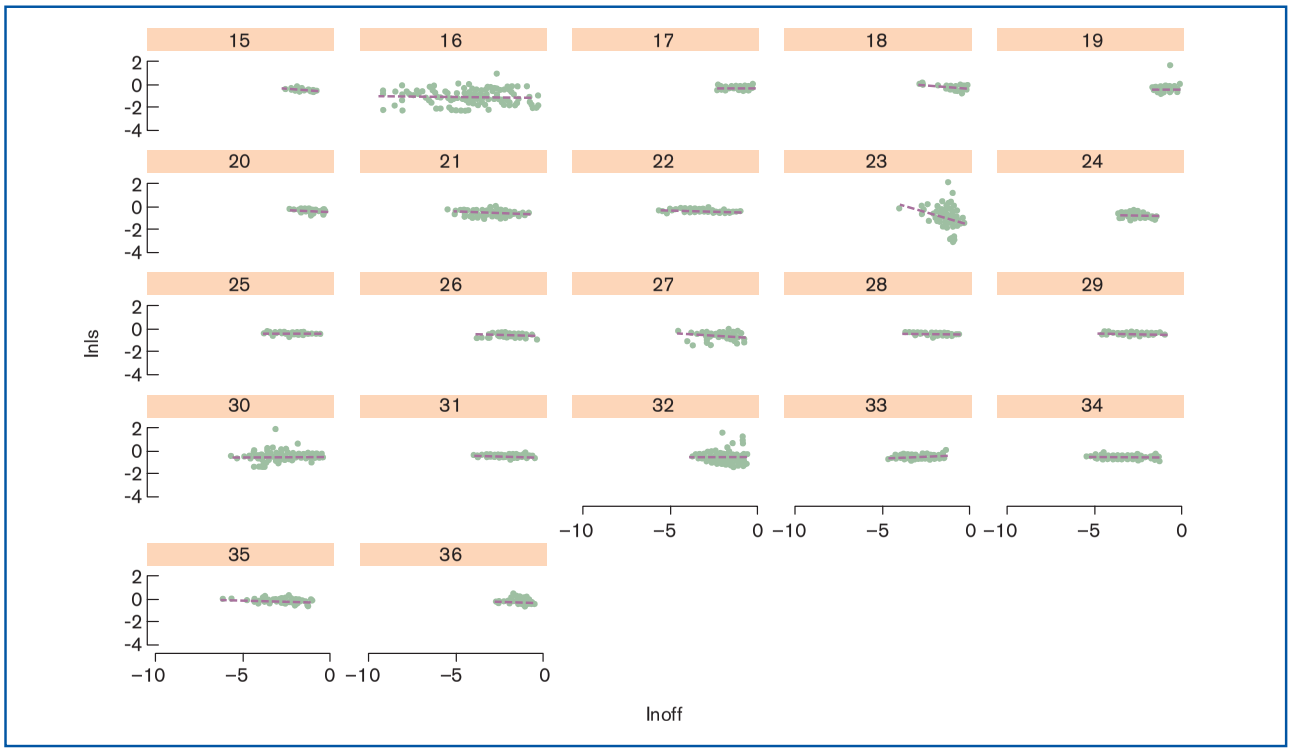
* not elsewhere classified.



## Table A5.2 Summary statistics

| | 1991–2008 | | | 1991–99 | | | 2000–08 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Obs | Mean | Std Dev | Obs | Mean | Std Dev | Obs | Mean | Std Dev |
| $\ln LS_i$ | 5,104 | −0.4650694 | 0.2543967 | 2,653 | −0.4482021 | 0.2421378 | 2,451 | −0.4833268 | 0.2658785 |
| $\ln LP_i$ | 4,620 | 3.888025 | 0.6568465 | 2,709 | 3.826124 | 0.586098 | 1,911 | 3.975775 | 0.7370284 |
| $\ln k_i$ | 5,058 | 0.3932271 | 0.5035422 | 2,652 | 0.42444 | 0.4896481 | 2,406 | 0.3588229 | 0.5163455 |
| $\ln OFF_i$ | 5,294 | −1.924699 | 1.041769 | 2,522 | −2.272428 | 1.103551 | 2,772 | −1.60833 | 0.8688573 |
| $\ln UND_i$ | 5,544 | −1.194722 | 0.6033235 | 2,772 | −1.11372 | 0.5798204 | 2,772 | −1.275723 | 0.6154762 |
| $\ln OFF_i{}^*EPL_{i-1}$ | 5,110 | −4.250553 | 3.401822 | 2,338 | −5.335511 | 3.832407 | 2,772 | −3.335463 | 2.668071 |
| $EPL_{i-1}$ | 5,236 | 2.089116 | 0.9427775 | 2,464 | 2.275012 | 1.030782 | 2,464 | 1.915008 | 0.8162001 |
| $\ln OFF_i{}^*LMP_{i-1}$ | 4,690 | −0.0475374 | 0.0480261 | 2,044 | −0.0676934 | 0.0590963 | 2,646 | −0.0319673 | 0.0288953 |
| $LMP_{i-1}$ | 4,774 | 0.0224036 | 0.01507713 | 2,128 | 0.0275097 | 0.0174032 | 2,380 | 0.0179168 | 0.0110455 |
| $\ln OFF_i{}^*URB\_ST_{i-1}$ | | | | | | | 2,156 | −1.05034 | 0.6408569 |
| $URB\_ST_{i-1}$ | | | | | | | 2,156 | 0.6638743 | 0.0982381 |
| $\ln OFF_i{}^*URB\_LT_{i-1}$ | | | | | | | 2,156 | −0.8364441 | 0.5853854 |
| $URB\_LT_{i-1}$ | | | | | | | 2,156 | 0.5287641 | 0.1988218 |

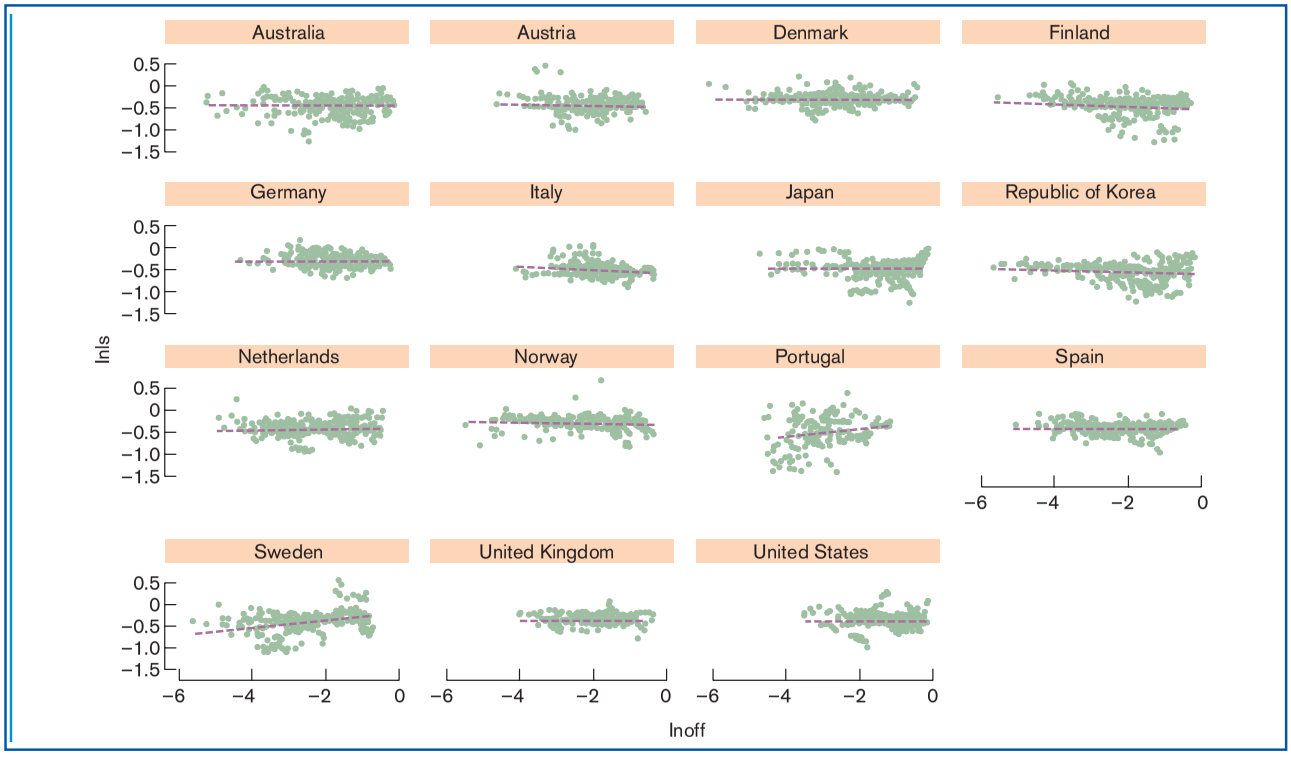
**Figure A5.1** Offshoring and the labour share, 1991–2008, by 2-digit ISIC sector




*Source*: Own illustration. See Appendix A5.1 for a data description and Appendix table A5.1 for the sectoral classification.



**Figure A5.2** Offshoring and the labour share, 1991–2008, without outliers, by country




*Source*: Own illustration. See Appendix table A5.1 for a data description.

## Endnotes

**1.** See http://stats.oecd.org/glossary/detail.asp?ID=3535.

**2.** Barbosa et al. (2007) find that the deterioration in the US current account between 1995 and 2003 closely tracks the rise in health care spending by Americans.

**3.** See Crino (2009) and Milberg and Winkler (2010b) for reviews of the empirical literature.

**4.** Most studies on the employment-level effects of offshoring refer to the labour demand specification of Hamermesh (1993), in which conditional labour demand is derived from a cost function using Shephard's Lemma whereby factor demand is given by the partial derivative of the cost function with respect to the corresponding factor price, regardless of the form of the production function.

**5.** Countries with a per capita income of US$ 975 or less are classified low income, while countries are classified high income if their per capita income is US$ 11,906 or more.

**6.** See Scott (2007) on Wal-Mart's US imports from China and their employment effects in the United States. For analysis of the effect of the recent economic downturn on the consolidation of global value chains (including Chinese gains in import market share in the United States), see Milberg and Winkler (2010c).

**7.** Sector 16 (tobacco) shows extremely low and also extremely high offshoring intensities. We thus dropped this sector in the regressions. In addition, we identified six outliers due to very high labour shares, namely sector 19 (leather) for Denmark, sector 23 (coke, refined petroleum and nuclear fuel) for Denmark and Portugal, sector 30 (office, accounting, and computing machinery) for Finland, and sector 32 (radio, television and communication equipment) for the Netherlands and Sweden. We also dropped sector 23 (coke, refined petroleum and nuclear fuel) for Japan due to very low labour shares.

**8.** Note that Scheve and Slaughter (2003) find that in the United Kingdom over 1991–99, perceived economic insecurity was higher in those sectors with greater outward FDI.

**9.** Even on the issue of perception of insecurity, there is conflicting evidence. Kierkegaard (2007, p. 11) shows that among European countries there is not a statistically significant relation between "public anxiety" over offshoring (as measured by the Eurobarometer 63 of 2005) and the intensity of offshoring and offshore outsourcing.

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# 6 Social protection in labour markets exposed to external shocks

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## 6.1 Introduction

Social protection refers to publicly provided safety nets of two kinds. The first type is poverty alleviation measures which help people who are born poor or who lack the productive assets or skills to get out of poverty. The second type consists of social insurance programmes or other labour market interventions that allow people to deal with labour market risk. The focus of this chapter is on the social protection systems of the latter type which protect individuals against the negative consequences of labour market changes caused by external shocks.

In section 6.2 we discuss in detail the reasons for the need for such social protection when workers are vulnerable to shocks, especially in a more globalized world. The main reasons we discuss are: (1) for various reasons, the market for private unemployment insurance is missing, making it imperative for the government to step in to fill this void; (2) social protection increases efficiency by addressing market failures stemming from externalities such as labour-market crowding; (3) social protection promotes distributional equity by aiding displaced workers facing long unemployment spells or moving costs; and (4) finally, and very importantly, by addressing the above concerns social protection also makes globalization more palatable politically.

There is a case for social protection when workers are exposed and vulnerable to shocks. Globalization, the major components of which are trade reforms and openness to capital flows, is in large part driven by policy. There is, therefore, some control that governments have over the kinds of shocks caused by globalization. Political support for globalization means that in democracies a majority of voters

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support reforms that promote globalization. However, it does not imply that globalization, even in the presence of compensation schemes which make it politically feasible, improves everyone's welfare. The question then is with what kind of social protection regime in place does globalization lead to an improvement in the welfare of some without hurting anyone else (at least without hurting the majority)? Also, what social protection measures lead to greater improvement in welfare? These are some of the questions we address in this chapter. These issues are intimately related to the government's choice of compensation schemes or trade adjustment assistance programmes. Even if we believe that we already live in a globalized world and the process of globalization is virtually almost complete, the issue of compensation to promote support for globalization still remains important. The reason is that, based on past experience of the world economy, by no means can we assume globalization to be irreversible.

In section 6.3, we review any literature on the effectiveness of social policies in mitigating employment disruptions caused by globalization. Here we discuss the record of social protection systems in developed and developing countries. We describe and analyse in detail the experiences of East Asian countries in dealing with the financial crisis of the late 1990s. Governments adopted a wide range of policies to mitigate the consequences of the crisis (Cox Edwards and Manning, 2001). These included labour-intensive public infrastructure projects, skill–training intervention, provision of employment services and wage subsidies. We examine in detail the relative success of these policy interventions in mitigating employment disruptions. We find that even though East Asian countries used a variety of policy measures to mitigate the consequences of the crisis, probably the single most important measure was the public works programme, given the large relative size of the informal sector in most of these countries. As these economies develop more and the size of the informal sector shrinks, they can move towards social protection instruments used in developed countries, something that we describe in detail later.

In section 6.4 we compare the different systems of social protection within the developed world. We also examine different approaches to funding social protection systems and their effect on markets. Countries differ in the way these programmes are financed. For example, in most countries unemployment insurance is financed by a flat tax on employers. In the United States it is experience rated, whereby firms with greater turnover end up paying more. This comparison of these alternative ways of financing these social protection programmes turns out to be quite useful.

In developing countries, given the large size of the informal sector, even if unemployment insurance is offered, it has very limited coverage. These countries have relied heavily on employment protection policies in the formal sector, including mandatory severance packages and firing restrictions. However, these measures



lead to high costs of separation between firms and workers, discouraging firms from hiring workers, and a more than optimal capital intensity in the input mix in labour-abundant countries. Studies have shown that this hurts overall productivity and income levels. This raises the question of what kind of reform in social protection developing countries need. Given the large size of the informal sector, public works programmes are going to remain an important instrument of social protection. However, these programmes are often plagued by corruption. Also, since these programmes are funded by general revenue, the underdeveloped internal revenue infrastructure is a constraint here.

Finally, in section 6.5 we discuss the "best practice" among governments. The Danish "flexicurity" system, which combines generous unemployment benefits with strict monitoring of the job search activity of the unemployed, has received much praise and we incorporate some elements of that into our discussion of best practices. We also discuss the recent modifications and redefinitions of it by the European Commission that takes a broader view of flexibility and security and supports more flexibility in the model based on cultural and social norms. For example, the extent of moral hazard associated with unemployment insurance that monitoring tries to alleviate may depend on the social norms in a country. Therefore, what works in one country may not work in another.

## 6.2 Rationale for social protection in a more globalized world

### *Missing market for insurance against income risk*

In addition to improving welfare by providing consumption-smoothing opportunities, insurance against labour market risk has other benefits too. As pointed out by Acemoglu and Shimer (1999), insurance against labour market risk can increase efficiency by promoting the emergence or expansion of more risky jobs and industries. In a similar vein, lack of insurance can lead to outdated and less efficient production technologies or portfolio choices such as holding livestock as a form of precautionary saving (Rosenzweig and Wolpin, 1993). It can also adversely affect human capital accumulation as households use child labour to smooth consumption in response to a negative income shock to the family.

The next question to answer is why in market economies do we need governments to provide protection against labour market risk? Why cannot individuals self-insure? Why does the market not provide insurance against the labour market risk?

According to Ehrlic and Becker (1972), self-insurance works well when the shocks are relatively frequent and losses are moderate. Therefore, if unemployment spells

are short and frequent, self-insurance can work to some extent. However, self-insurance may lead to too little saving for consumption smoothing during times of crisis, particularly among low-income people. Also, self-insurance is clearly inadequate during times of large aggregate shocks such as recessions or financial crises.

The reasons for the non-existence of a market for insurance against labour market risk have to do with adverse selection, moral hazard and covariant risk problems that plague any kind of insurance, but may be more acute in this particular case. We can explain them as follows.

1. *Adverse selection:* If individuals buy unemployment insurance (UI), then it is possible that only those who intend to quit their jobs will buy insurance and, knowing this, the private sector would be reluctant to provide insurance. However, this argument may not be strong enough in many contexts, such as in the United States, because UI benefits are given only to those who have been laid off and not those who quit or were fired. In any case, verifying whether a person has quit or been laid off could be costlier for the private sector lacking a comprehensive administrative machinery. There could also be adverse selection on the part of firms buying UI. Only those firms which are likely to face high turnover may buy UI. Again, knowing this, the private sector would be reluctant to provide insurance.
2. *Moral hazard:* People with UI may have fewer incentives to look for jobs while they are getting their benefits. Having UI increases the opportunity costs of finding a new job.
3. *Covariant risk:* Probably the single most important reason for the non-existence of a market for UI is that unlike health, fire, auto insurance and so on, where the shocks are idiosyncratic, UI has to deal with aggregate (non-diversifiable) shocks during recessions or financial crises, as in the case of East Asia. A large aggregate shock can result in huge claims bankrupting private providers of UI.

### *Externality-related arguments for social protection*

Having discussed the reasons for the non-existence of private insurance against labour market risk, which itself is a rationale for providing social insurance, we look at some other rationales for providing social insurance which would be relevant even if a private market existed.

One of the arguments for social protection is based on the possibility of labour-market crowding arising from adverse shocks. In a sector adversely affected by import competition, the lay-off decision by a firm leads to an increase in the pool of



unemployed or people searching for jobs. At the point of impact, this decision reduces the matching probability for every worker searching for a job. This is an externality that is not internalized by anyone and so leads to labour market congestion. An adjustment subsidy can reduce the number of searchers or reduce search intensity and therefore ease this labour-market congestion (see, for instance, Aho and Bayard, 1984).

Barry (1995) has a slightly different argument. A sector in which a union operates has fewer than optimal number of lay-offs as a result of import competition or a negative price shock. The reason is that the union tries to protect employment and reductions in employment have to be bought from the union for higher wages. Thus, the optimal transfer of workers from the declining to the expanding sector does not take place. Therefore, government financing of severance payments might aid in taking the intersectoral transfer of labour closer to the optimum.

Riordan and Staiger (1993) have an argument along similar lines. When a trade shock hits an industry negatively, it lays off some of its workers. These workers are the ones that are the lowest in quality among the workers it was employing. The higher-quality workers are retained. The larger the shock, the better would be the average quality of the pool of workers laid off. Potential employers in the expanding sectors will not know the true quality of each worker laid off but know the average quality of laid-off workers. A large shock leads to an increase in the quality of the pool of laid-off workers and in turn leads to an increase in the inducement for firms in the expanding or the "favoured" sector to hire from this pool. This is a positive externality of lay-off decisions of a declining sector firm on the favoured sector, and is not internalized in the absence of any policy intervention. Therefore, there are too few lay-offs. Adjustment assistance to workers leaving employment in the declining or injured sector can help with internalizing this externality.

Among other reasons, there could be a positive externality resulting from efficient job matches. If workers devote time and resources to job search, the match can be better for both the firm and the worker. However, job search is costly and in the absence of a complete market for credit, a case can be made for the public provision of UI. It is unlikely that an unemployed worker can get too much credit while searching for a good job. Therefore, subsidizing job search by the unemployed through UI would increase social welfare.

Finally, UI can be an automatic stabilizer during recessions by propping up demand through income support to the unemployed. This argument is based on the fact that downturns are caused by insufficient aggregate demand. However, if they are caused by the productivity shocks as in the Real Business Cycle literature, then UI could decrease efficiency.

### *Distributional equity-based argument for social protection*

Globalization has distributional effects. Even when there are no costs associated with the mobility of workers from one sector to another or from one region to another, globalization can create winners and losers at the same time. For example, let us say factors can be divided broadly into two categories, say capital and labour, and they are both mobile. International trade will benefit one of these two factors and hurt the other: the abundant factor gains and the scarce factor loses.[1] If we introduce equilibrium search unemployment, the prediction from a Heckscher–Ohlin type of model is that the unemployment rate of labour could go down in a country abundant in labour (developing country) and could go up in a country abundant in capital as a result of trade (see, for instance, Dutt et al., 2009).

Work by Kletzer (2001) for the United States shows that an average worker experiences a lifetime income loss of US$ 80,000 from displacement due to import competition. In addition, survey evidence shows that short spells of unemployment have extreme longer-term scarring effects (Davidson et al., 2010). A state of unemployment is considered by many who have experienced it as more traumatic than separation or divorce (Helliwell, 2003). Thus, normal inequality measures serve only as a lower bound on the extent of the lack of equity in society.

Recent work by Bardhan (2010) argues that income inequality has risen during the period of liberalized trade in India and China, despite the fact that poverty has fallen in these countries at the same time (see also Hasan et al., 2007b). In addition, Ahsan and Mitra (2010) find that trade reforms have reduced the share of wages in output.

While there is evidence that greater trade openness leads to lower steady state unemployment rates, there is also evidence that the short-run impact effect of trade liberalization is an increase in the unemployment rate, which is followed by a reduction in the steady state unemployment rate (see Dutt et al., 2009). The reason for that comes from search unemployment theory with endogenous job destruction and creation (Pissarides, 2000). This can be explained as follows. Trade liberalization unleashes forces that lead to the shrinkage of the import-competing sectors and almost instantaneously leads to the destruction of jobs in those sectors. At the same time, it promotes the expansion of export sectors. However, jobs take time to be created there. This leads to an increase in the overall unemployment rate in the interim.

Based on the above evidence and arguments, it is important from the point of view of social equity to have a programme of social protection in place. This will counter increases in income inequality as well as the additional scarring effects of unemployment in addition to providing insurance against labour market risk.



### *Social protection makes globalization more palatable politically*

As discussed earlier, trade liberalization benefits the abundant factor and hurts the scarce factor of production. Let us consider the simple case in which the majority are workers (even though the country can be abundant in labour or capital). Then in a capital-abundant (rich) country, the majority loses from opening up to trade, even though aggregate welfare increases. Thus the majority can block reforms in such a situation. The question is whether compensation of workers (where they are made just a tiny bit better off than their pre-reform situation), say through some kind of lump sum redistribution, by capitalists can lead to a vote for reforms. It is important to note that if we take as given that compensation will take place, then everyone will vote for reforms as nobody now loses from reforms. Now, if there is a vote on whether workers should be compensated or not by capitalists, the majority will always vote for it, irrespective of the order in which the two votes (the one on reforms and other on compensation) take place. Thus with this economic structure, we are going to get reforms if both reforms and compensation are democratically determined.

Most of the social protection programmes target displaced workers. In that case, only workers who get displaced from their current job as a result of trade reforms get compensated. This can create problems as has been pointed out by Davidson et al. (2007). To see their argument, suppose the political support of those who get displaced as a result of reforms is crucial for any reform to go through. In the absence of their support, the winners from reforms do not have enough votes to get the reform through. Now, if the vote on compensation takes place before the vote on reforms, then all those who gain from reforms vote for the compensation in addition to those who expect to be compensated. Subsequently, these voters vote for the reform as well. On the other hand, if the vote on compensation takes place after the vote on reform, then those who stand to gain from reforms do not have an incentive to vote for the compensation given that the vote for the reform has already taken place. In that case, the vote for compensation fails and anticipating that, the vote for reforms fails as well. In other words, if compensation is going to be only for displaced workers, societies should agree on compensation beforehand. (Note that, in this case, the majority of the people lose from reforms in the absence of any compensation, even though gainers gain more than what losers lose.)

The above logic can also hold when all movers benefit and the majority gain from reforms, but there is uncertainty about who ends up moving. In the words of Fernandez and Rodrik (1991), there is “individual-specific uncertainty” regarding who ends up moving and who ends up staying in the import-competing sector upon reforms. Let us say all those who are in the export sector prior to reforms gain from reforms. Let us assume 40 per cent of the population is in that sector to begin with. After reforms, this sector will have 70 per cent of the population. Each mover will

gain $x$ and each person stuck in the import-competing sector will lose $y$. Let us assume $y > x$, in which case prior to reform, any producer in the import-competing sector initially views her expected change in welfare as $0.5(x - y) < 0$. Thus, we get a vote against the reform *ex ante* even if *ex post* a majority of the people benefit. If movers are promised compensation such that $x$ plus the compensation is a little more than $y$, then the compensation wins the vote if it takes place prior to the vote on reform and if we assume that the winners (the people in the export sector to begin with) are still better off after the compensation. Following this, a majority will vote for reforms. If a vote on compensation is taken after reforms, then the majority will vote against compensation. This negative majority vote on compensation, conditional on trade reforms, will be taken into account when a vote on reforms is taken in a prior stage. Thus, in this case, there will be a negative vote on reforms.

Thus just the possibility of compensation does not ensure making reforms politically more feasible. Some commitment to a principle of compensation to those vulnerable to shocks in general might be required to make trade reforms politically more palatable and feasible. Also, most kinds of social protection are for displaced workers. An example of that is trade adjustment assistance in the United States. However, extending protection to workers stuck and employed in declining sectors might help with gathering support for trade reforms.

Brander and Spencer (1994) suggest that trade adjustment assistance may have a special role as a mechanism for weakening the political attractiveness of protection. Their argument follows similar arguments made by Bhagwati (1989) earlier. Magee (2003) has examined such arguments in a model of endogenous protection in the presence of trade adjustment assistance. He finds two opposing effects. First, trade adjustment assistance subsidizes exit from the import-competing sector, which makes the sector smaller than it would be in its absence. Thus, it reduces this sector's lobbying strength. However, second, a smaller import-competing sector also means a smaller production distortion cost for the government of providing protection, thereby affording a higher level of protection. Thus, if the second effect dominates, the tariff might actually increase. In a model with endogenous tariffs and trade adjustment assistance, Magee actually shows that tariffs and trade adjustment assistance could be complements. He argues: "A large tariff requires a generous adjustment subsidy in order to pull workers out of the import-competing industry and offset the tariff's production distortion. A large adjustment subsidy creates an incentive to keep the tariff high and maintain employment in the import-competing industry" (p. 217).

We next examine whether providing compensation to displaced workers makes trade agreements self-enforcing and increases their sustainability. Here we outline and try to simplify the argument made by Fung and Staiger (1994). Consider two



countries that enter into a trade agreement to lower their tariff with a trade adjustment assistance built into it. Each country has an incentive to increase its tariff as it improves its terms of trade. However, each country's trade adjustment assistance programme reduces this incentive for its partner country. The reason is that the trade adjustment assistance promotes the expansion of the export sector (and the contraction of the import-competing sector) in each country. This makes the production structure of the two countries more different from each other and increases possible gains from trade (and reduces the gains from tariffs). Basically, the size of the potential market for exporters in each country grows in the partner country. Thus trade adjustment assistance sustains lower reciprocal tariffs, that is, can lead to reciprocal trade liberalization.

Thus, social protection can potentially lead to freer trade. However, one needs to be careful in making this argument. First, the decision on social protection will have to be finalized prior to carrying out trade reforms. Second, apart from displaced workers, workers stuck in a declining sector may also have to be provided with transfer to win their support for trade liberalization. Finally, countries that enter into a trade agreement with a trade adjustment assistance scheme built in have a better chance of being able to liberalize trade reciprocally.

Having seen the usefulness of compensation schemes in providing political support for globalization, we next look at some compensation schemes that can make reforms Pareto improving (ensuring that at least some people gain while no one loses) and thus have a normative appeal. In this context, it is appropriate to mention the seminal work of Dixit and Norman (1980). They argue that if lump sum compensation can be provided (and lump sum taxes can be levied) to ensure that at the free trade commodity and factor prices each individual consumes his or her autarky consumption vector, then the government collects positive net revenues. Therefore, if these net revenues are returned to consumers on a lump sum basis, trade leads to higher welfare. Alternatively, commodity and factor taxes and subsidies (that maintain the autarky commodity and factor prices faced by consumers), which require much less individual-level information, also lead to positive net revenues.

Feenstra (2004) has argued that there are several problems with the Dixit–Norman schemes when factor supplies are not perfectly inelastic resulting in imperfectly observable factor supplies and factor prices. Also, as argued by Feenstra and Lewis (1994), the real challenge comes when there are worker mobility costs. Then, if industries have fixed locations, factor and commodity taxes and subsidies will not work as workers will stay put at the initial wages and prices. An additional employment relocation subsidy, which is very similar to trade adjustment assistance, however, will do the job.[2]

Before concluding this section, it is worth reiterating that globalization, in the form of trade liberalization or capital account liberalization or immigration, can be a source of increased volatility in open economies. Therefore, in the absence of a strong social protection regime, the political support for globalization can become weak or there could even be a backlash against globalization. This makes it imperative to provide strong social protection in open economies. However, according to Tanzi (2002), forces of globalization themselves may reduce a state's capacity to provide social protection. Increased foreign competition can reduce the capacity of states to raise tax revenues. Countries with higher tax burdens will see capital and skilled labour flee to other countries with lower taxes. Also, technological progress in the form of e-commerce allows many products that had a tangible form earlier, such as travel services, banking, education, medical advice and so on, to be delivered over the internet and therefore not leave any paper trail. This reduces the ability of states to collect excise, sales taxes and so on. Finally, since people can take their savings abroad, it becomes difficult to tax wealth. Lower tax revenues, in turn, constrain the abilities of states to provide social protection.

## 6.3 Social protection measures used to deal with the East Asian financial crisis

We next turn our attention to some actual social protection measures to deal with the consequences of globalization and we start with East Asia. As mentioned before, trade liberalization is an important component of globalization. Another component of globalization is capital account liberalization, whose wisdom has been questioned by many prominent economists (see, for instance, Bhagwati, 1989 and Krugman, 2004). However, there are sometimes strong internal and external pressures to bring about such liberalization, and if capital account liberalization has already taken place, there is pressure not to reverse it. This is illustrated by the fact that of all the Asian countries hurt by the financial crisis of the late 1990s (the financial crisis itself being a result of free short-term international capital flows), only Malaysia ended up imposing capital controls through a system of selective exchange rate controls. The very fact that there is difference of opinion and not a consensus on this issue, with some prominent people also supporting capital account liberalization, makes it clear that there will be a lot of variation across countries in their ability to impose capital controls. However, if crises do result from capital account liberalizations, appropriate social protection measures need to be in place.

The crisis that began in July 1997 in Thailand quickly spread to the rest of East Asia. The decrease in GDP in 1998 was as follows (Betcherman and Islam, 2001): 0.4 per cent in the Philippines, 5.8 per cent in the Republic of Korea, 7.5 per cent in Malaysia, 10 per cent in Thailand and 13.7 per cent in Indonesia. In addition, from 1996 to 1998, the unemployment rate went up from 8.6 to 10.1 per cent in the Philippines, from 2 to 6.8 per cent in the Republic of Korea, from 2.6 to 4 per cent in Malaysia, from 2 to 5.2 per cent in Thailand and from 4.9 to 5.5 per cent in Indonesia. There was also a significant increase in underemployment. During 1997–98, underemployment increased by 29.2 per cent in the Republic of Korea and by 33.3 per cent in Thailand. In other countries, the increase was smaller. Given the magnitude of the crisis, all the countries adopted social protection measures to mitigate its impact.



### *Unemployment insurance (UI)*

The Republic of Korea was the only East Asian country with a programme of UI at the time of crisis. Even there the programme had started in 1995, only a couple of years before the crisis. The programme was initially limited to firms with more than 30 employees, but the coverage was extended to businesses with more than ten employees in January 1998 and to businesses with more than five employees in March 1998, and was extended to businesses with less than five employees in October 1998. However, the eligibility requirement that a worker must have been insured for at least six months in the 12-month period prior to the dismissal meant that only a few of the unemployed actually benefited from the programme. In August 1999, only 12.3 per cent of the unemployed received unemployment benefits (Kang et al., 2001).

### *Employment protection (EP)*

All countries in East Asia had some type of EP in place at the time of crisis. In particular, all countries had some kind of firing restriction(s). In Indonesia, dismissals had to be approved by a tripartite committee. In Malaysia, the Philippines and Thailand, advance notice of dismissal was required. In the Republic of Korea, a dismissal article was enacted in February 1998 and was to be enforced from 1999.

These countries also required severance payments in case of dismissal. In addition, in Malaysia and the Republic of Korea, laws were amended during the crisis to make the severance pay available to employees leaving their jobs under voluntary separation. However, compliance was a problem, particularly in Thailand among small employers (Mahmood and Aryah, 2001). In Malaysia only 83 per cent of the claims were paid in 1998 (Mansor et al., 2001). To alleviate the problem of non-compliance arising from bankruptcy, the Republic of Korea and Thailand introduced guarantee funds to pay these workers. There are no quantitative analyses of the impact of these employment protection measures on reducing job destruction during the financial crisis, but evidence from developed countries provided in Messina and Vallanti (2007) suggests that they are likely to have reduced job destruction.

Another employment protection instrument, less common in developed countries except for Japan, was wage subsidies. In the Republic of Korea, wage subsidies were given under the Employment Stabilization Scheme which was a component of the comprehensive Employment Insurance System established in 1995 of which UI was also a part (Kang et al., 2001). Hiring subsidies were given to employers who hired laid-off workers from restructuring enterprises. Employment maintenance subsidies were given to firms that retained redundant workers during times of temporary financial difficulty. An enterprise survey done during the crisis suggests that 22 per cent of the subsidized jobs would have been lost in the absence of wage subsidies. Also, the impact on employment maintenance was larger in smaller firms. Since only 1 per cent of private employers participated in the wage subsidy programme, the impact of the programme on protecting jobs was minimal (see Kang et al., 2001, for further details). In Malaysia, there were no explicit wage subsidies but the government agreed to bear the full cost of training of workers from registered employers at government-approved training centres. The government also made some recommendations like pay cuts, temporary lay-offs, voluntary separation schemes and so on. Employers preferred voluntary separations rather than pay cuts or temporary lay-offs.

It is worth mentioning that these employment protection measures affected only workers in the formal sector of the economy.

### *Public works programmes*

All East Asian countries launched massive public works programmes to transfer income to the large number of unemployed during the financial crisis (Betcherman and Islam, 2001). In Indonesia these programmes were expected to generate 300 million person days of work in 1998. In the Republic of Korea, they generated 440,000 jobs in 1998 and 1.2 million jobs in 1999. This provided work to 70 per cent of the country's unemployed in 1999. In Malaysia the government undertook several huge infrastructural projects like railroads, ports, highways and so on during 1996–98. These public projects were given special attention during the period of financial crisis because of their importance in income transfer to the poor. In the Philippines the government launched the 14 million pesos pilot Rural Works Programme in collaboration with non-governmental organizations (NGOs). This programme engaged in building rural infrastructure such as schools, roads, bridges, health clinics and so on. The government in Thailand undertook 68 rural job creation projects to improve rural infrastructure and provide income support to the poor in addition to encouraging reverse migration from cities to villages.

While the imperatives of launching a public works programme during times of crisis are obvious in societies lacking other social protection measures, such as



unemployment benefits, designing them appropriately to meet the twin targets of asset creation and income transfer to the targeted groups is not easy. Setting the wage right can result in self-targeting. However, in the case of East Asia wages were set high resulting in these programmes attracting non-poor and people employed elsewhere, thereby reducing the net benefit from these programmes. The project selection in many cases – such as the construction work or project site being far from the village – meant that women could not participate in these programmes. The Republic of Korea was an exception where women accounted for 50 per cent of the participants in the public works programme in 1999. In Indonesia many of the projects were not labour-intensive enough, with the wage bill accounting for a small part of the total project cost. However, these programmes were still more efficient than some alternative ways to transfer income to the poor. For example, the cost of Indonesia's rice subsidy programme was much larger than its public works programmes for each dollar of transfer (Betcherman and Islam, 2001).

In addition to the above programmes, some temporary measures used included the permission by the governments in Indonesia, Malaysia and Thailand to allow people to withdraw money from their provident funds to smooth consumption during the crisis. In the Philippines and the Republic of Korea emergency loans were made available to people affected by the crisis. In the absence of borrowing opportunities from banks, such ad hoc measures played an important role in cushioning the blow from the financial crisis on consumption.

The bottom line is that even though East Asian countries used a variety of policy measures to mitigate the consequences of the crisis, probably the single most important measure was the public works programme given the large size of the informal sector in most of these countries. Additionally, this is also consistent with an important feature of the development strategy in East Asia which relies on public investment in infrastructure. Public works may also be preferred because they tend to have a smaller leakage into imports and therefore have a high fiscal multiplier. As these economies develop further and the size of the informal sector shrinks, they can move towards social protection instruments used in developed countries, something that we describe in detail later. One important point to note here is that in East Asian countries there has been considerable reliance on self insurance based on these countries' high personal saving rates, which are encouraged by their governments as part of their overall development strategy. In addition, East Asian countries also have a high rate of government saving, including foreign exchange reserves. This has been a protection strategy adopted by these governments since the Asian financial crisis. Further, the high degree of flexibility of all markets, including labour markets, is considered by some to add to the resilience of East Asian economies to the various types of external shocks.[3]

## 6.4 Social protection plans and their financing in developed and developing countries

We now move away from the specific case of East Asia where, importantly, countries were subjected to a huge negative shock in the recent past, and look at the social protection measures more generally. In the developed countries the social protection measures used can be classified into the following categories:[4] (1) unemployment insurance; (2) employment protection; (3) public works programmes; (4) trade adjustment assistance programmes. Apart from trade adjustment assistance programmes, the other three have been used to different degrees in developing countries (discussed earlier in the case of East Asia).

### *Unemployment insurance (UI)*

Virtually all developed countries have publicly provided unemployment insurance (UI) programmes. These programmes try to alleviate the adverse selection problems by making membership compulsory, and reduce moral hazard through the effective monitoring of job search activities by the beneficiaries and the use of information from other public programmes to verify eligibility and other details. Finally, the government financial guarantee takes care of the covariant risk or the aggregate shock problem.

Below we describe in some detail the UI programme in the United States and note how some key features of programmes in other countries differ from the US programme (the discussion of UI in the United States draws upon Meyer, 2002).

#### UI within the United States

Approximately 97 per cent of wage and salaried workers are in jobs covered by UI. Not covered are the self-employed, employees of small farms and household employees. Despite this, only 40 per cent of the unemployed received UI in many years primarily because they failed to meet the minimum earning requirement. The programme details vary considerably across states in the United States. The benefits are usually between 50 and 60 per cent of the previous earnings subject to a maximum and a minimum, and they usually last up to 26 weeks. When a state's insured unemployment rate is sufficiently high, weeks of benefits are extended 50 per cent beyond the eligibility under the state law. The extension must not exceed 13 weeks. During times of high unemployment, Congress passes laws to temporarily extend the benefits.

The UI programmes in the United States are financed by contributions from the employers. A federal levy of 6.2 per cent is imposed on the first US$ 7,000 in wages a year per employee. A credit of 5.4 per cent is given to employers that pay state



taxes under an approved UI system, so that all employers pay 0.8 per cent. Forty states have a tax base higher than the federal base of US$ 7,000. In 1998, UI taxes were 1.9 per cent of taxable wages and 0.6 per cent of total wages.

The most distinguishing feature of UI in the United States is the use of the experience-rated contribution whereby a firm's tax rate depends on its lay-off history. The experience rating system is not uniform across states but takes two common forms: (1) the reserve ratio (30 states and the District of Columbia) and (2) the benefits ratio (17 states). Under the reserve ratio, a firm's tax rate depends on the difference between taxes paid and benefits accrued divided by average covered payroll. Taxes paid and benefits accrued are summed up over the past three years while the average payroll is the average of the last three years. Under the benefits ratio, a firm's tax rate depends on the ratio of benefits paid to taxable wages, both averaged over last three years.

Even though a firm's tax rate changes with these ratios, however, tax rates do not adjust sufficiently to make the firm bear the full marginal UI cost of laying off a worker. There are large ranges at the top and bottom where a firm's lay-off history does not affect its tax rate. This, in effect, subsidizes industries with a greater turnover.

In terms of financing, the US experience rating seems to be an exception rather than the norm. In addition to making the employers bear the marginal UI cost of lay-offs, an additional benefit of experience rating is that employers have an incentive to enforce eligibility rules because higher UI benefits accrued to their former employees are going to raise their tax rate. For example, in Canada an unemployed individual is three-and-a-half times more likely to receive UI than in the United States. This is partly due to the fact that those who have left their previous jobs are not eligible in the United States, but are often eligible in Canada. However, part of the explanation has to do with the fact that without experience rating in Canada, employers have less incentive to enforce eligibility rules. That is, experience rating not only reduces lay-offs by making firms bear the marginal cost of UI due to lay-offs, but also reduces moral hazard by incentivizing firms to enforce eligibility rules.

The impact of experience rating on unemployment is theoretically ambiguous because it is likely to reduce both lay-offs and hiring. That is, experience rating reduces both flows into and out of unemployment. In Europe, employment protection legislation may be playing the role of experience rating by reducing job flows whereas conversely, in the US, experience rating may be playing the role of employment protection in reducing job flows.

Whether the employers or the workers should finance UI is another question worth asking. In general, the incidence of a payroll tax to finance UI depends on the

elasticities of demand and supply for labour. Therefore, if demand is elastic then employers can shift the burden on employees. However, wage-setting institutions seem to matter in determining the impact of UI on employment and unemployment. If wages are inflexible downwards, as in the case of decentralized collective bargaining, then making the employers contribute can reduce labour demand and employment.

### UI outside the United States

Outside the United States benefits are usually in the range of 40–75 per cent of the previous earnings. Denmark is an exception with a replacement rate of 90 per cent. France, Ireland and the United Kingdom provide benefits at a flat rate. In the United Kingdom it is set at a very low level: £51.40 per week in 2000 (a quarter of the typical maximum benefit in the United States), however, additional benefits are paid to workers with families. The maximum entitlement period varies considerably across countries, usually in the range of 3–12 months. In Belgium the duration is unlimited while in France it is capped at 60 months. In most countries the programme is financed by contributions from both employers and employees, but there are exceptions. In Iceland, Italy and the United States only employers contribute, while in Luxembourg only employees contribute.

Outside the group of OECD countries, all East European countries, several Latin American countries such as Argentina, Barbados and Brazil and some East Asian countries such as China, Chinese Taipei and the Republic of Korea, provide UI. Among African countries, Algeria, Egypt and South Africa provide UI.

### Empirical evidence on the impact of UI

Since the chief goal of UI is consumption smoothing, its effectiveness should be judged primarily in those terms. Gruber (1997) finds a large consumption-smoothing role for UI in the United States: a 10 percentage point rise in the replacement rate reduces the fall in food consumption upon unemployment by 2.65 per cent. Bentolila and Ichino (2001) provide evidence on the consumption-smoothing effects of UI using data from Germany, Italy, Spain, the United Kingdom and the United States. They find that consumption falls less with unemployment in Italy and Spain because of more extensive transfers from family members.

In a study that has implications for social protection policies in developing countries, Chetty and Looney (2007) find that there is a 10 per cent decrease in consumption in response to unemployment for both Indonesia and the United States. While the United States has UI, Indonesia does not. This may suggest that not much can be gained by providing social insurance in Indonesia, although this would be wrong. The reason is that households in Indonesia use coping mechanisms which are costly from the welfare point of view. They reduce investment in the education of their



children and increase the labour supply of other members of the household when the head of the household becomes unemployed. In contrast, in the United States, consumption smoothing is attained through UI benefits, a decline in the tax burden and withdrawal from savings.

While UI succeeds in its role of consumption smoothing, it also has a downside in terms of increase in unemployment (see Nickell, 1998, for evidence). In a recent influential paper, Chetty (2008) finds that the bulk of the rise in unemployment duration due to increased UI benefits comes from a liquidity effect (60 per cent) rather than moral hazard. That is, an increase in UI eases the liquidity constraint of the households which allows them to reduce their search intensity and hence increases unemployment duration. Intuitively, in the presence of liquidity constraints, the search intensity of households is above optimal (it is probably too large). Therefore, UI takes it closer to the optimal by relaxing the liquidity constraint and hence is welfare improving. Chetty also derives a formula for optimal UI benefits and finds it to be in excess of 50 per cent of the wage. Empirically, he identifies the liquidity effect from the fact that the increase in UI benefits has a much larger effect on the duration of liquidity-constrained households. Second, lump sum severance payments (which presumably do not lower the returns from job search) increase duration substantially among constrained households.

Some fear that UI crowds out savings for self-insurance purposes. Engen and Gruber (2001) find that more generous UI leads to lower savings; however, the magnitude is very small. The above points to the fact that there is little saving for self-insurance purposes.[5]

### Unemployment insurance savings account (UISA)

Several Latin American countries such as Argentina, Brazil, Chile, Colombia, Ecuador, Peru, Panama, Uruguay and Venezuela have introduced UISA or versions of it (see Ferrer and Riddell, 2009, for an overview of UISA). In its purest form, UISA is like a mandatory saving programme for self-insurance purposes whereby employers put aside a part of the wages of a worker in an account which the worker can access upon separation from the job. The key benefit of UISA is that it overcomes the moral hazard problem associated with the traditional UI programmes of lowering the incentive for job search. This could be an advantage in countries with limited monitoring capacity to monitor the unemployed. Both UISA and severance pay avoid the moral hazard on the part of workers. However, an unfunded severance pay programme can lead to moral hazard on the part of firms, in turn, leading to non-compliance (as in the case of Peru to be discussed later). UISA can potentially avoid this kind of moral hazard on the part of firms by keeping the contributions in accounts with third party financial institutions. Therefore, UISA can be a substitute for severance pay programmes as was done in Colombia in 1990. However, UISA may

lead to excessive turnover by encouraging workers to separate to access their funds, as has been observed in Brazil.

The main weakness of UISA is that it involves intertemporal risk pooling for an individual rather than pooling risks across individuals which is one of the key motives behind a traditional UI programme. It is easy to see that self-insurance would result in too little saving for consumption smoothing during unemployment. Therefore, UISA cannot be a substitute for the traditional UI programme. There are versions of UISA that combine some social insurance features with self-insurance. One such version is the UISA combined with a solidarity fund in Chile which has received some praise. In this case the employers contribute to both UISA and a solidarity fund which pools risk across the economy. Once individuals run out of funds in their UISA account, they get money from the solidarity fund.

### *Employment protection*

Employment protection refers to all the restrictions that governments impose on hiring (for instance rules favouring disadvantaged groups, conditions for using temporary or fixed-term contracts, training requirements) and firing (for example redundancy procedures, mandated pre-notification periods and severance payments, special requirements for collective dismissals) by firms with the objective of improving job security. Most developed and developing countries have a host of such restrictions. The OECD compiles an index of employment protection legislation (EPL) across countries. According to the latest OECD data, available on stats.oecd.org, this index varies from a low of 0.21 in the United States to a high of 3.72 in Turkey in 2008. Among developing countries, the index takes the value of 2.65 for China, 2.75 for Brazil, 2.77 for India and 3.68 for Indonesia.

Theoretical models such as Bentolila and Bertola (1990) show that stringent regulations reduce job flows but the impact on unemployment is ambiguous. Blanchard and Portugal (2001) contrast the EPL in Portugal (3.85 in 1995) with that in the United States (0.21 in 1995). Despite having very different EPL regimes the two countries had similar unemployment rates in the 1990s. The difference in the EPL regimes shows up in employment flows. The flows out of unemployment into employment and those out of employment into unemployment are lower in Portugal. As a result, the duration of unemployment in Portugal tends to be higher than in the United States.

Messina and Vallanti (2007), using data from 14 European countries, find a negative effect of employment protection legislation on job flows. They also find that stringent regulations reduce job turnovers during recessions.



One aspect of employment protection legislation, severance pay, refers to the lump sum payments made to workers upon separation. While severance pay is mandated in several countries, in others such as the United States it is provided voluntarily by many employers. Also, in many European countries such as Germany, the Netherlands and Switzerland, where severance pay is not mandated, it is provided through collective bargaining agreements. Severance pay is typically tied to the years of service with the employer and is financed by the employers. In addition to providing job security it also aims to provide consumption-smoothing opportunities. MacIsaac and Rama (2000) show that severance payments had a large effect in protecting the consumption of the unemployed in Peru. In the absence of severance payments, the per capita consumption of the unemployed fell 10 to 20 per cent. However, the receipt of severance payment more than offset the decline in consumption. One problem with severance pay, particularly in developing countries, is non-compliance. For example, according to MacIsaac and Rama (2000), in Peru only about half the workers who are entitled to receive severance pay actually receive it. Part of the problem arises from the fact that severance pay involves risk pooling only within the firm and additionally that liabilities arise usually when the firm is in financial trouble (as was the case during the East Asian financial crisis discussed above).

Finally, severance pay does not create the moral hazard associated with UI in terms of lower search intensity while being unemployed, although it may create a moral hazard of entering unemployment. That is, workers may want to separate to access severance payments. This also may lead to large litigation costs arising from disputes related to the cause of separation. The reason is that in many countries, such as Brazil, eligibility is restricted to dismissals for unjustified reasons.

### *Public works programmes*

In countries lacking unemployment insurance, public works programmes play an important means of providing social insurance. These programmes are financed by governments from general tax revenue. Some general principles to keep in mind while designing these programmes are (Vodopivec, 2004): (1) foregone earnings should be minimized by attracting workers with low alternative earnings opportunities; (2) wages should be low enough to induce self-selection by the needy; and (3) the non-labour cost should be minimized.

While these programmes are generally used to provide income support to the poor during times of economic and natural shocks, Ravallion (1999) argues for making well-designed public works programmes permanent to provide social insurance against covariant risks during crises and idiosyncratic risks during non-crisis times. It is interesting that following the success of the Maharashtra Employment Guarantee Scheme in India, the government launched an ambitious social protection plan under

the name of the National Rural Employment Guarantee Act (NREGA) in 2006. It guarantees a minimum of 100 days of employment to every household in rural areas in all districts of India. The wage cannot be less than the state minimum wage. The programme has received positive reviews in several well-governed states. As mentioned in the case of East Asia, India also needs to establish a UI scheme; however, it is unlikely to cover the large number of workers employed in the informal sector of the economy. Until then, public works programmes like NREGA are going to remain an important instrument of social protection in developing countries like India.

### *Globalization adjustment programmes*

Given that globalization and import competition have become important issues for workers and workers' unions, several countries have introduced social protection programmes specifically to protect labour from policies promoting globalization and shocks related to globalization.

#### Trade adjustment assistance (TAA) programme in the United States

The TAA is a programme of social protection in the United States targeted towards workers affected by international trade.[6] The reason for special treatment of workers affected by international trade has to do more with politics than economics. For reasons explained earlier in this chapter, it is widely believed that the political support for trade liberalization would be enhanced if the workers adversely affected by such a move are compensated adequately. Since trade provides efficiency gains, redistributing some of the gains to those who are adversely affected also goes in the direction of enhancing distributional equity.

In order to be eligible for TAA, a worker must show that the job loss was due to at least one of the following reasons: (1) an increase in imports; (2) a shift in production to another country; or (3) import competition faced by the downstream firm to which the worker's upstream firm is a supplier. Workers eligible for TAA get the following benefits: 78 weeks of income maintenance payments, in addition to the initial 26 weeks of UI, if enrolled in training; all training expenses; health insurance tax credit; wage insurance which covers half the difference between the old wage and the new wage for two years for workers older than 50 subject to a cap of $10,000; 90 per cent of the cost of job search up to a cap of $1,250; and 90 per cent of the cost of relocation up to a cap of $1,500. The programme is financed from general revenue even though there has been a proposal for setting up a trust fund for a long time.

In addition to the TAA for workers, there is also a small TAA providing technical assistance to firms adversely affected by import competition and a TAA for farmers



and fisherfolk which covers a part of the drop in their earnings due to a decline in the international price of their products.

#### European Globalization Adjustment Fund (EGF)

Set up by the European Union in 2006, the objective of the EGF is similar to the TAA in the United States in terms of assisting workers affected adversely by trade liberalization. To be eligible for assistance from this fund, a request must be made by a member state that at least 500 jobs have been lost in a firm or in a sector within a region due to changing world trade patterns. The fund provides support in the form of:

- job search assistance and training;
- job search allowances to individuals participating in lifelong learning and training activities.

Since its inception in 2007, the EGF has spent €67.6 million, helping 15,000 workers. Some examples are: help to 2,400 workers at the two German subsidiaries of mobile phone manufacturer BenQ because of shift in production to Asia; and help to workers at the suppliers of car makers Renault and Peugeot in France, facing increased competition from imports of small cars from Asia.

### *Other social protection measures*

In addition to the above programmes, countries also use several other measures like unemployment assistance programmes in Australia and New Zealand which are means-tested programmes benefiting the poor. Another programme worth mentioning is the Public Distribution System (PDS) in India, which is a way of making some basic food items available at an affordable price. Since the economic reforms in the early 1990s, the PDS has become a safety net for the poor against the possible short-run spikes in food prices in the wake of economic reforms and the forces of globalization. Since 1997, the PDS is being targeted towards people living below the poverty line and the subsidies for those above the poverty line are being phased out.

## *Some problems with social protection policies in developing countries*

#### Problems with labour protection laws

As we mention elsewhere in the chapter, the main methods of offering protection to workers in developing countries are public works or infrastructure projects as well as labour market policies that put constraints on employers especially when it comes to

laying off or firing workers. Labour market regulation has often been argued to be an important reason for the poor performance of the manufacturing sector in some developing countries, especially those in South Asia (see, for instance, Besley and Burgess, 2004, for India).[7] While meant for protecting labour, it can adversely affect labour demand. For example, Chapter VB of India's Industrial Disputes Act (IDA) requires employers with more than 100 workers to seek prior government approval before the dismissal of any workers. In practice, governments have often been unwilling to grant such permission (Datta-Chaudhuri, 1996). Therefore, critics argue that these laws have created a bias against hiring (abundant) labour relative to (scarce) capital, leading to weak employment growth (see Hasan et al., 2010, for some cross-country evidence). Panagariya (2008) argues that restrictions on lay-offs can prevent producers from attaining economic scales of production since firms may be reluctant to hire workers who they cannot fire or lay off in response to adverse shocks. Other restrictions, such as minimum wage laws, the rules governing collective bargaining and so on, also meant to protect workers, may have similar effects. For example, with the Trade Union Act allowing multiple unions within the same establishment, a requirement of worker consent for, say, job description changes "can become one of consensus amongst all unions and groups, a virtual impossibility" (Anant, 2000, p. 251).

Furthermore, since restrictive labour laws inhibit firms' ability to adjust their employment of regular wage workers to demand and technology shocks like those arising from trade liberalization, firms can resort to hiring informal or casual workers often operating in inferior working conditions without basic labour protection, thereby defeating the very purpose of these employment protection laws. Goldberg and Pavcnik (2003) have provided evidence that in Colombia the ill-designed labour regulations have resulted in trade reforms leading to an increase in informal employment. However, the authors find no evidence in the case of Brazil of any relationship between trade policy and informality in the presence of labour market regulations. Other papers showing the adverse effects of labour laws taking the form of an increase in informal employment in Colombia are Kugler and Kugler (2003), Maloney and Nuñez Mendez (2003) and Arango and Pachon (2004). However, Maloney and Nuñez Mendez (2003) and Arango and Pachon (2004) also show a decline in informal employment in Brazil that has accompanied the recent increase in the minimum wage there. A recent paper by Kucera and Roncolato (2008) surveys the theoretical literature as well as the empirical studies on the relationship between labour regulations and informal employment. Surveying various cross-country as well as intra-country studies, they conclude that: "Some of the statistically strongest results in the literature show a positive relationship between the strength of labour regulations and shares of formal employment . . . Most of the studies essentially show no relationship" (p. 340). However, they do not deny that some of the studies also show a negative relationship between labour regulations and the formal employment



share (positive relationship between labour regulations and the informal employment share). While their conclusion is that "the empirical evidence does not support the view that weakening labour regulations is an effective policy for reducing informal employment" (p. 341), we would not recommend using labour regulation as a tool for reducing informality. In a recent cross-country study, Hasan et al. (2011) look at the determinants of three-digit industry-level capital intensities in formal manufacturing. They find that less restrictive labour regulations (after controlling for other relevant factors) are associated with lower capital intensity. This is especially true in sectors that require more frequent labour adjustment. This suggests that stringent labour regulations can impose costs on labour use, thereby pushing firms towards greater capital intensity in labour-abundant developing countries, in turn reducing labour demand and curtailing gains from trade based on comparative advantage driven by factor abundance.

### Public works programmes

Finally, we discuss a couple of problems related to the financing of public works (infrastructure) projects that are used as a tool for social protection in developing countries. These public works projects can potentially be very important since they provide protection to workers outside the organized sector or the formal sector that forms a small part of the overall employment. These projects are financed by either income tax revenues or sometimes foreign aid including aid from international organizations. The first problem is that the tax collection machinery in developing countries is very weak. There are serious problems with tax evasion. Raising tax rates does not lead to higher revenues. In fact, it has been well documented that tax revenue could decline as a result of increasing tax rates as that triggers more evasion. Therefore, the size of public works programmes as a source of worker protection remains limited as there are serious constraints on expanding them. In addition, corruption is a problem with public works projects. The objective of social protection cannot be viewed as totally divorced from other social objectives including the control of corruption in developing countries. However, as pointed out earlier, these programmes have proved to be more cost-effective than some food subsidy programmes.

## 6.5 Best practices with regard to social protection

As discussed earlier, in the developed countries, the two main instruments of social protection are unemployment insurance and employment protection measures. A liberal unemployment insurance regime creates moral hazard in terms of the search activities of the unemployed, while employment protection measures reduce the ability of firms to hire and fire workers, thereby creating misallocation of resources. Finding the right mix of policies to provide social protection is a tricky issue.

Sapir (2006) classifies European social protection systems into four groups: the Mediterranean model, the Nordic model, the Continental model and the Anglo-Saxon model. The Mediterranean model combines parsimonious unemployment benefits with high employment protection while the Nordic model has generous unemployment benefits and low employment protection. The Continental model has generous unemployment benefits but lower employment protection than the Mediterranean countries while the Anglo-Saxon model has very little employment protection but similar unemployment benefits. In terms of outcomes, the Nordic model achieves both equity and efficiency, while the Mediterranean model achieves neither and is also fiscally unsustainable. The Continental model achieves equity but the efficiency is low while the Anglo-Saxon model achieves efficiency, but equity is low. Also, the public resentment against globalization is far more severe in the Continental and Mediterranean countries than in the Nordic and Anglo-Saxon countries (see Sapir, 2006, for evidence). This, combined with the low efficiency, makes it imperative to reform the labour markets in the Continental and Mediterranean countries.

Given the superiority of the Nordic model in terms of outcomes such as poverty and employment rates, it has received closer scrutiny. In particular, the Danish flexicurity system which combines low employment protection with generous unemployment benefits has received a lot of positive attention. The labour market reforms in Denmark in the mid 1990s brought the EPL index down from 2.4 in 1994 to 1.5 in 1995 and it has remained at that level since then. To alleviate the moral hazard associated with generous unemployment benefits, the government relies on the strict monitoring of the job search activity of the unemployed. Given the success of the Nordic model in achieving the twin objectives of equity and efficiency, other countries may be tempted to copy this approach; however, Algan and Cahuc (2006) argue that the success of the monitoring efforts in reducing moral hazard depends on the social norms in a country. Therefore, what works in Denmark, which has a strong public-spiritedness, may not work in the Continental and Mediterranean European countries because of the lack of public-spiritedness in the latter.

It is important to note here that there is now a growing consensus across Europe in favour of a modified version of the original concept of flexicurity (see Spidla and Larcher, 2008). The European Commission takes an integrated approach and redefines flexicurity to consist of a set of "more flexible and secure contractual arrangements, from the point of view of both employer and worker". It also wants to incorporate "lifelong learning strategies" so that people are better able to adapt to change and transitions. Also, transitions to new jobs need to be supported by effective labour market policies and modern social security systems. Just based on how it is being defined, there seems to be considerable flexibility in the design of the system and it is being emphasized that the actual design of it within any country or



region should take into account cultural norms. While the European Commission (Spidla and Larcher, 2008) has laid out "certain common principles of flexicurity", there is no one single model. Whatever model is adopted by a region or country, it needs to be one that provides adequate flexibility to employers, especially in responding to the forces of globalization, and at the same time it should provide job security to employees. This implies support in job search, income support during transitions as well as the provision of training opportunities to assist in adapting to change. Also, a broader view of flexibility and security is taken. In other words, flexibility is not specific to employers and security is not specific to employees. For example, employees may seek greater flexibility in reconciling work and family obligations, while employers might need more secure employment relationships through, say, legal security.

Some actual applications of this concept of flexicurity outside Denmark are in France, where 36-month specific-purpose "mission contracts" have been introduced. At the end of the contract, depending on need and performance, a firm decides whether to convert the contract to an open-ended one. This provides the firm with more flexibility especially in dealing with shocks such as greater import competition. Also in France, the national public employment service agency has been placed in charge of unemployment insurance. That has made possible better monitoring and at the same time better services. In addition, the vocational training system is being reformed to aid better adjustment.

In Poland, personalized jobseeker support is being provided and special assistance is being provided to older jobseekers. In Sweden, reforms such as reductions in social contributions, tax credits and medical and occupational rehabilitation schemes have been brought about to promote the employment of people who have been on long-term sick leave. This is intended to promote efficiency and growth. Compared to Denmark, employment protection laws are stronger in Sweden. In addition to what is captured in the EPL index, there is extra employment protection obtained through union contracts in Sweden, although unemployment benefits are quite a bit higher in Denmark and active labour market policies to help people cope with change are stronger and more prevalent in Denmark as compared to Sweden. However, Sweden provides better lifelong learning programmes to reduce adjustment required in response to shocks. Thus, while flexicurity is present in both Denmark and Sweden, the systems are somewhat different from each other along their individual dimensions (see Bergland and Furaker, 2010).

The US model is closer to the Anglo-Saxon model in terms of employment protection but less generous in terms of unemployment benefits. These policies have kept the US labour market flexible and, since the duration of unemployment has been low, parsimonious unemployment benefit has not had a significant detrimental impact on

the welfare of the unemployed. However, things have changed in the US economy since the recession of 1990–91. In previous recessions output recovered to the pre-recession level within two quarters, and lost jobs were recovered eight months after the recession trough. In the 1990–91 recession, however, whereas production recovered within three quarters, it took 23 months from the trough of the recession to recover the lost jobs. After the 2001 recession, output recovered in just one quarter, but it took 38 months after the trough of the recession for all the lost jobs to recover.[8] If the trend continues, the recovery from the current recession is likely to be even longer. These so-called "jobless recoveries" have meant longer spells of unemployment which, combined with a weak safety net, are a recipe for political unrest. The problems for an unemployed person in the United States are compounded by the loss of medical insurance which is mainly provided by employers while private insurance remains unaffordable for most people.[9] Responding to the crisis, the politicians in Washington, DC have extended unemployment benefits and enacted several ad hoc policies to spur job creation in addition to providing other types of fiscal stimulus. However, in the long run, rather than relying on discretionary spending during times of crises, it may be a good idea to strengthen the safety net by making the unemployment insurance programme more generous and healthcare more affordable.

In developing countries, we have noted that social insurance is constrained due to serious limits on the state's ability to raise revenues. Evasion of direct and indirect taxes is a real problem. While there are problems of leakage and corruption with public works programmes, the problems with other kinds of social protection systems are more severe in developing countries. Public works programmes are also the best available means of alleviating poverty as food subsidy programmes can potentially lead to more leakage, as has been seen in the Indonesian case. In addition, in developing countries, the large informal sector, the high incidence of poverty and the harmful effects of rigid labour laws regarding lay-offs (and changes in job description) increase the attractiveness of public works programmes. However, governments there need to find more innovative ways of raising revenues and probably should invest more in tax collection mechanisms that minimize evasion. Recent efforts in India to assign every citizen an identification number (just like social security numbers in advanced countries) are a significant step in that direction.

## 6.6 Concluding remarks

In this chapter, we have discussed social insurance programmes or other labour market interventions that allow people to deal with labour-market risk arising from shocks in general and external shocks in particular. We have considered the main reasons for the need for social protection, including the reduction of political



opposition to globalization, the promotion of distributional equity, the absence of markets for unemployment insurance and the presence of labour-market inefficiency resulting from various externality-based market failures.

While we have made a case for social protection when workers are exposed and vulnerable to shocks in general, in certain parts of the chapter we have focused on shocks arising from globalization, a major part of which is driven by trade policy; something over which governments have some control. The question we have asked here is under what kinds of social protection does freer trade lead to an improvement in the welfare of some without hurting anyone else in the economy? We have studied the conditions under which social protection leads to greater political support for (or less opposition to) trade reforms. In this context, we have also dealt with the choice of social protection policy instruments.

We have considered the issue of the effectiveness of social protection policies in mitigating employment disruptions caused by globalization. We have done this in the context of the record of social protection systems in developed and developing countries, with special focus on how such systems in East Asia were able to deal with injuries to workers caused by the financial crisis of the late 1990s. While East Asian countries used a variety of policy measures to mitigate the consequences of the crisis, probably the single most important measure was the public works programme, given the large size of the informal sector in most of these countries. Unless the size of the informal sector shrinks (which will happen with development), developed country social protection instruments will not be that useful.

We have also examined different approaches to funding social protection systems which vary, but not by much, across developed countries. The tax on firms to finance social protection ranges from flat to mildly progressive in the extent of turnover. In developing countries with underdeveloped income tax systems, employment protection policies such as mandatory severance packages or labour laws are mainly in place. Globalization or trade adjustment assistance programmes are also not prevalent in developing countries.

Finally, we have discussed the "best practice" among governments. We have looked at the different types of European social protection systems and come out in favour of the Nordic model which achieves both equity and efficiency at the same time. In particular, we have drawn attention to the Danish flexicurity system which combines generous unemployment benefits with strict monitoring of job search. We have also discussed the recent modifications and redefinitions of flexicurity by the European Commission that emphasize more flexibility in the model based on cultural and social norms. In developing countries public works programmes are the best option, despite problems with leakage, given the large informal sector, the high incidence of

poverty and the harmful effects of rigid labour laws regarding lay-offs. However, governments in these countries need to invest in improving their income tax collection infrastructure to enhance tax compliance.

## Endnotes

**1.** Autor (2010) discusses the recent polarization of job opportunities in the United States in the sense that expansion of opportunities is taking place in high-wage and low-wage employment with middle-wage job opportunities suffering a contraction. Autor argues that international trade in the form of offshoring is a major contributor to this polarization.

**2.** It is important to note that Davidson and Matusz (2006) make an argument where they do not exactly side with Feenstra and Lewis (1994). They argue that an employment (relocation) subsidy should be given to stayers (in the shrinking sector(s)) while a wage subsidy should be given to movers (to the expanding sector(s)). Brander and Spencer (1994) find that when the cost of raising revenue is high, trade adjustment assistance conditional on employment status is better despite the resource-use distortion. When people value their leisure arising from unemployment relatively highly (or the scarring effect of unemployment is relatively low), and the distribution of wage offers across actual and potential employees in the new open trade situation is concentrated at the higher wage level, the unconditional programme is relatively more attractive to the government.

**3.** The points about the role of public infrastructure investment, high saving rates and flexible labour markets in East Asia were brought to our attention by an anonymous referee.

**4.** Vodopivec (2004) provides a comprehensive discussion of income support measures. Our discussion of these programmes draws upon this work in addition to the other sources mentioned throughout the text.

**5.** While inequality has been growing in the United States over the last couple of decades, UI is not the right instrument for attacking this problem. An instrument such as a progressive income tax, that targets this objective more directly, is more efficient in this regard.

**6.** See Rosen (2008) for the details of TAA in the United States as well as suggestions for strengthening it.

**7.** For a critique of the Besley–Burgess index of labour-market rigidity, see Bhattacharjea (2006, 2010), where he also challenges the results obtained by Besley and Burgess (2004), showing them to be not robust to the addition of important controls including state-specific time trends and deletion of what he believes are irrelevant controls. Work by Hasan et al. (2007a, 2007b, 2011) and Mitra and Ural (2008), which use various modifications of the Besley–Burgess index (including incorporating some of Bhattacharjea's criticisms and concerns) shows that labour-market flexibility in general magnifies the effects, irrespective of whether they are beneficial or adverse, of trade liberalization. The beneficial effects of trade reforms include those on poverty, unemployment, productivity, investment, employment and so on, while the harmful effects include an increase in labour-demand elasticities that possibly leads to the decline in the bargaining power of workers (see Rodrik, 1997).

**8.** These numbers are from Rajan (2010).



**9.** While the Medicaid programme in the United States is aimed at providing medical insurance to the poor, poverty by itself does not qualify one for these benefits. Other eligibility criteria regarding assets, age, pregnancy, disability, blindness, income and resources and so on, also have to be met.

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# 7 Globalization and within-country income inequality

*Nina Pavcnik**

## 7.1 Introduction

Since the 1980s many developed and developing countries have experienced increases in within-country inequality. The growing income gap has coincided with the period of increasing exposure of countries to globalization through increased flows of goods, services, capital and labour across international borders. These developments have instigated a large debate in the academic and policy circles as to whether globalization is responsible for the growing inequality within countries.

This chapter will discuss whether globalization has contributed to within-country inequality by focusing on one dimension of globalization, namely international trade. International trade theory suggests several channels through which international trade would affect within-country inequality. The increased availability of nationally representative micro-level surveys of workers and households has enabled the researchers to hone in empirically on these channels and examine their contributions to increased inequality during the last three decades in a large set of developed and developing countries.[1] The survey thus focuses mainly on the relationship between international trade and inequality since the 1980s. Williamson (2002) provides an excellent survey of the relationship between international trade and inequality in a more historical perspective.

The chapter proceeds as follows. Section 7.2 introduces common measures of inequality and methodological challenges in the measurement of inequality. Section 7.3 reviews the evidence on the evolution of within-country inequality in several developed and less-developed economies. Section 7.4 provides an overview of the link between globalization in a longer time perspective. Sections 7.5, 7.6 and 7.7 examine the link between inequality and merchandise trade, trade in intermediate goods/outsourcing and trade in services, respectively. Section 7.8 concludes.

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## 7.2 Discussion of common measures of inequality

This section briefly discusses several common measures of inequality and measurement issues associated with them. The discussion draws heavily on a substantially longer discussion of these issues in Goldberg and Pavcnik (2007) and Atkinson et al. (2011).

The top share of income inequality measures provide information on the share of a country's total income held by individuals positioned at the top of a country's income distribution. For example, the measure commonly referred to as the "top 1 per cent of income" captures the share of total income held by individuals positioned in the top 1 per cent of a country's income distribution. This measure of inequality has recently received substantial attention in the academic and policy circles in response to studies by Atkinson et al. (2011). These studies constructed the top share of income inequality series for about 22 countries at annual frequencies over long time horizons.

The computation of top income share usually relies on historic tax records. Published tax records tabulate information for several income brackets, and for each income bracket report the number of taxpayers, their total income and tax liability. The researchers combine this information with the information on a country's total population, total personal income, some assumptions on taxpayer filing behaviour and the underlying shape of income distribution to compute the top 1 per cent inequality measure (see Atkinson et al., 2011 for details).

A key appeal of the top 1 per cent inequality measures is that they can be computed for a relatively large set of countries at annual intervals over long time horizons. For example, the series has been constructed dating back to 1910 in the United States and 1922 in India. This enables one to evaluate the more recent changes in inequality and the debate on globalization and inequality in a broader perspective. Furthermore, tax records identify information on labour and capital income separately so that the definition of income is more all-encompassing than the usual definition of income from surveys (which often focus on wage income). Consequently, changes in inequality can be directly linked to the underlying changes in capital and labour income. The main shortcoming of "top group" income inequality measures is that they cover only a small share of the population, remaining silent about the inequality in the rest of income distribution. This is due to data limitations. Tax records, especially prior to the Second World War, cover only a small share of population, so these data are best suited to compute the share of total income held by individuals in the top 1 per cent (and in some cases up to the top 10 per cent) of income distribution.[2] Another shortcoming is that to the extent that these measures are commonly computed from tax records, they only capture income that is subject to the

tax (as opposed to total income) and tax evasion and avoidance might lead to discrepancies between the reported and actual taxable income. Furthermore, the computation of inequality measures requires some strong (but unavoidable) assumptions on tax filing, underlying income distribution and additional data (such as total population and total personal income) that are themselves subject to measurement issues.[3] Finally, changes in tax laws, the ability of authorities to collect taxes and other aspects of taxation might change over time, giving rise to well-known problems of comparability of inequality measures over time.

Several measures of income inequality (such as the standard deviation of log income and Gini coefficient) capture inequality through a function of second order moments of entire income distribution. These measures are often computed using income information from micro-survey data, such as labour surveys or household surveys. These data usually collect information on individual (or household) income, as well as individual (or household) demographic characteristics and employment. Survey data are often nationally representative, so that one can construct inequality measures representative of the entire population of a country. Another advantage of these measures is that the underlying data include information on the demographic and job characteristics of individuals, such as education level, industry of employment and occupation. One can thus compute measures of inequality across these categories, to analyse the mechanisms through which globalization affects inequality. In fact, most of the literature on globalization and inequality to date, reviewed in sections 7.5–7.7, employs survey data.[4]

There are several shortcomings in the above-mentioned inequality measures. First, because of data unavailability, survey-based income inequality measures have only been more readily available for a large set of countries since the 1970s, and often cannot be computed on an annual basis. These data constraints are particularly binding in developing countries. Consequently, survey-based inequality measures are not well suited to studying inequality over long periods of time. However, the timing of several surveys spans recent large-scale liberalizations in developing countries, so these surveys can be used to study the relationship between trade and inequality since the 1980s. Second, surveys mainly collect information on labour income, but do not contain much information on government transfers, business income and capital income. As a result, most of the studies focus on wage inequality rather than a broader measure of overall inequality. Third, inequality measures based on surveys are subject to several measurement issues due to survey design, summarized in detail by Goldberg and Pavcnik (2007). For example, surveys often change the questionnaires and top coding cut-offs, and suffer from non-response and top coding of high incomes, which particularly affects the inference about the top tail of income distribution. These measurement issues complicate the comparison of inequality over time.



Much of the globalization and inequality literature has focused on measures of inequality that capture earnings inequality between individuals across educational categories, industry categories, occupational categories and, more recently, across firms. While these wage inequality measures are admittedly narrower in scope, they focus directly on channels highlighted in the theoretical models of trade and earnings, and are informative about the mechanisms through which globalization might affect overall inequality. These inequality measures are usually computed from labour force surveys, firm-level data, or matched employee–employer data. The relative wage of educated workers (relative to less educated workers), the so-called skill premium, is the most commonly used measure, in part because it was the observed growth in skill premiums since the 1980s that motivated the interest in the link between globalization and inequality. However, the research has also emphasized the inequality of earnings within categories of workers, usually categorized by education level, the so-called residual inequality. The residual wage inequality could be in part determined by workers' affiliation with a particular industry, occupation or firm, and thus represents another venue through which trade could affect inequality. Because these measures are usually computed from survey data they are subject to the above-mentioned caveats of measuring inequality from surveys.

## 7.3 Evidence on the evolution of within-country inequality

Having discussed the merits of different inequality measures, this section reviews the evidence on the evolution of within-country inequality. I begin with a discussion of the evolution of the top 1 per cent income inequality to put the inequality increases associated with the recent debate on globalization and inequality since the 1980s into a longer time perspective. I next discuss evolution on within-country inequality since 1970s using several inequality indicators. The evolution of inequality is considered for countries at different income and countries in several geographic areas.

### *Evolution of the share of the top 1 per cent*

Recent studies by Atkinson et al. (2011) have generated a rich database on the evolution of the top 1 per cent of income for 22 countries from 1910 to 2000. These countries cover a wide geographic area and include developed and developing countries. Atkinson et al. (2011) highlight several key patterns in the share of the top 1 per cent during the twentieth and early twenty-first centuries.

First, almost all countries experienced a sharp decline in the top 1 per cent share after the first part of the twentieth century. For example, the share of income held by

the top 1 per cent in the United States fell from almost 20 per cent in the late 1920s to about 10 per cent in the 1940s. While the timing of drops varied somewhat across countries, by 1949 the share of the top 1 per cent of income was comparable to the pre-Second World War levels in only three countries.[5] Second, countries experienced diverging inequality developments in the second part of the twentieth century. While most developed countries observed further declines or stagnation in the share of the top 1 per cent during the 1950s, 1960s and 1970s, the countries varied in the evolution of the share of the top 1 per cent subsequent to the 1980s. The first group, comprised of English-speaking countries (Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States) observed a dramatic increase in the share of the top 1 per cent after the 1980s. The second group includes northern and southern European countries (Finland, Italy, Norway, Spain, Sweden and Portugal) that also experienced an increase in inequality that started in the 1980s, but this increase was more gradual, smaller and accelerated during the 2000s. The third group of countries (France, Germany, Japan, the Netherlands and Switzerland) observed no increases in the share of the top 1 per cent in the second part of the twentieth century, and in some cases inequality declined (the Netherlands). Interestingly, France and Japan, the two countries that have information for the first decade of the twenty-first century, appear to have observed increases in the share of the top 1 per cent since 2000. The increases in the share of the top 1 per cent since the 1980s in these countries seem in large part to reflect increases in the labour income among the top 1 per cent.

The above discussion has focused on developed economies. The analysis of within-country inequality evolution in less-developed countries by Atkinson et al. (2011) is limited by data availability. The longer time series of the share of the top 1 per cent are available for five developing countries: Argentina, China, India, Indonesia and Singapore. Only India, Indonesia and Argentina have sufficient data to compute the share of the top 1 per cent that cover large segments of both halves of the twentieth century, while Singapore's series starts in 1947 and China's in 1984. Moreover, the series for Indonesia and Argentina include long gaps between 1939 and 1981 and between 1973 and 1997, respectively.

Despite these data challenges, several interesting patterns emerge. First, as Atkinson et al. (2011) note, like developed countries, less-developed countries with long time series (Argentina and India) observed a decline in the share of the top 1 per cent after the first part of the twentieth century. The decline in India occured during the Second World War, while Argentina's inequality declined during the late 1940s and 1950s. Argentina actually experienced an increase in inequality during the world wars because of its role as the main exporter of food to countries involved in war. After the Second World War, Argentina and India both experienced declines in the share of the top 1 per cent that appear more pronounced than the declines in



the top shares of developed countries. Singapore, on the other hand, observed a fairly stable share of the top 1 per cent subsequent to the Second World War. Finally, like Anglo-Saxon countries and northern and southern European countries, all developing countries in the sample experienced an increase in the share of the top 1 per cent starting in the 1980s (China, India, Indonesia) or the 1990s (Argentina, Singapore).[6] These increases in the top 1 per cent share continued through the 2000s, with the exception of Indonesia, where the share of income controlled by the top 1 per cent declined.

The above evidence suggests that since the 1980s, the richest 1 per cent of the population accounted for an increasing share of the national income of many developed and developing countries, although the extent of this rise and the exact timing varies across countries. Interestingly, despite the rise in the inequality as measured by the top 1 per cent share since the 1980s, all developed and developing countries with sufficiently long inequality series faced higher inequality prior to the Second World War than during most of the post-war period, including the period of the recent rise in the top 1 per cent share.

### *Evolution of other inequality measures*

Most of the literature on income inequality and trade has focused on wage differences across workers with different levels of education. The survey data needed to compute these measures was not widely available prior to the 1970s. Consequently, for most countries, one cannot examine the recent changes in inequality across education groups in a longer historical context. Nonetheless, the evidence suggests that the wage gap between the more- and less-educated workers has increased in a large set of developed and developing countries since the 1980s. For example, in the United States, the returns to education declined during the 1970s, and then rapidly increased in the 1980s. The returns continued to increase during the 1990s, but at a slower rate (Autor et al., 2008). The increase in the return to education since the 1980s also occurred in many other high-income countries, including Germany and the United Kingdom as well as Australia, Canada and Japan, although the increases in the returns to education in some of these countries were substantially smaller than in the United States (Autor and Katz, 1999 and Autor, 2010).

A large body of research has documented that these increases in skill premiums since the 1980s were not confined to developed countries. Goldberg and Pavcnik (2007) summarize the findings on the evolution of skill premiums in several less-developed economies: Argentina, Brazil, Chile, Colombia, Hong Kong (China), India and Mexico. The skill premium increased in these countries during the 1980s and 1990s, with the increase ranging from 10 per cent in India to 68 per cent in Mexico.

Han et al. (2010) show that the skill premium also increased in China from 1988 to 2005. Interestingly, the exact timing of the increases in the wage gap between educated and less-educated workers differs somewhat across less-developed countries. The increases in skill premiums often coincide with the timing of implementation of trade reforms in these countries.

An alternative measure of wage differences between educated and less-educated workers is the ratio of average wage of non-production to production workers. This ratio has also increased since the 1980s in developed and developing countries (Autor and Katz, 1999; Goldberg and Pavcnik, 2007). The use of this measure to capture differences in earnings by education relies on the assumption that non-production workers tend to be relatively more educated and skilled than production workers. In countries, where both measures are available, the ratio of non-production to production wages in general displays similar evolution over time as the skill premium (see, for example, Berman et al., 1998).

Most research has focused on the wage inequality between education groups. However, these measures abstract from changes in wage inequality among workers within education categories. Recent research by Autor et al. (2008) for the United States shows that during the 1990s, the wage inequality continued to increase in the upper half of the wage distribution, while the wage gap between individuals in the bottom and middle part of the distribution narrowed. These findings are difficult to reconcile by only focusing on the relative wage gap between education groups and with increasing returns to education over time. Recent research suggests that part of the recent increase in wage inequality is due to increased inequality of earnings of individuals within educational groups, the so-called residual wage inequality. Increases in within-group inequality during the 1980s and 1990s have been documented in the United States (see Autor et al., 2008) and in developing countries such as Colombia (Attanasio et al., 2004). However, the details of the exact timing of these increases in the United States continue to be debated (see Lemieux, 2006; Autor et al., 2008). The residual wage inequality might be an important channel through which international trade affects inequality. In particular, international trade could influence this component of wage inequality through its differential effects on workers in different industries, occupations, and firms. The evidence on these channels will be discussed in sections 7.5–7.7.

## 7.4 The effect of globalization on inequality: An overview

The above discussion suggests that inequality has increased in several dimensions since the 1980s in developed and developing countries. A large body of literature has examined the role that globalization, and international trade more specifically,



played in influencing these trends. Before discussing the findings of this literature in detail, it is useful to examine briefly the role of globalization in the evolution of income inequality over longer time periods and in a broader perspective. The top 1 per cent share inequality series are well suited for analysis of inequality over long time horizons. For some countries, these series contain sufficient information to examine whether the observed changes in inequality are driven by changes in wage earnings or capital income.[7] Atkinson et al. (2011) discuss how the evolution of the top 1 per cent share in various countries since the 1920s was shaped by political changes, wars, macroeconomic and financial crises, global factors and taxation.

According to Atkinson et al. (2011), the drop in inequality after the Second World War experienced in most countries can be attributed to a decline in the capital share of income induced by the Great Depression and the wars through physical destruction, hyperinflation and bankruptcy, among others. The drop in inequality is even more substantial for the top 1 per cent share because the incomes of this group are even more heavily concentrated in capital sources. Interestingly, the share of the top 4 per cent or top 9 per cent does not decline as much because these groups rely more heavily on labour income, which was not substantially affected by the above shocks. Subsequent to the Second World War, the inequality did not rebound. The authors attribute this stagnation in inequality to the introduction of progressive taxation and the estate taxes, which precluded the recovery of the capital income in several developed countries.

The underlying reason for the differences in increase in the top 1 per cent share across countries since the 1980s continues to be a topic of academic debate (see Atkinson et al., 2011). The authors conjecture that the divergent experiences in the evolution of the top 1 per cent share in the second part of the twentieth century could be explained potentially by the differences in progressive taxation, labour market institutions and executive compensation across countries. For example, the recent increase in the top 1 per cent share in the English-speaking countries is driven by the growth in wage income among those at the top of income distribution, which the studies link to increases in the earnings of top executives and superstars. Some argue that the more progressive taxation system in countries such as France and the Netherlands, relative to the United States, explains the lack of increase in the top 1 per cent share in these countries in comparison to the United States since the 1980s. However, factors such as differences in labour market regulation and social norms about earnings inequality across countries might also play a role. These issues will probably be subject to further research.

The literature highlights the possible role of globalization in the evolution of the top incomes in several dimensions. Some of the changes in the top 1 per cent share in several developing countries are attributed to changes in commodity prices in global

markets. For example, Argentina observed an increase in the top 1 per cent share during the world wars due to an increased demand for its food exports, driven by the wars. Globalization could also play a role in explaining the recent increase in the top 1 per cent share through wage income in English-speaking countries such as the United States. One possible explanation for the increase is that technological change and globalization created a global market for top executive talent and superstars (Atkinson et al., 2011), which increased the global demand and earnings for the most talented individuals. While these explanations are consistent with the observed evolution of the top 1 per cent share, future research is needed to examine these conjectures in further detail and assess the relative role of globalization.

Substantially more research has examined the role of globalization for the more recent changes in inequality since the 1980s. The subsequent sections of the chapter examine the existing evidence on whether the increased international trade contributed toward the observed increases in inequality in developed and developing countries since the 1980s. Because other chapters in this book focus on the employment effect of globalization, the discussion in this chapter focuses strictly on the effect of trade on wage inequality through the wage channel. The discussion abstracts from changes in inequality that occur if workers lose jobs in response to trade shocks and experience transitional unemployment.[8] The rest of the chapter focuses on the relationship between trade and wage inequality since the 1980s, by examining the role of merchandise trade (section 7.5), outsourcing (section 7.6) and trade in services (section 7.7).

## 7.5 Merchandise trade

### *Skill premiums and Stolper–Samuelson effects*

Most of the earlier literature on the effects of trade on wage inequality focused on the channels emphasized in the workhorse model of trade, the Hecksher–Ohlin model. This model illustrates trade in final goods between countries that differ in their relative factor endowments such as the relative endowments of educated and less-educated workers. A simple version of this model with two countries, two goods and two factors of production suggests that countries well endowed with educated labour should specialize in production of goods that use educated labour relatively more intensively, while countries well endowed with less-educated labour would in return specialize in and export goods whose production requires relatively less-educated labour. Such trade will increase the relative demand for educated labour and thus increase the wage gap between educated and less-educated labour in countries abundant with relatively educated labour (such as the United States). On the other hand, the relative demand for less-skilled labour in countries abundant in



unskilled labour will fall, thus reducing the wage inequality between educated and less-educated workers there.

The growth in wage inequality between educated and less-educated in countries such as the United States during the 1980s and 1990s coincided with trade reforms implemented in many less-developed economies. These reforms, in turn, led to increased trade between poor and rich countries. However, the mechanisms highlighted above most likely do not account for much of the observed increase in inequality since the 1980s. A large body of research on this topic finds little support that international trade in final goods driven by relative factor endowment differences can account for much of the observed increase in skill premiums in developed and developing countries. This evidence is discussed in detail in several studies (Lawrence and Slaughter, 1993; Berman et al., 1998; Autor and Katz, 1999; Harrison and Hanson, 1999; Wood, 1999; Goldberg and Pavcnik, 2007), so this section summarizes the main arguments only briefly.

First, the Stolper–Samuelson mechanism suggests that increased relative demand for skilled labour in countries abundant in skilled labour occurs as a result of shifts in the relative demand for skilled labour across industries. Labour-intensive industries using skilled labour expand and those using unskilled labour contract, with all industries employing an increasing share of less-skilled labour. However, the employment shifts across industries have not been sufficiently large to account for the large increase in wage inequality. Most of the observed increase in demand for educated labour in countries such as the United States is driven by increased relative demand for skilled labour within industries. For example, the wage and employment share of skilled workers increased in virtually all industries during the 1980s and 1990s in the United States, including the non-traded sectors (Lawrence and Slaughter, 1993; Autor and Katz, 1999), which is at odds with the Hecksher–Ohlin mechanism. Berman et al. (1998) find evidence for a within-industry shift in the relative demand for skilled workers for several OECD countries.[9]

In addition, studies have documented that, contrary to the predictions of the simple Hecksher–Ohlin model, many developing countries that liberalized their trade during the 1980s and 1990s also observed an increase, rather than a decrease, in wage inequality between education groups (Robbins, 1996; Harrison and Hanson, 1999; Wood, 1999; Goldberg and Pavcnik, 2007).[10] Some developing countries such as Colombia and Mexico tended to protect industries employing unskilled labour intensively, so tariff-induced price declines would be expected to be largest in those sectors. As a result, the observed increase in wage inequality was in principle consistent with the Stolper–Samuelson mechanism (Hanson and Harrison, 1999; Goldberg and Pavcnik, 2007). However, as in the developed economies, the increased relative demand for skilled labour in many developing countries was

predominantly driven by increase in the relative demand for skilled labour within industries rather than across industries. The wage-bill share or employment share of skilled workers increased in most traded and non-traded industries during this period in the countries studied (Goldberg and Pavcnik, 2007).

Krugman (2008) has recently suggested that international trade accounts for a larger share of the growth in wage inequality in the United States in the 1990s and 2000s because of the rapid increase in the share of imports coming from low-wage countries such as China and India during this period. This view is not shared by researchers such as Irwin (2008) and Katz (2008), who use the evidence above as well as evidence on the polarization of the US labour force from Autor et al. (2008) and Autor (2010) to counteract Krugman's argument in their comments to Krugman (2008). Michaels et al. (2010) examine whether information and communication technologies (ICT) can account for this polarization of labour markets in many Organisation for Economic Co-operation and Development (OECD) countries, where the demand for middle-skilled workers is declining relative to the demand for high- and low-skilled workers. Using data from 1980 to 2004, Michaels et al. (2010) find evidence that industries that increase their use of ICT observe greater increases in demand for high-skilled workers and a greater relative fall in demand for workers with a middle level of skills. Interestingly, trade (as measured by imports and exports as a share of total industry output) also plays a role, but the effect of trade is not robust to controls for differences in research and development (R&D) intensity across industries. The study concludes that ICT can account for a quarter of the increase in the relative demand for college-educated workers between 1980 and 2004 in these countries.

The lack of evidence for wage inequality increases induced by Hecksher–Ohlin type mechanisms is often viewed as a confirmation of skill-biased technological change (SBTC) as the main driver of growing wage inequality (Berman et al., 1998; Autor and Katz, 1999). While many labour and trade economists now agree that SBTC plays a dominant role in accounting for trends in wage inequality in developed and developing countries during the 1980s and 1990s, recent research has uncovered evidence on channels other than the Stolper–Samuelson mechanism through which trade could have contributed toward wage inequality. In particular, the recent literature on trade with heterogeneous firms suggests that trade could contribute toward wage inequality via residual wage inequality, by influencing differences in wages paid to workers across heterogeneous firms. Moreover, the growing skill premium in developed and developing countries could be driven by increases in offshore outsourcing. I discuss the literature on trade and residual wage inequality in the next section. The literature on wage inequality and offshore outsourcing is discussed in section 7.6.



### *Residual wage inequality*

The discussion in the subsection "Evolution of other inequality measures" of section 7.3 suggests that recent increases in wage inequality are also in part driven by increased inequality in wages between people with the same observable characteristics, the so-called residual wage inequality. This subsection reviews the empirical evidence on the channels through which trade could influence this component of wage inequality, namely differences in worker wages across industries and firms.

#### Industry wage premiums

International trade could influence residual wage inequality through its effect on industry wage premiums. Industry wage premiums are the part of workers' earnings that cannot be explained by worker demographic characteristics (such as education, age, gender, and so on), but can be attributable to workers' industry affiliation. These industry-specific wage differences for observationally equivalent workers could reflect industry-specific human capital, industry-specific rents, efficiency wages or compensating differentials.

Goldberg and Pavcnik (2007) provide a detailed discussion of the channels through which international trade could influence industry wage premiums, which I briefly summarize below. In the models where labour mobility is limited across industries such as the Ricardo Viner model, declines in industry-specific tariffs would lead to proportional declines in relative earnings in industries with larger declines in tariffs. There is a large body of evidence that labour mobility is limited across industries and regions several years subsequent to trade reforms in developing countries, so this is potentially an important channel. To the extent that industry wage premiums reflect rents that profitable firms in industries with imperfect competition share with the workforce, the elimination of trade barriers could reduce industry wages through increases in product-market competition. The above-mentioned channels both suggest proportional declines in wage premiums with greater declines in industry protection. In a setting where wages are an outcome of union bargaining, higher tariffs might be associated with lower wages if unions prefer employment protection and stability (achieved through higher protection) to higher wages. A fourth channel through which trade could influence industry wage premiums is labour productivity. The literature on trade and productivity has found relative productivity improvements in firms in industries that face larger tariff reductions (see Tybout, 2003 and Syverson, 2010 for a survey). Firms in liberalized industries pass some of these productivity improvements on to workers in the form of higher wages. In this case, declines in industry tariffs would be associated with increases in wage premiums.

In summary, tariff reductions could either increase or decrease industry wage premiums, depending on the underlying channels at work. The empirical evidence on

the effect of trade liberalization on industry wage premiums in fact finds that declines in trade barriers or increased import competition are associated with declines in industry wage premiums (Abowd and Lemieux, 1993 for Canada; Goldberg and Pavcnik, 2005 for Colombia; Feliciano, 2001 for Mexico), increases in industry wage premiums (Kumar and Mishra, 2007 for urban India; Goh and Javorcik, 2007 for Poland; Gaston and Trefler, 1994 for the United States;) or no effects on wage premiums (Pavcnik et al., 2004 for Brazil).

To the extent that trade influences industry wage premiums, this might either increase or decrease wage inequality, depending on the structure of industry wages prior to trade reforms and the effect of trade on industry wages. For example, in the case of Colombia, tariff declines were associated with declines in industry wage premiums and industries with the lowest industry premiums initially in manufacturing observed the largest tariff cuts. Thus trade could have increased wage inequality through this channel. However, as Goldberg and Pavcnik (2007) suggest, the magnitude of the effect was relatively small (the average decline in tariffs of 37 per cent led to a 4 per cent decline in industry wage) and, given that industry wage premiums account for about 2 per cent of variation in log wages (conditional on observable worker characteristics), was unlikely to be of first order importance.

### Wage inequality and heterogeneous firms

Recent literature has documented large heterogeneity in various performance measures across firms within narrowly defined industries in developed and developing countries (see, for example Roberts and Tybout, 1996; Tybout, 2003) and this firm heterogeneity has important consequences for the participation of firms in international markets. For example, in the presence of fixed costs of exporting, the initially more-productive firms select to become exporters and expand, in response to increased export market profitability, while less-productive firms contract (Melitz, 2003). In addition, more-productive firms also upgrade product quality and production technology in response to new export opportunities (Verhoogen, 2008; Bustos, 2011).

Firm heterogeneity potentially has important implications for understanding how trade influences wage inequality. The earliest studies on this topic focus on the importance of firm heterogeneity in explaining the increase in skill premiums. If production for the export market is relatively more skilled-labour intensive than production for the domestic market, increased access to export markets will increase the relative demand for skilled labour and could contribute toward the economy-wide increase in skill premiums. Bernard and Jensen (1997), show that exporting firms tend to be more skilled-labour intensive than non-exporters and this finding has been subsequently confirmed in many other developed and developing countries (see, for example, Hanson and Harrison, 1999 for Mexico). Bernard and Jensen (1997) further show that much of the increase in within-industry demand for skilled labour is driven by employment shifts across firms, toward exporting firms.



Subsequent studies have examined how heterogeneous firms within industries affect the relationship between international trade and wage inequality. In these models, workers' wages depend in part on firm productivity or profitability. For example, workers' wages reflect firms' underlying productivity or profitability through fair wages (Amiti and Davis, 2008) or through efficiency wages (as in Verhoogen, 2008). Declines in trade costs affect firms' incentive to engage in international trade and their profitability, and thus have the potential to influence wage inequality between workers across firms.

For example, a study by Verhoogen (2008) proposes a new channel to explain why trade would increase wage inequality in developing countries: product quality upgrading. The idea is that firms from developing countries need to produce higher quality products for the export markets than for the domestic markets to appeal to consumers in rich countries. When firms within an industry are heterogeneous and face a fixed cost of exporting, only the most productive firms enter the export market and subsequently upgrade the quality of their products. This, in turn, increases the wages of workers in more-productive firms relative to the wages of those employed in less-productive establishments, leading to growing inequality. Verhoogen (2008) confirms the predictions of this model with firm-level panel data from Mexico. Normally, exporting and wage determination are highly correlated, and nearly impossible to disentangle in a statistical sense. However, by noting that initially more-productive firms were differentially more likely to export in response to Mexico's unanticipated exchange rate shock in 1994, Verhoogen (2008) is able to identify the impact of exporting on wages. The results show that inherently more-productive firms were more likely to respond to the exchange rate shock by upgrading the quality of their products (as measured by an international quality standard (ISO 9000)). The results support the hypothesis that increased export market access led to growing wage inequality in Mexico, increasing the relative wages of workers (and especially white-collar workers) in initially more-productive plants relative to the wages of workers in firms with low productivity. Related studies by Bustos (2007, 2011) find that increased export market access induces Argentine firms to upgrade technology, leading to increased demand for relatively skilled labour within firms.

While many studies have documented that exporters pay higher wages than non-exporting firms within narrowly defined industries, the sources of export wage premiums are debated. Do exporting firm pay higher wages because they employ better workers or do higher wages reflect a firm-specific component? Frias et al. (2009) use matched employee–employer data from Mexico to show that only about one-third of the exporter wage premiums can be attributed to worker characteristics,

while the rest are due to plant-specific effects. More importantly, they show that the observed increases in wages in exporting firms relative to non-traded firms after increased export opportunities are not driven by the employment of better workers by exporting firms. Other studies that examine empirically the link between trade and wages with heterogeneous firms also find that declines in trade barriers are associated with average wage increases in exporting firms. Krishna et al. (2010), for example, use matched employee–employer data from Brazil and show that increases in wages in exporting firms relative to non-traded firms subsequent to trade reform are not predominately driven by the matching of better workers to exporting firms. Instead, exporting firms tend to pay otherwise identical workers a premium to exert more effort or perform higher quality work in response to declines in trade costs. Amiti and Davis (2008) also find increases in the average wages of workers in exporting firms in Indonesia during their trade liberalization in the 1990s.

In summary, the recent literature suggests that the heterogeneity of earnings across firms might be an important component through which trade influences worker wages. The above evidence suggests that trade in industries with heterogeneous firms could contribute toward increases in wage inequality not only through an increase in skill premiums, but also through an increase in residual wage inequality. If initially more-productive firms (or exporters) are paying higher wages to workers prior to trade shocks, the increases in wage disparities across heterogeneous firms induced by the trade shocks lead to further increases in the residual wage inequality. While the existing empirical studies suggest that trade does in fact influence residual wage inequality, future work needs to determine how much this channel contributes to the observed aggregate wage inequality.

## 7.6 Trade in intermediate inputs: Outsourcing

A growing share of trade occurs in intermediate goods and firms increasingly engage in "global production sharing". In the mid 2000s, for example, trade in intermediate goods accounted for two-thirds of world trade (Noguera and Johnson, 2010). Trade in intermediate goods and global production sharing can affect the wage inequality through its influence on the wage gap between the skilled and unskilled workers, and through its differential effects on wages of workers in different industries, occupations and firms. In this section, we examine the empirical evidence on these channels.

### *Skill premium*

Several models suggest that the expansion of "global production sharing" could in principle account for part of the growing wage gap between skilled and unskilled



workers in both developed and developing countries. Feenstra and Hanson (1996, 1997) consider a setting where countries differ in the relative endowments of unskilled labour (and thus the relative wages of unskilled to skilled workers) and where the production of a final good can be split into production stages that vary in their relative use of unskilled and skilled labour. When transportation and trade costs are reduced, cost-minimizing firms from developed countries find it profitable to relocate unskilled-labour-intensive parts of production to countries abundant in unskilled labour and keep skilled-labour-intensive stages of production in developed countries (which tend to be more abundant in skilled labour). This reallocation in production across countries increases the skill intensity of production and thus the relative demand for skilled labour in both developed and developing countries. This model predicts a trade-related increase in demand for skilled labour that operates within (as opposed to between) industries and can account for the simultaneous increase in the skill premium in the developed and developing countries during the 1980s and 1990s.

Several empirical studies find evidence consistent with this model in developed and developing countries. Hsieh and Woo (2005) show that the demand for educated labour and skill premiums increased in Hong Kong (China) after firms reallocated unskilled-labour-intensive production from Hong Kong (China) to mainland China after China's liberalization of foreign activities in the early 1980s. Similarly, Feenstra and Hanson (1997) show that outsourcing (here measured through the foreign direct investment (FDI) activity) affects the skill premium in Mexico, where foreign-owned plants often assemble inputs into final goods.

One implication of the above-mentioned model is that firms in developed countries such as the United States will rely more heavily on the imported inputs in production. Feenstra and Hanson (1999) measure outsourcing with the share of imported inputs in total inputs used in a given industry. They show that industries that experienced a greater increase in outsourcing observed a greater increase in the wage gap between skilled and unskilled workers during the 1980s. Increased reliance on outsourcing in production can account for 15–24 per cent of the increase in wage inequality in the United States during this period. However, Sitchinava (2007), who extends the Feenstra and Hanson (1999) analysis to the 1990s and early 2000s, finds that the outsourcing measures used by Feenstra and Hanson (1999) are less successful in explain the wage inequality in the United States during the 1990s and early 2000s. This is perhaps not surprising given that the trends in US wage inequality have changed since the 1990s. Autor et al. (2008) show that wage inequality continued to grow during the 1990s and 2000s in the upper half of the wage distribution in the United States, but stagnated in the bottom half. They attribute this polarization of the labour market to SBTC, where technology is a substitute for middle-skilled jobs, complement for high-skilled jobs and does not

affect low-skilled jobs. Feenstra (2008) suggests that the polarization of the labour force during the 1990s and 2000s could also be explained by the growing importance of service outsourcing, where middle-skilled routine tasks are increasingly outsourced to low-wage countries such as India.

### *Other wage channels*

More recent empirical work has examined how outsourcing affects wage inequality through channels other than the skill premium. These studies differ from the above-mentioned work by relying on individual worker surveys and examining how offshore outsourcing affects individual workers' wages through changes in wages associated with the switch from manufacturing to non-manufacturing jobs, industry-specific wage premiums, or occupation-specific wages. The focus on these dimensions of earnings heterogeneity is potentially important given that offshorability of occupations/tasks/parts of production might not just be related to the skill intensity of occupations/tasks/parts of production, as Blinder (2009) has shown.

Ebenstein et al. (2009) use information from the Current Populations Surveys from 1981 to 2006 to examine the effect of offshoring on wages in the United States. They first show that US multinationals lowered their employment in the United States from 12 to 7 million between 1982 and 2002. During this same period, US multinationals nearly doubled their employment in affiliates located in low-wage countries, while the employment in affiliates in high-income countries remained relatively constant. The authors then examine how the shift of jobs abroad affects wages in the United States. They measure offshoring with the number of workers employed abroad by US multinationals. They focus on industry- and occupation-specific exposure to offshoring.

Several interesting results emerge. How offshoring affects wages depends on the location of offshoring activities. There is no relationship between wages and industry-specific exposure to offshoring to low-wage countries. However, offshoring to high-wage countries is associated with increases in wages, and these effects appear to be driven by workers that perform non-routine tasks. The lack of relationship between the industry–wage differential and offshoring could in principle be explained if workers can relatively easily switch industry affiliation. The authors also show that switching from manufacturing to services or agriculture is associated with large wages losses (3 and 6 per cent, respectively), although these results could be driven by selection and are not linked directly to offshoring activities.

Because workers might have more difficulty switching occupation, the authors also examine how offshoring affects workers' wages through occupation-specific exposure. Occupations vary greatly in their exposure to offshoring, ranging from no



exposure in occupations such as teachers to high increases in exposure in categories such as shoe machine operators that observed an increase in occupation-specific offshoring. Workers in occupations that observe an increase in offshoring to low-wage countries observe a decline in earnings, while workers in occupations that observe an increase in offshoring to high-wage countries experience gains in earnings. The declines in earnings associated with low-wage offshoring occur at all levels of education and are particularly pronounced for older workers. Interestingly, the authors find no relationship between offshoring and wages during the 1980s, a period when fragmentation of production was perhaps less prevalent. However, the offshoring to low-wage countries has a negative effect on wages in the United States in the 1990s and early 2000s. From 1997 to 2002, a 10 per cent increase in employment in low-income locations was associated with a 1.1 per cent decline in domestic wages, while a 10 per cent increase in employment in high-income locations was associated with a 1.1 per cent increase in domestic wages. The authors show that during the 1990s the dispersion of occupation-specific wage premiums has narrowed. However, they do not directly map these developments to a broader measure of wage inequality.

The above-mentioned papers mainly focus on manufacturing trade and offshoring. The paper by Liu and Trefler (2008) is to my knowledge the only one that examines the effect of service offshore outsourcing on earnings for the case of the United States. Liu and Trefler examine the effect of service offshoring and inshoring to low-wage countries, namely China and India. Unlike the study by Ebenstein et al. (2009), Liu and Trefler (2008) define offshoring as imports of services from unaffiliated parties. Their measure of service offshoring relies on data from the Bureau of Economic Analysis on imports of "Other private services", which include categories such as "Other business, professional and technical services", and encompass many of the services such as software engineering. The authors relate this data to industry and occupation codes to examine how a worker's exposure to offshoring at an industry or occupation level affected their earnings from 1996 to 2005.

The authors find very small effects on wages. Service offshoring is associated with small declines in wages, while service inshoring is associated with an increase in wages, with a net positive effect. The authors conclude that: "suppose that over the next nine years all of insuring and offshore outsourcing grew at rates experienced during 1996–2005 in business, professional, and technical services, i.e. segments where China and India have been particularly strong. Then workers in occupations that are exposed to inshoring and offshore outsourcing . . . would earn 1.5% more" (p. 1). These results suggest that service in- and offshoring to low-wage countries has so far not contributed much to the wage inequality in the United States.

### *Wages and offshoring at the firm level*

Firms within narrowly defined industries differ in the extent to which they rely on imported inputs and offshoring in production. Several recent papers have examined the relationship between outsourcing/offshoring and wages at the firm level, using direct imports of inputs or materials as a measure of offshoring. This measure of outsourcing does not account directly for imported inputs purchased through a wholesaler. In addition, better performing, larger firms are not just more likely to engage in international trade, but also pay higher wages and in general tend to perform better along several dimensions (Tybout, 2003). It is thus important to ensure that the differences in wages across firms that directly import and those that do not are not simply driven by some other dimensions of firm heterogeneity.

A key advantage of this firm-level approach is that it can capture the effects of offshoring on wage inequality across workers that work in different firms within an industry. Given that heterogeneous firms differ in their responses to trade shocks within industries, this source of inequality might be important. Two recent studies have relied on changes in import costs to identify these effects. Amiti and Davis (2008) find that increased imports of intermediate inputs are associated with increases in average firm wages in Indonesia during the 1990s. Hummels et al. (2010) use matched employee–employer data from Denmark from 1995 to 2006 and confirm this finding. Their detailed analysis shows that the effects differ by worker education. The wages of college-educated workers increased, and the wages of the less-educated workforce declined in firms that increased their use of imported inputs. They also find that workers displaced by outsourcing experience bigger wage losses upon being rehired than workers that lost a job for other reasons, and these effects are particularly profound for less-educated workers. While some of these effects could in part be driven by selection issues, the results point to a potentially important within-industry source of wage inequality.

## 7.7 Trade in services

During the last two decades, many non-traded services have increasingly become traded. In the United States, service exports have grown from 1 per cent of GDP in 1970 to 2.9 per cent of GDP in 2003 (Irwin, 2009). Service imports accounted for 2.4 per cent of GDP by 2003 (ibid.). Likewise, trade in intermediate inputs has been traditionally associated with manufacturing sectors, but has more recently also encompassed trade in services. The increased growth in service trade has received much attention in the popular press because it was in part driven by the growth in imports of business, professional and technical services, typically associated with white-collar jobs in the United States. As trade in these services increased, many



worried about the future prospects of employment in the United States in these sectors.

To date, there is to my knowledge little empirical evidence on how trade in services affected wages and wage inequality. One problem is that trade in services is inherently difficult to measure (Jensen, 2009), especially at the level of detail needed in the empirical work. Consequently, researchers have to overcome significant hurdles to address this question with the existing data. One study that examines the link between service trade and wages is that by Liu and Trefler (2008) on the consequences of service offshoring and inshoring to low-wage countries for the US labour market. As discussed in detail in the subsection "Other wage channels" of section 7.6, the study finds very small effects of offshoring/inshoring on wages in the United States and concludes that the hype about the effects of offshoring on labour markets is "much ado about nothing" (Liu and Trefler, 2008, p. 1). Given that service trade will probably continue to grow, the consequences of service trade for wage inequality will likely remain the topic of future research.

## 7.8 Conclusion

This chapter has examined the evolution of inequality within countries and discussed the role that international trade plays in the increases in wage inequality experienced in many developed and developing countries since the 1980s. Because this growth in inequality coincided with the period when many developing countries implemented significant trade liberalization, and developed economies started trading increasingly with low-wage countries, the increases in skill premiums were originally attributable to the Stolper–Samuelson type effects of international trade. The large subsequent literature has shown that the effects of trade on wage inequality are more nuanced and depend on the specific country in question, the nature of trade liberalization and/or the type of trade that countries engage in.

Most labour and trade economists agree that trade in final goods based on factor endowment differences cannot account for the increases in growing wage inequality since the 1980s. Instead, the consensus seems to have emerged that SBTC was the dominant driving force in the growth in inequality. However, several recent studies indicate a potential role for international trade in affecting wage inequality that operates through channels other than the Stolper–Samuelson type effects.

One potentially important channel is through trade in intermediate inputs and through outsourcing. An increasing share of trade occurs in intermediate goods and firms increasingly engage in "global production sharing". In the mid 2000s, trade in intermediate inputs accounted for two-thirds of world trade. Several studies in

developed and developing countries have found that outsourcing is associated with increased skill premiums. More recent worker- and firm-level studies for the United States also emphasize the importance of outsourcing for occupational wage differentials, especially for workers operating more routine tasks since the 1990s. However, studies so far find very little evidence that such effects matter for service offshoring with low-wage countries.

Another potentially important channel includes the differential effects of trade on the wages of workers across heterogeneous firms within industries. Recent literature has documented large heterogeneity in various performance measures across firms within narrowly defined industries. In the presence of fixed costs of exporting, the initially more-productive firms select to become exporters and expand, in response to increased export market profitability, while less-productive firms contract. In addition, more-productive firms also upgrade product quality or production technology in response to new export opportunities. Both changes tend to raise demand for relatively skilled labour, as well as wage disparities across heterogeneous firms, leading to increases in residual wage inequality. Studies such as Bernard and Jensen (1997), Amiti and Davis (2008) and Verhoogen (2008) show that firms' engagement in international trade in part explains the observed increases in skill premiums, as well as wage differences across heterogeneous firms, which contribute toward increases in residual wage inequality.

How important are these new trade channels relative to SBTC in explaining the observed increases in wage inequality? Feenstra and Hanson (1999), for example, find that outsourcing accounts for up to 25 per cent of the increase in the relative wage of skilled workers in the United States during the 1980s, while SBTC accounts for 30 per cent. Attanasio et al. (2004) find that trade influences residual wage inequality through channels such as industry wage premiums, but that trade-induced changes in wages account for a small share of the increase in inequality observed in Colombia during the 1980s and 1990s. Michaels et al. (2010) find that information and communication technologies (ICT) account for one-quarter of the increase in the relative demand for college-educated workers between 1980 and 2004 in OECD countries. Interestingly, trade (as measured by imports and exports as a share of total industry output) also plays a role, but the effect of trade is not robust to controls for differences in R&D intensity across industries. However, the study does not consider the role of trade through channels such as outsourcing or firm heterogeneity. Overall, while the new trade channels clearly affect wage inequality, future research has to focus more on how much of the overall increase in inequality can trade in intermediate inputs/outsourcing and trade with heterogeneous firms explain, relative to factors such as SBTC. Similarly, the literature on SBTC needs to take into account the new channels highlighted by the trade literature when assessing the overall importance of SBTC for wage inequality.



The recent work on trade and wage inequality also provides further evidence that exposure to international trade, technology adoption and SBTC might be closely interlinked. Several earlier studies suggest that trade openness is potentially closely linked with SBTC (see Goldberg and Pavcnik, 2007). The more recent studies by Bustos (2007, 2011) and Verhoogen (2008) find that firms might upgrade technology and product quality in response to increased access to export markets. The mechanism highlighted in their papers provides an additional channel through which trade might influence firms' technology choices in developing countries and, thus, SBTC. Bloom et al. (2011) find that firms in developed countries respond to intensified competition from China by increasing innovation and introducing skill-biased technologies. These studies suggest that trade and SBTC might be closely linked, so that it might be difficult to identify separately their contribution to changes in wage inequality.

The current chapter has focused on only one aspect of globalization, namely international trade, and has not considered the potential role of international financial integration and immigration on wage inequality. To my knowledge, no existing study provides a unified framework to assess the relative importance of SBTC, international trade, international financial flows and immigration for wage inequality. However, a report published by the IMF (2007) uses cross-country analysis to examine the relative importance of international trade globalization, financial globalization and technology for within-country inequality as measured by the Gini coefficient.[11] The report finds that the largest contributor to wage inequality is technological progress. Interestingly, the study shows that trade has reduced inequality, while increased flows of capital across countries have increased it.

The IMF study finds FDI to be important in explaining the growing wage inequality within countries since the 1980s. These findings are related to a large literature that uses detailed firm- and worker-level panel datasets to examine how foreign multinationals affect the wages of workers in host countries. This literature, summarized by Harrison and Rodriguez-Clare (2009), suggests that foreign-owned firms tend to increase the demand for relatively skilled labour in host countries. Moreover, foreign-owned firms tend to pay a wage premium of about 5–10 per cent, once one accounts for differences in worker and firm characteristics between foreign and domestic firms. These differences in worker earnings across foreign and domestic firms might have contributed toward the growth in residual wage inequality in the host countries.

Finally, the topic of how labour market institutions affect the relationship between globalization and inequality is also outside the scope of this chapter. A survey by Freeman (2005) argues that the large literature on how labour market institutions affect inequality and other aggregate outcomes has so far not reached a consensus,

in part due to data constraints. The question of how globalization and labour market institutions interact to affect inequality is potentially even more difficult to answer, especially with cross-country data. Differences in labour market institutions, especially across countries, are difficult to quantify and might also reflect other country characteristics that influence globalization and inequality. Chapter 5 of this book overcomes some of these measurement challenges by focusing on the relationship between institutions, inequality and labour market insecurity in the OECD countries, where comparable data on labour market institutions and outcomes is more readily available. Others have examined the link between globalization, labour market institutions and inequality with micro surveys from within countries, where the issue of how to measure labour market institutions might also be less problematic.[12] These recent studies foresee that the topic of the link between globalization, labour market institutions and inequality will remain an active area of research.

## Endnotes

**1.** Bourguignon and Morrison (2002) discuss between-country inequality.

**2.** To the extent that this group accounts for a large share of national income, this is nonetheless a very important statistic.

**3.** See Atkinson et al. (2011) for detailed discussion of each of these issues.

**4.** More recently, researchers have also relied on firm-level data (often confined to manufacturing sectors) and administrative data such as matched employee–employer data.

**5.** Argentina, Australia, India and Switzerland are exceptions. We discuss them further below.

**6.** Because of the lack of data, one cannot pinpoint the exact timing of the start of growing inequality in Argentina.

**7.** The authors note that the relative shares of wage and capital income from household tax records need not be identical to factor shares of labour in capital in gross national product (GNP) due to institutions such as pension funds, the government and corporations.

**8.** See the discussion in Goldberg and Pavcnik (2007) for how international trade affects transitional unemployment and the implication of this relationship for inequality.

**9.** Other pieces of evidence further suggest that international trade – via Hecksher–Ohlin mechanisms – probably did not play an important role. For example, Lawrence and Slaughter (1993) show that prices of relatively skilled-labour-intensive goods did not increase during the 1980s in the United States, which counters the logic of the simple version of the Stolper–Samuelson theorem.

**10.** The economy-wide skill premiums declined in several economies in Asia (such as the Republic of Korea and Chinese Taipei) subsequent to trade reforms (Wood, 1999). However, these economies observed an increase in the relative supply of educated labour during that same period. This increase in the relative supply of educated workers (rather than international trade) could account for the declines in skill premium.



**11.** The authors measure trade with the sum of imports and exports as a share of GDP and the average tariff rate. Financial globalization is measured as the sum of total cross-border assets and liabilities over GDP. These include FDI, portfolio equity, debt, financial derivatives and total reserves minus gold.

**12.** For example, Topalova (2010) considers how India's trade liberalization in 1991 affects poverty across Indian states that differ in their labour market institutions. Although poverty during this period declined in India, Topalova (2010) finds that relative poverty increased with trade in Indian states with more pro-worker institutions in rural India. She finds no relationship between labour market institutions, trade and inequality.

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# 8 Redistribution policies in a globalized world

*Carles Boix*

## 8.1 Introduction

Does the process of economic globalization curtail the capacity of national governments to pursue autonomous economic policies at home? Does the growing cross-border mobility of factors (and its associated threat of capital flight) discipline governments and limit the level of taxes and of public spending? Is economic integration inimical to redistribution at home? If trade and financial liberalization lead to higher levels of within-country inequality (or, at least, the emergence of economic sectors that bear significant economic losses), can states develop economically sustainable policies to compensate those made worse off by trade reforms? In fact, are there any particular policies that can make economic globalization and fair social policies at home (designed to share the gains from trade) compatible?

To answer these questions, that is, to describe the redistributive effects of globalization and the plausible policy responses of governments, this chapter is organized in three (sequential) parts or steps that gradually relax some of the assumptions of the model introduced at the beginning of the chapter. The first part (section 8.2) examines the distributive effects of globalization in a single economy. To do so, it starts by characterizing (in a stylized manner) the political and fiscal setting in which the policy-makers of any sovereign country make their decisions on the level of economic openness, the tax rate, and the structure of public spending. It then describes the two main direct economic effects of globalization: an asymmetrical change in the returns to factors (and therefore, depending on the distribution of gains and losses, more or less economic inequality at home); and higher levels of factor mobility, that is, a reduction in the costs of moving any factor across national borders. It finally shows the three main policy consequences of globalization: a shift in the extent of social demands for redistribution; a potential reduction, due to a higher level of factor mobility, of the feasible tax rate; a change in the internal structure of taxation and, arguably, in the allocation of public expenditure.

Whereas section 8.2 takes the process of globalization as given, section 8.3 turns to examine the extent to which policy-makers choose the level of openness as a result of the distributive effects it has – this includes an analysis of the potential

mechanisms policy-makers may develop to compensate the losers of globalization (and buy off their support for openness). This discussion identifies three alternative policy scenarios: one where protectionism prevails (whenever there is no compensation package to offset the losses inflicted by trade openness on the decisive voter); a second one where openness and compensation go hand in hand; and a third (and empirically less common) instance where free trade is implemented without compensatory policies (mostly because the decisive voter gains directly from opening the economy). Section 8.3 also includes an extensive discussion of the empirical evidence on the relationship between openness and social compensation – an issue that has been relatively well researched by the academic literature.

Finally, section 8.4 allows for the possibility that the institutional system in which policy decisions are taken (on the degree of economic integration and social compensation) may itself vary (as a function of the country's level of economic and political development). Endogenizing the type of political institutions (in the context of several economies competing in world markets) allows us to discuss the conditions under which economic openness and domestic redistribution are jointly feasible over the medium run. Contrary to the position of those that associate globalization with a "tax race to the bottom", section 8.4 shows that openness and welfare states are compatible with each other, provided that liberal political institutions spread hand in hand with economic development. From a political point of view, this result is relevant because the standard solution that many have suggested to avoid a potential tax race to the bottom and the erosion of welfare states – arguably the construction of some kind of global federation – is politically unfeasible at this point in time.

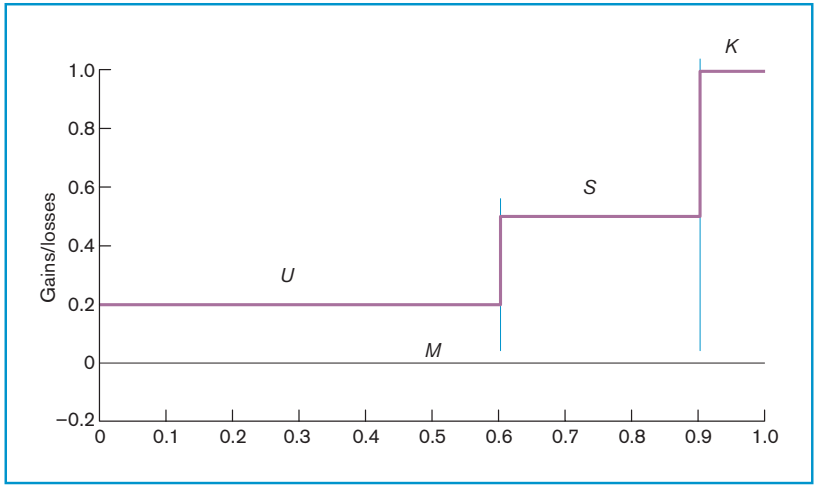
## 8.2 The redistributive effects of globalization

### *Economic and political setting*

To examine the redistributive effects of globalization, it is convenient to consider an economy in which individuals are distributed uniformly on a continuum from 0 to 1, as represented by the horizontal axis of figure 8.1. Although all individuals have the same hours of labour $L$ available to them, they vary among them in their productivity and income: some have some additional skills $S$ (some education) that make them more productive than those that have none; a few own some capital $K$ with returns that are, by assumption, higher than the returns to $S$. As a result, the economy, represented in figure 8.1, has three types of individuals: $U$ (those with no skills and no capital), $S$ and $K$. Their respective incomes are $y_u < y_s < y_k$. The vertical axis of figure 8.1 represents their corresponding income level. Although the distribution of types may certainly vary over time or across economies, the unskilled $U$ are the majority in the example of figure 8.1.



**Figure 8.1** A stylized economy




*Note*: $U$ = no skills and no capital; $S$ = some education; $K$ = some capital.
*Source*: Elaborated by the author.

For the time being, assume that all policy decisions (both on the level of economic openness and on the size and nature of taxes and public spending) are taken by majority voting, that is, according to the preferences of the voter located at the midpoint $M$ of the distribution.[1] To keep the discussion simple, assume that voters raise revenue through a proportional tax on everyone's income. The resulting public revenue is then allocated in two ways. First, some fraction of revenue is equally distributed among all individuals through some direct transfers. Second, the rest of public revenue is spent on the provision of public goods such as infrastructures, human capital formation, an effective judicial system that reduces corruption and enforces property rights, and so on. Spending on public goods increases everyone's productivity (and therefore everyone's income) but, crucially for the political and economic discussion that follows, it does so with some temporal lag. For example, investing in more education at time $t$ does not translate into higher income gains immediately. It does only, if at all, in the following period $t + 1$. Depending on the kind of public good, that temporal lag could vary from a few years to a generation.

This tax-and-spending scheme has a clearly redistributive structure and therefore embodies, in a stylized manner, a key trait of contemporary welfare states. Although everybody receives some lump-sum transfers (and benefits equally from the provision of public goods), high-income individuals contribute more to fund the state than low-income individuals. To put it differently, the former are net payers while the

latter are net gainers. In this set-up, the median or decisive voter (*U* in the example of figure 8.1), who chooses the tax to maximize her income, has a clear incentive to redistribute income from the high-income voters to herself.[2] In fact, the larger the portion of total income in the hands of high-income individuals, the higher the tax rate proposed by the median voter. In other words, the tax rate increases with the level of income inequality (that is, the difference between the median voter's income and the economy's average income). The choice of tax rate is, however, constrained by its distortionary effects on the economy. Higher taxes (and more redistribution) reduce the incentive to work or to deploy more capital and, as a result, they lower pre-tax income, from which both transfers and public good formation are financed. As a result the decisive voter increases the tax rate only to the point where the utility generated by the available amount of public spending (directly through transfers, indirectly due to more investment) starts to decline (due to a fall in total income).

Decisive voters distribute public expenditure between transfers and public goods according to the proportion that makes the marginal benefit they derive (through their income) from the last unit being spent on public goods equal to the net benefit they derive from transfers. Public spending is divided at the point where the combined increase in the decisive voters' income due to public investment and to the expansion of total output (which implies a larger pool available for redistribution) equals the increase derived from the last unit received in transfers. Since the positive effect of public good formation only happens in the next period after voters have incurred the investment cost, the amount spent on those goods is affected by the discount rate of voters. The more (less) voters care about the future, the more (less) they will be willing to sacrifice part of their current transfers for some increase in future income generated through more public goods formation.

### *The economic effects of globalization*

The economic integration in the world market of the closed economy just described will have two main economic effects. First, it may result in a change in the returns to each domestic factor and a corresponding shift in the overall level of income inequality. Second, it may increase the mobility of economic factors. Those two effects will change, in turn, the structure of taxation and expenditure.

As shown by standard trade theory, the decision to liberalize the economy will affect the returns of individuals (the returns of factors in the context of a Stolper–Samuelson model) asymmetrically (as a function of each factor's comparative advantage in world markets) and therefore the within-country distribution of income. Figures 8.2A and 8.2B offer two instances of the potential impact of economic openness on the level of income of each individual. In figure 8.2A the returns (wages) to the unskilled rise while the returns to both skilled individuals and capital owners



**Figure 8.2A** Economic integration and decreasing inequality

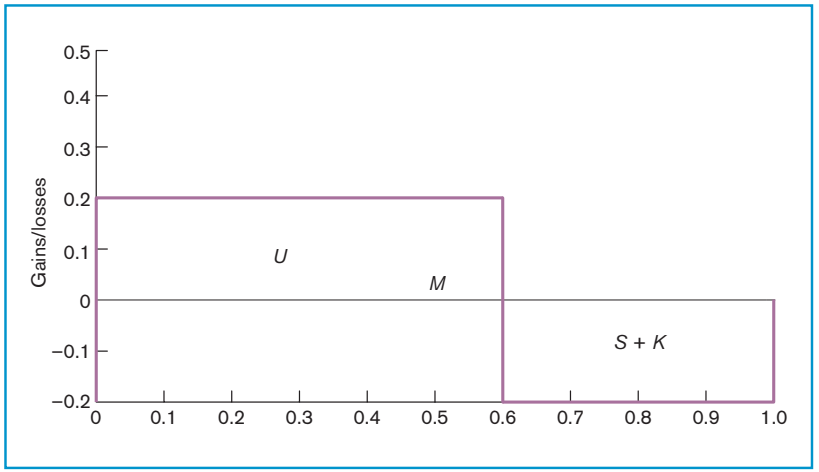
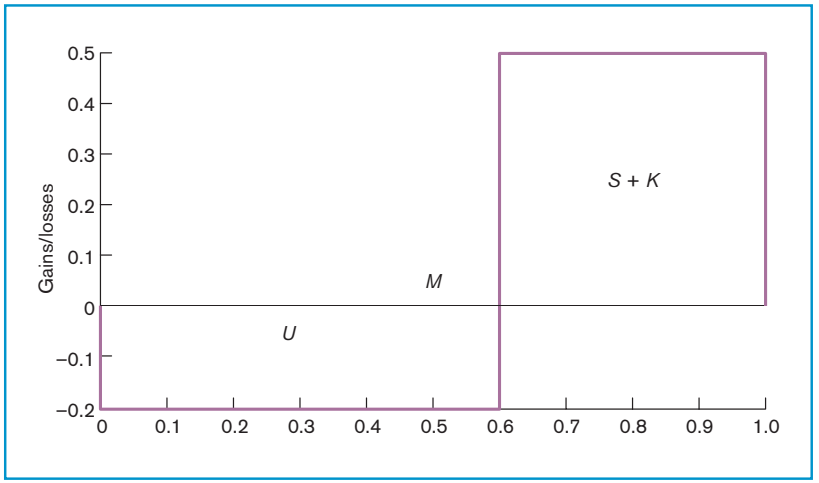



**Figure 8.2B** Economic integration and growing inequality




*Note*: *U* = no skills and no capital; *S* = some education; *K* = some capital.
*Source*: Elaborated by the author.

decline. As a result, there is a reduction in the overall level of inequality. (Figure 8.2 simply shows the gains or losses to each side – independently from their initial income. To denote the commonly accepted idea that free trade brings in overall net

benefits, the size of each change is such that the sum of gains is larger than the sum of losses.) As discussed by Williamson (1998), the formation of an integrated North Atlantic economy at the end of the nineteenth century accounted for much of the process of wage compression in Europe at that time. On the other hand, globalization may lead to higher levels of income inequality. This is the case displayed in figure 8.2B, where the unskilled lose while skilled agents and capital owners gain from trade liberalization.[3] Wood (1995) was one of the first authors to attribute a rising inequality in the advanced world in the last 40 years to globalization and growing competition from developing economies, abundant in unskilled and semi-skilled workers. More recently, Spence and Hlatshwayo (2011) and partly Autor (2010) have related the process of globalization to the growing polarization in employment and wage performance across economic sectors in North America and Europe.

Economic liberalization may also change the specificity of factors, that is, the extent to which the return of a given factor at home differs from the return the same factor obtains abroad. A factor is completely specific or immobile when its returns abroad are zero. By contrast, a factor is completely mobile or non-specific when its deployment yields the same returns both at home and abroad. By definition, economic liberalization, that is, the fall of cross-country economic barriers, increases factor mobility. Factor specificity, however, is also a function of, at least, two additional variables. In the first place, it depends on events that are mostly exogenous to policy decisions, such as transportation and communication costs. The continuous invention of new, faster means of communication in the last 200 years (such as the telephone, the internet, and so on) has multiplied the mobility of factors dramatically. Likewise, the introduction of the steam engine or the container has resulted in a sharp decline of transportation costs and hence in the level of factor specificity (Frieden and Rogowski, 1996). In the second place, factor mobility is a function of the policies and institutions in place abroad. As the quality of public institutions and outcomes abroad increases (such as the judiciary, property rights enforcement, lack of corruption, and so on) and also that of public goods (such as education or infrastructures) relative to the same institutions and goods at home, the returns of any factor at home and abroad converge and therefore factor mobility increases. The reverse is also true: as the quality of public goods and institutions rises at home (relative to the rest of the world), factor mobility effectively declines.

Any changes in both within-country inequality and factor specificity have important tax and spending consequences. When globalization leads to more income inequality, there will be more pressure for higher taxes and spending. In the instance represented in figure 8.2B, the unskilled, who suffer an income loss and who constitute the majority of the electorate, will vote for some kind of compensation (in the form of higher spending in transfers or public goods) from the skilled and capital owners. By contrast, when, as in figure 8.2A, globalization equalizes incomes,



redistributive demands decline. Notice that globalization is here taken as given. However, in the context of a loss of income among the majority (the case depicted in figure 8.2B), it can only take place if the winners compensate the losers to the point that they are better off than under the pre-globalization status quo. I explore this question in section 8.3 of this chapter.

Although globalization may exacerbate the demands for more taxation and public spending (due to more income inequality), it may also curtail the capacity of states to meet those demands completely. Suppose that a higher level of financial and trade integration increases factor mobility to the point that net payers are better off leaving their home country in response to higher taxes. To avoid capital (or, more generally, factor) flight, policy-makers have to cap taxes and spending, even if that goes against the preferences of their citizens. Such a scenario of additional social demands unmet by national governments seems to capture much of the current discontent of certain social sectors across the world: rightly or wrongly, they perceive globalization as the imposition of untrammeled markets that curtail the autonomy of national governments and that, therefore, restrict their ability to tax and spend as citizens wish.

In response to higher factor mobility, policy-makers may pursue two alternative strategies. On the one hand, they may respond to any possible differences in the level of specificity across factors to change the tax structure to rely more heavily on sectors or individuals that are less mobile. If, as it seems plausible to assume, capital owners are more mobile than skilled workers, we should expect the decisive voter (generally not a capital owner) to raise taxes on unskilled and skilled individuals and to lower them on capital to maintain the level of public spending while avoiding any kind of capital flight. Indeed, this is what emerges from the information presented in table 8.1, which summarizes the evolution of the average tax burden of labour and capital in the Organisation for Economic Co-operation and Development (OECD) economies since 1981. While personal income average tax rates and taxes on personal consumption have remained constant or even increased, tax rates on corporate income have declined rather sharply in the last 30 years.[4]

On the other hand, policy-makers may reassign public spending from pure transfers to public goods formation. (This second response is certainly compatible with the previous change in the underlying taxation structure.) As already discussed above, financial and trade integration are a necessary but not sufficient condition to increase factor mobility. Factors only become more mobile (and therefore less taxable) if there are other countries where their net return is equal to or higher than the one they earn at home. Since the underlying institutional quality of any foreign country and the nature of its public goods affect their productivity and hence the profitability of factors, policy-makers have an incentive to better their country's institutional infrastructure and to increase the supply of public goods in response to

**Table 8.1** Evolution of tax rates on capital and labour, 1981–2010

**A. Tax rate on corporate income, 1981–2010**

| | 1981 | 1990 | 2000 | 2010 | Absolute change |
|---|---|---|---|---|---|
| Australia | 46.0 | 39.0 | 34.0 | 30.0 | –16.0 |
| Canada | 50.9 | 41.5 | 42.6 | 29.5 | –21.4 |
| France | 50.0 | 42.0 | 37.8 | 34.4 | –15.6 |
| Germany | 60.0 | 54.5 | 52.0 | 30.2 | –29.8 |
| Italy | 36.3 | 46.4 | 37.0 | 27.5 | –8.7 |
| Japan | n.a. | 50.0 | 40.9 | 39.5 | –10.4 |
| United Kingdom | 52.0 | 34.0 | 30.0 | 28.0 | –24.0 |
| United States | 49.7 | 38.6 | 39.3 | 39.2 | –10.5 |
| All OECD economies (unweighted average) | 47.7 | 41.3 | 34.6 | 27.3 | –18.7 |

**B. Average personal income tax and social security contribution rates on gross labour income (taxes estimated on average wage), 2000–09**

| | 2000 | 2009 | Absolute change |
|---|---|---|---|
| Australia | 26.1 | 22.0 | –4.1 |
| Canada | 25.4 | 22.8 | –2.6 |
| France | 28.8 | 27.7 | –1.1 |
| Germany | 44.5 | 41.3 | –3.2 |
| Italy | 28.2 | 29.3 | 1.1 |
| Japan | 17.0 | 20.1 | 3.1 |
| United Kingdom | 25.4 | 25.3 | –0.1 |
| United States | 24.9 | 22.4 | –2.5 |
| All OECD economies (unweighted average) | 29.1 | 26.8 | –2.3 |

**C. VAT/GST rates in OECD member countries**

| | First year of implementation | Tax rate in 1976 or first implementation year | Tax rate in 2010 | Absolute change |
|---|---|---|---|---|
| Australia | 2000 | 10.0 | 10.0 | 0.0 |
| Canada | 1991 | 7.0 | 5.0 | –2.0 |
| France | 1968 | 20.0 | 19.6 | –0.4 |
| Germany | 1968 | 11.0 | 19.0 | 8.0 |
| Italy | 1973 | 12.0 | 20.0 | 8.0 |
| Japan | 1989 | 3.0 | 5.0 | 2.0 |
| United Kingdom | 1973 | 8.0 | 17.5 | 9.5 |
| All OECD economies (unweighted average) | | | | +3.3 |

*Notes*: Average wage: average annual gross wage earnings of adult, full-time manual and non-manual workers in the industry (ISIC C–K).

*Tax rate*: Combined central and sub-central government income tax plus employee social security contribution, as a percentage of gross wage earnings.

*Source*: OECD statistics.



globalization and factor mobility – precisely to reduce the net mobility of factors and to meet any social demands for redistribution.[5]

The success of such a public-goods strategy will depend on at least two factors. The first one is strictly economic – the impact that each monetary unit spent on public goods has on the return of the mobile factor. To be feasible, the expenditure on public goods must increase the mobile factor's productivity by more than the cost of the tax raised to fund the investment (all in relative terms with respect to the foreign country). Otherwise, the mobile factor will still prefer the foreign option and the home country will be unable to pursue this investment strategy.

The second factor is political in nature. The median (or decisive) voter will only authorize any shift from transfers to public goods if that new allocation of resources makes her better off.[6] That allocation will depend, in turn, on two main things. On the one hand, it will depend on her economic profile: the less she benefits from public good investment (because her skills are too specific to a given occupation or because upgrading her skills is very costly), the more likely she will be to block any shift away from transfers. On the other hand, it will depend on the median voter's valuation of future income. Since the effects of investing in capital formation take place with a lag, if the median voter discounts the future quickly, most of the expenditure will be allocated to direct transfers. Otherwise, she will be more inclined to sacrifice some current income for a higher growth rate. What factors determine the voters' discount rate? Without pretending to be exhaustive, two variables seem to be very prevalent in the advanced world: the age of voters and the quality of government. Workers closer to retirement will be less willing than young voters to sacrifice their pensions for human capital formation policies. Economies with relatively mature populations will tend to have a hard time reallocating resources from pure transfer schemes to more productive expenditure – as a result, they will either resist globalization or face important deadweight losses or inefficiencies (in the form of high unemployment, growing public employment, and so on). Shifting to public good formation will also be harder if voters have little trust in the effectiveness and fairness of their state institutions: they will probably believe that a system of direct lump-sum payments will be less prone to corruption than investment projects implemented by public agencies.

In addition to taxing the least mobile factors and raising the formation of public goods, policy-makers may follow a third strategy altogether: rejecting globalization and closing the economy. I examine this possibility next.

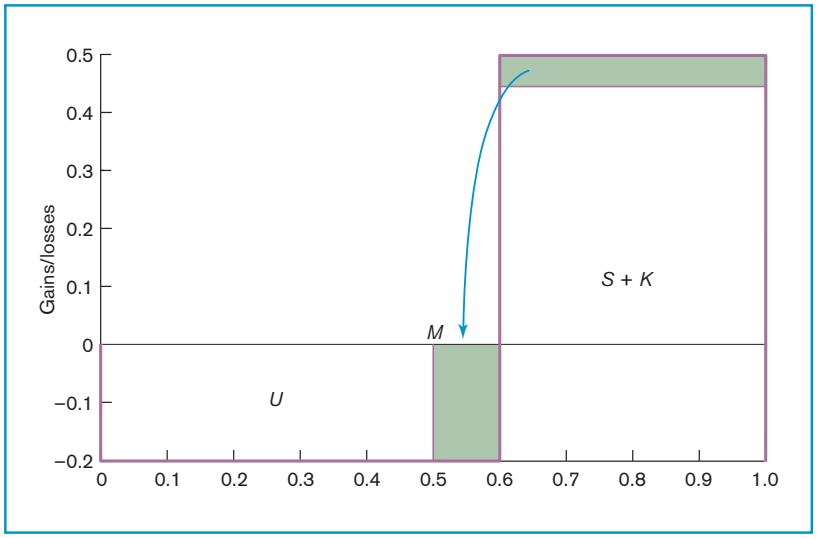
## 8.3 Globalization and compensation

### *The promise of compensation*

Despite the net economic gains that, according to well-known results in trade theory, generally come from economic integration, trade (and financial) liberalization tends to be a rather contentious issue in domestic politics because, as shown in section 8.2, the gains and losses of globalization are all but uniformly distributed across society. Those sectors that, rightly or not, expect to bear the losses of globalization will oppose economic integration. If they are politically decisive (either because they are organizationally strong and can lobby policy-makers in an effective manner or simply because the control the majority of votes), the government will fail in its attempts to open the economy.

If the losers from economic integration can block it, the only solution to sustain globalization consists in establishing a compensatory mechanism to share the total gains of economic openness with the losing sectors to the point of neutralizing their losses. Figure 8.3 depicts this case graphically. After opening the economy, the unskilled individuals, who constitute the majority of the population, bear an individual loss −0.2. By contrast, the rest of the population increases its individual income

**Figure 8.3** Compensation and free trade




*Note*: *U* = no skills and no capital; *S* = some education; *K* = some capital.
*Source*: Elaborated by the author.



by 0.5. With total gains (40 per cent × 0.5) larger than total losses (60 per cent × −0.2), winners can make enough transfers to losers to secure a majority in favour of globalization. Those transfers may be targeted at a segment of the losing sector to build a bare majority. This is the instance represented in figure 8.3. Alternatively, it may take the form of a general transfer to all losers. The latter case, which would be more costly but equally feasible from a financial point of view, happens under two main instances: first, whenever government is unable to discriminate among losers (either for information or identity reasons or due to the kind compensatory instruments it employs); second, whenever the losers to the left of the decisive voter *M* have extra (non-voting) tools (such as strikes, violence, and so on) to exert pressure on policy-makers.

This strategy of globalization and public compensation must fulfil two conditions to take place: it must be feasible from an economic point of view; and it must be credible from a political or institutional point of view. According to standard trade theory, the total gains from openness generally exceed its total losses. This fact, which is already reflected in figures 8.2 and 8.3, makes compensation (and therefore openness) possible by definition. Still, if globalization also leads to more factor mobility, those compensatory schemes may be impossible to finance (since the mobile factors would simply flee to other countries before paying more taxes). Anticipating that outcome, the potential losers of globalization would block the process of economic integration. In short, globalization looks like a sharp double-edged sword: it pushes policy-makers to both cut and expand the size of the state. Which effect prevails depends on the direction and size of the two economic effects of openness.

As partly discussed in section 8.2, in response to the challenges (and benefits) of globalization, policy-makers have a strong incentive to invest in more public goods (rather than in direct transfers) to reduce the incentives of factors to move abroad (by making all of them more productive) and to facilitate the possibility of a globalization with compensation compromise in the long run. Notice, however, that, because the effects of investment come with a temporal lag, that strategy is initially much more expensive than implementing a system of compensation based strictly on transfers. Immediately after opening borders, the winners have to compensate the losers through direct transfers while also spending some extra on investment strategies that will only pay off in the following period (in the expectation that, if they do, they may allow them to cancel the compensatory transfers in that period). As a matter of fact, it may not be even feasible because mobile factors would have to pay for more taxes up front (to fund the compensatory strategy) without receiving any benefit from a more productive or educated labour force until the following period. Two propositions follow from these dynamics. First, the political timing of reforms may be crucial to the success of liberalization policies. If economic openness threatens part of the tax base of an economy and therefore the very possibility of

opening the economy, the best policy response is to invest heavily in public good formation before opening the economy: this will increase support for liberalization and will minimize the threat of factor exit. Second, it may explain why economies rich in human capital and endowed with good governing institutions accept globalization more readily: they simply have the tools to reconcile their domestic demands with the benefits of free trade.

The strategy of globalization and public compensation must also be viable from an institutional or political point of view to succeed: this requires that the pro-globalization sector credibly commits to funding a compensation package over time. A simple promise of compensation (to make losers at least as well off under the new regime as they are under the status quo) is not enough because, once the reform is passed by the majority, free traders have an incentive not to approve the compensation plan. Anticipating this, the majority will continue to block the reform. Well-functioning elections (through which politicians become bound by their electoral promises and can be punished by voters if they do not carry those promises through) and strong parties (which tie politicians to promises made by previous leaders) are the type of institutions that should improve the capacity of liberal reformers to make credible compensatory promises.

The problem of credible commitment does not exist if pro-globalization policies can be easily reversed. The threat of some future political punishment (in the form of lost elections, a revolt or a coup) should be enough to discipline politicians. However, protectionist sectors are often endogenous to protectionist policies. Import-competing sectors may not be satisfied with a compensation package because it may not ensure their persistence – and therefore their political capacity to receive governmental transfers – under an open economy. Consider, as an example, the case of European farmers. Hurt by the competition of developing nations, they have two solutions: they may oppose trade liberalization or they may support it in exchange for some transfer in the form of employment subsidies (a lump-sum compensation for the loss of market share) and job retraining that leaves them with the same or a higher income. Both solutions may not be identical from a political point of view. With tariff protection, farmers maintain both control over their share of the European market and their political cohesion and strength. By contrast, although the compensation solution may leave them indifferent in welfare terms, it may gradually erode their political power. As more farmers abandon their farms to pursue other activities, their identity as farmers as well as the organizational networks they had wane, their capacity to hold government accountable for its initial promises declines, and it becomes easier for free traders to dismantle the compensation system. In short, at least for certain sectors with highly specific assets or skills, protection and tariffs are politically much more attractive.[7]



### *Statistical evidence on the globalization–compensation nexus*

In exploring the consequences that the international economy has on the domestic political arena, a growing literature has shown in the last two decades that higher levels of trade systematically lead to a larger public sector across both developed and developing nations. In this subsection I revise the current statistical evidence. The following two subsections describe, in a succinct manner, several historical episodes illustrating the joint development of openness and compensation. The next subsection then considers some empirical work on why those compensation packages were set in place, stressing the role of political strategy in the construction of political coalitions. The final subsection reviews the literature on the globalization–compensation hypothesis in developing countries.

In a path-breaking article, Cameron (1978) observed that the best predictor of an increase in the size of the public sector as a share of gross domestic product (GDP) in the period 1960–75 was the degree of economic openness (as the sum of exports and imports over GDP) in 1960 among OECD countries, with a correlation of 0.78. Employing a world sample, Rodrik (1998) then showed that greater openness increases domestic volatility and risk: a 10 per cent increase in external risk, measured in the form of fluctuations in the terms of trade, increases income volatility, measured through fluctuations in real GDP, by 1.0–1.6 per cent. That volatility, which results from the fact that small, open economies are less diversified than large economies, pushes the public sector, whose employment and income levels are uncorrelated with world-driven shocks, to smooth the risk borne by households as a result of external shocks. For the world sample in the mid 1980s and late 1990s, an increase in trade openness (imports and exports of GDP) of 10 per cent is associated with a 2 per cent increase in government consumption in GDP. More recent econometric analysis has confirmed those findings. Garrett (1998) has shown that trade openness is associated with higher levels of government consumption and overall spending for world cross-sections in the mid 1980s and the mid 1990s. Mares (2005) finds that economic openness is related to the introduction of social insurance coverage. Employing survey data for several OECD countries, Hays et al. (2005) confirm the compensation–openness nexus at the individual level: workers in import-competing sectors have a lower probability of supporting protectionism if they enjoy a generous safety net.

Whereas previous work saw compensation as mechanically deriving from increased openness, Adserà and Boix (2002) develop a model in which openness only happens if free traders offer some compensatory package to losers. That offer is only made, however, if the latter are politically decisive. This means, broadly speaking, that in democratic settings openness only happens if there is some compensation policy in place. However, in authoritarian regimes, where the majority is arguably excluded

from voting, the process of economic liberalization may sometimes take place without offering any side payment to losers. Employing a panel data of around 65 developing and developed nations for the period 1950–90, they show that the size of the public sector as a share of GDP is, first, correlated with trade openness and that, second, the relationship is strongly conditional on the political regime in place. For medium levels of economic development, for instance, public revenue is around 23 per cent of GDP in a closed economy (where exports and imports equal 10 per cent of GDP), independently of the political regimes. However, as trade openness goes up to 100 per cent of GDP, public revenue rises to about 28 per cent of GDP under an authoritarian regime and to about 33 per cent of GDP under a democratic system.[8] Recent articles by Rudra and Haggard (2005) and Hiscox and Kastner (2008) confirm these findings.

Figure 8.4 shows the association between level of trade openness (measured through the proportion of exports and imports over GDP) and the unexplained variation of public revenues over GDP (once one controls, in a panel data estimation, for the effect of development on trade openness): each dot represents one country-year in a world sample that spans from the mid 1960s until the mid 1990s. The association is positive and statistically significant.[9]

### *From laissez-faire to compensatory policies in democratizing Europe (1830–1950)*

A historical analysis of the evolution of trade policy in Europe since the nineteenth century also shows that the compensation was crucial to the process of globalization (conditional on the type of political institutions in place).The introduction of a laissez-faire trade regime in the first half of the nineteenth century in Britain and its gradual extension to continental Europe in the following decades was achieved without any simultaneous expansion of domestic mechanisms of compensation. Free trade was introduced with the support of commercial and urban interests in Britain and the backing of working class associations, which constituted the great majority of the enfranchised British electorate and whose interests were aided by an electoral system that was extremely biased against the agrarian sector, which had borne most of the losses of the tariff reform of 1846, and the urban poor (Rogowski, 1989; Schonhardt-Bailey, 1991).

The stability of the Cobdenite regime was put into question, however, by two parallel developments at the turn of the century. After the electoral reform of 1884, which equalized the franchise conditions of the rural counties to those already in place for counties, the British electorate doubled to encompass between two-thirds and four-fifths of the adult male population. A fall in agricultural prices and, above all, the growth of German competition unnerved British public opinion. Several anti-free



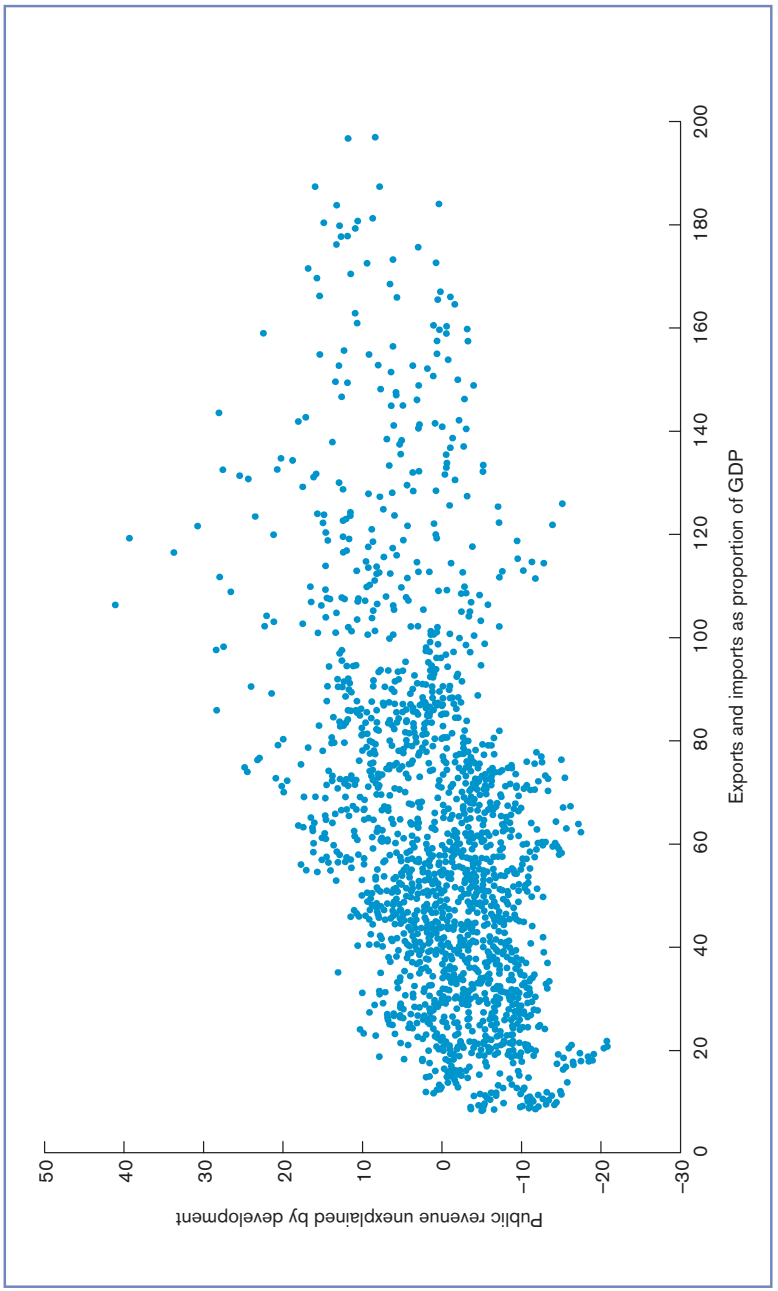



**Figure 8.4** Trade openness and the size of government (controlling for development), 1950–95

trade episodes, such as an early resolution of the National Union of Conservative Associations in 1887 in favour of "fair trade", the "Made in Germany" panic of 1896 and the re-imposition of sugar dues, the coal export duty and the corn duty in the late 1890s and early 1900s finally led to a programme in favour of an imperial tariff in the Conservative party's electoral platform of 1906. Although the Liberal party won in the 1906 landslide election under the banner of free trade, the economic downturn of 1907–08 and stagnant real wages resulted in a marked popular shift to Tariff Reform candidates in several by-elections (Searle, 1992). The Liberal government responded by creating an old-age pension programme in 1908, raising land taxes through the "People's Budget" and introducing labour exchanges and trade boards the following year, establishing national insurance for sickness, invalidity and unemployment in 1911 and passing the Miners' Minimum Wage Act of 1912. The combination of free trade and compensation embraced by the Liberal cabinet pushed Conservatives and moderate Liberals into the tariff reform camp. As the Duke of Northumberland, a former opponent of Tariff Reform, wrote to Strachey in the autumn of 1909 in reaction to Lloyd George's fiscal plans, "protection cannot be worse than Socialism … And as … Tariff Reform or Socialism are the only possible alternatives at this moment, I am quite prepared to swallow the former" (quoted in Blewett, 1972, p. 79). The political debate that emerged at the turn of the twentieth century continued to structure the agenda of the interwar period. The Conservative party led the battle for imperial protection in the 1923 elections and was able, with the growing support of manufacturers and the City, to impose its solution in 1931. By contrast, Labour, which had succeeded the Liberals as the progressive alternative, almost unanimously defended free trade.[10] The fiasco of the 1930s policies and the victory of Labour in 1945 eventually brought Britain to the camp of open borders and sizeable public intervention.

A similar evolution, with a much earlier and radical commitment to the compensation strategy, took place in Scandinavia. In Denmark and partly in Sweden the basis of universalist compensatory policies were already put in place at the turn of the century (Baldwin, 1990). As soon as the Liberal party, supported by the Danish farming community, secured a strong majority in parliament, all-inclusive, non-contributory, tax-financed pensions were established in the 1890s. The type and size of pensions directly responded to the tradable nature of farming sector. First, they were "one of the more successful measures tried" to attract labour needed by the farmers to keep being competitive "just as competition and falling prices fettered their ability to improve conditions and stem migration" (Baldwin, 1990, p. 75). Second, due to the international-prices-taker nature of Danish farming producers, their costs (and benefits) were spread across the whole population. The strategy of openness and compensation deepened in the 1930s and intensified again in the 1960s and 1970s (Cameron, 1978; Katzenstein, 1985). In the early 1970s among OECD nations, public spending in education averaged 5.4 per cent of GDP in open economies



(those where exports equal 40 per cent or more of GDP) and 3.7 per cent in closed countries; income maintenance programmes were 12.9 per cent of GDP and 8.6 per cent of GDP; public fixed capital formation was 4.5 per cent and 3.7 per cent of GDP; subsidies were 2.5 and 1.2 per cent; and labour market policies amounted (in 1985) to 1 and 0.5 per cent respectively in each set of countries (OECD, various years).

The formation of a free trade plus compensation regime in Northern Europe contrasts with the combination of protectionist schemes and a smaller welfare state adopted by both Australia and New Zealand (Castles, 1985, 1989; Mabbett ,1995). In response to depressed economic conditions in the late nineteenth century and given the low competitiveness of Australian industry at the time, Australian Labor agreed to support tariff reform in exchange for the legal recognition of a minimum wage for unskilled labour. Legal wage regulation, which was systematically sustained through a national system of compulsory arbitration in industrial disputes enshrined in the Federal constitution, had the objective to secure, in the terms of the 1907 Harvester Judgment from the Court of Conciliation and Arbitration, a "fair and reasonable wage" to meet "the normal needs of an average employee regarded as a human being living in a civilized community".[11] Sustaining a wage threshold required uncoupling (parts of) the domestic economy from international markets. A restrictive immigration policy in favour of preserving a "white Australia" to block the inflow of low-wage, non-white workers became the masthead of the Federal Labor platform in 1905. Similarly, both Australia and New Zealand erected a strong tariff system to sustain prices in the domestic manufacturing industry in the 1920s and 1930s with clear success. Whereas export prices fell by 40 per cent between 1920 and 1935, real weekly wages of workers only decreased by 5 per cent in the same period in New Zealand. The use of methods to shape the wage structure significantly lessened any social demands for a large welfare state. In 1949–50, Australia only spent 4.7 per cent of its GDP on social security – compared with an average of 8.0 per cent in 14 advanced industrial democracies (Castles, 1985). By 1975, tax revenue as a proportion of GDP was 7.5 percentage points below the OECD average in both Australia and New Zealand.

### *Free trade, democracy and taxes in southern Europe (1930–80)*

Although happening in a different historical juncture, a similar story may be told about the process of economic liberalization and political democratization that took place in southern Europe in the last third of the twentieth century. The Great Depression and the establishment of authoritarian regimes triggered the introduction of strong autarkic economic policies in southern Europe in the 1930s and 1940s. Italy only abandoned them following the military defeat of 1945, and Portugal and Spain abandoned them in the late 1950s after almost two decades of economic stagnation. Following an economic stabilization plan in 1957–59, the Spanish

government made the peseta convertible, dismantled import quotas and courted foreign capital aggressively. Economic liberalization was followed by a rapid growth of the tradable sector. The sum of exports and imports as a percentage of GDP rose from about 10 per cent in 1958 to 34 per cent in 1974. The inflow of foreign private long-term capital went from US$ 15 million in 1958 to US$ 435 million ten years later. The maintenance of an authoritarian regime until 1975 "freed" the Spanish state from actively responding to the rapid dislocation caused by the process of economic liberalization. Tax revenues as a proportion of GDP fluctuated around 17 per cent throughout the 1960s and then climbed slightly to about 23 per cent in 1974 – a level equal to about half of the tax effort of any other mid-size European country. Expenditure on social policies was half the European level (Maravall, 1995). Expenditure in education averaged less than 2 per cent in the 1960s – about a third of the German and French level. Very similar policies were pursued in Portugal. Even with higher levels of trade openness (the sum of exports and imports as a percentage of GDP was around 55 per cent in the 1960s), public revenues stood below 20 per cent of GDP under Salazar's authoritarian rule (Corkill, 1999). Indeed, authoritarianism operated in a very similar fashion in Latin America's Southern Cone in the 1970s and in East Asia: it combined trade and financial liberalization with anaemic social policies.

The Spanish (and Portuguese) transition to democracy in the mid 1970s did away with the combination of economic liberalization and minimal compensatory policies. In the context of overwhelming popular support for integration in the European Union, Spanish public expenditure grew by over 1 percentage point of GDP per year in real terms after 1975, reaching 49.6 per cent of GDP in 1993. Although an important part of that growth was simply due to the explosion of political demands that followed the introduction of free elections, part of the expenditure was related to the new conditions imposed by the rapid internationalization of the Spanish economy. In response to adverse international conditions, the Spanish government first spent heavily on unemployment benefits and injected money into entire industrial sectors – subsidies and capital transfers rose to 5.6 per cent of GDP by 1982. In the mid and late 1980s, the public sector then shifted the content of public expenditure to support strong capital formation policies that could increase Spain's competitiveness. Whereas subsidies and capital transfers were cut substantially by almost 2 per cent of GDP between 1982 and 1989, public fixed capital formation rose by 2.1 points of GDP up to 5.2 per cent of GDP in 1991, general education expenditure went up to 4.7 per cent of GDP in 1994, and active labour market policies reached over 1 per cent of GDP. Part of these new programmes were supported with European structural funds, themselves a result of an explicit deal in which the Spanish cabinet supported German and French plans to forge the European Union in exchange for substantial transfers to Spain's poorer regions (Boix, 1998).



### *Protectionism versus free trade and compensation*

Even though, as stressed before, the policy bundle of trade and compensation is Pareto-optimal with respect to protectionism, the latter has been rather widespread in many nations. This is apparent in figure 8.5, which reproduces the evolution of the median tariff in the world, in Europe and in America and Australasia.[12] Tariffs declined over the nineteenth century and then during the first decades of the twentieth century, particularly in Europe. After the Great Depression, however, the median tariff shot up dramatically from 9.8 per cent in 1929 to 22.3 per cent in 1932 in Europe and from 19 per cent to 24 per cent in America and Australasia. After 1945, tariffs were progressively lowered across the globe. By 1970 the median tariff was 3 per cent in Europe and less than 10 per cent in America.

Part of that temporal and cross-national variation had to do with two types of international factors. First, it responded to the strategic interaction of governments. That would explain why trade regimes clustered at the continental level: at least before the Second World War, tariffs were low in Europe but high across both America and Australasia. It would also clarify why both the reduction of tariffs in the 1860s and 1870s and their abrupt reintroduction in the 1930s took place through a tipping model. Second, cross-national behaviour was probably shaped by the presence of a hegemonic power committed to free trade. Before 1918, although only for Europe, tariffs tracked British commitment to free trade. During the interwar period, the absence of a pro-free trade international hegemon facilitated the tariff escalation of the 1930s. Finally, after the Second World War, tariffs fell under the aegis of American supremacy.

Domestic factors also explain the extent to which policy-makers prefer protectionism over free trade. As discussed above, the size and political leverage of winners and losers determines the likelihood with which free trade policies will be chosen.[13] More to the point, the free trade plus compensation solution only prevails if policy-makers can develop the proper bureaucratic tools (such as a viable welfare state) and political institutions (such as parties and unions) that allow them to promise compensatory policies in a credible manner. Using a most-similar research design, Boix (2006) examines this question through the comparison of the two self-governing colonies of New South Wales and Victoria. Before the formation of the Australian Commonwealth in 1901, in New South Wales the Free Trade party struck a compact with the Labor party to sustain low tariffs in exchange for progressive direct taxation, a battery of industrial regulations and stable and generous public expenditure. By contrast, Victoria's protectionist politicians used the strong relationship between their Liberal party and unions to create a "new protection" regime in which workers supported high tariffs in exchange for an arbitrational and tax system that made sure that part of the gains of protection were directly passed

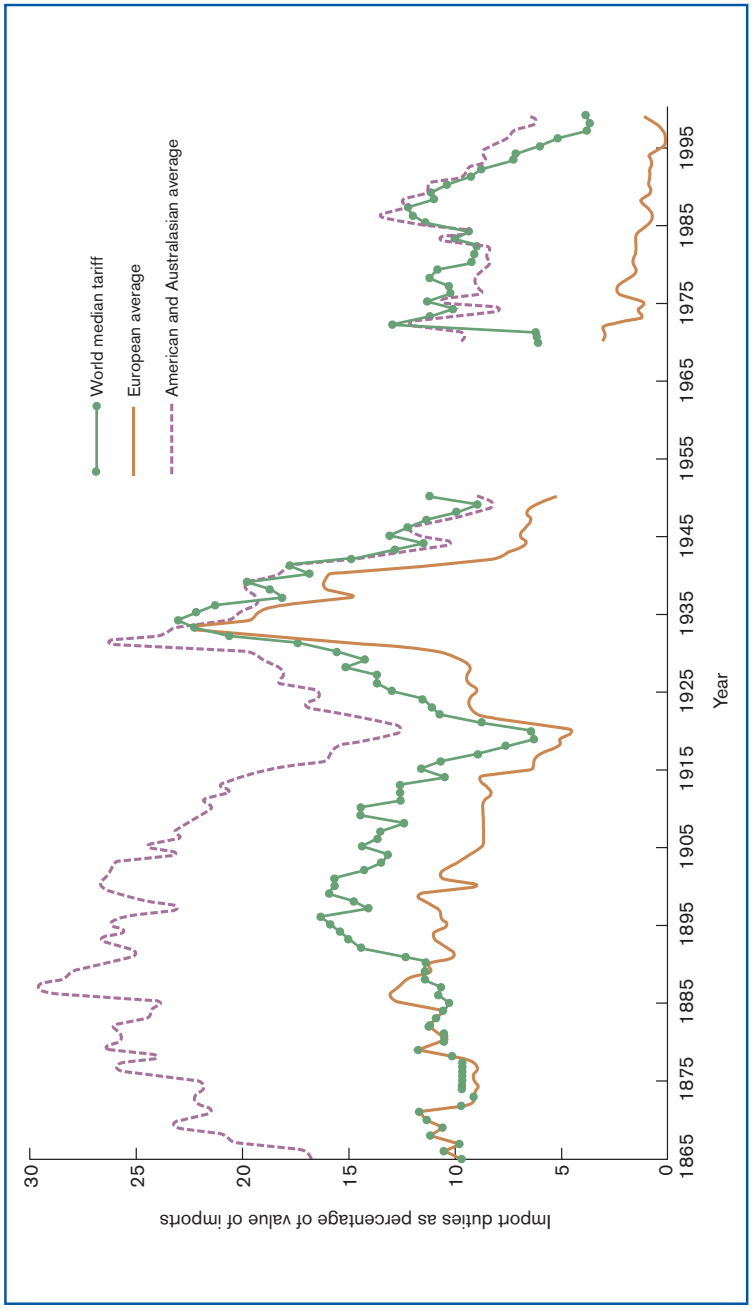



**Figure 8.5** The evolution of tariffs, 1865–1999

*Note:* For data sources, see endnote 12.



on to workers through high wages. Those different policy outcomes cannot be attributed to any structural factors: both colonies were very similar in population size, living standards, endowments, economic structure and constitutional arrangements. The adoption of opposite trade and fiscal policies resulted from the decision of politicians to organize very different electoral coalitions in similar policy spaces.

### *The compensation–liberalization nexus in developing countries*

Whereas most of the literature confirms a positive association between globalization and public compensation for OECD countries, several articles generally find that correlation to be either non-existent or negative in developing countries.[14] Examining a sample of 14 Latin American countries from 1973 to 1997, Kaufman and Segura-Ubiergo (2001) conclude that economic internationalization increases the relative power of business sectors exposed to international competition and reduces social expenditure. After confirming that result for a broader sample of non-OECD countries, Rudra (2002) and Rudra and Haggard (2005) attribute those effects in developing countries to the existence of weak unions. That negative correlation may be also related to the fact that globalization has income compression effects in economies abundant in unskilled and semi-skilled workers. Additionally, several authors have claimed that the welfare state disproportionately benefits economically and politically privileged labor groups in less developed countries such as higher-skilled blue-collar and salaried workers and that it does not serve its intended goals of poverty alleviation (Mesa-Lago, 1994; Huber, 1996).

Most recent quantitative studies have found, however, that the non-compensatory effects of globalization are all but uniform. Rudra (2004) concludes that globalization raises the incentives of developing countries for more redistributive education spending, as well as more political lobbying and clientelism on publicly sponsored health programmes and social security and welfare spending. After pointing out that governments in open economies in the less-developed world resort to restrictive spending policies because they have much more limited access to capital markets in bad times and are more exposed to currency fluctuations, Wibbels (2006) finds that trade openness is always associated with more human capital formation. Avelino et al. (2005) show that trade openness is correlated with more social security and education spending (but not with more aggregate spending) in a sample of 19 Latin American countries from 1980 to 1999. More recently, Nooruddin and Simmons (2009) argue that the extent of compensatory policies in developing countries is conditional on regime type. Whereas democracies in relatively closed economies react to openness by increasing spending on welfare and education, non-democracies cut back spending on both categories. However, as openness increases, regime differences decline and finally disappear.

## 8.4 Are welfare states sustainable in a globalized world?

According to a rather widespread view among both public opinion and academic researchers, globalization threatens the ability of national states to sustain their own economic policies and to fund their social programmes. Welfare states become hard to fund due to increasing inter-state competition for capital. The overall threat of factor reallocation weakens any political incentives to approve and sustain meaningful financial, labour and environmental regulations. Economic integration at the world level ignites a "race to the bottom" that jeopardizes democratic institutions and the postwar settlement that combined the market economy with an extensive safety net.[15] In light of such a dire view of the effects of globalization, its critics then split into two political camps: the "protectionists" and the "federalists". The protectionists, whose electoral support has grown recently in many democracies, would rather stop or even undo the process of international integration. Historically, this protectionist backlash had already happened in the 1920s and 1930s (Williamson, 1998). The federalists, by now mostly limited to parts of the academic world and some policy elites, defend the construction of global political institutions to unify national regulations (such as labour or environmental standards) in order to counter the effects of excessive capital mobility and inter-state competition. Such a solution would arguably allow everyone to gain from free trade and the benefits of specialization at the international level while protecting key social and regulatory provisions at the national level. It would simply extend at the world level the system of "embedded liberalism" that was put in place at the national level (and partly among all developed democracies) after the Second World War.[16]

To determine whether that critical view of globalization is correct, however, we need to examine it as part of a dynamic process of economic and political development, that is, in a context in which there are several countries developing (or not) and choosing a set of political institutions and economic policies. To do so, let us think of a world with three sovereign countries, *A*, *B* and *C*. Assume that, through a random process, *A* grows first. Underlying *A*'s growth, there is a continuous process of capital accumulation. Capital formation takes place unabated until, due to some decreasing returns to capital, the marginal return to capital falls to a level below its returns in economy *B* (minus the extra cost of moving that capital across borders). In its search for profits, the extra capital moves from country *A* to neighbouring country *B*, triggering a process of growth in the latter economy. Economy *B* converges to the level of development of country *A* – the point at which the marginal return to capital is equivalent in both economies. This generates, in turn, a new capital outflow to country *C*. Even if this overall process may be somewhat bumpy along the way (Krugman, 1991; Adserà and Ray 1998), what we should observe is a process of diffusion of capital and, ultimately, of growth convergence, with all economies reaching the same steady state in terms of capital accumulation and growth (Lucas, 1990).



As is well known, the process of inter-state convergence to the same level of development only takes place, however, if those economies have the same underlying production technology, saving rates and population growth (Solow, 1956) as well as the same institutional structure (affecting tax rates, the provision of public goods and property rights) (North, 1990). Otherwise, the rate of return to capital will vary across countries and, as a result, either capital will not flow from rich to poor countries or it will flow only partially. In other words, in a world where countries differ in their technological and institutional conditions, each economy will reach a different level of economic development.

Suppose that the process of development (which, again, is partly conditional on the presence of certain institutions, such as a judiciary guaranteeing property rights) results in the introduction of new political institutions and, more specifically, in the introduction of political liberties and the institutionalization of democracy. That, in turn, has two effects. In the first place, democracy and the expansion of the franchise lead to, or are at least associated with, rising taxes and more public expenditure. That result follows directly from the model discussed in the first part of the chapter. The extension of democratic rights implies that more, generally poorer, voters vote; as the income of the decisive voters becomes lower, that is, as their income moves further away from the economy's average income, there should more demand for higher taxes and transfers.[17] In the second place, political liberalization and the growing protection of human rights (such as freedom of expression, association, and so on) strengthens labour and therefore its wage bargaining capacity. As shown by Rodrik (1999), the income share of labour experiences substantial increases after countries transit to a democratic regime yet drops following a democratic breakdown. Rodrik's data is reproduced in table 8.2. Employing a larger database, Przeworski et al. (2000) confirm those results.

With all these stylized facts (on the sources and consequences of growth) in mind, we can go back to examine the question of how globalization affects redistribution. For countries that are fully integrated in the world market, the process of political and institutional liberalization (that is, democratization, increased tax capacity and stronger labour movements) seems to pull both the growth rate and the extent of feasible redistribution downward. After political liberties are introduced, the net return to capital becomes lower: wages and labour's income share grow faster than in a regime where human rights are not protected; taxes become higher, with deleterious effects (unless the government invests in those public goods and infrastructures that may raise the returns to factors). As a result, capital or, for that matter, any mobile factor leaves the country at an earlier stage than in the model I sketched at the beginning (and where political institutions were taken as given).

**Table 8.2** Political regimes and factor share of labour

| Year | Country | Factor share of labour (manufacturing) | |
|---|---|---|---|
| | | Pre-transition | Post-transition |
| A. Transitions from democracy to autocracy | | | |
| 1973 | Chile | 0.24 | 0.13 |
| 1980 | Turkey | 0.38 | 0.25 |
| 1976 | Argentina | 0.31 | 0.19 |
| 1964 | Brazil | 0.26 | 0.19 |
| | Mean | 0.30 | 0.19 |
| B. Transitions from autocracy to democracy | | | |
| 1974 | Greece | 0.33 | 0.40 |
| 1974 | Portugal | 0.40 | 0.58 |
| 1975 | Spain | 0.51 | 0.58 |
| 1989 | Chile | 0.15 | 0.17 |
| 1989 | Hungary | 0.35 | 0.42 |
| 1983 | Turkey | 0.27 | 0.20 |
| 1983 | Argentina | 0.19 | 0.20 |
| 1985 | Brazil | 0.22 | 0.20 |
| | Mean | 0.30 | 0.34 |

*Note*. The factor share of labour refers to the ratio of average wages and salaries to MVA per worker, or the wage bill divided by value added in manufacturing. Pre and post values are calculated using up to three observations prior to and following the year of transition indicated.

*Source*: Rodrik (1999, table 6).

Whether this process and globalization will lead to a "race to the bottom" or not will depend on the political effects of economic development. If the process of growth results in different political and fiscal arrangements across countries, leading to political and labour rights in *A* but not in *B* (or in *A* and *B* but not in *C*), that is, if there is no "political convergence", the process of globalization and the emergence of *B* as a competitive economy will erode the redistributive effort and labour's share of national income in *A*. Otherwise, that is if the process of economic development triggers a process of political liberalization and democratization, globalization will not jeopardize *A*'s welfare state. There will be the same cycle of economic growth and overall convergence predicted at the beginning of this section with a model based on purely economic traits (that is, devoid of any institutional traits). In this story, which now includes a political and institutional dimension, as *A* becomes wealthier, its government expands political rights, democratizes its institutions and establishes a safety net. At some point, that is in response to those changes (and provided they do not increase the productivity of capital through higher political stability, more accountable administrative structures, a better and healthier labour force), capital may leave. Exogenously (due to the inflow of foreign investment) or endogenously, *B* takes off and catches up with economy *A*. But in due time its economic development sets off similar processes of political liberalization. The net returns to capital become similar to the more mature economy *A*. Factor mobility stabilizes and all economies



reach a similar economic and institutional steady state. In short, even if some adjustments have to be made in *A*, political liberties and welfare states are not fundamentally threatened by globalization and the overall process of economic catch-up that is taking place across the world.

Which one of the two stories is right? Does development cause political development and democracy? The literature on the relationship between economic development and political liberalization is still the subject of a heavily contested debate. Examining a world sample for the period from 1950 to 1990, Przeworski and Limongi (1997) concluded that higher levels of per capita income stabilize democratic institutions but do not raise the probability of democratization. Hence one could envision a world in which developing nations (not belonging to the old industrial core in the North Atlantic region broadly construed) do not necessarily liberalize, eventually threatening the redistributive structures of the first industrializers. Employing a larger temporal sample, several papers have shown, however, that development both triggers democratic transitions and deters democratic breakdowns (Boix and Stokes, 2003; Epstein et al., 2006; Kennedy, 2010). Still, the positive effect of development on democratic stability seems to be stronger than on democratic transitions, at least for the period after 1950 (Houle, 2009; Boix, 2011). A plausible theoretical rationale for this result would look as follows. Once countries have developed, high levels of per capita income stabilize the position of the ruler for two complementary reasons: the authoritarian ruler can buy support among the population, and the latter may prefer the stability of authoritarian rule (without political rights) than democratic rule (and political rights) if there is some uncertainty (generating some loss of material welfare with some probability) attached to the transition process (Miller, 2010).

How do these results affect our discussion on the redistributive effects of globalization? We need to distinguish here between two types of wealthy (and stable) authoritarian regimes. On the one hand, some countries are authoritarian because their rulers control a very profitable natural resource (such as oil) that allows them to deactivate any democratic demands either by spending lavishly on their populations or by repressing them mercilessly (or both) (Ross, 2001). Those cases are of little interest for our purposes: they are not competing directly with other globalized economies for the kinds of assets that jeopardize the welfare state.

On the other hand, there are a handful of countries where the authoritarian ruler or clique invests heavily in public goods and human capital formation while suppressing all demands for direct redistribution (through transfers or higher wages) as a way to compete with already developed democracies. If that strategy succeeds, that is, if the economy grows fast and per capita incomes converge to the levels of democratic regimes, the population may have little incentive to invest time and resources in toppling the ruler. In fact, this strategy of rapid growth may lead to a rather equal

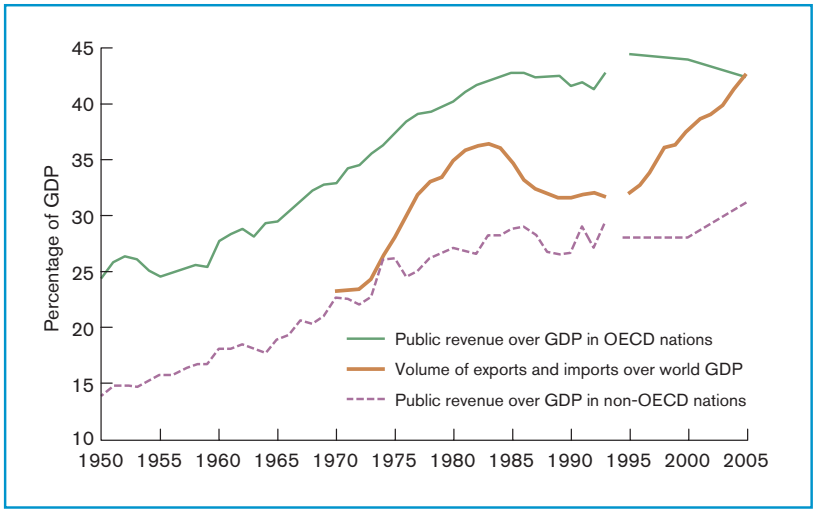
domestic distribution of skills and of incomes. Following the model in section 8.2, redistributive demands remain low and therefore any popular pressures to establish a democratic system (that may only imply non-material improvements in terms of political liberties) are very mild. The strategy of authoritarian stability and competition through high public goods and low taxes then remains self-sustaining. In a fully integrated world economy, capital or any mobile factors continues to flow into those authoritarian economies, rich in human capital and other public goods, yet low in pure redistributive transfers. Now, if those authoritarian economies are sufficiently large, they would end up undercutting the system of embedded liberalism that prospered among advanced democracies before globalization kicked in.

How prevalent are these regimes? After the transition to democracy of several East Asian economies (the Republic of Korea in 1988, Chinese Taipei in 1996) and once we exclude resource-rich countries, there are few cases that are both authoritarian and wealthy.[18] Moreover, those that are turn out be small in size, such as Singapore and, arguably, Hong Kong (China). Why is that the case? It is likely that smallness provides authoritarian politicians with two important advantages. First, political control is easier to maintain. Second, smallness (jointly with the type of economic activities that take place in city-states, which are essentially entrepôt economies) makes the threat of exit of capital almost costless and therefore very credible. This mechanism disciplines the ruling authority and makes democracy superfluous as a tool to hold politicians accountable. Democratic institutions have a fundamental growth-enhancing effect: by holding politicians accountable, they deliver the kinds of institutions and practices (clean government, strong property rights, low levels of rent-seeking) that sustain growth in the long run (Olson, 2000). But if smallness is replacing democracy quite effectively as a system to sustain pro-growth institutions, then one of the main attractions of having a democratic constitution goes away. The opposite is probably true for large countries. Political authority is difficult to maintain without some kind of encompassing institutions. More important, perhaps, the non-institutional mechanisms (the threat of factor mobility) that may sustain a "well-behaved" authoritarian system are much weaker. Without constitutional checks and balances, corruption is rampant, growth slows down, and eventually comes to a halt at a mid point in the development path. If proper legal and political institutions are needed to generate sustained growth, development will be likely to lead to a process of political liberalization. Democratization, in turn, should make those countries converge to some extent with standard European welfare states.

That development–democratization nexus may explain why, contrary to an unconditional "race to the bottom" story, welfare states have been so resilient so far. Figure 8.6 shows the world average of public expenditure and the extent of economic integration in the last 50 years. Globalization has proceeded at a fast pace yet the size of public sectors has not changed much and, if anything, has grown over time.



**Figure 8.6** The evolution of public revenue and trade, 1950–2005




Even if development, democratization and redistribution are correlated in the long run, they may not be in the short run. There is certainly no magical income threshold above which countries become democratic automatically. Hence the timing of those economic and political transformations (and the responses from policy-makers in already redistributive settings) may be crucial to explain the evolution of both economic integration and domestic compensation across the world. At least until the 1970s or 1980s, the wedge between factor returns in OECD countries and the world was high. That gap probably allowed advanced democracies to sustain generous welfare states and a strong commitment to free trade at the same time. Of course, efficient governments and well-functioning, universal education systems were also central to generate the conditions that kept those economies attractive to investors. As several economies, mostly in East Asia, industrialized, some economic sectors in the European and North American industrial core ceased to be profitable. This process may have intensified with the emergence of China as a new industrial power.

A substantial proportion of the old advanced world successfully adjusted to the new conditions – relying on a more educated labour force (partly through generational replacement) and on firms that kept upgrading their technological advantage. Among those sectors that have been unable to compete, the consequences of the globalization shock have differed across countries with the strength of the domestic compensatory system. In the United Kingdom and the United States, which have

quite flexible labour markets that adjust readily to world prices, wages among unskilled workers have fallen or stagnated in real terms. This has resulted, so far, in lower levels of structural unemployment yet higher levels of income inequality. By contrast, long-term unemployment, sustained by labour regulations and unemployment benefits, has rocketed in Europe, especially in those countries in its periphery (such as the Mediterranean basin), which combine weakly competitive industries and very generous welfare systems.[19]

As discussed above, although policy-makers have an incentive to respond to globalization by changing the transfer/public goods ratio within public spending, whether they eventually do will depend on the composition and interests of the electorate. In advanced democracies the shift toward more investment (and away from direct redistribution) seems to be jeopardized by two broad social developments. First, the gradual ageing of Western populations forces national governments to spend increasing resources on pensions and therefore limits their ability to sustain other kinds of public programmes (unless they resort to more public debt). Second, in labour markets with highly protected workers (such as those prevalent in continental Europe), the latter are effectively insulated from global competition and have little interest in a straight public goods strategy.[20] This, again, makes policy-makers more reluctant to restructure public spending – and therefore may exacerbate protectionist tensions.

## 8.5 Conclusions

After describing the economic effects of globalization (a shift in the distribution of income and higher factor mobility), this chapter has examined the policy responses of policy-makers to economic integration in the world market. First, the process of globalization may imply the adoption of compensatory policies toward those economic sectors that lose from more economic openness. Although the final introduction of those mechanisms of public compensation is a function of the electoral weight of each economic sector and of the institutional set-up (democratic or not, and so on) within which decisions are made, there is considerable statistical and historical evidence showing that compensation and openness do go hand in hand, at least in developed countries.

At the same time, however, since the process of globalization increases the mobility of factors, it may jeopardize the ability of states to meet social demands for compensation (or for any redistributive mechanism). A policy of social compensation, by reducing social conflict and guaranteeing some kind of social contract, may in itself reduce the incentives of certain factors (such as capital) to move abroad in response to higher taxation. However, globalization should also push states to shift



public resources from pure redistribution spending to public good and human capital formation. Because investment policies only increase the returns to factors with a lag (if at all), the commitment of policy-makers to develop investment policies will be strongly affected by their electorates' factor endowment and discount rates. This tension between pure transfers and public goods (and human capital formation) seems to have risen in advanced countries due to changes in their demographic structure and to the power of labour market insiders.

In the medium and long run the possibility to maintain welfare states and a globalized economy depends on the interaction of the economic structure and political institutions of all countries. An influential part of the literature argues that globalization triggers a tax and spending race to the bottom. According to this position, the advanced world will end up adjusting its welfare state downward, forced by the competition of emerging economies. In turn, the industrializing world has little incentive to introduce any social and labour regulations that could derail it from catching up with wealthier economies. A different view on the effects of globalization on social policies is, however, equally possible and empirically more compelling. In this account, tentatively sketched in the last part of this chapter, as soon as each economy reaches a certain level of prosperity, it expands political rights and democratizes. This, in turn, leads to the creation of a social insurance system and to a bigger share in labour income. Since factor returns converge across all economies, all countries develop along similar economic and institutional paths, reaching an analogous economic and institutional steady-state. In short, even though more mature economies may have to implement some policy adjustments in the short and medium run, political liberties and welfare states are compatible with globalization in the long run.

## Endnotes

**1.** The voter in *M* or median voter splits the population in two halves – with one half located on each side of *M*.

The median voter is the decisive voter because she can carry any of the two halves (located at each side) to defeat any proposal made by any individual located in any place in the distribution. For example, suppose that an individual *K* proposes a tax equal to zero. All the voters to the left of *M* plus *M* will agree to defeat that proposal. The same result applies to any proposal made by anyone to the left of *M*, *K*, *S* and those *U* between 0.5 and 0.6 in figure 8.1 will vote against it.

**3.** Figures 8.2A and 8.2B do not exhaust all the cases in which globalization affects returns to factors. They simply depict those cases based on the assumption that the effects of globalization are linearly correlated with income, either negatively or positively.

**4.** Still, corporate taxes as a share of total taxes have risen slightly over the last decades from 8 per cent of total revenue in 1965 to about 10 per cent in 2008.

**5.** Burgoon (2001) finds empirical evidence showing that more trade openness is related to more expenditure on education and labour market training in OECD countries. Gemmell et al. (2008) conclude, however, that in response to higher flows in foreign direct investment (FDI), OECD governments have cut back on investment programmes to maintain social transfers. Both results are not necessarily at odds with each other given the conflicting effects of openness on income distribution and factor mobility I describe in the text.

**6.** The incentive to invest in public goods is higher in an open economy than in a closed economy. If the existing level of transfers becomes unsustainable after globalization and therefore has to be adjusted downward, the median voter should accept more investment expenditure than before because it becomes the only means to equalize conditions (without forcing capital out) – even if that equalization stops short of what she obtained in a pre-globalized economy.

**7.** A clear example of the underlying logic can be found in history: the medieval guilds resisted their destruction well into the nineteenth century because the very laws that defined them determined their capacity to extract rents.

**8.** The results are estimated for an economy with a per capita income of US$ 4,000. Adserà and Boix (2002) also show that the level of compensation will vary with the distribution of factors in the economy. Assuming a Stolper–Samuelson set-up, in labour-abundant economies the majority of the population will lean toward free trade without any need to receive compensatory deals. By contrast, in labour-scarce economies, where the majority loses from trade, compensation packages will tend to be substantial. This result is confirmed after running a model with the log of capital stock per worker (as reported in the Penn World Tables), alone, in combination with trade openness and in interaction with openness and democracy. As expected, the size of the public sector grows with capital abundance (that is, with scarce labour and then a more pressing need to compensate).

**9.** Figure 8.4 is presented as indicative of a correlation between trade openness and domestic compensation. For a more systematic analysis of that relationship and its possible causal structure, see all the references cited in the text and, in particular, Adserà and Boix (2002) and Hiscox and Kastner (2008).

**10.** As late as 1931, 93 per cent of Labour candidates supported free trade in their manifestos (Howe, 1997, p. 285).

**11.** Quoted in Castles (1989, pp. 34–35). The introduction of a protectionist regime also required buying off the support of farmers through a system of subsidies.

**12.** Data for the period 1865–1950 encompasses 35 nations. Data for America and Australasia has been obtained directly from Jeff Williamson (Clemens and Williamson, 2002). Data for Europe comes from Mitchell (1992). The data for the period 1970–99 comes from the World Bank Development Indicators. No data is available for the period 1951–1969.

**13.** See Rogowski (1989). For a summary, see Adserà and Boix (2003).

**14.** For exceptions to the positive relation see Garrett (2001), who shows that, at least for the mid 1990s, the relationship breaks down for high-spending countries and that higher levels of trade integration did not lead to larger public sectors in the 1990s, and Dreher et al. (2008), who conclude that globalization is not associated with higher levels of expenditure after looking at a sample of 60 countries from 1971 to 2000 and to the universe of extended credit facility (ECF) countries since 1990.



**15.** For a popular account, see Friedman (1999). For an academic's perspective, see, for example, Rodrik (2007, ch. 6).

**16.** The solution of global federalism is hard to implement, however, for several reasons. First, the level of economic and political heterogeneity across countries makes it difficult to see how they can give up some of their sovereignty to common institutions. For example, the European Union, which includes a relatively similar population (at least with respect to the whole world population) with democratic institutions in all its member states, has probably reached a limit in its federalization process due to its growing internal heterogeneity (Boix, 2004). Second, since many developing countries seem to believe that, at their developmental stage, unbridled globalization (with high factor mobility) benefits them most, their incentive to establish some federative structure at the world level is very low.

**17.** On empirical evidence about the effect of democracy on spending, see Boix (2003). For a different view that sees development and democratization as covarying factors that are associated with larger public sectors, see Mulligan et al. (2004).

**18.** I consider wealthy a country with a 2009 per capita income over US$ 10,000 in purchasing power parity (PPP) terms.

**19.** The economics literature is still divided on the sources of this growing unemployment–inequality trade-off between those that stress pure skill-biased technological change and those that underline the effects of trade. For a review and discussion, see Feenstra and Hanson (2001).

**20.** Additionally, the decline of encompassing unions and of centralized wage bargaining may have reduced the incentives of unionized workers to internalize the costs of their decisions and may have reduced their incentives to favour public-goods policy strategies (Olson, 1981; Calmfors and Driffill, 1988).

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# 9 Education policies to make globalization more inclusive

*Ludger Woessmann*

## 9.1 Introduction

The process of globalization has furthered economic growth and development in many cases, but concerns have been expressed as to its sustainability from a social point of view. There are indications that in developed countries, globalization has increased inequality of labour-market outcomes. While some developing countries have managed to take advantage of the opportunities created by the globalization process, others have not. This chapter discusses the role of education and skill policies in helping individuals and societies profit from globalization, thereby increasing the social sustainability of the globalization process.

Globalization is the "ongoing process of greater interdependence among countries and their citizens" (Fischer, 2003, p. 2). When it comes to education and skill policies, it is important to take into account the relevance of globalization for the international flow of ideas. Romer (2010, p. 94) emphasizes that "globalization is driven by the gains from reuse of ideas". In this sense, education and skill policies take centre stage because of their impact on individuals' and societies' capacity to adapt to the changes and to take advantage of the opportunities brought about by globalization.

Section 9.2 thus lays the theoretical foundation for an analysis of skill policies in the globalization process by pointing out that globalization opens up the possibility for countries to catch up with technological advances in the world. In order to be able to catch up, countries need a sound skill base. This is the topic of models of technological diffusion in the spirit of Nelson and Phelps (1966), which suggest that education is the key ingredient for absorbing new technologies and adapting to change. These models stress the leading role of the stock of human capital in the adoption of new technologies and in the ability to deal with changing conditions.

Section 9.3 turns to empirical evidence on the role of education and skill policies in economic development. Empirical research shows that the strongest predictor of long-run economic growth is the cognitive skills of the population in such basic knowledge areas as mathematics, science and reading (Hanushek and Woessmann, 2008 and 2011a). Cognitive skills go a long way in helping to understand why some





countries have managed to prosper economically in times of globalization while others have not. Also, there is some indication that the positive effect of cognitive skills is higher in more open economies. Both basic skills and high-level skills have separate growth effects. Evidence also suggests that high-level skills may be particularly relevant in developing countries, presumably because they help in adopting rich countries' technologies.

Section 9.4 discusses implications for education and skill policies to make globalization more inclusive. In rich countries, such policies have to ensure a decent quality education even for the disadvantaged, which raises the question of how a more equitable education system can be devised. This has direct implications for education policies in particular in the areas of early childhood education, school tracking, public versus private financing and operation of schools, policies to attract and retain a high-quality teaching force, and other institutional features of education systems. In poor countries, such policies have to ensure that students receive a high-quality education in general. Among others, this requires a shift from policies focused just on school attainment, as in the Millennium Development Goals, to policies focused directly on learning outcomes. Apart from the institutional reforms just mentioned, this requires a focus of demand-side incentives on outcomes rather than attendance and policies ensuring teacher effort. Implementing education reforms in these directions will ensure a more inclusive process of globalization in developed and developing countries alike in the future.

## 9.2 Theoretical framework: Skills and technological diffusion in a globalized world

Globalization is the process that makes nations and people increasingly interdependent. This interdependence materializes in increased international flows of goods and services, of financial funds, labour and ideas. The last aspect – increased international flows of ideas – is the most relevant one for catch-up growth (Romer, 2010; see also Jones and Romer, 2010). Rather than static comparative-advantage aspects of globalization, the reuse of ideas that have been generated in other countries is what is most important for the process of development in a dynamic perspective. For example, when discussing health in an age of globalization, Deaton (2004, pp. 83–84) ventures to say that: "The health and life expectancy of the vast majority of mankind, whether they live in rich or poor countries, depends on ideas, techniques, and therapies developed elsewhere, so that it is the spread of knowledge that is the fundamental determinant of population health."

In such a perspective, the most important role of education and skill policies in an era of globalization is its role in facilitating the international flow of ideas. The defining

characteristic of ideas is that they are non-rival: once an idea is invented, it can be used by any number of people at no additional cost.[1] Ideas can be subdivided into technologies and rules: technologies are "ideas about how to rearrange inanimate objects", whereas rules "specify how people interact with other people" (Romer, 2010, p. 96). The level of productivity of an economy can be viewed as depending on both technologies and rules. Human capital may be an important fundamental cause of the rules that a nation adopts (Glaeser et al., 2004). But in this chapter, we will focus on the more straightforward (and better-researched) link between human capital and technology.[2]

Models of technological diffusion have long suggested that human capital is a key ingredient in technological catch-up. Thus, Nelson and Phelps (1966, p. 69) argue that: "education is especially important to those functions requiring adaptation to change. Here it is necessary to learn to follow and to understand new technological developments." Classical technological-follower models therefore describe the role of human capital in creating the ability to adjust to changing conditions, thereby facilitating the adoption of new technologies (see Benhabib and Spiegel (2005) for a recent overview of the corresponding literature). Such a feature is also part of the recent wave of growth models focusing on the distance to the technological frontier (Acemoglu et al., 2006; Aghion and Howitt, 2006; Vandenbussche et al., 2006). The technological-diffusion models predict that the adoption of new technologies is a function of the stock of, rather than the change in, human capital.

In a dynamic setting of changing technology, education plays a particular role by fostering the "ability to deal with disequilibria" (Schultz, 1975) – that is, to perceive a given disequilibrium, to evaluate its attributes properly in determining whether it is worthwhile to act, and to undertake action to appropriately reallocate resources. Education may enhance "allocative ability in the sense of selecting the appropriate input bundles and of efficiently distributing inputs between competing uses" (Welch, 1970, p. 55). According to Schultz (1975, p. 835): "The presumption is that education – even primary schooling – enhances the ability of students to perceive new classes of problems, to clarify such problems, and to learn ways of solving them. … [These] abilities … seem to have general properties that contribute measurably to their performance as economic agents in perceiving and solving the problems that arise as a consequence of economic changes." This type of economic returns to education accrues only in a technically dynamic context, not in a static economy with stationary technology (see Bartel and Lichtenberg, 1987; Foster and Rosenzweig, 1996, 2004 for evidence). The ability to reallocate one's resources in response to changing conditions and the ability to discover and master new tasks is not restricted to entrepreneurs, but is useful and required for basically any economic activity at all stages of management and production (Schultz, 1975).



This theoretical background suggests that globalization opens up the opportunity to catch up to the world technological frontier by reusing ideas generated in other countries. But in order to be able to benefit from this opportunity, countries need a sound skill base.

## 9.3 Empirical evidence: Skills and economic growth

This section surveys the empirical evidence on the role of education and skill policies in economic development, with a particular focus on aspects that are of special relevance for globalization.

### *Basic results on cognitive skills and economic growth*

The macroeconomic literature focusing on cross-country differences in economic growth has overwhelmingly employed measures related to school attainment, or years of schooling, to estimate the effect of education on economic growth (for example, Barro, 1991; Mankiw et al. 1992; Barro and Lee, 2010). The vast literature of cross-country growth regressions tends to find a significant positive association between quantitative measures of schooling and economic growth (see Topel, 1999; Temple, 2001; Krueger and Lindahl, 2001; Sianesi and Van Reenen, 2003 for extensive reviews of the literature). To give an idea of the robustness of this association, an extensive empirical analysis by Sala-i-Martin et al. (2004) of 67 explanatory variables in growth regressions on a sample of 88 countries found that primary schooling was the most robust influence factor on growth in GDP per capita in 1960–96 (after a dummy variable for being an East Asian country).

However, average years of schooling is a particularly incomplete and potentially misleading measure of education for comparing the impacts of human capital on the economies of different countries. It implicitly assumes that a year of schooling delivers the same increase in knowledge and skills regardless of the education system. For example, a year of schooling in Kyrgyzstan (a country performing at the bottom of the Programme for International Student Assessment (PISA) tests of student achievement) is assumed to create the same increase in productive human capital as a year of schooling in Finland (a top PISA performer). Additionally, this measure assumes that formal schooling is the primary (sole) source of education and that variations in non-school factors have a negligible effect on education outcomes. This neglect of cross-country differences in the quality of education and in the strength of family, health and other influences is probably the major drawback of such a quantitative measure of schooling.

Consequently, research over the past decade has started to use direct measures of the cognitive skills of the population. Cognitive skills encompass basic knowledge

and competencies in such domains as reading and understanding, mathematics and science, and the ability to apply this knowledge in different settings. These skills may be acquired in school, but also at home and in interactions with peers and wider communities. In applied research, cognitive skills are measured by comparable international student achievement tests in such basic knowledge areas as mathematics, science and reading (see Hanushek and Woessmann, 2008, 2011a for reviews).

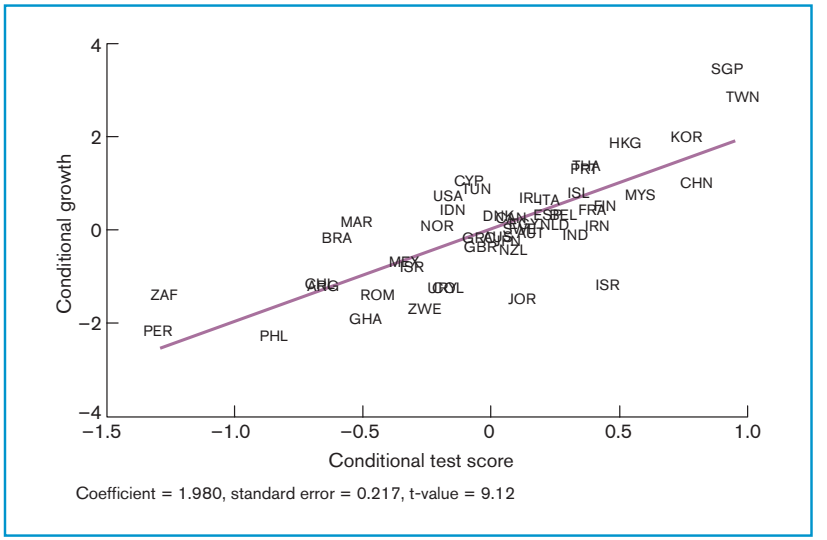
Based on these measures, cognitive skills have been repeatedly found to be a leading predictor of long-run growth (see Hanushek and Kimko, 2000; Barro, 2001; Hanushek and Woessmann, 2008). Most recently, Hanushek and Woessmann (2009) combine data from international tests given over the past 45 years in order to develop a single comparable measure of skills for each country that can be used to index skills of individuals in the labour force. They apply this measure in cross-country growth regressions that control for initial income, years of schooling and (depending on the model) a set of additional factors to predict the growth rate in real GDP per capita in 1960–2000 across 50 countries with available data.

The basic result is depicted in figure 9.1. After controlling for the initial level of GDP per capita and for years of schooling, cognitive skills have a statistically significant and powerful effect on economic growth. According to this specification, test scores that are larger by one standard deviation (measured at the student level across OECD countries) are associated with an average annual growth rate in GDP per capita that is two percentage points higher over the whole 40-year period. The countries are all relatively close to the line, indicating that the model explains most of the variation in growth rates across countries. In fact, adding cognitive skills to a basic model that just includes initial income and years of schooling increases the share of cross-country variation in economic growth explained by the model from about one-quarter to about three-quarters. The quantity of schooling is statistically significantly related to economic growth in a specification that neglects educational quality, but the association between years of schooling and growth turns insignificant and is reduced to close to zero once cognitive skills are included in the model. In other words, added years of schooling do not affect growth unless they yield greater achievement. Of course, much of the observed cognitive skill is developed in schools, so this does not say that schools are irrelevant. It does say that the quality of schools, as determined by increases in student achievement, is very important.

Adding several other factors as control variables (including the openness of the economy, security of property rights, other political and institutional measures, fertility rates, location in the tropics, latitude, physical capital, and the like) leaves the effects of cognitive skills strongly statistically significant, although it is reduced by about one-third once the institutional measures are controlled for. Figure 9.1



**Figure 9.1** Cognitive skills and economic growth




*Notes:* Added-variable plot of a regression of the average annual rate of growth (in per cent) of real GDP per capita in 1960–2000 on the initial level of real GDP per capita in 1960, average years of schooling in 1960, and average test scores on international student achievement tests.

*Source*: Hanushek and Woessmann (2008).

highlights that a group of East Asian countries provides a prime example of outstanding test-score performance and outstanding growth records. The results thus suggest that cognitive skills are capable of accounting for a vast part of the extraordinary growth performance of East Asia over the long run. Still, to rule out that the results just capture other East Asian particularities, results are also robust to considering the variation just within each of five world regions, indicating that the association between cognitive skills and growth does not simply reflect economic differences across regions.

Hanushek and Woessmann (2009) perform a set of analyses that provide additional assurance that the estimated effect indeed reflects a causal impact of educational achievement on economic growth. Additional resources in the school system, which might become affordable with increased growth, are not systematically related to improved test scores (see also Hanushek and Woessmann, 2011b). To rule out simple reverse causation, Hanushek and Woessmann (2009) also separate the timing of the analysis by estimating the effect of scores on tests conducted until the early 1980s on economic growth in the period 1980–2000, finding an even larger effect.

Three direct tests of causality devised to rule out certain alternative explanations based on unobserved country-specific cultures and institutions confirm the results. The first one considers the earnings of immigrants to the United States and finds that the international test scores for their home country significantly explain earnings in the United States, but only for those educated in their home country and not for those educated in the United States. A second analysis takes out level considerations and shows that changes in test scores over time are systematically related to changes in growth rates over time. A third causality analysis uses institutional features of school systems as instrumental variables for test performance, thereby employing only that part of the variation in test outcomes that emanates from such country differences as use of central exams, decentralized decision making, and the share of privately operated schools. These results support a causal interpretation of the skill–growth nexus and also suggest that schooling can be a policy instrument contributing to economic outcomes.

Of course, the results do not mean that individuals learn nothing after high school, the age at which the international tests of educational achievement are performed. They rather show that what individuals have learned in school is a good predictor for the accumulation of further skills in life and the capacity to deploy these skills effectively. The aim of combining data from international tests given over the past 45 years is to develop a measure of skills of people in the labour force.[3] The results suggest that the international achievement measures provide a good measure of the skills of the labour force in different countries and that these skills are closely tied to economic outcomes. A possible interpretation is that strong cognitive skills learned during school facilitate lifelong learning in the sense of a constant adjustment to new technologies. The extent to which the relevant skills can be learned during adulthood remains an open issue, although recent evidence suggests that later remediation tends to be very costly (see Cunha and Heckman, 2007 for an overview and interpretation in terms of a life cycle of skill formation).

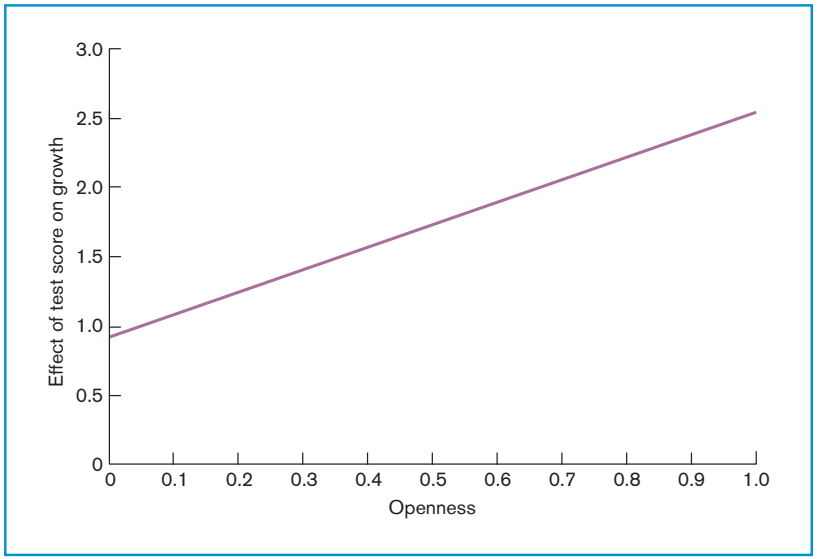
### *Globalization and the role of skills in economic development*

The evidence just discussed suggests that cognitive skills can explain a substantial part of the variation in why some countries have succeeded in reaping the opportunities opened up during the period of globalization whereas other countries have not. Two additional aspects can shed further light on the role of skills in catch-up growth during globalization. First, there is evidence that the positive effect of cognitive skills gets larger with the extent to which a country is open to the world economy. Second, there is evidence on the respective roles of basic and top skills in economic growth.



To measure the openness of an economy to international trade, Sachs and Warner (1995) suggested calculating the fraction of years (here, between 1960 and 1998) that a country was classified as having an economy open to international trade, based on five factors including tariffs, quotas, exchange rate controls, export controls and whether or not the country has a socialist economy. Hanushek and Woessmann (2008) report a specification that adds this measure of openness and its interaction with cognitive skills to the basic growth model discussed above. Their results suggest that openness and cognitive skills not only have significant separate effects on economic growth but also a significant positive interaction. As depicted in figure 9.2, the effect of cognitive skills on economic growth is significantly higher in countries that have been fully open to international trade than in countries that have been fully closed. The estimated coefficients imply that the effect of cognitive skills is significantly positive but relatively low in closed economies and increases to a very large effect in open economies. A possible interpretation of this finding is that skills have more scope to facilitate the adoption of new technologies in countries whose institutional environments – the rules – are more readily devised to let ideas from other countries flow into the local economy. Countries that combine high cognitive skills with openness are the most capable of profiting from globalization.

**Figure 9.2 The effect of cognitive skills on growth depending on openness**




*Notes*: Estimated effect of average achievement test scores on the average annual rate of growth of real GDP per capita in 1960–2000, depending on the degree of openness to international trade of a country.

*Source*: Hanushek and Woessmann (2008).

An additional question is which type of skills is required to profit from globalization. Does an economy particularly require a small group of "rocket scientists" capable of high-end technological imitation and innovation, or are approaches such as the Education for All initiative (UNESCO, 2005) more promising in spurring growth? Hanushek and Woessmann (2009) use the micro data of the international achievement tests to devise two separate measures of basic and top performance: the shares of students in a country who reach a basic level of one standard deviation below the OECD mean and an advanced level of one standard deviation above the OECD mean, respectively. When adding both skill dimensions jointly in the growth regression, Hanuschek and Woessmann (2009) find that improving both ends of the distribution is separately beneficial and that increasing basic literacy and advancing the best students are complementary. Furthermore, a cadre of highly skilled individuals is even more important in initially poor countries that have scope for imitating rich countries' technologies than in initially rich countries that are innovating.[4]

## 9.4 Policy implications: Education policies to make globalization more inclusive

Given the central role of skills in determining a country's capacity to profit from globalization, education and skill policies have a key function in making globalization more inclusive. Research into the production of skills has derived a number of results that indicate promising ways to achieve skill improvements. These will be reviewed in this section. One basic result is that, in general, just adding more resources in existing education systems will not yield noteworthy improvements in the required educational achievement if the existing systems provide little incentive to use the additional resources in order to improve student outcomes (see Hanushek, 2006; Woessmann, 2007a for reviews).[5] By contrast, a set of institutional reforms bears the promise of making educational outcomes more equitable both within and across countries.

### *Policies for equitable educational outcomes*

Countries that on average have high-performing education systems are well set to profit from the opportunities opened up by globalization. However, in some countries educational achievement is distributed quite unequally, with a substantial part of the population not reaching adequate skill levels. Depending on the social systems of the countries, these are the parts of the population that will gain less or even lose out in the process of globalization. A set of policies that make the educational system more equitable can help to distribute the gains from globalization more broadly (see also Woessmann and Peterson, 2007; Schuetz et al., 2008).



A first element of an equitable education system is a system of early childhood education that ensures a decent early education for children from disadvantaged backgrounds (see Heckman, 2006; Blau and Currie, 2006 for reviews). A growing body of evidence suggests that the formation of skills is a life-cycle process that exhibits self productivity and dynamic complementarity (see Cunha and Heckman, 2007). In this perspective, education learned at one stage is an input into the learning process of the next stage, and the productivity with which investments at one stage of education are transformed into valuable skills is positively affected by the level of skills that a person has already obtained in the previous stages. This generates a skill multiplier whereby an investment in education at one stage does not only raise the skills attained at that stage directly, but also the productivity with which educational investments at the next stage will be transformed into even further skills. This multiplier effect makes education a dynamic synergistic process in which early learning begets later learning.

As a consequence, measures at early stages can be particularly crucial, and some deficiencies are hardly amenable at late stages. Importantly, returns to early interventions are particularly high for children from disadvantaged backgrounds whose homes do not provide them with the foundation of skills necessary to prosper at later educational stages. Such interventions do not only build skills, but also lay the foundation that makes later learning more productive due to the complementarity in learning over the life cycle. Early childhood education programmes targeted at disadvantaged children thus have strong potential for raising equity.

A second finding of the education production literature is that the practice of early tracking into different types of schools tends to increase the inequality of educational outcomes (for example, Hanushek and Woessmann, 2006; see Woessmann, 2009a for a review). Early tracking into differing-ability schools is found to increase the dispersion of educational outcomes at the end of secondary school and their dependence on measures of family background. At the same time, there is no evidence that early tracking offers clear gains in terms of the overall level of achievement. In countries that track their students early on, reforms that postpone tracking could thus help to make the skill distribution more equitable, ensuring that the gains from globalization are more widely shared.

A third aspect of the school system that is systematically related to the equity of educational outcomes is the extent of public vs. private financing and operation of schools. A consistent pattern in cross-country evidence is that larger shares of public funding of schools, but at the same time larger shares of privately operated schools, are associated with a reduced dependence of student achievement on socio-economic background (see Woessmann et al., 2009; Hanushek and Woessmann, 2011a). At the same time, larger public funding shares and larger private operation

shares are also associated with higher levels of student outcomes (Woessmann, 2009b), suggesting that a system that combines public funding with non-public operation is good for equity and efficiency alike.

The cross-country evidence is consistent with an interpretation where competition among schools – and, in particular, the competition created by schools not operated by the public administration – raises educational outcomes, and particularly so for students who do not have much choice in less competitive systems. Public funding of schools irrespective of who operates them ensures that also less well-off parents have the opportunity to exert choice. A system that combines public funding with private operation is similar to a voucher system that can be targeted at disadvantaged students, who have regularly been found to profit from such vouchers (see, for example, the evidence on the United States in Rouse, 1998 and Howell and Peterson, 2002).

Fourth, recent evidence suggests that teacher quality – as measured by the learning gains of a teacher's students – is enormously important in determining student achievement. Working with extensive panel data on individual students from different US states, several studies confirm large differences among teachers in terms of outcomes in the classroom (for example, Rockoff, 2004; Rivkin et al., 2005; see Hanushek and Rivkin, 2010 for a recent review). Policies that succeed in attracting and retaining a high-quality teaching force in particular in disadvantaged areas have a large potential to raise the equity of educational outcomes.

At the same time, this research also shows that the observed differences in teacher quality are not closely related to commonly observed characteristics of teachers (such as amount of teacher education). Some attributes of teachers – such as having one or two years of experience – have explained part of the differences in teacher quality, but these factors are a small part of the overall variance in teacher results. There is some indication that teachers' own academic skills measured by scores on achievement tests may be an important factor (see Wayne and Youngs, 2003; Eide et al., 2004 and Hanushek and Rivkin, 2006 for reviews), but more research is required to ascertain the causal character of this finding (see Metzler and Woessmann, 2010 for recent evidence). But the general inability to identify specific teacher qualities makes it difficult to regulate or legislate having high-quality teachers in classrooms, in particular in schools serving disadvantaged students.

Consequently, a final conclusion of the education production literature is that changes in the institutional structure and incentives of schools are fundamental to improving school outcomes (see Woessmann, 2007b and Woessmann et al., 2009 for reviews). Most generally, the performance of a system is affected by the incentives that actors face. That is, if the actors in the education process are



rewarded (extrinsically or intrinsically) for producing better student achievement, and if they are penalized for not producing high achievement, this will improve achievement. The incentives to produce high-quality education, in turn, are created by the institutions of the education system – the rules and regulations that (explicitly or implicitly) set rewards and penalties for the people involved in the education process. The key to improvement thus appears to lie in better incentives – incentives that will lead to management keyed to student achievement and that will promote strong schools with high-quality teachers.

Apart from the topic of choice and competition discussed above, two further institutional features that have a strong bearing on incentives are accountability and school autonomy (see Hanushek and Woessmann, 2011b for more extensive discussion). Accountability introduced by curriculum-based external exit exams or explicit school accountability systems has been found to be systematically related to better student outcomes. There is also a positive interaction between accountability and autonomy: several studies suggest that once accountability is in place, increased autonomy of schools is related to better student outcomes. Autonomy in local decision making is a prerequisite for individual schools and their leaders to take actions to promote student achievement. At the same time, accountability systems that identify good school performance and lead to rewards based on this, as well as competition that allows parental demand to be expressed, create the incentives for individual schools to focus their efforts on student outcomes.

This range of policies can help to ensure that education systems produce a decent quality education also for disadvantaged students. In the future, more equitable educational outcomes mean that the disadvantaged are in a better position to share in the gains from globalization.

### *Advancing skills in developing countries*

The policies discussed so far aim to achieve more equitable educational outcomes within countries, and in particular within technological leader countries where the average level of skills is already high. Additional aspects arise for technological follower countries with generally low-performing education systems. Given the very low levels of educational achievement throughout the population of many developing countries, policies to raise the overall level of skills should probably take precedence in these countries. At the same time, there is no evidence of a noteworthy trade-off between education policies aimed at efficiency and equity (Schuetz et al., 2008), suggesting that policies aimed at the equity and the level of educational outcomes may go hand in hand. When it comes to advancing the overall skill levels in poor

countries, it is in particular the institutional measures of accountability, autonomy and competition discussed above that are clearly part of a reform aimed at higher skills for the population that will allow for a faster adoption of technologies from abroad.

More broadly, for poor countries to produce the skills necessary to participate in the gains from globalization, their education policies will have to shift from a focus on school enrolment and attainment to a focus on learning outcomes (see Hanushek and Woessmann, 2008). Current international policy initiatives such as the Millennium Development Goals and the Education for All initiative stress the importance of expanded school attainment in developing countries and target goals of quantitative schooling. However, the available evidence shows that it is not the quantity of schooling but the knowledge and skills actually learned that matter for economic growth. Policy therefore has to focus much more clearly on how to ensure that students really acquire knowledge and skills while in school. Rather than sticking to goals for school attainment, education policy may be more effective when focusing on the quality of education.

Indeed, by reasonable calculations, many developing countries have less than 10 per cent of their youth currently reaching minimal literacy and numeracy levels, even when school attainment data look considerably better (Hanushek and Woessmann, 2008). This has to change if globalization is to become more inclusive.[6] Apart from the supply-side incentives discussed above, this perspective also has clear implications for the type of demand-side incentive programmes that are increasingly used in developing countries.

Mostly motivated by issues of school access and attainment, a range of demand-side programmes have been implemented that work through changing student and family behaviour in order to encourage school attendance and completion (Hanushek, 2008). These programmes include cash transfers conditional on students' attending school (for example, in Brazil, Columbia, Mexico and Nicaragua), reductions of school fees (for example, Cambodia, Indonesia, Kenya and Chinese Taipei), and food and nutrition supplements that go with school attendance (for example, Bangladesh, India, and Kenya). Many of these programmes have been carefully evaluated.

The results suggest that incentives work and have an impact on behaviour: each of the well-studied programmes surveyed in Hanushek (2008) has a positive and significant impact on attendance and attainment. But, with one exception, there is little or no apparent impact on achievement – the outcome that matters for growth. The one exception is the Kenyan merit scholarship programme which paid school fees and grants for girls who scored well in academic exams (Kremer et al., 2009). As such, this is the only programme surveyed that linked incentives to achievement



rather than attainment. The results suggest that you get what you pay for: if incentives are focused on school attainment, it is likely that higher attainment is generated, but not necessarily higher knowledge and skills. To achieve better educational outcomes, demand-side incentive programmes clearly have a promising role to play, but they will need to be focused on learning outcomes rather than attendance. Unless care is exercised in structuring the incentives, they may even have perverse effects if there is a trade-off between school access and quality.

Given the importance of teacher quality, a final topic of high relevance in developing countries is teacher effort. In many developing countries, the incidence of teacher absence from the classroom is widespread (see Chaudhury et al., 2006; Banerjee and Duflo, 2006). Evidence from India suggests that a simple incentive programme that monitored teacher attendance and provided financial incentives for attendance resulted in a substantial decline in teacher absence and increase in student achievement (Duflo and Hanna, 2005). Furthermore, programmes that linked teachers' salaries to their students' measured performance have been found to lead to substantial increases in student achievement in India and Israel (Lavy, 2009; Muralidharan and Sundararaman, 2011). Policies aimed at ensuring teacher effort can thus help to advance skill levels in the future.

## 9.5 Conclusions

Education and skill policies take centre stage in increasing the social sustainability of globalization. They determine whether people acquire the capabilities required to share in the gains from globalization. Currently, many low-educated people in rich countries tend to be excluded from this. Despite the large possible gains from the reuse of ideas that globalization opens up, many poor countries are excluded because they lack the skills required to adopt new technologies from abroad and to deal with the rapidly changing conditions that globalization brings about.

There is no silver bullet that could change this situation overnight, but a clear general direction for needed reforms is that education policies have to create incentives for better educational outcomes, and that they have to focus on the knowledge and skills actually learned rather than on the mere attendance of schools. Based on the available evidence, promising components of a successful strategy for education and skill policy include supply-side incentives created by a combination of public funding and non-public provision of schools, accountability and autonomy of schools, demand-side incentives focused on learning outcomes, incentives aimed at teacher effort and teacher quality more generally, and – to achieve more equitable outcomes – high-quality programmes of early childhood education for disadvantaged children and the postponement of tracking in schools.

Recent research shows that basic cognitive skills, measured by tests in mathematics and science in primary and secondary school, are a leading predictor of economic growth. Obviously, this does not mean that other skills are irrelevant. It suggests that these basic skills learned in school are a good predictor of the ability to address the constant need to adapt to new technologies and changing conditions in a globalizing world. At any given point in time, an economy clearly needs additional skills more specifically linked to certain occupations and sectors.

This raises the question to what extent education systems should provide general vs. specific skills. While evidence on this topic is limited, there is an obvious rationale to expect that a general type of education provides a better foundation for sustained growth than specialized vocational education in times of globalization when new technologies emerge at a rapid pace (see Krueger and Kumar, 2004). Globalization and the accelerated pace of technological change require a more adaptable labour force than in a static economy, forcing all countries to rethink the role of education and training. There is a clear need to develop specialized programmes of vocational and technical education, where they exist, in ways that provide generalizable skills – ones that will not become obsolete immediately with the changes in technology and industrial structure that globalization processes bring about (Mertaugh and Hanushek, 2005). A sound basis of general skills creates the ability of lifelong learning which allows people to develop job-specific skills, to keep their skills up to date, and to retool their skills when career changes are required.

When the focus is on socially sustainable globalization, education policies in rich countries should aim to ensure that children from disadvantaged backgrounds receive a high-quality education. Education policies in poor countries should aim to lift the skill level of their populations in a way that allows them to profit from the international flow of ideas, which requires improvements in educational outcomes throughout.

## Endnotes

**1.** Ideas may have different degrees of excludability, an aspect which raises topics such as intellectual property rights that will not be covered in this chapter.

**2.** Below, however, we will also discuss evidence suggesting that the effect of human capital on growth may depend on local rules, which is consistent with an indirect effect of local rules on productivity through the incentives they create to introduce new technologies (Romer, 2010).

**3.** With few exceptions direct measures of achievement of people in the labour force are unavailable, and analysis instead must rely upon skills measured during the schooling period. The one exception with measures of the cognitive skills of people in the labour force is the 1994–98 International Adult Literacy Survey (IALS), which tested representative samples of people aged 16–65 years. Coulombe et al. (2004) use these data to construct synthetic cohorts in order to estimate a growth model across 14 countries. Their results confirm the ones reported here.



**4.** Sector-specific evidence that would allow an analysis of the possible role of skills in ensuring that the gains in sectors that adopt rich countries' technologies spill over into the rest of the economy is not available so far.

**5.** Similarly, there is little clear-cut evidence of specific teaching methods that would help to lift levels of educational outcomes substantially in general (see, for example, Schwerdt and Wuppermann, 2011).

**6.** In light of the evidence presented above, developing countries should not focus exclusively on just providing minimal skills for all or exclusively on fostering a group of students with high-end skills, but rather pursue both goals at the same time. This would require a strategy that combines initiatives aimed at the lower end of the cognitive distribution throughout the school system with initiatives aimed more at the top end, such as the focused technological colleges of India. However, little concrete evidence is known so far about which specific policies would focus on basic vs. top skill levels in practical terms.

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