

1. Globalization, international spillovers and sectoral changes: an introduction

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In recent decades, we have been able to observe a dramatic increase in the pace of globalization, or more precisely of global integration. It is important to observe that ‘Integration means not only greater market-based trade and financial flows, but also institutional harmonization concerning trade policy, legal codes, tax systems, and other regulatory arrangements’ (Sachs and Warner 1995, p.2). There are many factors that have been driving this trend. Here we can indicate the three major factors: (1) technological progress; (2) reduced costs of physical spatial interaction; and (3) the removal of barriers to the flows of trade, labour, foreign direct investments and capital in general. The trend towards greater global integration implies that news, information, ideas, knowledge, and so on will spill over at an increasing speed and reach increasingly more destinations in the world. Furthermore, it also means that economic and financial crises will spill over more rapidly and effect larger parts of the world. These more rapid spillovers affecting increasingly larger parts of the world will stimulate more rapid structural changes and affect more locations, which in turn will stimulate more rapid and more substantial structural changes at both the national and the regional level.

The purpose of this book is to provide new insights into the phenomenon of globalization, its drivers and its effects. In this introductory chapter, we present an overview of the drivers of globalization, the effects of globalization on international spillovers and the sectoral changes in the world economy induced by globalization as well as of the content of the chapters in this edited volume.

1. THE DRIVERS OF GLOBALIZATION

The first factor and the most important technological progress driving globalization is the advances in information and communication technologies (ICTs). During the past 50 years, the advances have revolutionized how routine and standard information is transmitted over long distances, enabling a much higher and more rapid interconnectedness between cities, regions and countries all over the world. The advances in ICT are likely the single most important factor explaining the growth of trade in general and particularly of trade in production inputs (Baldwin 2012). The improvements in ICT in terms of speed, price, capacity and availability have lowered the costs of coordinating economic activities over long distances, very substantially enabling firms to separate functions and tasks geographically at a global scale. The progress in ICT has also (together with the integration of world markets through trade liberalization) led to a significant growth in trade in services across international borders (Busi and McIvor 2008). Service exports accounted for approximately 20 per cent of world trade already in 2007 but this share increases to almost 50 per cent when trade is measured in value-added terms and rises further when affiliate sales by multinational firms are taken into account (Francois and Hoekman 2010).

The second factor is the cost of physical spatial interaction, which has decreased substantially since the Second World War. The contribution of containerization to the growth of world trade has been analysed by Bernhofen et al. (2016). The transit time for goods is an important determinant of production costs, which in turn influences total output and trade. A one-day delay in transit time is equivalent to being located an additional 85 kilometres from the trading partner and reduces exports of time-sensitive goods (Djankov et al. 2006). It is interesting in this connection that containerization meant that the shipping time for goods between Europe and Asia on average was reduced by 50 per cent (Bernhofen et al. 2016). The introduction of containers for freight transport also led to the development of an intermodal transport system also including trains and trucks, which eliminated the need to unload and reload goods on the way between the supplier and the customer. The adoption of containerization also led to a drastic decrease of factors such as insurance costs and working capital 'locked up as inventory in transit' (Bernhofen et al. 2016, p. 39). In addition, labour productivity of dock workers increased more than fifteen-fold at the same time as the use of larger ships helped increase the capacity of ports. Containerization is estimated to have reduced transport costs by 20 times and reduced the share of retail price attributed to transport costs from 10 per cent to 1.5 per cent (Rodrigue et al. 2013). A

very important contribution to global connectivity has also come from the expansion of the global air traffic system and the decline in air transport cost. For example, a direct causal link seems to exist between the number of intercontinental flights to a city and the number of multinational headquarters located there (Bel and Fageda 2008). In addition to promoting greater mobility of workers, and particularly knowledge-handlers, intercontinental flights have become important in cargo transport. By 1993, 29 per cent of US exports were already shipped by air (Cooper 1995).

Advances in transport technology and transport systems have significantly reduced transport times and transport costs and contributed to a more integrated world not least through reducing trading costs. These advances have also facilitated new forms of organizing production. For example, the use of just-in-time and lean production are largely made possible by the existence of faster shipping methods by road, rail, sea and air (McCann and Iammarino 2013). Lean manufacturing favours a more geographically dispersed supply chain and may encourage firms to participate in global value chains (Levy 1997).

The third factor explaining the growth of global flows of goods, services, labour and capital are the institutional changes in the world economy. In the post-war period, we have been able to observe that some countries began to favour more open financial markets. However, economic policies diverged, with some developed countries pursuing greater economic integration by opening up their economies to trade and international investments in the 1950s and 1960s. While developing countries often moved towards implementing protectionist policies based on the idea of self-sufficiency including state-led industrialization policies and/or import substitution policies (Sachs and Warner 1995). Later changes in economic policy at the national, supra-national and global levels stimulated by ideological shifts towards more free-market policies together with the fall of the Soviet Bloc have helped to create fundamentally new conditions for these flows (Antràs 2015). These policy changes include liberalization of trade and financial operations at the global level, free trade arrangements at the supra-national level and changes in industrial policies at the national level. Between 1948 and 1994, 124 free trade arrangements were created but since the creation of the World Trade Organization (WTO) in 1995 an additional 400 free trade arrangements have been made. As a result, the average tariff rate among advanced countries is around 5 per cent today, while those among developing countries are between 10 and 20 per cent (Anderson and van Wincoop 2004). This trend has continued, and by 2016 the General Agreement on Tariffs and Trade (GATT)/WTO system have received a total of 635 notifications of regional trade agreements based on separate counts for goods, services and accessions (WTO 2016). Financial

liberalization together with the ICT revolution has enabled multinational firms to operate as integrated units across distant locations (Narula 2003). Before the financial liberalization, multinational subsidiaries operated as separate units that replicated activities across locations. Financial liberalization, together with the ICT revolution and reduced transport times and costs, has opened up a range of possible ways in which multinational firms can choose to serve foreign locations as well as to locate the production of inputs and final goods. Under these new circumstances, the level of financial sector development influences the location choices of multinational firms, the extent of their operations in different local markets, and the level of affiliate sales, as well as sales to headquarter locations (Foley and Manova 2015).

Economic and financial integration, together with the ICT revolution, has induced a growth of global value chains, that is, the international fragmentation of production, where fragmentation stands for ‘a splitting up of a previously integrated production process in two or more components or fragments’ (Jones and Kierzkowski 2001, p. 17) making it possible to harvest specialization gains from components trade. Jones and Kierzkowski (2001) introduce a model, where fragmentation makes it possible to trade with inputs, which induces a realignment of the production patterns among countries. The strength of this model is that it captures the differences in technology and factor productivity as well as supply in production factors, and thus incorporates Ricardian as well as Heckscher-Ohlin elements. The model assigns a key role to increasing returns to scale and monopolistic competition, which is in line with the new trade theory initiated by Krugman. It also links to services that play an important role in connecting the various production segments in separate production locations and which have become cheaper owing to the ICT revolution and the deregulation of service activities. Hence, fragmentation helps to explain the international mobility of inputs observed in the modern interaction between trade and location by creating a direct link between international trade and multinational firms (McCann 2009).

It is today clear that supra-regional trade agreements have helped foster a growth in international fragmentation of production. The creation of the North American Free Trade Agreement (NAFTA) has, for example, contributed to an increased fragmentation of production between Mexico, Canada and the United States (US). Trade in parts and components between these countries has expanded very substantially after NAFTA was established (Gereffi 1996). We can observe a similar effect of the expansion of the European Union (EU) in 1995 and 2004 on the growth of the manufacturing sector in accession countries (Stehrer and Stöllinger 2015). Because of the enlargement of the EU there has been an increase

in production sharing between old EU member states and new member countries such as Poland, the Czech Republic and Slovakia. The proximity to Germany and low production costs have made these countries attractive places to which firms locate all or part of their manufacturing activities. The effect of trade agreements on trade flows becomes even more apparent when we examine the impact on global trade of China's accession to the WTO.

The growth of global value chains is also strongly influenced by industrial policy at the national level. One prominent example of the importance of industrial policy in shaping the patterns of global production sharing is the emergence of special economic zones in China partly inspired by the maquiladora industries in Mexico. These industries refer to industrial production under an arrangement in which production plants in Mexico located close to the border with the US were permitted to import 'duty-free inputs from the United States and thereby only pay taxes on the value added in Mexico' (Gereffi 1993, p.157). Under a special US tariff code, firms in sectors such as cars, electronics and textiles, could save on labour costs by exporting inputs to Mexico for assembly. These products could then be exported to the US, paying duties only on the Mexican value-added (Feenstra et al. 2000). Later, the elimination of tariffs under NAFTA further increased the share of production taking place in Mexico's maquiladora industries (Bergin et al. 2009). Between 1980 and 2004 the share of the manufacturing sector of Mexico's total employment increased from 4.1 to 24.5 per cent. Also, companies from other countries took advantage of the new opportunities to serve the US market from Mexico, that is, the German automobile industry (see also section 3 in this chapter).

Another example of the importance of national industrial policies for the growth of global value chains is the export-led industrialization policies in Taiwan, Singapore, Hong Kong and Korea and later China, which have contributed to the growth of Factory Asia. Here, policy instruments such as the establishment of export processing zones had a direct impact on the growth of global value chains. Still another example of the importance of national industrial policies for the growth of global value chains is investments in engineering education (Stiglitz 1996). During the 1980s and 1990s the governments in Taiwan, Korea and Singapore invested heavily in expanding engineering studies as a means of stimulating economic growth (Cimoli et al. 2009). Education policy was instrumental in transforming the industrial structure of these countries by facilitating knowledge transfer from foreign multinational firms and fostering the development of the domestic information technology (IT) sector. A similar pattern can be observed in India (Singh 2008).

2. GLOBALIZATION AND INTERNATIONAL SPILLOVERS

Increased global integration of politics, economics, finance and media provides a foundation for positive as well as negative international spillovers, which over time will induce sectoral changes in the medium and long term at national, regional and local levels. International spillovers may also have more short-term effects as illustrated by the international financial and economic crisis that followed after the bankruptcy of the investment bank Lehman Brothers in 2008, which led to a substantial decrease in international trade and an increase in investor's risk aversion. However, our focus here is primarily on the medium- and long-term effects of international spillovers.

In the international literature it is by no means clear, (1) how spillovers should be defined, (2) what it is that can spill over, (3) through which channels spillovers flow, and (4) between what economic agents the spillovers occur. If we start with what it is that can spill over, we think of news, information, ideas, knowledge, experience and similar intangible things, which can be embodied in human beings, real capital and software. Such spillovers can be intentional or unintentional and they can occur between economic agents in different ways, such as between individuals, between individuals and organizations, like firms and universities, and between organizations. Much of the spillover literature focuses on knowledge spillovers, which can be defined as 'the external benefits from creation of knowledge that accrue to parties other than the creator, occur at multiple levels of analysis, be it within or across organizations or networks' (Agarwal et al. 2010, p. 271).

There are many mechanisms that may convey spillovers (Breschi and Lissoni 2001):

- Formal interaction between economic agents based upon an explicit contract. Such interaction between economic agents may concern sales or purchases of goods or services including research and development (R&D) services, cooperation on R&D, joint ventures or strategic alliances, where knowledge spillovers are an unintended consequence of the interaction (Suseno and Ratten 2007). However, it may also concern an agreement where one economic agent purchases the right to use the other economic agent's proprietary knowledge. Even education and formal training falls under this heading.
- Media of all kinds.
- Another option is the active search for knowledge and so on by economic agents using all kinds of open sources, through business intelligence but also using different types of secret sources through industrial espionage.

- When it comes to disembodied knowledge and so on, the mechanisms include the mobility of employees between employers as well as the mobility of firms and other organizations.

The spatial reach of the different spillover mechanisms varies but with substantial variation. Informal networking and interaction between firms and between individuals mainly takes place at the local and regional level and thus, knowledge spillovers through this channel tend to be localized (Breschi and Lissoni 2006).¹ It includes the interaction of employees of different firms and other types of organizations in work-related issues, as well as privately and in different social, civic and professional organizations. Since a great deal of knowledge is embodied in people, it is natural to assume that the extent of knowledge spillovers is partly a function of the interaction between individuals with the relevant education, skills, experiences and competencies. Relations to suppliers and/or customers are also potential channels for knowledge, as highlighted by Kline and Rosenberg (1986), who stress the importance of interdependence and dynamic learning across firms and other economic agents within a linkage and feedback model of innovation. A further channel for knowledge spillovers and externalities is trade, with goods and services embodying knowledge (Verspagen 1997).

Formal networking and interaction is not in the same manner restricted to local and regional levels, and is thus a prominent mechanism for inter-regional and international knowledge spillovers (Dana 2001). For example, formal networking between firms in the form of formal research collaboration, as well as the exchange of goods and services, tends to take place on both national and international scales (Hoekman et al. 2009). Thus, knowledge spillovers from R&D cooperation that build upon network formation through link investments can take place between firms in different regions and countries. However, we must acknowledge that interaction tends to decrease with geographical distance and is also affected by the degree of affinity between countries. However, such interaction in recent decades has been increasingly supported by the growth of international air traffic and the expansion of the use of ICT technologies that allows for the rapid transmission of routine information, exchange of messages and increasing use of video conferencing.

Mobility of economic agents involves the mobility of labour including the mechanism of international returnees (Liu et al. 2010) as well as the mobility of firms, which are important channels for knowledge spillovers (Boschma et al. 2008). One important form of mobility of firms is foreign direct investments (Braunerhjelm and Ekholm 1998). There exist several more mechanisms, which support and facilitate spillovers of tacit as well as

codified knowledge and technology (Arrow 1994): (1) education, (2) seminars, conferences and trade fairs, (3) interactive communication channels (e-mail, the Internet, video conferences, and so on), (4) individuals designated to obtain and disseminate knowledge (for example, gatekeepers), (5) knowledge management within and between firms and other economic agents (Karlsson et al. 2004), and (6) reverse engineering and imitation.

It is important to note that even if each of these spillover channels can be seen as partly independent of each other, they are often linked to each other in different ways. For example, international cooperation in both the private and the public sector play an important role for knowledge spillovers (Archibugi and Coco 2004). An increasing number of partnerships among firms, universities and public research centres, as well as between individual inventors, researchers and research groups, is a clear indication of the growing importance of collaboration. Collaboration permits the partners to share and to acquire the expertise of each other, thus enriching the overall know-how. It often functions as a positive sum game, where the spillover advantages outweigh the disadvantages even if the advantages are not equally shared among the partners (Archibugi and Lundvall 2001).

Knowledge spillovers may occur vertically or horizontally. In the former case, where firms interact directly, it is obvious that knowledge may spill over vertically between firms when goods or services are delivered between firms. The spillover may be due to geographical proximity and then it covers both localization and urbanization economies. Links between firms also facilitate knowledge spillovers. Knowledge may also spill over horizontally between competing firms in geographical proximity to each other. This may be referred to as a Porter externality and corresponds to localization economies in a specialized cluster (Porter 1990). Considering the fact that knowledge spillovers to competing firms are unwanted effects for firms in a market economy, the clustering of competing firms tells us that there are advantages of co-location outweighing the negative effects of knowledge spillovers. Finally, joint ventures and strategic alliances may give rise to vertical and horizontal knowledge spillovers, depending upon which firms are involved.

Media, especially television programmes and the Internet, is increasingly available globally even though some countries try to partly censor access. Still the spillover potential is limited owing to language barriers and that much content needs to be interpreted which puts demands on the skills, education and experience of the individual economic agent. To what extent media is a source of ideas, inspiration and knowledge that inspires learning, innovation and entrepreneurship is an interesting question.

Active knowledge search is probably an important channel for knowledge spillovers given the substantial resources that firms, for example, in

the pharmaceuticals industry, spend on keeping track of relevant university research and competitors' research.

For international spillovers, we should not underestimate the importance of the mobility of economic agents involving the mobility of labour as well as the mobility of firms. This is in addition to the spillovers enabled through trade of goods and services.

A critical issue in analysing the effects of international spillovers in general and international knowledge spillovers in particular, is the geographic reach of spillovers. We have many reasons to believe that spillovers and, especially, knowledge spillovers are subject to spatial decay (Henderson 1996). Owing to 'the tyranny of distance' most human interaction takes place within the functional region and particularly in the locality where firms are located and where people live and work. The claim that geographical proximity matters for knowledge spillovers between firms is largely supported by the empirical literature (Karlsson and Manduchi 2001). Glaeser et al. (1992, p.1127) maintain that geographical proximity facilitates knowledge spillovers because 'intellectual breakthroughs must cross hallways and streets more easily than oceans and continents'.

Where does this leave us in terms of international spillovers? Are the international spillovers not significant and important? Audretsch and Feldman (2004, p.2718) have argued that 'there is no reason that knowledge stop spilling over just because of borders, such as a city limit, state limit or a national boundary'. In this connection, it may be relevant to go back to Palander (1935) who stressed that one of the most remarkable features of modern urban structures is the frequency and extension of the interactions carried out between different cities. These interactions presuppose good possibilities of communicating between cities – possibilities that have multiplied many times since the 1930s owing to, on the one hand, the ICT revolution that has lowered the marginal costs of information exchanges between different cities to levels very close to zero, and, on the other hand, the evolution of highway and air travel networks that significantly has reduced travel costs and travel times. Thus, international and inter-regional interaction costs have been reduced substantially in recent decades, creating the necessary and sufficient foundations for a global knowledge-intensive network economy (Karlsson 1994). Against this background, we may ask, to what extent it is true that knowledge spillovers are limited in scope and spatial reach?

Relating to the above discussion of global value chains, we now want to stress two channels for knowledge spillovers: intra-firm and inter-firm spillovers, respectively. Intra-firm knowledge spillovers imply that knowledge spills over from one organizational unit to another within a firm (Ko and Liu 2015). Inter-firm knowledge spillovers imply that knowledge spills

over from an organizational unit in one firm to an organizational unit in another firm. The growing use of global value chains has been associated with a rapid growth in the number of multinational firms as well as in the number of affiliates to these firms. The effect of these two developments has been a very rapid increase in the number of international intra- and inter-firm links for the delivery of goods and services, for negotiation about such deliveries, for joint product development, for joint R&D, and so on. This implies that not only the potential for international knowledge spillovers has increased substantially but also the volume of actual knowledge spillovers. When international competition and the volume of international knowledge spillovers increase, we expect large effects in the form of sectoral changes in all the countries and regions involved. We discuss this in the next section.

3. GLOBALIZATION AND SECTORAL CHANGES

If we study how international trade patterns have developed over time, we can observe that an increasing share of the international trade has consisted of (1) an exchange of similar products, that is, horizontal intra-industry trade, and (2) trade in intermediate inputs, that is, vertical intra-industry trade (Fontagné and Freudenberg 2002). Two decades ago authors analysed the use of intermediate inputs in total production in Canada, Japan, the UK and the US, and found that the manufacturing sectors in all four countries were externally orientated, with the US and Canada becoming increasingly so between the 1970s and the 1990s (Campa and Goldberg 1997). In addition, they show that, during the 1980s, US manufacturing became more reliant on imported intermediate inputs.

Hummels et al. (2001) measure the importance of ‘vertical specialization’ in gross exports for ten Organisation for Economic Co-operation and Development (OECD) countries both together and individually, where vertical specialization measures the use of intermediate inputs from country X in the production in country Y. The measure acknowledges the use of imported inputs in sequential stages of production located in different countries. They show that global production sharing grew by 30 per cent between 1970 and 1990. Also, roughly 30 per cent of the growth in world trade could be explained by the expansion of global value chains. Furthermore, they show that 50 per cent of the growth of Canada’s exports as a share of total output can be explained by global production sharing. Similar results were found for Mexico, Taiwan and the Netherlands.

As the global value chains have become more important the domestic content of exports has been decreasing. Since 1975 the share of domestic

content of exports in regions such as Europe, North America and East Asia on average has declined by 10–15 per cent (Johnson and Noguera 2012). Even studies using more advanced methods that, for example, avoid double counting have confirmed that foreign value-added as a percentage of total exports has increased since 1995 (Koopman et al. 2010). On average, foreign value-added accounts for 20 per cent of gross exports. However, we may observe that in countries such as Singapore and Mexico, foreign value-added accounts for approximately 60 per cent of gross exports. Koopman et al. (2014) decompose domestic value-added in final goods and domestic value-added in intermediate goods. On average, domestic value-added embodied in final goods accounts for one-third of gross exports of final goods.

Although the pace of global integration has accelerated in recent decades, the distribution of production activities across the world remains highly uneven. A general result of applying a gravity model is that bilateral trade flows increase with income similarity and decrease with geographical distance (Anderson and Wincoop 2004). An interesting question against this background is whether the patterns of global production sharing are consistent with the predictions of the gravity model? It turns out that geographical distance continues to influence where production activities are located as well as the level of bilateral trade between countries (Johnson and Noguera 2012). Thus, global production sharing seems to have made geographical distance more important instead of less, which is interesting against the background of the ICT revolution.

The level of international interaction is analysed by Ghemawat and Altman (2014) using the DHL Global Connectedness Index. They find that the average distance crossed by trade and investments flows between two randomly chosen countries is less than half the average distance between country pairs. This shows that the world is far from flat (Friedman 2005).

Analysing the three macro-regions of Europe, East Asia and North America, Johnson and Noguera (2012) find that there is greater production sharing at the regional level than at the inter-regional level. Greater production sharing implies, for example, that firms located in the EU rely more heavily on value-added produced in other EU countries than on value-added produced outside the EU. They also find that there has been a decline in the distance travelled by the intermediate goods, implying that global value chains tend to span countries mainly within the macro-region. Thus, global production sharing is more regional in nature.

As an example, we may note that foreign value-added as a share of exports varies substantially across macro-regions. We find the highest rates of regional integration within the EU. Also within the EU, manufacturing

is today concentrated inside the so-called ‘manufacturing core’ comprised of Austria, Czech Republic, Germany, Hungary, Poland and Slovakia. This manufacturing core has increased its share of EU manufacturing from 34.5 per cent in 1995 to 42.6 per cent in 2011 (Stehrer and Stöllinger 2015).

In East Asia, the industrial linkages among countries in the region have given rise to what is known as Factory Asia. It has been claimed that the growth of Factory Asia is the result of production fragmentation owing to advances in ICT (Baldwin and Forslid 2013). Asian countries account for an increasing share of the total manufacturing value-added in the world (ADB 2013). Furthermore, supply chain trade within the region accounts for a significant share of total exports (Baldwin 2013). We note that this trend holds across sectors such as machinery and equipment, transport equipment, basic metals, and textiles, leather and footwear.

In North America, there is a high level of trade integration between the US, Canada and Mexico. However, the trade in general between Europe and North America exceeds the intra-regional trade flows within North America (Feenstra and Taylor 2014). An example of a regionally concentrated value chain in North America is the auto sector. The Mexican, Canadian and American auto-manufacturing industries are highly interdependent as more than 90 per cent of Mexican exports in the automotive industry are destined for the US or Canada (Sturgeon et al. 2008).

Global value chains and the associated fragmentation of production induce firms to change their internal organization (Alfaro et al. 2015). Firms have an incentive to fragment production into two or more stages and allocate one or several stages to foreign locations if they can benefit from lower marginal costs in foreign locations. Fragmentation implies higher fixed costs owing to the need to establish various service links to coordinate activities across locations (Jones and Kierzkowski 2001). However, by taking advantage of increasing returns to scale, firms can reduce their total costs by relocating one (or several) stage(s) to low-cost locations.

The location of production units in distant places represents such a significant development in the geography of production that researchers talk about the ‘next industrial revolution’ (Blinder 2006). Due to the growth of global value chains and the resulting demand for service links, services now account for approximately half of the total value created in global value chains (Elms and Low 2013). As a result, researchers have increasingly begun to analyse the firm not only as an economic agent but also to analyse the specific activities of the firm using a ‘task-based’ view of the firm. This new approach goes beyond identifying how inputs are transformed into outputs and focuses on the specific units of ‘work activity’ or tasks that make up the global production networks.

Central in these new paradigms is the introduction of ‘tasks’ as the units of work activity that produce output. Traditionally the production process was perceived as a direct mapping from factor inputs to output. In recent thinking, output is generated as a result of a set of ‘tasks’ which are to be completed by various combinations of production factors. So rather than a direct mapping from labour and capital inputs to output, factors map into tasks, which map into output. (Timmer et al. 2013, p. 5)

Los et al. (2013) use input–output analysis to show that global value chains have contributed to the increase in demand for skilled workers in advanced economies. However, input–output data may miss important details regarding the organization of firms at the task level (Sturgeon 2012). There is also a substantial body of work on the geographic orientation of the production of individual products (Feenstra 1998; de Backer et al. 2013). However, product level studies, while informative, do not represent a feasible or cost-effective way to increase our understanding of globalization at the level of the tasks. These studies normally require extremely detailed data along with deep industrial knowledge (Sturgeon 2012). However, a task-based view is useful since the activities that take place in foreign locations will influence what ‘tasks’ will be carried out in the home country of multinational firms. This has implications for factors such as labour demand and employment composition in the home country. We may note that when German multinationals locate production overseas, this leads to an increase in the demand for workers capable of performing non-routine tasks in Germany (Becker et al. 2013). Not only does this lead to an increase in the demand for skilled workers, but it also implies a shift in the educational level of workers towards more educated employees.

4. REGIONAL SPILLOVERS

Spillovers caused by globalization do not influence all regions the same way; even within small countries the impacts may differ considerably. The focus on global competitiveness, in EU strategies such as EURO 2020 or the Lisbon strategy often has detrimental impacts on regional convergence and equalization (Mancha-Navarro and Garrido-Yserte 2008) Most obviously, sectoral changes and the alteration of the international division of labour caused by globalization have a clear spatial dimension. These have significant implications for employment, regional value-added and, most importantly, for the future, development perspectives for the region. Within the national context these may be of limited importance, but often challenging for the local economy. Furthermore, the increased focus on

global competitiveness and efficiency has highlighted the need for cost reduction and concentration not only in manufacturing but also in the public and private service sectors, with adverse effects on employment opportunities and income in the peripheral and non-urban regions. The processes of inter- and intra-regional convergence and disparities must be seen in a broader context.

During the past two decades, the regional landscape in Europe has changed. The focus on the nature of the regional issue has altered, partly as a consequence of internal changes in Europe and partly as a consequence of alterations in the global economic and political system. After a period of focus on processes of convergence and divergence within and between countries, attention has again been directed more towards the urban–rural implications of these processes (European Union 2011). The drivers of change discussed in previous sections of this introduction will affect the urban–rural and city-size issue, as a supplement to the traditional focus on inter- and intra-regional convergence and divergence, as well as the economic balance between nations. In particular, the size of a city and the functional division of tasks has always been a central issue in regional development and spatial economics. These concepts have to some extent re-entered the agenda in the context of the processes of economic transformation and specialization. In the aftermath of the economic crisis, countries and regions especially in Southern Europe have suffered due to declining economic activity, but the consequences are visible all over Europe, and mainly in weak regions not suited to the new knowledge-based growth industries.

The trend towards regional economic convergence has been interrupted, not only in a regional perspective, but also country-wise, owing to the financial crisis and the European debt crisis. Parallel to these, mainly macroeconomic-induced, trends the implications of the new division of economic tasks on different types of urban regions, has received growing attention. Also, regions with smaller urban agglomerations, the so-called ‘second tier’ cities and city-regions (ESPON 2013; van Oort 2014) have been affected, as well as smaller city-regions. The latter type of cities and city-regions are often the victims of the combined adaptation in the private and public sectors to the new economic order. These types of city-regions can be classified somewhere between the ‘Industrial semi periphery’ and a ‘Semi periphery administrative and service region’ (see Heidenreich 1998), but often of a considerable smaller size than cities, in particular in the Nordic countries.

In this perspective, large areas in many countries often face these adverse effects from spillovers. These often create a kind of ‘spill-back’ situation leading to a vicious circle of demographic changes like an aging

population and outmigration followed by downsizing of the public and private services. Hence the phrase ‘Periphery of the periphery’, characterizing the most disadvantaged regions in Southern European countries with traditionally huge regional disparities, is now also relevant in North-Western Europe and in parts of the Nordic periphery, even in a geographical small country like Denmark.

‘Unintended spillovers’ often have reinforced this tendency; recent examples are structural reforms in the public sector implemented or discussed in many European countries. The forces of globalization can also generate pressure on sectors not directly affected. One example is the need to increase efficiency also in non-market sectors. This has recently become evident in parts of the public sector not facing direct threats of competition. Unintended spillovers are the concentration of public services or educational institutions, typically at the expense of the peripherally located units. This has resulted in a heightened interest in the regional distribution of economic activities and, more generally, the issue of the quality of life and living conditions as a core element of the inter- and intra-regional balance in the society. Amalgamation or cooperation between regions is another way to cope with this challenge, the latter also in a cross-border perspective to compensate for individual weaknesses.

Furthermore, the regional and national dimensions have become factors in fields which for many years almost undisputedly have been governed on the supranational European level; for example, competition policy and more recently trade policy as proved by the interrupted process of signing and ratification of the Canadian European Trade Agreement. In general, it seems that the increased awareness of inter-regional disparities in Europe as well as in other mature industrial societies have reinforced conflicts of interest along a centre–periphery and an urban–rural dimension with serious implications for the ability to handle economic and social tensions in nation states’ regional cooperation frameworks such as the EU.

5. THE CONTENTS OF THIS BOOK

This section attempts to provide a context for the 11 remaining chapters in this book and to summarize them. Broadly we can group the chapters into four sections in line with the volume’s title: (1) general aspects of globalization; (2) sectoral changes in the manufacturing sector, and especially the ICT sector; (3) implications for regions, for example, in terms of transformation of the labour market and the general development; and (4) a specific focus on implications on cross-border regions.

Part I starts with a chapter by Ossi Pesämaa and Martin Svensson

(Chapter 2), where they both theoretically and empirically investigate differences in governance and ownership structures between Western and Eastern economies. This chapter shows that despite integration and globalization there are cultural differences that ought to be considered when cooperating across borders. Chapter 3 by Gary Cook, Yevgeniya Shevtsova and Hans Löf, focuses on firms that frequently face these cultural differences as they operate frequently across borders. They investigate productivity and innovativeness among British and foreign multinational firms operating in the UK, and especially consider the impact of technology spillovers as a driver of those forces. The last chapter of this part (Chapter 4) is a literature review by Trudy-Ann Stone discussing the location of such multinational firms and how distance affects those decisions and subsequent foreign direct investment (FDI) flows.

Part II contains two chapters that more carefully examine sector-specific transformations. Chapter 5 is a case study by Makoto Hirano, Mitsuhiro Kurashige and Kiyonori Sakakibara. They conduct the case study on a Japanese manufacturing firm that has restructured its operations successfully over the years to survive the increasing competition caused by globalization. By interviewing managers at that firm, they attempt to construct a best practice case that managers can learn from. Chapter 6 is a literature overview of the development and transformation of the ICT sector by Ola Olsson.

Part III contains chapters which focus on the implications globalization has on different regions. Chapter 7 by Amjad Naveed, starts this section by discussing the role of knowledge-based strategies for regional growth. He especially highlights the role of creative workers, and entrepreneurs as important sources for growth in small- and medium-sized cities.

Chapter 8 by Georgeanne M. Artz, Zizhen Guo and Peter F. Orazem has two purposes. First, they summarize the literature on firm entry and survival in rural areas. Second, they examine the importance of human capital for this process by utilizing data for the US states Iowa and New Carolina. They find that while observable factors are good at explaining firm entry, the unobserved components are more relevant for location choice.

This is followed by a case study on the Turkish region Kayseri, written by Ozan Hovardaoglu (Chapter 9). He interviews representatives of non-governmental organizations (NGOs), municipal organizations and family firms to examine the development of the Kayseri region overall and especially its labour market transformation. In this region, there have been large generational changes recently, and that has caused tension and conflicts between the actors in a time when globalization and other large forces have been prevalent.

This section of the book is concluded by Chapter 10, which is a study

of commuting patterns by Michael Olsson. He investigates if parameters estimated earlier to indicate distance sensitivity among commuters are constant over time by extending the previously used time-frame. He also extends the model to incorporate wages and housing values. The findings suggest that the extensions add very little in explanatory power, but the parameters do change drastically over time reflecting infrastructural changes.

Part IV of this volume concentrates specifically on border regions. Chapter 11, by Tobias Arvemo and Urban Gråsjö examines employment and other types of economic activity in Swedish regions bordering Norway and Denmark. They find that the cross-border activities constitute a large share of the economies in border regions, especially if the Swedish region is rural but close to an urban region outside of Sweden. Which is the case with some of the western parts of Sweden that are located approximately 90–120 minutes' drive from Norway's capital Oslo.

The concluding chapter of the book is Chapter 12, written by Nino Javakhishvili-Larsen, Andreas P. Cornett and Martin Klatt. They examine institutions in the Rhine-Waal region (Germany and Netherlands) that are involved in Interreg projects to develop a conceptual model of cross-border institutional thickness. By utilizing the information about the Rhine-Wall region they also study cross-border interactions as potential human capital creators. The results indicate that human capital is currently created in more local networks that are not strongly linked to the wider cross-border cooperation.

NOTE

1. However, we can observe that informal networking and interaction between university scientists in principle is global.

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