

Chapter 1

Economic performance and framework conditions for innovation

This chapter gives a short overview of Slovenia's macroeconomic performance and highlights features of its economic development, including its increasing integration in European and global markets – with increasing openness to international trade and foreign direct investment – and sketches some salient features and patterns of structural change in production and trade. It also addresses the current state of important framework conditions for innovation. It concludes with a discussion of the potential role of innovation in Slovenia's economic development in the longer term.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Slovenia's integration and accession to the European Union have deeply influenced the country's economic development, with a profound and lasting impact on its institutional framework and on policy making, not least in the area of science, technology and innovation. Overall, Slovenia has performed well – especially until the onset of the recent financial and economic crisis in 2008 – and has been able to maintain its leading position among former transition and new EU member countries. However, recent developments – especially a sharp downturn in the recent crisis – shed some doubt on the sustainability of its position. The crisis hit Slovenia particularly hard and exposed the vulnerability of parts of its economy. Moreover, for various reasons Slovenia has found it harder than other countries to embark on a dynamic path of recovery and has suffered some loss of competitiveness.

1.1. Macroeconomic performance and productivity growth

Slovenia has very successfully managed its transition to a modern, market-based economy. This process differed – both in the conditions at the start of the process and the approach taken for structuring and implementing the process – from that adopted in other transition economies in central and eastern Europe. All along, Slovenia has remained the most prosperous of these economies and has led this group in terms of gross domestic product (GDP) per capita.¹

For more than a decade preceding the financial and economic crisis that started in 2008, Slovenia recorded strong economic performance. Between 1998 and 2008, GDP per capita grew at an average annual rate of 4.2%, far above the euro area average. Among European OECD members Slovenia was outperformed by only two other transition economies, Poland and the Slovak Republic. Strong growth resulted in rapid catch-up in GDP per capita relative to OECD and EU averages. In 2007, Slovenia reached 81% of the EU15 average, up from 67% in 1997 (in current purchasing power parity terms).

Gains in labour productivity – 4.0% a year – were the major driver of per capita GDP growth during 1997-2007. The rise in labour productivity was attributable to efficiency gains, *i.e.* to growth of total factor productivity (TFP) by an annual 2.2%, and to a somewhat lesser extent to capital deepening (1.9%). Innovation, through the absorption of advanced technologies, production methods and managerial practices from more advanced countries, has contributed to TFP growth, helped by deepening integration into the global economy (OECD, 2009a).

The process of catch-up was at least temporarily interrupted by the global financial crisis. GDP contracted by about 8% in 2009, the sharpest decline among OECD member countries. Only Estonia, which joined the Organisation later, was hit harder. Other small open economies such as Finland and Ireland were also strongly affected. Slovenia's industrial employment, which had recorded impressive gains between 2005 and 2008 following the transition period, reached a peak of 816 000, fell to 793 000 in 2008 and to 772 000 in 2009.

After six consecutive quarters of decline, Slovenia's GDP started growing modestly in the second quarter of 2010 owing to increasing foreign demand and restocking. In contrast, domestic demand – both consumption and in particular investment – continued to decline. After a spectacular fall in 2009, industrial production gained momentum in

2010. Output growth was most pronounced in export-oriented manufacturing industries such as electrical equipment and cars and the trade deficit lessened (Vidovic, 2011).

Like other national and international research institutions, the Vienna Institute for International Economic Studies highlighted the importance of developments in the European Union for sustained improvement in Slovenia's economy. High unit labour costs may reduce Slovenia's export competitiveness (Vidovic, 2011).

The recovery – which had been mainly sustained by the external sector – almost came to a halt in the third quarter of 2011 (OECD, 2011b). Unemployment has risen to close to 8.5% while inflation remains low. Real GDP growth is estimated to have reached 1.0% in 2011 and is projected to remain very weak in 2012 (0.3%), with sluggish domestic demand and a lack of support from exports. The deleveraging of the corporate sector and a weak external environment is likely to weaken growth throughout the first half of 2012, with both consumption and investment being flat. Employment is projected to fall until the fourth quarter of 2012, when the unemployment rate is expected to peak. Activity is projected to pick up again in late 2012, and GDP growth is projected to reach 1.8% in 2013. Risks to the projections are predominantly on the downside.

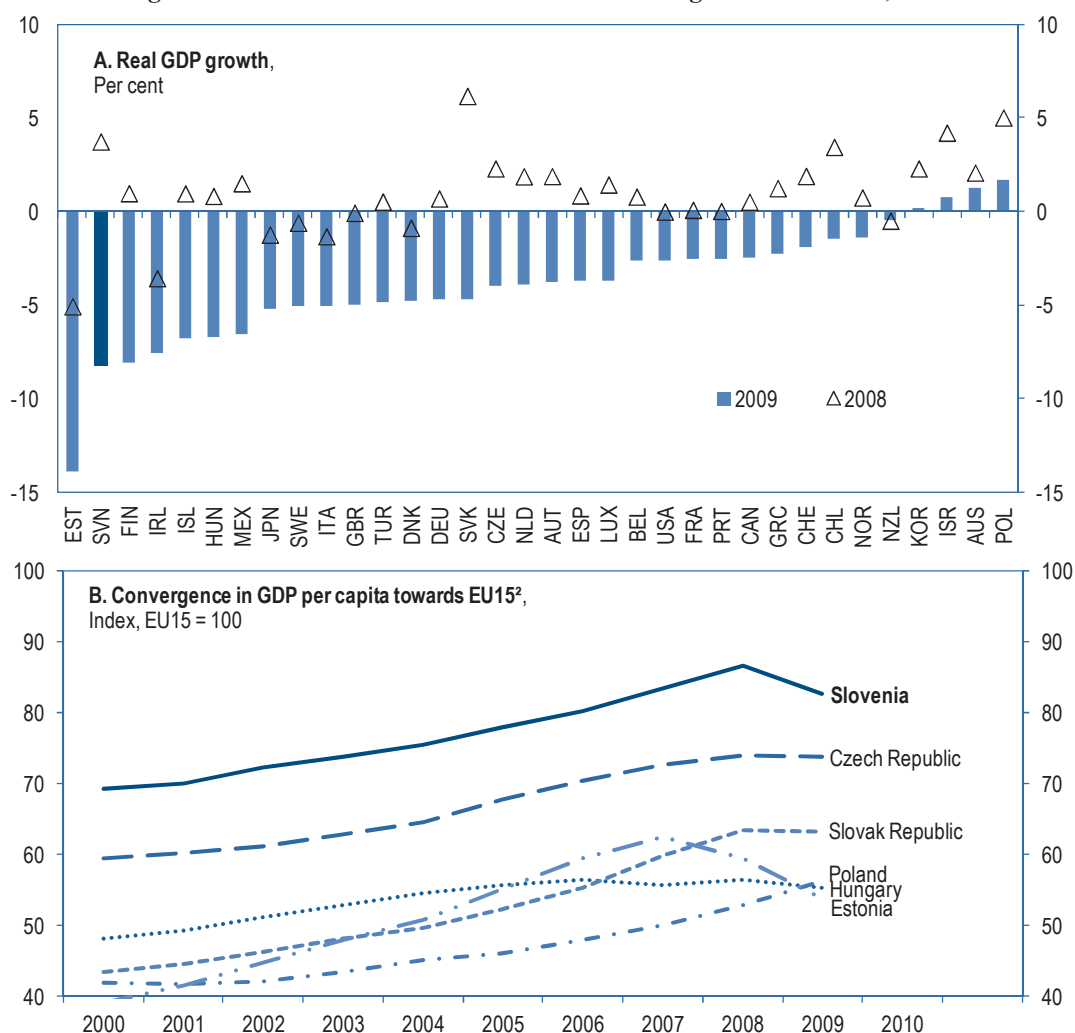
Some recent developments have shed doubt on the viability of further structural reforms that are needed to revive growth and boost innovation. For example, the “Mini Jobs Act” – which aimed to regulate student work and increase the flexibility of temporary labour contracts (for more detail, see OECD, 2011a) – was voted down in a referendum in 2011.

Whatever the short-term prospects, the recession led to a partial reversal of recent gains in convergence (see Figure 1.1 on next page) *vis-à-vis* the EU15. Medium-term projections by national and international institutions predict a slowdown of potential growth for the next five years as compared to the pre-crisis period (IMAD, 2010; IMF, 2011).

As indicated above, the sharp contraction of economic activity was largely due to a decline in Slovenia's manufacturing sector, triggered by a collapse in external demand. This is unsurprising for a small open economy deeply integrated in international markets, and Slovenia is one of the European economies with the highest trade (exports plus imports) to GDP ratios. However, the downturn was aggravated by structural factors, notably an unfavourable composition of exports, which shows a relatively large share of low value-added goods and services, the segments that were hardest hit by the crisis.

Performance in the wake of the crisis differed markedly across sectors. Automotive components were severely affected but some high-technology manufacturing goods, such as medical equipment and pharmaceuticals, continued to grow. It has been noted that during the period of strong economic growth, the Slovenian economy did not sufficiently restructure towards activities with high value added per employee. As the crisis “has the biggest impact on lower-tech and labour-intensive industries, Slovenia is now faced with intensive restructuring of the economy. However, this involves mostly the loss of labour-intensive jobs and is not matched by the creation of new jobs” (IMAD, 2010, p. 20). Its specialisation in the export of low-valued added goods and services is likely to have increased Slovenia's exposure to global cyclical downturns – and perhaps limited productivity gains in the traded goods sector.

Figure 1.1. Effect of the crisis on GDP and convergence in Slovenia, 2009



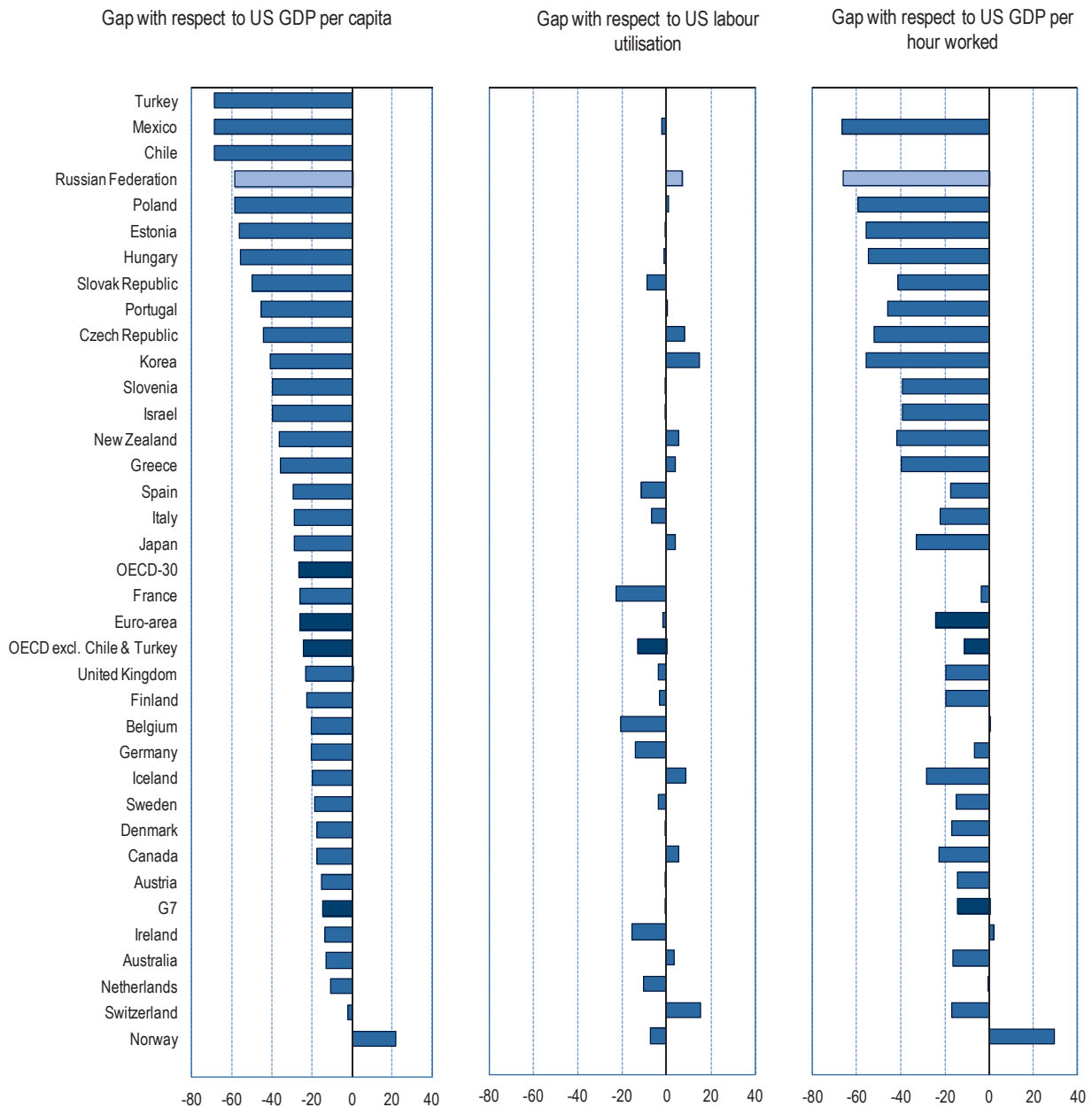
Notes: Real GDP per capita in US dollars at constant prices and constant purchasing power parities.

Source: OECD (2011a, p. 19), *OECD Economic Surveys: Slovenia*, based on OECD (2010), OECD National Accounts Statistics and OECD Economic Outlook: Statistics and Projections (databases), December, <http://dx.doi.org/10.1787/888932369011>.

While many Slovenian firms, mainly in the automotive and machinery industries, have become second-tier or third-tier suppliers of European multinational enterprises (MNEs), most have remained at the lower-medium- or medium-technology level. A smaller number of firms have found a – sometimes larger, sometimes very small – niche in higher-medium or even high-technology segments, such as instruments. Moreover, a considerable share of Slovenian firms suffer from low capitalisation, small size, a low-to-medium technology portfolio, dependence on a few big customers, underdeveloped networks with partners, suppliers, customers and knowledge producers, and finally comparatively low levels of labour productivity. During the crisis, nominal unit labour costs rose, as productivity declined sharply. Beyond the cyclical movement, unit labour costs in manufacturing have reached a high level compared to countries such as the Slovak Republic. High productivity growth is an important factor in regaining and strengthening competitiveness.

Figure 1.2. Income and productivity levels, 2009

Percentage point differences with respect to the United States

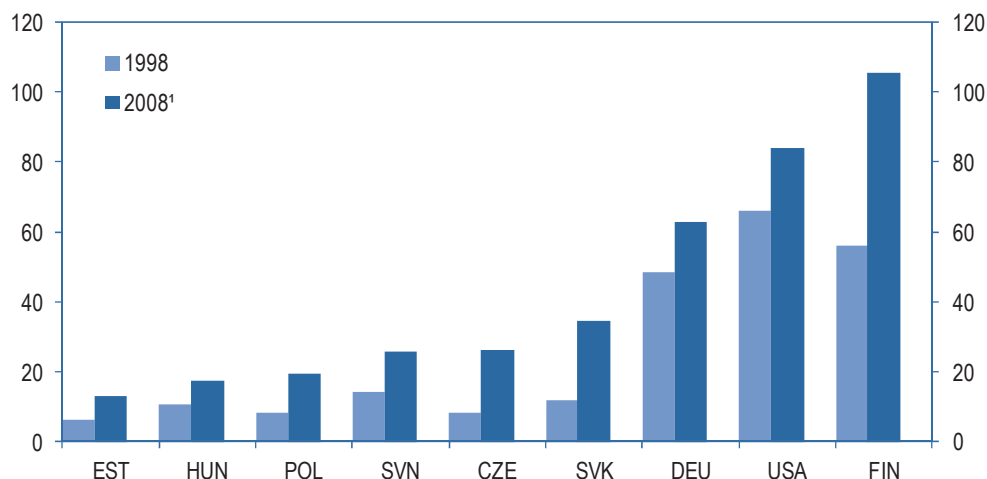


Note: Labour productivity and income levels are calculated using GDP at current prices and converted to US dollars using 2009 purchasing power parities. Labour utilisation is measured as total hours worked per capita. Labour productivity and labour utilisation level estimates for Israel, Slovenia and the Russian Federation are based on hours worked for 2008. The euro area includes Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, the Slovak Republic, Slovenia and Spain. France includes overseas departments.

Source: OECD Productivity Database, August 2010, www.oecd.org/statistics/productivity.

Figure 1.3. Productivity levels in manufacturing

Value added per worker in constant prices, EUR thousands

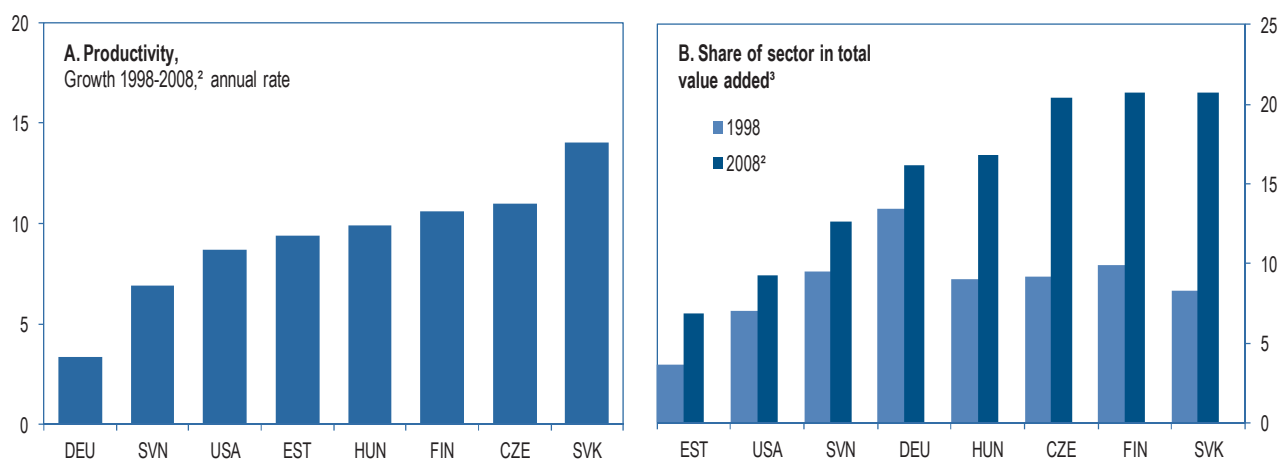


1. 2007 for the United States.

Source: OECD (2011a, p. 96), *OECD Economic Surveys: Slovenia*, based on OECD STAN Database for Structural Analysis, December 2010, <http://dx.doi.org/10.1787/8889323695>.

Figure 1.4. Productivity in high-technology sectors¹

Percentage



1. Value added in constant prices divided by total employment. Includes medium-high technology manufactures. No data available for Poland.

2. 2007 instead of 2008 for Hungary and the United States.

3. Excluding real estate activities.

Source: OECD (2011a, p. 97), *OECD Economic Surveys: Slovenia*, based on OECD STAN Database for Structural Analysis, December 2010, <http://dx.doi.org/10.1787/888932369562>.

Although Slovenia performed outstandingly during the decade prior to the crisis, it is still far from the most advanced OECD economies in terms of GDP per capita. This is almost entirely attributable to lagging labour productivity measured as GDP per hour worked (Figure 1.2), despite good productivity growth and rapid convergence towards the OECD average since the early 1990s. The most recent OECD economic survey of Slovenia finds a gap of 30% in aggregate productivity *vis-à-vis* the upper half of OECD countries. In 2008 manufacturing productivity was still only around one-third of the euro area average. It lagged far behind Finland and Germany, but also trailed, by a much smaller margin, the Slovak Republic and the Czech Republic (Figure 1.3). A comparison with the latter two indicates considerable scope for Slovenia to increase both the size and efficiency of its knowledge-intensive and higher-skill manufacturing industries. The same can be said of network industries (OECD, 2011a, p. 96ff; Figure 1.4).

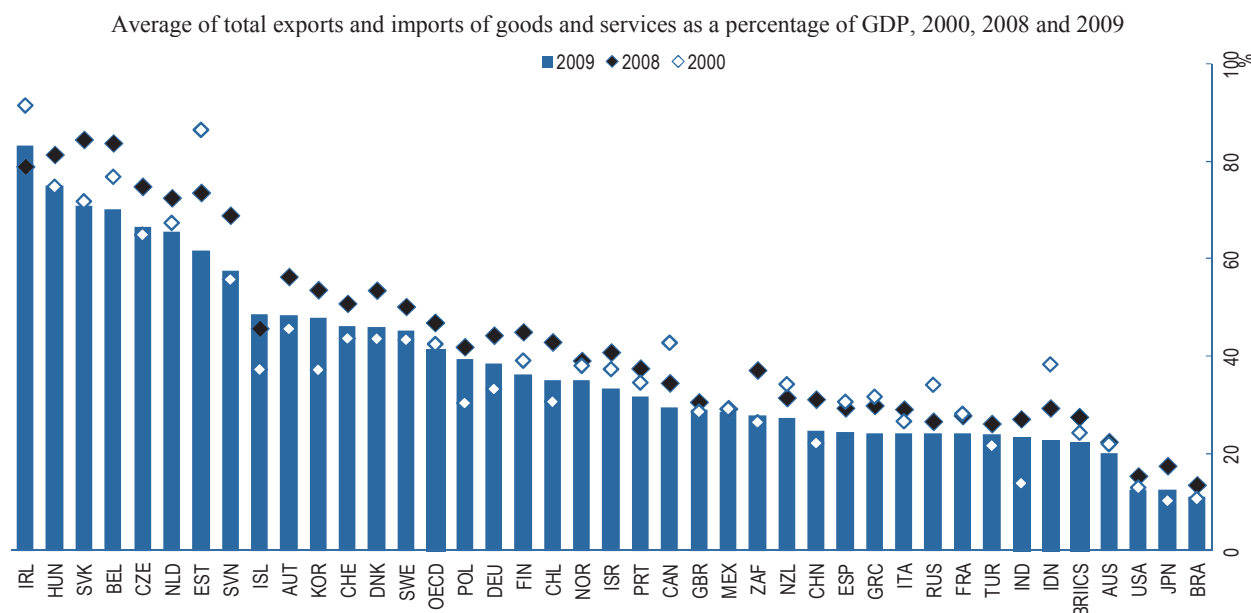
While there are also other ways to boost innovation, increased inward foreign direct investment (FDI) could help to increase innovation activity and TFP. In a small country this channel should not be neglected, but it requires greater attention to the absorptive capacities of domestic firms. Other framework conditions such as efficient product and labour markets, low barriers to entrepreneurship, and enhanced competition, including in key service sectors, can also play an important role in fostering innovation and TFP growth. In the past, productivity growth varied widely across sectors of the Slovenian economy. While average productivity growth in manufacturing was over 6% a year during 1997-2007, and medium- and high-technology manufacturing grew even faster, this performance was not generally matched by the services sector. As the services sector accounts for an increasing share of aggregate employment, it will need to become more efficient if Slovenia is to maintain high productivity growth. This has immediate implications for innovation policy which is still largely oriented towards manufacturing.

1.2. International trade and foreign direct investment

For a small and open economy, in particular one that has not reached the world technological frontier, foreign trade and cross-border direct investment flows are of critical importance for economic growth and development (Keller, 2004). The evolution of the world economy – including increasing globalisation – provides new opportunities but also requires continuous adaptation in order to stay abreast of international competition. Recent economic developments, not least in Europe's southern periphery, have highlighted the importance of maintaining competitiveness. International linkages through trade and FDI are also important for a country's innovation performance since they are channels of knowledge flows both directly as well as indirectly through the transfer of knowledge embodied in imported goods.

International trade

Over the past two decades, Slovenia has become solidly integrated in international, mostly European markets. Its economy suffered a setback at the onset of the crisis as the share of external trade temporarily dropped by about 11 percentage points, a much sharper decline than in the EU on average (IMAD, 2010). Yet, Slovenia's participation in international trade continues to be high. In 2009, exports plus imports were 57.5% of GDP, down from a pre-crisis share of close to 68.9% in 2008, but still above the 55.7% of GDP in 2000 (Figure 1.5). On this measure Slovenia is far more open than the OECD on average, and also more open than other small open economies in Europe such as Austria, Switzerland, Denmark and Sweden.

Figure 1.5. Trade openness

Source: OECD (2011c), *Science, Technology and Industry Scoreboard*, based on OECD, National Accounts Database, June 2011; International Monetary Fund, *World Economic Outlook* and Balance of Payments Databases, May.

Foreign direct investment

Foreign direct investment has multiple effects and can play a critical role in a country's innovation performance. It can be expected to boost host countries' productivity performance through a number of channels. Some of these directly affect innovation activity in the host country. For example, firms receiving FDI often achieve efficiency gains through the transfer of technology, better organisational and management practices, improved human resources, or better integration in supply chains and international markets. In addition, "knowledge spillovers" may lead to improved efficiency in other domestic firms. This may occur in the same sector, or in upstream or downstream firms (suppliers or customers), or in regional innovation networks involving foreign-controlled firms. FDI can also stimulate innovation indirectly, *e.g.* via increased competition. Overall, the available evidence seems to indicate that FDI boosts productivity through a direct effect on enterprises that are started up or acquired rather than through indirect spillover effects.

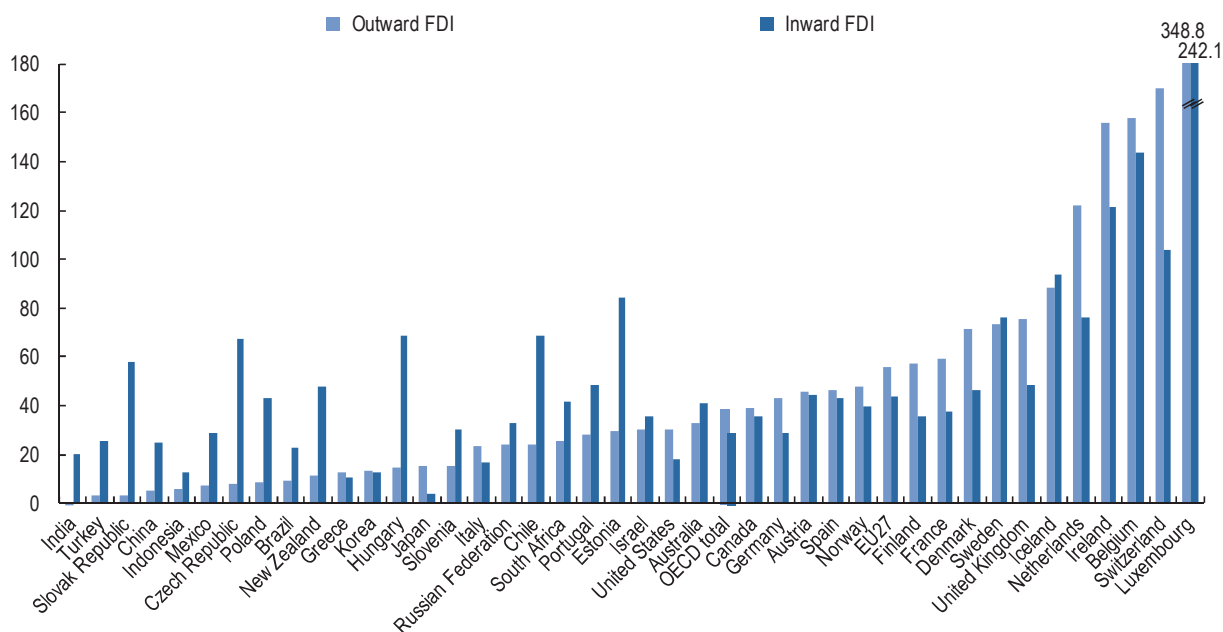
Some new EU member states, for example, have in fact developed some characteristics of a dual economy, in which highly productive subsidiaries of MNEs co-exist alongside largely low-productivity domestic SMEs which often serve unsophisticated local demand (OECD, 2008a). Success in realising positive spillover effects seems to be related to the absorptive capacity of domestic firms. For this reason, supportive measures may be needed both to enhance this capacity and to embed subsidiaries of MNEs more organically into the domestic economy. There is now a considerable amount of empirical evidence concerning spillovers from FDI to the host economy (Bijsterbosch and Kolasa, 2009; Crespo and Fontoura, 2007; Damijan *et al.*, 2008; Hanousek *et al.*, 2010; and the discussion in OECD, 2011a). Outward FDI linking the economy with knowledge centres and innovation networks abroad can also play an important complementary role in gaining access to cutting-edge information and technology.

In contrast to its high level of international trade, Slovenia has remained one of the EU countries with the lowest levels of internationalisation in terms of inward FDI, even though the stock of inward FDI to Slovenia has grown more than tenfold since the beginning of the transition process (to almost EUR 11 billion by the end of 2008).² However, having started from a position similar to that of other central and eastern European countries in the mid-1990s (with a stock in the range of about 10% of GDP), Slovenia subsequently received much less FDI. This can be partly ascribed to the absence of large-scale privatisations in network industries such as energy and telecommunications. Yet, this does not explain all of the difference, as Slovenia's share of FDI is much lower in all sectors of the economy (except for financial intermediation), including manufacturing (OECD, 2011a). In some central and eastern European countries FDI made it possible to shift production and export structures and become strongly integrated in European production networks.

Many reasons are put forward in attempts to explain weak inflows of FDI.³ Some of them indicate the need for further improvements in the broader enabling environment (OECD, 2011a). The labour market⁴ and higher education institutions seem to be critical weaknesses and affect the environment for FDI. Low contestability, *e.g.* in key network industries, also appears to deter inward FDI.

Figure 1.6. FDI stocks

As a percentage of GDP, 2010 or latest available year



Source: OECD Factbook 2011-12. Statlink: <http://dx.doi.org/10.1787/888932504158>

The past decade has seen a surge in FDI in research and development (R&D) worldwide (OECD, 2011c). In contrast to this international trend and the experience of a number of small countries in Europe and elsewhere, Slovenia does not seem to have a comprehensive approach or strategy for inward and outward investment in R&D. It could adopt measures to attract foreign R&D-related investment to complement existing innovative clusters, for example. High-quality universities and public research organisations (PROs) can play an important role in attracting investment in R&D. For outward investment, a proactive strategy might include helping domestic firms to establish an R&D foothold abroad.

1.3. Structural change: Production and international trade

Production

At 2.4% (2008) Slovenia has a higher share of agriculture in total value added than the euro zone average (1.8%) but a lower one than new EU member countries (e.g. 4.3% in Hungary). Yet, at 33.9%, the share of industry (including mining and quarrying) is high by international standards. It is only slightly lower than in formerly centrally planned central and eastern European economies such as the Slovak Republic and the Czech Republic (both with shares around 38%) and Russia (around 36%) but higher than in OECD countries that have retained a strong industrial core, such as Austria (30.7%) and Germany (29.8%). The industry shares of the latter are well above the euro zone average of 26.5%. The share of services is 63.8%, ahead of the Czech Republic and Slovak Republic (59.9% and 58.8%, respectively), but below the euro zone average of 71.7%.

Table 1.1. Value added and productivity by sector¹

	Value added per worker (% growth) ²	Share in total value added ³ %		Share in total output ³ %		Value added per worker (EUR)	
	1998-2008	1998	2008	2000	2008	1998	2008
Business sector ⁴	3.8	74	79	82	85	16 476	23 974
Agriculture	2.4	4	2	3	2	4 866	6 166
Manufacturing	6.0	27	29	39	38	14 322	25 606
High and medium-high technology manufactures	6.9	10	13	15	17	16 432	32 093
Low technology manufactures	4.8	11	8	14	10	12 467	19 886
Construction	1.6	7	8	10	12	16 322	19 103
Utilities	4.0	3	3	3	3	33 687	49 708
Post and telecommunications	3.8	2	3	2	2	32 106	46 705
Transport and storage	3.1	5	5	6	6	17 416	23 731
Wholesale and retail trade	3.6	13	13	10	11	15 422	21 929

1. Using value added and gross output in constant prices, and total employment.

2. Annual rate.

3. Excluding real estate activities.

4. Non-agriculture business sector services excluding real estate activities.

Source: OECD (2011a) based on OECD STAN Database for Structural Analysis, December 2010.

During 2006-08 value added in agriculture declined by -0.7% in Slovenia; it was nearly constant (0.3%) in the euro zone, and grew quite strongly in the Slovak Republic (5.5%) and Hungary (4.3%). Real value added in industry expanded by 6.1%, far more rapidly than in the euro zone and the OECD overall. Among new EU member states, only the Slovak Republic (11.8%), Poland (9.2%) and the Czech Republic (8.7%) performed better. The services sector expanded by 5.3%, again faster than the OECD on average (2.6%) and new member countries, with the exception of the Slovak Republic (7.8%).

From 1998 to 2008 the business sector increased its share in the Slovenian economy (Table 1.1). The increase in the share of manufacturing was accompanied by structural change; while high- and medium-high-technology manufactures expanded, shares of low-technology manufactures declined in both total value added and total output. Productivity in high and medium-high-technology industries grew by 6.9%.

International trade

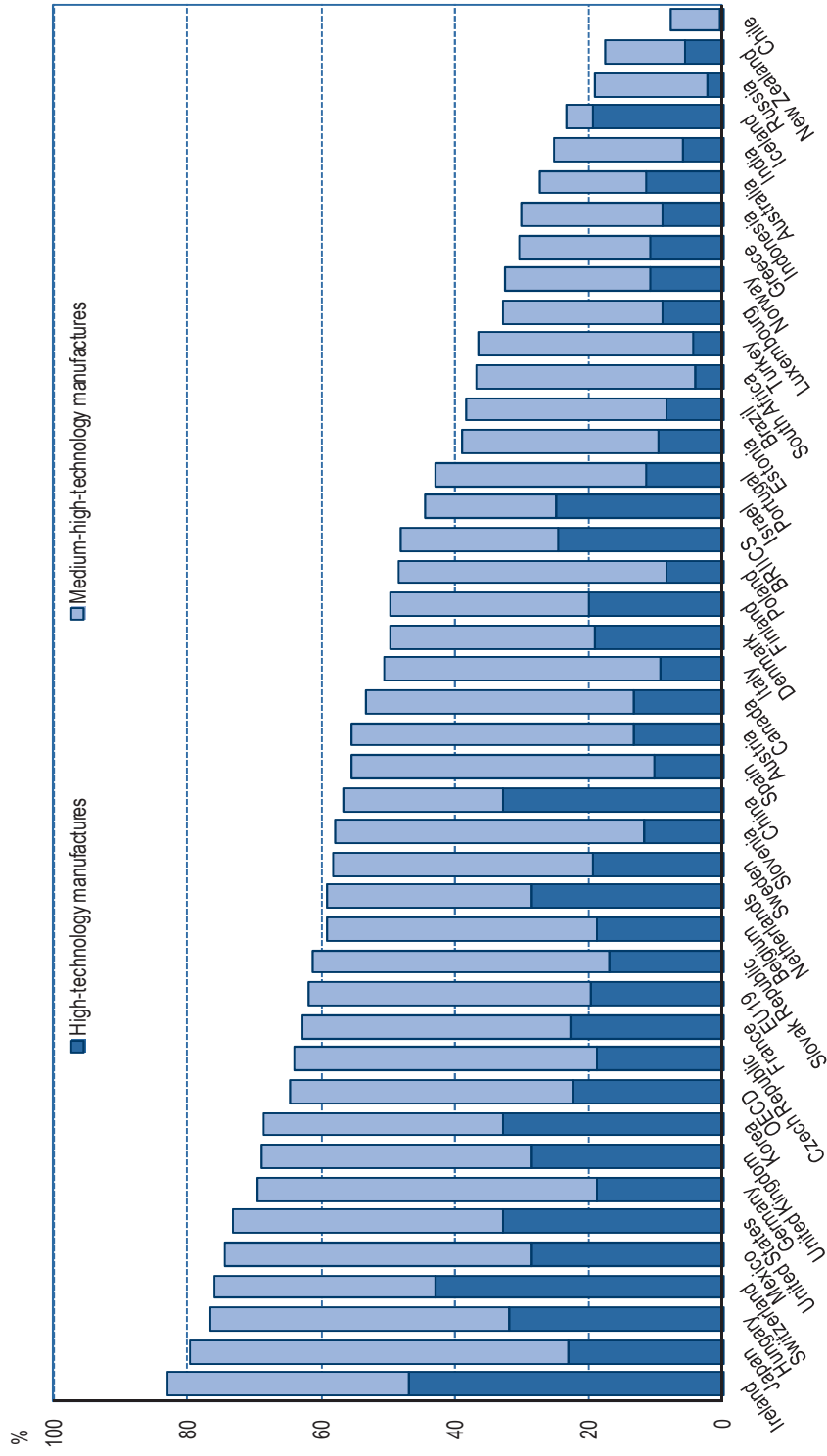
Broadly speaking, the features of Slovenia's export structure are:

- Strong concentration of medium-high-technology, followed by medium-low-technology exports.
- Relatively low high-technology exports, and shrinking but still substantial exports of low-technology products.
- A medium-term increase in export specialisation in medium-high- and high-technology exports and a decline in medium-low-technology and especially low-technology exports.

The combined share of high- and medium-high technology in Slovenia's total manufacturing exports is in the mid-range for OECD economies but below the average (Figure 1.7). The share of high-technology exports is relatively small. Slovenia's high-technology industries accounted for a slightly positive contribution to the manufacturing trade balance in 2007 (Figure 1.8). During 1998-2008, Slovenia's manufacturing exports expanded by 12.6% a year on average, compared to 8.8% for the OECD overall (Figure 1.9). However, high-technology exports grew by 16.8%, a pace much faster than the OECD average of 7.8%. Medium-high-technology exports expanded slightly less rapidly (13.7%) but still faster than the OECD average (9.3%). However, Slovenia was outperformed in these areas by the Slovak Republic, the Czech Republic, Poland and to some extent Hungary.

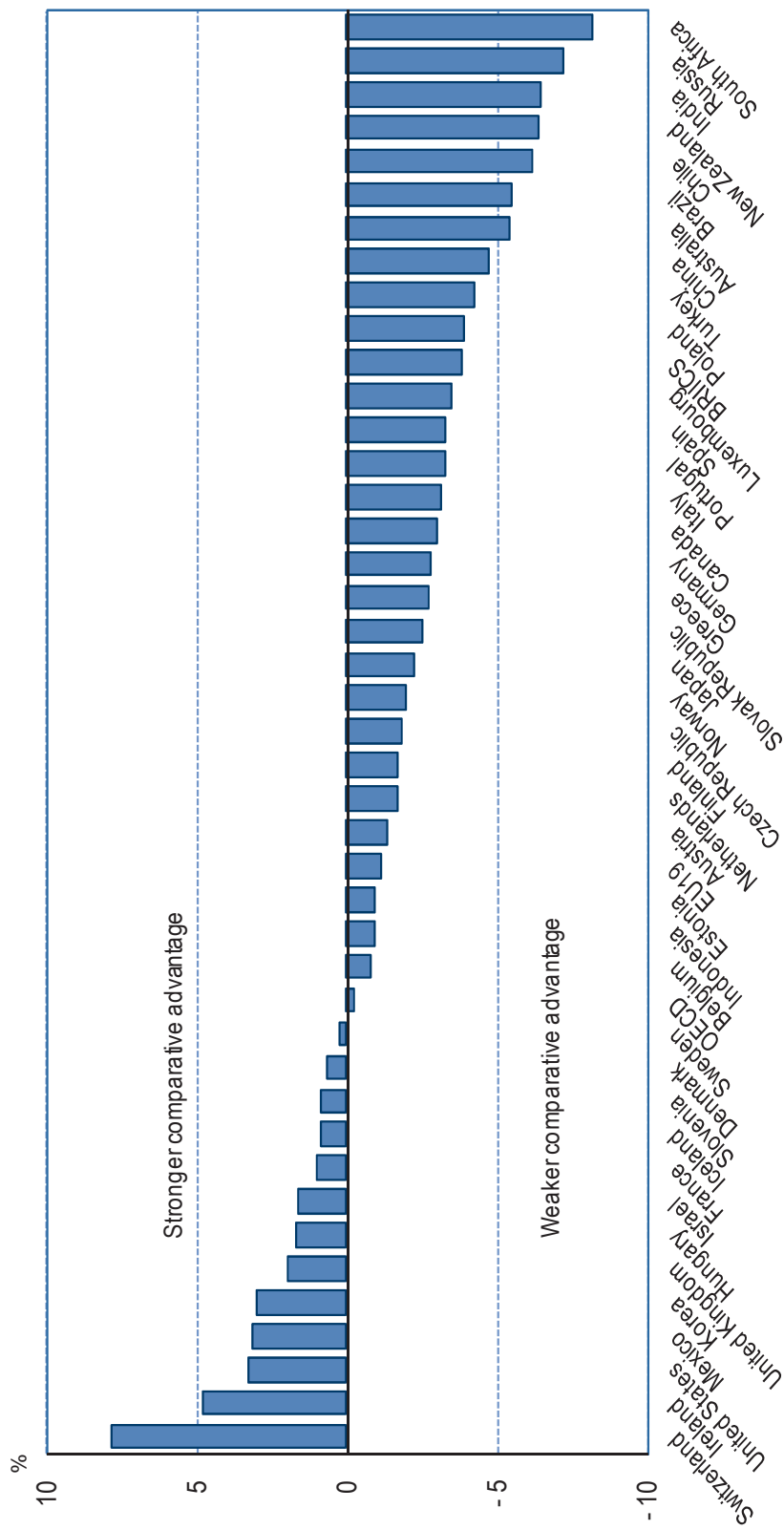
Slovenia's market shares (total exports) in the medium-high- and high-technology range increased between 1995 and 2007 (Table 1.2). In contrast, its market shares in both low-technology- and medium-low-technology exports declined. Slovenia's manufacturing export specialisation, as measured by an index of revealed comparative advantage (RCA), has also shifted since the mid-1990s.⁵ It has increased especially in the medium-high-technology segment (to a RCA index value of about 1.3 in 2007), and "underspecialisation" has decreased in the high-technology segment. Specialisation has declined most in low-technology and to a lesser extent in medium-low-technology manufactures, with both segments approaching a RCA index value of 1.0, *i.e.* the borderline between underspecialisation and specialisation. Overall, compared to other countries, Slovenia's specialisation patterns are not very pronounced in terms of technology categories but the underspecialisation in high-technology manufactures stands out.

Figure 1.7. Shares of high- and medium-high-technology manufacturing exports, 2007



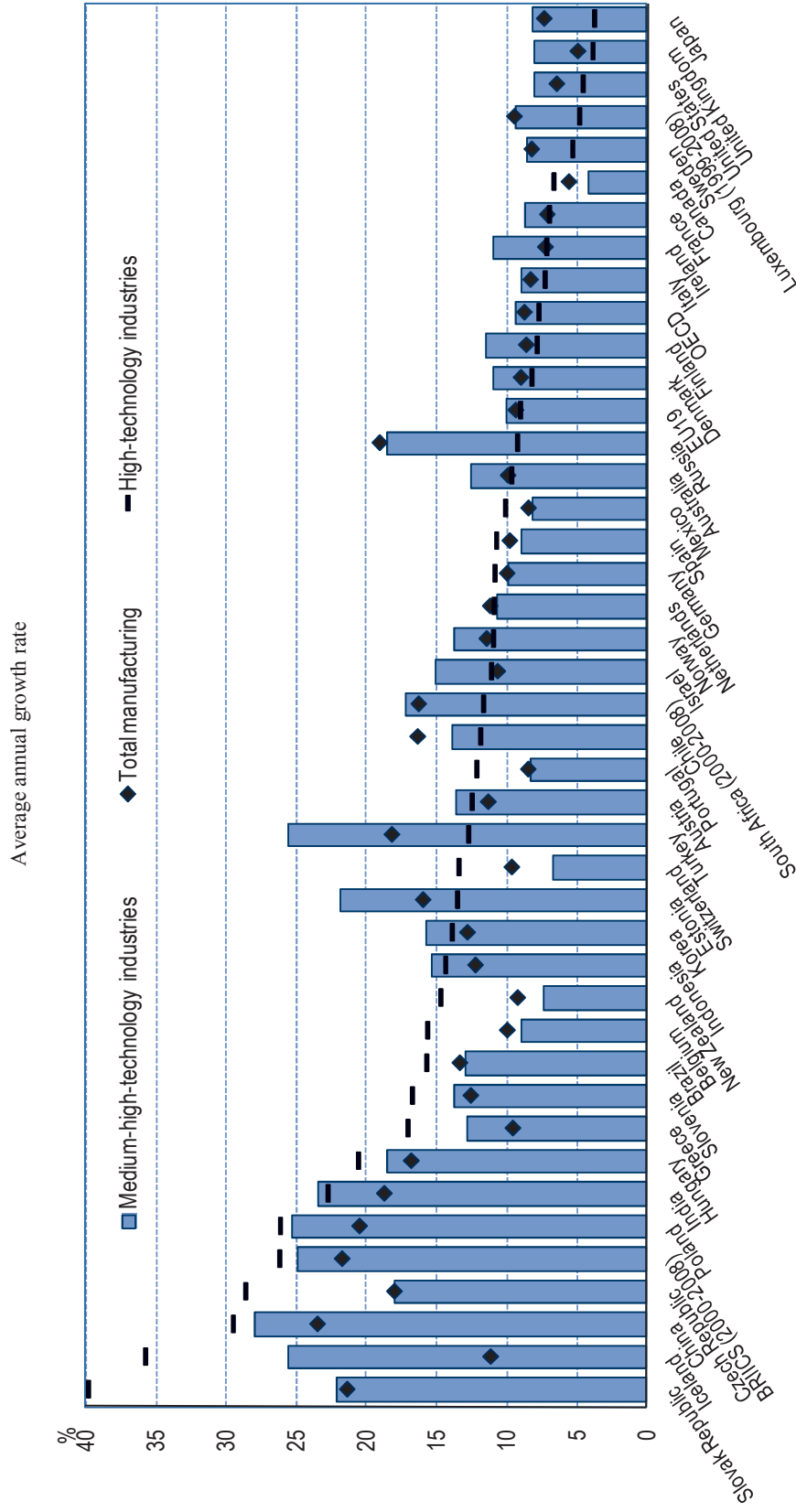
Source: OECD Science, Technology and Industry Scoreboard 2009.

Figure 1.8. Contribution of high-technology industries to the manufacturing trade balance, 2007



Source: OECD Science, Technology and Industry Scoreboard 2009.

Figure 1.9. Growth of high- and medium-high-technology exports, 1998-2008



Source: OECD Science, Technology and Industry Outlook 2010.

Table 1.2. Export market shares and revealed comparative advantage: Slovenia, 1995 and 2007

	Market share (total exports)		RCA (manufacturing)	
	1995	2007	1995	2007
High technology	0.08	0.12	0.43	0.52
Medium-high technology	0.19	0.29	1.00	1.29
Medium-low technology	0.22	0.23	1.17	1.01
Low technology	0.27	0.22	1.40	1.00

Source: CEPI/OECD.

1.4. Framework conditions for innovation

The macroeconomic framework, the general business environment, the level and quality of entrepreneurship, the intensity of competition, and product and labour market regulations all influence a country's innovation performance. Good framework conditions and a healthy business environment are key prerequisites for strong performance in innovation. There are several reasons for the importance of framework conditions:

- Innovation activity requires a medium- or long-term horizon and a sufficient degree of stability in the environment in which it is carried out. This is particularly important for R&D and more fundamental types of innovation activity.
- The regulatory framework is of crucial importance for the speed of diffusion, and in some cases also for the generation of new technologies. This was demonstrated on a global scale by the development of the telecommunications sector in recent decades.
- The quality of framework conditions has an impact on the effectiveness of innovation policies. Unfavourable framework conditions are likely to reduce the effectiveness of policy measures designed to foster innovation.

The existence of favourable framework conditions helps to enable and facilitate innovation throughout the economy. Innovation policy is unlikely to be able to compensate for fundamental flaws in these conditions. At the same time, OECD experience shows that in many cases “dedicated” policy measures are needed to address specific market or systemic failures that hamper R&D and innovation. Recent empirical OECD work indicates that both framework policies that shape the conditions for innovation and dedicated science, technology and innovation policies affect innovation performance, both separately and in combination. This work has helped to identify the policies, institutions and framework factors that provide effective means of supporting innovation (Jaumotte and Pain, 2005a, 2005b, 2005c and 2005d).

Overall, Slovenia's favourable economic performance, with its rapid catch-up in terms of per capita income and productivity over more than a decade before the onset of the global financial and economic crisis, was underpinned by a set of generally favourable framework conditions. At the same time, some aspects are likely to dampen innovation activity.

A potential source of weakness in Slovenia's innovation performance is the somewhat unbalanced internationalisation of both the economy and the innovation system, which may be linked in some aspects to prevailing framework conditions. A prominent example is the relatively small inflow of FDI, which may limit possibilities for productivity increases through the transfer of technology and management practices and associated spillovers to the domestic economy. Another example can be found in the country's science and higher education system. While Slovenian researchers participate strongly in European R&D programmes, Slovenia's science and higher education system is still remarkably closed (*e.g.* recruitment patterns at universities).

Product market competition is a driver of productivity growth (Baumol, 2002) and spurs innovation directly or indirectly, through what the economist Joseph A. Schumpeter termed processes of "creative destruction". Yet the effect of competition in product markets on innovation activity that is predicted by economic theory is somewhat ambiguous: competition among incumbents can stimulate innovation, but the possibility of gaining a certain degree of market power may also provide a strong incentive to innovate (the so-called Schumpeterian effect). Most empirical research has found evidence of a positive correlation between innovation and competition,⁶ but recent work by Aghion *et al.* (2005) suggests that the relationship is a concave ("inverted-U") one, with the Schumpeterian effect dominating at higher levels of competition.

Recent empirical work points to a negative correlation between growth in total factor productivity and concentration (Aghion and Bessonova, 2006). The effect is stronger for import-competing industries.⁷ Finally, the incentive to innovate also increases with the degree of similarity between firms in a given sector (the degree of "neck-and-neckness" in terms of their distance from the technological frontier). There is empirical evidence (OECD, 2007, based on Conway *et al.*, 2006) that competition-restraining regulations slow the rate of catch-up with the technological frontier, where labour productivity is highest. Countries with the most restrictive product market regulations, or those with the lowest productivity and hence the greatest scope to move towards the frontier, are likely to achieve the greatest improvement in productivity growth. There is evidence that better product market regulation is also associated with increased foreign investment inflows (Nicoletti *et al.*, 2003) which in turn provides opportunities to benefit from international technology spillovers.

In the Slovenian context a lack of competition in services has been identified, *e.g.* in some network industries and retail sectors, some of which are highly concentrated and stand out in terms of mark-ups (IMAD, 2011, p. 26f) with implications for productivity levels. Although progress has been made over the years in a number of areas, this issue needs to be taken seriously as the performance especially of knowledge-based service industries impacts on the performance of a broad range of downstream industries.

The regulatory system and the business environment are among the framework conditions that can stimulate or hamper innovation. A number of diagnostic tools have been developed to measure product market regulation and benchmark regulatory frameworks. One of these tools is the OECD product market indicators system (see Box 1.1).

Box 1.1. The OECD product market indicators system

The OECD's PMR indicators assess the extent to which the regulatory environment promotes or inhibits competition in markets in which technology and market conditions make competition viable. These indicators have been used extensively over the last decade to benchmark regulatory frameworks in OECD and other countries and have proven useful in encouraging countries to implement structural reforms that enhance economic performance.

The PMR indicator system summarises a large number of formal rules and regulations that have a bearing on competition. The regulatory data cover most of the important aspects of general regulatory practice as well as a range of features of industry-specific regulatory policy, particularly in the network sectors. This regulatory information feeds into 18 low-level indicators that form the base of the PMR indicator system. These low-level indicators are then aggregated. At the top of the structure, the overall PMR indicator serves as a summary statistic on the general stance of product market regulation.

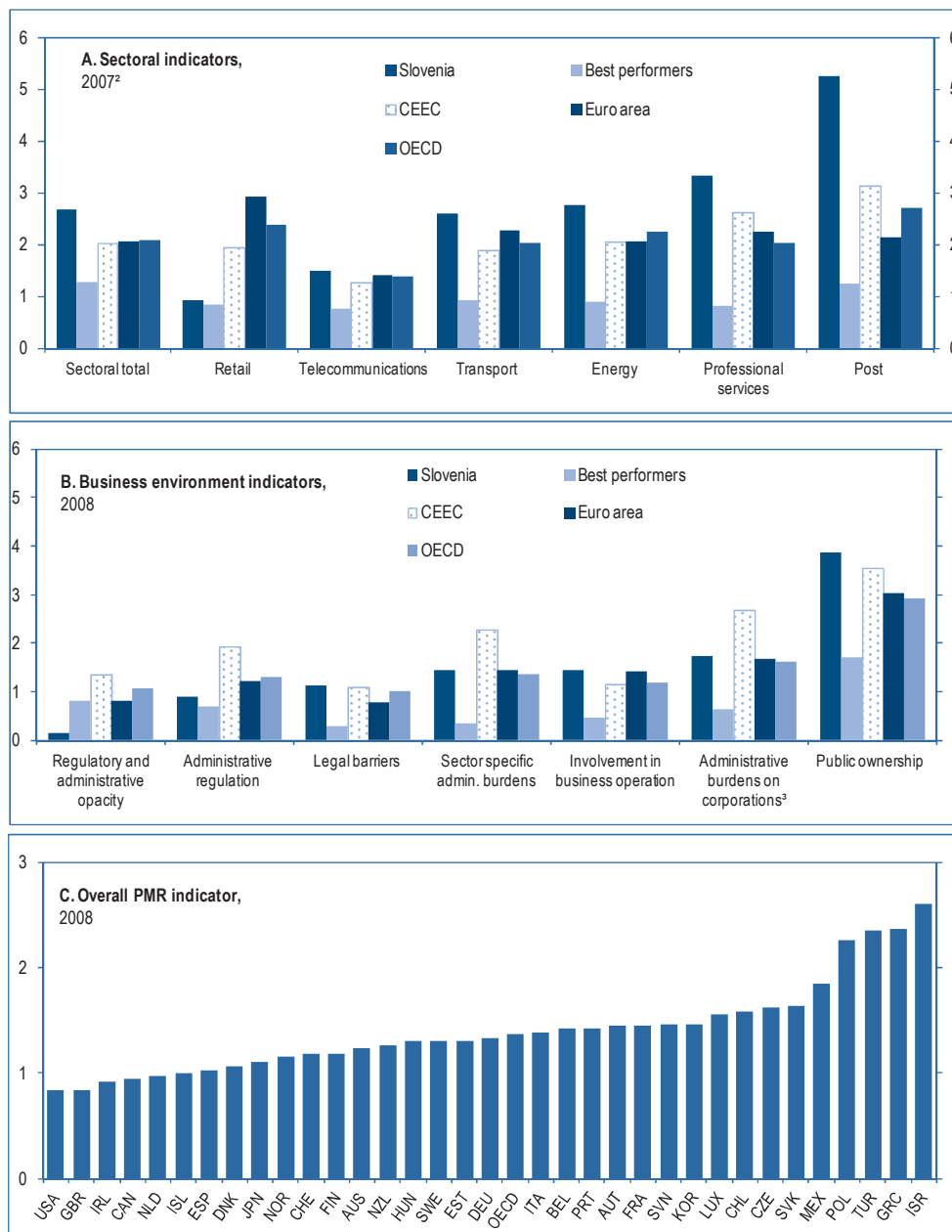
The PMR indicators have a number of characteristics that differentiate them from other indicators of the business environment. First, in principle, the low-level indicators only record "objective" information about rules and regulations, as opposed to "subjective" assessments of market participants as in indicators based on opinion surveys. This isolates the indicators from context-specific assessments and makes them comparable across time and countries. Second, the PMR indicators follow a bottom-up approach, in which indicator values can be related to specific underlying policies. One of the advantages of this system is that the values of higher-level indicators can be traced with an increasing degree of detail to the values of the more disaggregated indicators and, eventually, to specific data points in the regulation database. This is not possible with indicator systems based on opinion surveys, which can identify perceived areas of policy weakness, but are less able to relate these to specific policy settings.

Source: OECD (2009c).

The overall PMR indicator places Slovenia among the more restrictive quartile of countries covered (Panel C of Figure 1.10). However, on this account, Slovenia is closer to countries such as France and Austria than to the most restrictive group to which, for example, Poland belongs. Yet it is also still far from the group of least restrictive economies.

As regards business environment indicators, Slovenia performs better in some respects than other central and eastern European countries (Czech Republic, Hungary, Poland, Slovak Republic) and is on par with the euro area. This is the case for legal barriers, sector-specific administrative burdens and administrative burdens on corporations (and sole proprietor start-ups). Legal barriers and involvement in business operations show a similar pattern but here other central and eastern European countries perform better. In terms of regulatory and administrative opacity Slovenia performs better the comparator group of best performers. At the other end of the spectrum, Slovenia is more restrictive in terms of public ownership than all comparator groups of countries.

Among sectoral indicators, Slovenia has a restrictive stance in post, professional services, energy and transport (in descending order).⁸ In telecommunications the restrictiveness of regulations is greater than the best performers but similar to the other country aggregates. However, in retail Slovenia has a less restrictive stance and is near the best-performing groups.

Figure 1.10. Product market regulationScale of indicators 0-6, from least to most restrictive¹

Notes:

1. All aggregates are unweighted averages. Best performers are the five countries with the lowest scores (excluding those scoring under 0.2). CEEC covers central and eastern European countries that are OECD members: Czech Republic, Hungary, Poland and Slovak Republic. The euro area includes member countries prior to enlargement in 2007.

2. 2008 for professional services and retail.

3. And sole proprietor start-ups.

4. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

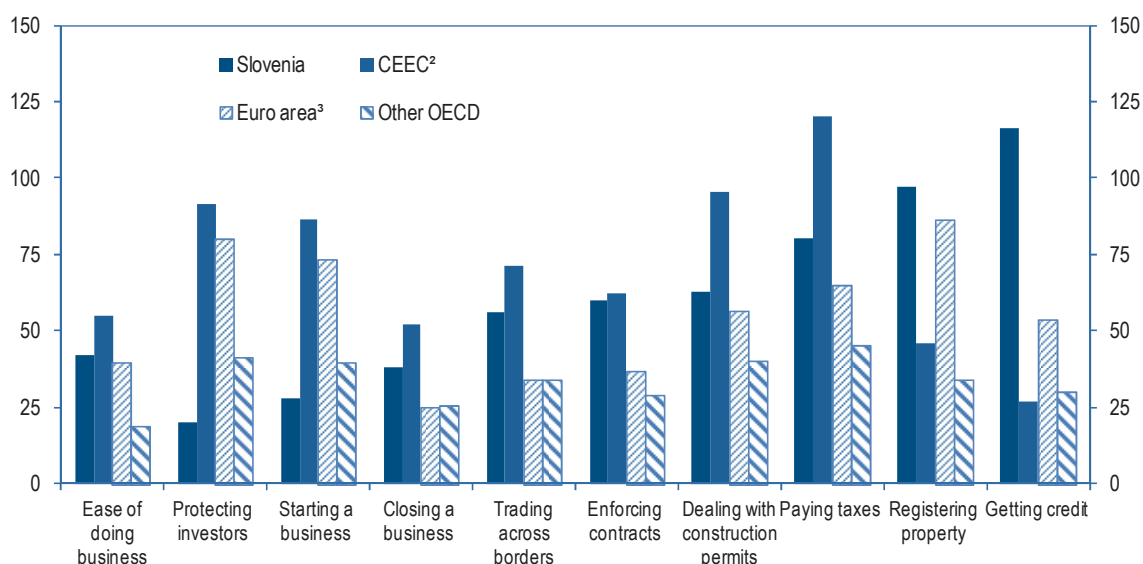
Source: OECD (2011a, p. 121), based on OECD (2009), International Regulation Database, www.oecd.org/eco/pmr, September, <http://dx.doi.org/10.1787/888932369714>.

The World Bank's Doing Business surveys – which differ in approach from the OECD PRM dataset – provide additional information on the obstacles and barriers encountered by Slovenian businesses.⁹ In the most recent of these international comparisons, Slovenia ranks 42nd out of 183 economies; it is close to the euro area's rank but has a way to go to reach the OECD's (Figure 1.11). Slovenia fares worst in “getting credit” (116)¹⁰, followed by “registering property” (97) and “paying taxes” (80). It performs well in “protecting investors” (20) and “starting a business” (28), two categories in which Slovenia outperforms the OECD area.

These results indicate that some elements of the regulatory system deserve attention and need to be further scrutinised as regards to their impact on innovation.

Figure 1.11. World Bank Doing Business 2011 rankings

Rank among 183 countries¹



Notes:

1. Economies are ranked on their ease of doing business, with first place being the easiest. The higher the bar, the more difficult the business conditions. Zone aggregates are unweighted averages of rankings.

2. Central and eastern European countries that are also OECD members: Czech Republic, Hungary, Poland and Slovak Republic.

Source: OECD (2011a, p. 109), World Bank and International Finance Corporation (2010), Doing Business 2011: Making a Difference for Entrepreneurs. <http://dx.doi.org/10.1787/888932369676>.

1.5. The role of innovation in Slovenia's future economic development

Slovenia's persistent productivity gap *vis-à-vis* more advanced economies implies considerable scope for further gains through cross-border absorption of technological knowledge. This absorption is facilitated by domestic capabilities, especially of business firms, in R&D and innovation. In the longer term, however, the sources of sustained productivity growth can be expected to shift (OECD, 2011a). Capital deepening, including through investment in infrastructure as well as in human capital – with an improved education system, including lifelong learning – can help sustain labour productivity growth into the future. However, increasing efficiency in the use of factors

of production, as measured by total factor productivity, can be expected to play an increasing role as the Slovenian economy advances and the income gap *vis-à-vis* more advanced economies – the technological frontier – narrows (OECD, 2011a).

While TFP growth needs to play an increasing role in boosting labour productivity, the sources of TFP growth can be expected to change as well as the economy matures: domestic innovation will have to play a more prominent role as a driver of TFP growth, and. To realise this scenario requires higher levels of innovation capability and performance. This can be achieved in various ways, notably by fostering investment in R&D and innovation while improving the efficiency of the overall innovation system and its constituent parts, topics discussed in detail in this review.

A forward-looking innovation policy for Slovenia will have to aim at:

- *Near-term improvements through innovation based on existing technologies* of foreign and domestic origin. These can give rise to productivity gains. Improved productivity can be achieved by applying existing knowledge to current practices, moving sequentially from marginally profitable practice to industry average practice to world best practice. Improvements of these types generally require managerial awareness and commitment to improve performance, recruitment, training and retraining of a skilled labour force, and access to trusted sources of technical and managerial knowledge.
- *Long-term improvements in the capability of Slovenia's innovation system to generate and apply new knowledge*. Technological innovation, the generation of new products and processes that flow from the application of new scientific and technological knowledge, is a major source of sustained productivity improvement. Some improvements can be realised in the short or medium term (*e.g.* through better co-operation between industry and academia). Other improvements are of a more fundamental character, requiring more profound changes in the way institutions work and interact, and require a long-term perspective.

Notes

1. Yet, while Slovenia's transition was very successful overall, some characteristics of the transition process resulted in some less desirable features in its framework conditions (IMAD, 2010; OECD, 2009a; OECD, 2011a).
2. In 2009, inward FDI turned negative, while investments of Slovenian companies abroad, albeit smaller, remained relatively high, so that Slovenia was a net foreign direct investor in that year (IMAD, 2010). In contrast, developments in 2010 indicate a gradual recovery and renewed increase of FDI (IMAD, 2011).
3. IMAD (2010, p. 21) quotes a survey of foreign investors carried out at the end of 2009 by the Institute of Economic Research (IER) and the Public Agency for Entrepreneurship and Foreign Investments (JAPTI) suggesting that “foreign investors see high taxes, non-payment, high labour costs, an inefficient judicial system, difficulties with dismissing employees, the smallness of the Slovenian market, ineffective competition protection and lack of properly qualified labour as the biggest problems in doing business in Slovenia. Most of these problems have become more acute since 2005”.
4. In the World Bank (2010) Doing Business Survey, Slovenia's ranking for “employing workers” was the lowest of any OECD country.
5. Values of the RCA index above 1 indicate a comparative advantage, values below 1 a comparative disadvantage. When the RCA index is above 1 the country is said to be specialised in the industry concerned.
6. The degree of concentration usually serves as a proxy for competition.
7. Import-competing industries are defined as industries in which the share of imports exceeds 30%.
8. It should be noted in this context that public ownership and control of enterprises in the market sector (including in key service sectors such as financial service, telecommunication, energy, ports, post and rail) is relatively widespread (OECD, 2011a and 2011e).
9. As noted by the World Bank (2011), the Doing Business methodology has some limitations, among them the scope of factors that are important to business and covered in the survey. For reasons of international comparability, the indicators refer to a specific type of business, generally a local limited liability company operating in the largest business city.
10. More generally, financial development is limited by a lack of depth and liquidity of capital markets which are partly related to ownership structures and a lack of an “equity culture” (OECD, 2011a).

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