Product Market Review 2010-11

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PRODUCT MARKET REVIEW 2010-11

The microeconomic roots of growth performance and trade competitiveness in the EU

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Executive Summary

In the wake of the economic and financial crisis, in March 2010 the European Commission presented its Europe 2020 Strategy[1] to chart the way forward, exiting the crisis and returning to renewed job creation and economic growth over the next decade. At the core of the strategy is a coordinated, comprehensive programme of reforms in seven thematic priority areas and a proposal for stronger economic governance. Europe 2020 was further fleshed out at the start of this year by the publication of the Annual Growth Survey[2] which, with its ten priority actions to tackle the crisis, also marked the start of the European Semester of *ex ante* coordination of economic and budgetary policies. It is critical that the EU makes advances with its programme of structural reforms; they are an essential element of any possible acceleration of growth in Europe and can help significantly to tackle the competiveness divergences and macroeconomic imbalances that have developed within the euro area even before the crisis struck. Hence, at the beginning of July 2011, based on Commission proposals for each and every Member State, the Council adopted a set of country-specific recommendations designed to ensure that they have in place economic and social policies to deliver growth, jobs and improved public finances. For many Member States, these recommendations included reform policies to overcome structural economic challenges undermining their competitiveness and, consequently, their potential for economic growth. In addition, structural reform policies are also always included in the conditions attached to Member States such as Greece, Portugal and Ireland which have received financial assistance, more or less prominently depending on the country and the nature of its challenges. This report provides analysis and an evidence base specifically for the development of structural reforms designed to tackle Member States' priority structural economic challenges.

The concern about competiveness divergences and macroeconomic imbalances is driven by the real and significant risk they pose to Member States' economic and financial stability, especially within the euro area, a risk already highlighted by Commission services before the crisis began. Large losses in competitiveness, growing fiscal deficits and growing current account deficits cannot persist forever, and the longer they are left untackled, the more painful and protracted the adjustment necessary. In any case, 2010 was a year in which financial markets clearly began to have doubts that the combination of slow growth and growing fiscal and/or current account imbalances in some Member States could continue to be sustained.

The European Economic Recovery Plan ensured that Europe carried a coordinated and substantial use of demand management to absorb the worst effects of the financial crisis, but fiscal space has evaporated and it is now necessary to frame policy in a way that recognises the need to bring debt and deficits onto a sustainable path. That means funding has to focus where it is most effective, such as research and innovation and better pan-European infrastructure. In addition, other types of policy have necessarily to become more important. Introducing and implementing supply side reforms to product, labour and captial markets will encourage growth and tackle competitiveness divergences. Such policies are durable and are a relatively low cost way to secure economic growth. In addition, Member States with imbalance problems that seriously and demonstrably implement supply side reform could well boost confidence in

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[1]   "Europe 2020: A strategy for smart, sustainable and inclusive growth", COM(2010)2020 final, 3.3.2010

[2]   "Annual Growth Survey: advancing the EU's comprehensive response to the crisis", COM(2011)11 final, 12.1.2011

financial markets, loosening the country's credit constraint, thereby hopefully stimulating private investment.

As with other types of structural reforms, successful product market reforms improve the efficiency of the economy, thereby expanding the level of output which the economy could potentially produce at full employment as well as accelerating its growth rate. This happens because product market reforms provide the opportunities and the incentives for traditional industries to transform their production processes, but also because reforms increase the adjustment capacity of economies by providing opportunities and incentives for new industries to arise that replace traditional ones. In either case, the net result is an improvement in productivity i.e. the production of more output but without using more inputs. Product market reforms achieve this effect by increasing competition, increasing investment and increasing R&D and innovation. In addition, by increasing the output, macroeconomic imbalances can be reduced i.e. reducing the areas where demand was higher than supply resulting in high price growth and/or excessive imports.

To help motivate the coordination of ambitious structural policies, work done for the Annual Growth Survey projects that unless policies are implemented that try to narrow the labour productivity gap between the EU and its main competitors, then the EU's average potential growth rate will be around 1½% in the EU-27 over the period 2009-20, and even slower in the euro area. This would be significantly slower than the EU managed over the two previous decades. Hence, raising Europe's growth outlook is a pressing and immediate challenge for Europe today and key to boosting confidence and helping Europe to exit from the crisis. Success in meeting the challenge could be very rewarding. Modelling work by Commission services estimates that ambitious implementation by Member States and the Community of the structural reforms envisaged in Europe 2020 could increase the EU's potential real annual growth rate to 2.2%[3].

The potential impact of a strategy of ambitious structural policies is part of the rationale behind the adoption in April 2011 of the Single Market Act[4]. The single market as it stands is one of the EU's finest achievements so far and a key instrument for responding to the economic crisis, but it is still work in progress and the Single Market Act should give impetus to that work. The Act itself is a strategic action plan built on twelve instruments to be delivered by 2012 chosen on the basis of their ability to accelerate growth, competitiveness and social progress. They range from measures to increase worker mobility, enhance SME access to finance and improve consumer protection, as well measures covering digital content, taxation and trans-European networks. This report should be seen against that background. By analysing economic growth and trade flows at a more detailed sectoral level[5], the report could contribute to discussions about growth and competitiveness drivers at a relatively disaggregate level, thus helping to focus ongoing structural reform efforts better.

GDP growth in the EU has a number of salient characteristics. First, for most Member States over the period 1995-2007 labour productivity growth was the main driver of overall growth;

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[3]   Hobza, A. and Mourre, G. (2010) "Quantifying the potential macroeconomic effects of the Europe 2020 strategy: stylised scenario," Economic Paper 424, *European Economy*

[4]   "Single Market Act: Twelve Levers to Boost Growth and Strengthen Confidence", SEC(2011)467 final, 13.4.2011

[5]   Reforms in labour and capital markets are discussed in other reports by DG ECFIN.

only in a few did employment growth drive the aggregate. Second, service sectors increasingly dominate Member States' economies. The four sectors which, due to their share in GDP, have done most to contribute to European growth over the period 1995 to 2007 have been other business services, real estate, financial intermediation and post and telecoms[6]. The relatively high share of the four sectors, dominating the EU aggregate, underpins their contribution to growth. Furthermore, these same four sectors appear to have declined less during the crisis than other sectors; available data shows that declines in manufacturing and construction drove the economic slump. Third, whilst manufacturing obviously lends itself to specialisation and economies of scale, generating significant labour productivity growth, the same is not true of many services. Some services have to be provided in person, limiting the potential productivity gains. Hence, the contribution of service sectors such as other business services and real estate to overall growth was mainly generated by increases in hours worked. However, other service sectors such as financial intermediation and post and telecoms have been able to increase productivity quite significantly, with a significant impact on the EU's overall growth owing to their large share in EU GDP. In addition, well-functioning service sectors are important inputs to manufacturing sectors and can help insulate an economy from economic shocks.

Two other salient characteristic of the EU's growth experience are, first, the considerable variation in service sectors' labour productivity performance across Member States. This is not just a catching up phenomenon: productivity developments in, for example, other business services and their contribution to growth have been highly positive in some older Member States. This suggests that some Member States with poor labour productivity growth records in the sector ought to check whether there are not lessons to be learned from Member States with better records. Second, labour productivity growth right across the EU is mainly driven by productivity improvements within sectors rather than structural reallocation of labour from declining to expanding industries; sectoral structural change involving the reallocation of labour from one sector to another has less of an impact than productivity improvements within sectors, and policy should keep that firmly in mind.

Enhancing competition in a sector puts downward pressure on the prices of the sector's output and may enhance the sector's labour productivity. Analysis in this report shows that improving the regulatory environment governing business is one way to intensify competition in a sector. In particular, reducing unnecessary obstacles to firm entry and exit to encourage entrepreneurship seems to be a notably effective way to enhance competition. Member States would therefore do well to review their regulatory business environments, specifically entry and exit conditions, with the aim of seeing if more could be done to encourage entrepreneurship. There is evidence that some Member States' regulatory environments governing entry and exit are relatively onerous and that more could be done to improve the situation; the consequences for growth and employment in such Member States may be very positive. More generally, whilst Member States appear to have collectively accelerated their implementation of structural reforms since the beginning of 2000 and especially after 2005, to the benefit of competition, some Member States have been more active than others. Member States which have been less active do seem to have paid the price of having less competition and may benefit from becoming more active about structural reforms.

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[6]   Caution should be exercised with real estate however, as it much less directly measureable than other sectors as it includes e.g., notional "rents" paid by house owners for household services.

Evidence positively links firms' access to finance to economic growth. The fact that the flow of credit to non-financial corporations slowed after the crisis struck has therefore naturally led more attention to be paid to their access to external sources of finance, particularly bank lending. The latest data on the flow and conditions of bank loans continues to show that access to finance for non-financial corporations remains subdued. In addition, the stock of outstanding loans to non-financial corporations decreased significantly after the start of the crisis, particularly in Member States where the stock of outstanding loans to non-financial companies grew fastest before the financial crisis started. Overall, banks' lending still seems to be affected by uncertainty related to the changing regulatory environment, global deleveraging and continuing efforts by banks to repair their balance sheets. Whatever the extent to which financing conditions recover, problems accessing finance seem to affect SMEs disproportionately; the spread on loan rates paid by SMEs by comparison with large companies has grown since the crisis broke and SMEs cannot use bond issuance as an alternative to bank loans, unlike large companies. In addition, huge sovereign needs may further decrease banks' loans in the futue. As for the sectors most affected by the situation, construction appears to have found it most difficult of all to access bank loans in the first half of 2009. Such problems are one reason why the Commission decided in December 2010 to prolong into 2011, with some modifications, the special State aid rules to support access to finance, especially to SMEs. Nevertheless, gradual phasing out of crisis rules and exceptional levels of state support will continue, in line with the growing capacity of financial institutions to supply adequate credit to the creditworthy corporate sector.

The evolution of sectoral unit labour costs reflects how cost competitiveness is developing within sectors in countries. Broadly, services – which are less internationally tradable and thus experience less competition – are generally more subject to unit labour cost increase pressures than manufacturing; this is certainly true of the last decade, when labour cost growth outpaced productivity developments across many countries in most service sectors, eroding their cost competitiveness. Changes in sectoral cost competitiveness have a significant impact on sectoral trade flows, so it is important to monitor wage and labour productivity developments in service sectors in order, for example, to help understand better and address the large competitiveness losses some countries have experienced in recent times. Improving cost competitiveness should boost exports and help to tackle Member States' external imbalances. Higher exports, in turn, would foster growth in the EU through the short-term demand effect and because competing in many external markets obliges Member State producer to remain competitive and reduces their dependence on the domestic market or a few foreign markets - thus keeping GDP growth high and less volatile. As it is, in spite of the expansion of emerging economies in global exports, the EU generally seems to have managed to maintain its international position in world markets. Moreover, ongoing progress with European integration has helped preserve EU Member States' high market shares in other Member States' markets. This achievement has been based on a generally diversified EU comparative advantage structure, albeit one with a certain specialization in medium-technology trade. On the other hand, a disappointing development over the last decade has been the lack of significant improvement (indeed, in some cases, a deepening of the EU's comparative disadvantage) in some high-tech sectors such as business and consumer electronics.

A Member State's export success only partially depends on changes in foreign demand and the evolution of its real effective exchange rate, the two standard variables used to analyse export performance. In addition, a large component of export growth can be put down to non-price competitiveness and this needs to be taken into account when analysing the drivers of export performance – drivers of a country's non-price competitiveness make a country's exports more

attractive but are not related to price. Quality, brands and niche marketing, for example, all contribute to competitiveness without relying on price advantages. However, Member States and sectors differ widely in their levels of non-price competitiveness as well as the way that those levels are evolving. Nonetheless, if a Member State wants to improve its non-price competitiveness, the policy prescription arising from the analysis are the same; there should be a focus on increasing openness to trade, implementing structural reforms that improve the business environment (including, once again, making it easier for firms to exit an industry), encouraging foreign direct investment and, crucially, improving the quality and productivity of services output, as services are demonstrated to be important inputs in the production of exported goods. This result, combined with the unfavourable evolution of unit labour costs in services sectors, highlights the importance of increasing flexibility and competition in Member States' service sectors, including by continuing to deepen the integration of the internal market for services, which requires a diligent and full implementation of the Services Directive by Member States.

Another way to accelerate growth is to develop and set policy so as to encourage research and development and innovation. Growing productivity depends on the availability of skills, investment and the pace of innovation. The financial crisis has contributed to declining investment as recessions lead to cuts in R&D. However, it is generally held that governments can encourage R&D investment by, for example, giving companies tax credits and subsidies and/or better incentives for cooperation between businesses and research centres. Member States recognise that effective R&D and innovation raises productivity and lifts living standards, so they are already very keen to use policy to do more to encourage R&D and innovation and increase the effectiveness of these investments. Certainly, a Member State's policies towards the knowledge triangle do seem to be conditioned by its performance relative to other global competitors (such as the USA) as well as other European Member States. Indeed, enhanced cooperation among Member States within the European Research Area appears to have increased such awareness. As a result, there has been a significant increase in recent times in the number of policies across the Member States aimed at supporting education, innovation and R&D, particularly policies designed to increase investment in the knowledge triangle. Unfortunately, there is also evidence that Member States' policies with respect to the knowledge triangle are affected by the business cycle; the intensity of Member States' policies is usually hit by adverse developments in GDP growth. Hence, there is a real risk that the current difficult economic situation may lead Member State governments to make real reductions in public investment in R&D and innovation. If that does turn out to be the case then, for the sake of long-run growth and living standards, such reductions should be implemented differentially on the basis of careful analysis and consideration of their long-run impacts in order to mitigate the overall impact on long-term growth. Furthermore, more emphasis should be given to designing and implementing policy that encourages R&D and innovation with low or no fiscal impact.

To sum up, there are three key findings in this second edition of the Product Market Review:

- First, the sectors that have contributed most to overall economic growth in the majority of Member States since 1995 have been certain large service sectors, notably other business services, real estate, financial intermediation and post and telecoms. Conversely, these sectors did not drive the subsequent crisis. The basis for their contribution to overall EU growth is their sheer size often combined with labour productivity growth; however, that is not the case for other business services, the most important service sector of all, whose growth across the EU has been generated by increases in hours worked (or employment,

roughly speaking). But what is true at EU level masks significant variation across Member States; in some Member States, labour productivity growth in other business services has been an important contributor to growth. As only some Member States variation can be ascribed to catch up by new Member States, Member States with a poor labour productivity record in the sector may possess significant scope to improve that record by taking measures which improve the flexibility and levels of competition in their services markets. The impact of that would be enhanced if Member States collectively pursued their efforts to deepen the integration of the EU's internal market for services, *inter alia* by diligently implementing the Services Directive and agreeing on ways to to beyond the Services Directive;

- Second, for Member States struggling with trade imbalances in particular, success in export markets is not only driven by developments in their real effective exchange rate, but also down to factors other than price that make their exports more attractive such as quality and brand reputation. The evidence here suggests that policy efforts to improve non-price competitiveness should focus on increasing trade openness, improving the business environment (by, for example, identifying ways to make firm entry and exit conditions easier), encouraging foreign direct investment and improving the quality of services output. This latter point once again demonstrates the critical importance of taking all necessary measures to deepen the integration of the EU's internal market for services, this time as a way to upgrade services to improve external competitiveness;

- Third, EU SMEs have traditionally had more difficulty and fewer options in accessing finance than large companies, but the crisis may have exacerbated their relative disadvantage as supply-side constraints on finance during the crisis appear to have been more persistent for SMEs than for large companies. Progress withdrawing the special State aid rules supporting access to finance should therefore be very sensitive to developments in SMEs' access to finance.

Product Market Review 2010-2011

Introduction

The current ongoing unprecedented macroeconomic developments are the aggregate outcome of microeconomic decisions taken by firms and households, so it is worthwhile looking at and analysing the evolution of a number of sectoral economic indicators. In addition, it is important to set sectors' evolution, as reflected by indicators, within the regulatory context because that context conditions how sectors evolve. That is the broad aim of this report. The indicators used and examined cover sector growth, competitiveness, the intensity of competition, access to finance and R&D and innovation in the EU in recent years. As far as is possible, the analysis focuses on individual Member States and tries to identify some of the impacts of reforms that have been enacted by Member States, impacts that in turn affect growth and trade. In the process, the report tries to showcase SPI, the Sectoral Performance Indicators database, a sectoral database being developed by DG ECFIN's services and some of the analytical ends to which it can be put in an effort to provide some indications about appropriate policies that could encourage growth and reduce imbalances. SPI is described further below.

The first chapter kicks off the report by taking a rather descriptive approach to look at the respective contributions of relatively disaggregate sectors to economic growth in the Member States and, within those sectors, the role played by changes in hours worked and the growth of labour productivity. It goes on to try to identify broad reforms that could increase competition and improve labour productivity growth in the Member States. It concludes by looking at access to credit for different sized firms in different sectors, an issue which has become of great concern in the aftermath of the crisis because of the critical link between credit and economic growth.

The second chapter takes a look at trade flows within the EU and with the rest of the world. The object is to paint a picture of the trade competitiveness of the EU and its constiituent Member States at sectoral level over the last decade. It does that by providing a descriptiive analysis based on sectoral unit labour costs and a battery of standard indicators. The chapter then complements its analysis of the evolution of price competitiveness in Member States with analysis that helps understand better what it is that drives competitiveness apart from price. As non-price competitiveness turns out to be very significant in export success, understanding the factors that drive non-price competitiveness better may be particularly helpful to Member States in the euro area that otherwise have to rely on significant internal devaluation to overcome their trade imbalances.

In the long-term, maintaining, sustaining and even accelerating economic growth, jobs and social welfare will depend on R&D and innovation. The third and final chapter therefore reviews the performance of EU Member States and their reform record with respect to their so-called knowledge triangles, the relationship between their education systems, their R&D performances and their ability to innovate, a relationship which should be symbiotic. In the process, an empirical assessment is made of the underlying factors and complementarities driving reforms in the area of R&D, innovation and education.

The statistical annex at the end of the report consists of fact sheets of relevant indicators in three areas: country-level, sectoral (both manufacturing and services) and trade in services, covering

value-added and employment as well as indicators related to internal as well as external competitiveness, the business environment, competition and innovation. As mentioned above, the annex is based on SPI (Sectoral Performance Indicators), a larger database covering the whole economy but with particular emphasis on the business economy (from mining to market services). SPI consists of both raw data and derived indicators and covers the following domains: structure, growth, competition, knowledge and competitiveness. The main source for the raw data underlying SPI is Eurostat (the Statisitical Office of the European Commission), but other sources are used as well including DG ECFIN's Ameco database, the OECD, and the United Nations. Some indicators in the annex (as in the underlying database) are presented using industry taxonomies - i.e., groups of industries by labour skills and technology levels. As far as possible, the indicators in each fact sheet are the same for every Member State; data availability does not however always allow this.

1. **ASPECTS OF RECENT EU ECONOMIC EXPERIENCE - WHICH SECTORS HAVE CONTRIBUTED TO GROWTH AND HOW, LINKS BETWEEN REFORMS AND COMPETITION, AND ISSUES SURROUNDING FIRMS' ACCESS TO FINANCE**

This chapter starts with a rather descriptive look at the respective contributions of relatively aggregate sectors to economic growth in the Member States and, within those sectors, the role played by changes in hours worked, the growth of labour productivity and the structural reasons underpinning that labour productivity growth. It then moves on to indicate broad types of reforms that could increase competition and improve labour productivity growth in the Member States. It concludes with a look at access to credit for different sized firms in different sectors in the aftermath of the crisis, a critical issue given the link between credit and economic growth.

1.1. Sectoral developments in the EU over the recent period and their contribution to growth

On average the EU economy is increasingly dominated by services. This can be clearly seen in Figure 1 which shows the evolution of the share in total value-added of relatively aggregate sectors for the EU economy between 1995 and 2009: industry (mining, manufacturing and electricity and gas), construction, two aggregates of market services (trade, hotels, transport and communications on the one hand, and financial and other business services on the other) plus primary activities and non-market services (public administration, health, education, and other community, social and personal services). The increasing dominance of the two market service sectors, now responsible for over 50% of EU GDP (compared to around 45% in 1995), is clear. Nevertheless, there is substantial variation among EU Member States, reflecting their economic maturity, their evolving relative comparative advantages, especially the catching-up process in new Member States, during the period under analysis. Thus, market services' share of GDP in 2009 varied between 40% in Romania and 70% in Luxembourg, whilst industry's share ranged between 7.8% in Luxembourg and 30.3% in the Czech Republic. As for market and non-market services combined, their share varied between 54.8% in Romania and 86.6% in Luxembourg.

Hence, substantially different sectoral structures exist across EU Member States. Nevertheless, cross-referencing Member States' industry shares of GDP in 2009 and their growth over 1995-2009 simultaneously arranges Member States into four broad groups[7] as shown in Figure 2. Bulgaria, Romania and Slovakia are dominated by the production of goods while services activities', particularly non-market services, have a relatively low share in the total economy, even though the share of their non-market services have increased faster over time, in relative terms, than in all other Member States except Malta. A second group - Hungary, Lithuania,

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[7]   The four groups of countries are identified using a cluster analysis based on the share of five aggregate sectors in GDP in 2009 (the same sectors as appear in Figure 1 except that the two market service sectors in that figure are combined and manufacturing is added to industry), and their average annual growth between 1995 and 2009. The analysis was carried out using standardized data, the Euclidean distance and the Ward method. This analysis is used only for descriptive purpose and not for the creation of country taxonomies. Furthermore, the formation of clusters is based on 10 variables (shares and change in shares of the five sectors) whilst the discussion in the text about the four country groups takes into account basically their industry and services characteristics. This, in addition to normal variability within each cluster and the caveats of the technique, can explain deviations for some specific countries from the general pattern of the cluster as presented in the text. The results of the cluster analysis are presented in Figure 2.

Poland and Ireland - is also, though to a lesser extent, oriented towards the production of goods, particularly manufactured goods. This group has seen a growth in the share of market services, but not by enough to change their industrial profile. The share of primary sectors in their economies has been shrinking as part an overall restructuring of their economies in the course of a process of catching-up. Countries of the third group (Belgium, France, UK, Cyprus, Latvia and Luxembourg) are clearly oriented towards market services activities, whilst industry has quite a low share of the economy. The fourth group comprises of Austria, Germany, Czech Republic, Spain, Finland, Slovenia, Denmark, Greece, Estonia, Portugal, Itlay, Netherlands, Sweden and Malta, a large and therefore rather heterogeneous group but one where sectoral structures are quite stable. Generally, the group is predominantly services-oriented with non-market services playing a significant role. Nevertheless, given the relatively high number of countries in this group, variability within it is significant. For example, the Czech Republic is an outlier in terms of its share of industry, 31.7%, whilst Malta has recorded very high growth, 44.3%, in its share of non-market services.

Figure 1: EU27 - sectoral shares in GDP (%), 1995-2009
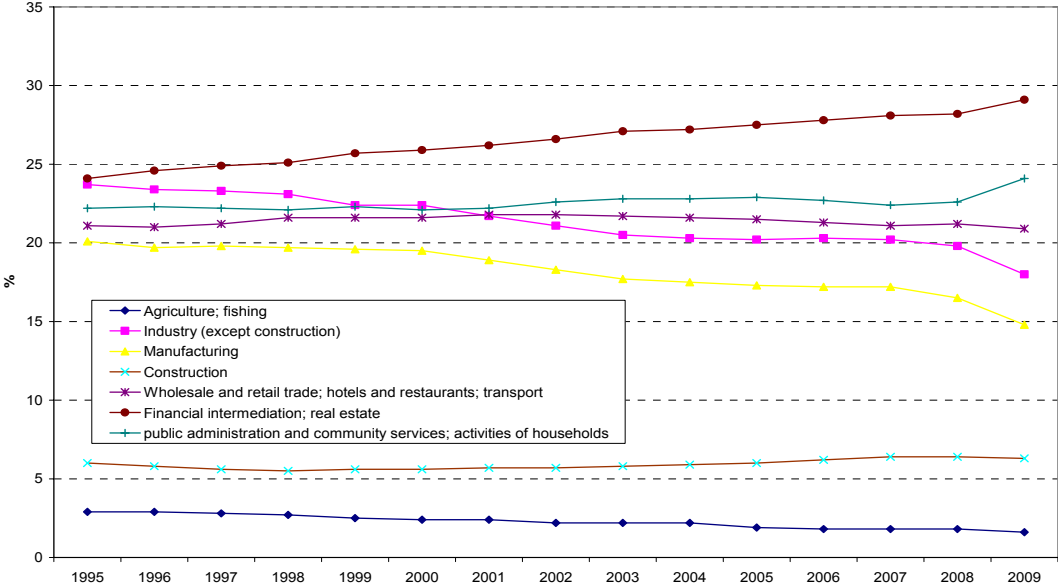
Source: Eurostat

Figure 2: Cluster analysis of sectoral structure and change of EU countries
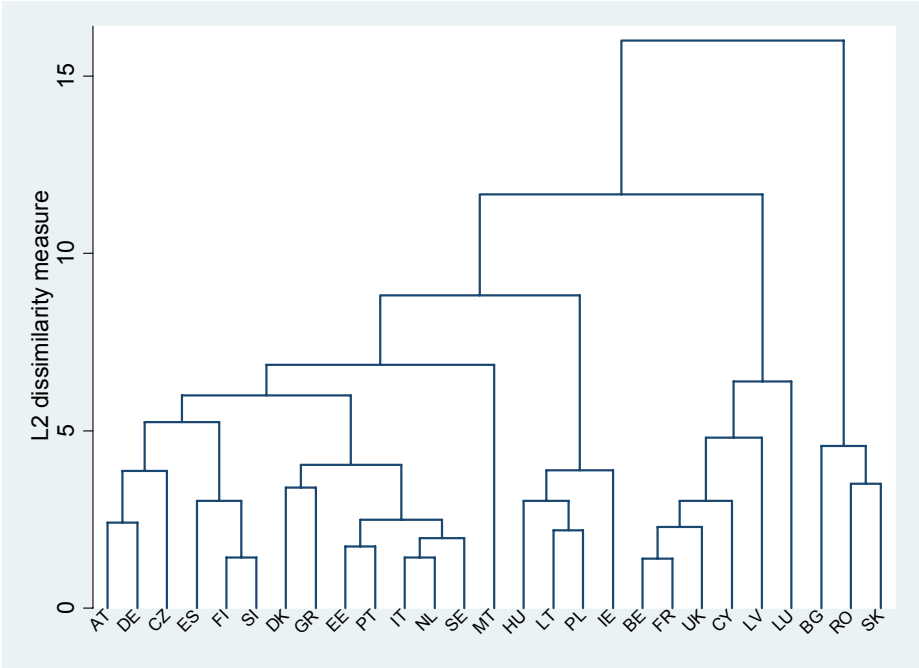
Source: Eurostat and ECFIN calculations

1.1.1. The Member States' economic growth and broad sectoral specialisation

This section discusses Member States' sectoral structures and economic growth with a view to providing a first overview of which sectors may contribute most to growth. It is based on Figure 3, in which Member States' growth experience from 2000 to 2009 is set against their specialisation in 2000[8] in four of the sectors discussed in the previous section. The figure in the top left corner plots specialisation in industry[9] against growth. Some Member States such as Slovakia, Romania, the Czech Republic and Ireland which have experienced very rapid growth have larger than average industry sectors. However, Latvia, Cyprus, Luxembourg and Greece have also grown fast, yet have small industry sectors in relation to their whole economies. Germany, whilst specialised in industry, has had one of the EU's slowest growth rates since 1995.

Mapping the growth experience of Member States against their specialisation in trade, transport and communication[10] seems to show a clearer upward sloping relationship than is the case for industry, suggesting that Member States specialised in these sectors tended to have better growth. Only the sector financial and business services[11] shows a clear downward

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[8] Using value added as variable of reference the specialisation of country 'i' in sector 'j' relative to the EU is measured with the following index :

$$S_{i,j} = \frac{VA_{i,j}/GDP_i}{VA_{EU,j}/GDP_{EU}}$$

[9] Which is equivalent to the two sectors "mannufacturing" and "industry" identified in Figure 1.

[10] Which is equivalent to the sector "wholesale and retail trade; hotels and restaurants; transport" from Figure 1.

[11] Which is equivalent to the sector "financial intermediation; real estate" from Figure 1.

sloping relationship (apart from outlying Luxembourg) implying that specialisation in this sector generally coincided with slower growth.

Figure 3: Member States' real annual economic growth between 2000 and 2009 versus their broad sectoral specialisation patterns (in 2000)
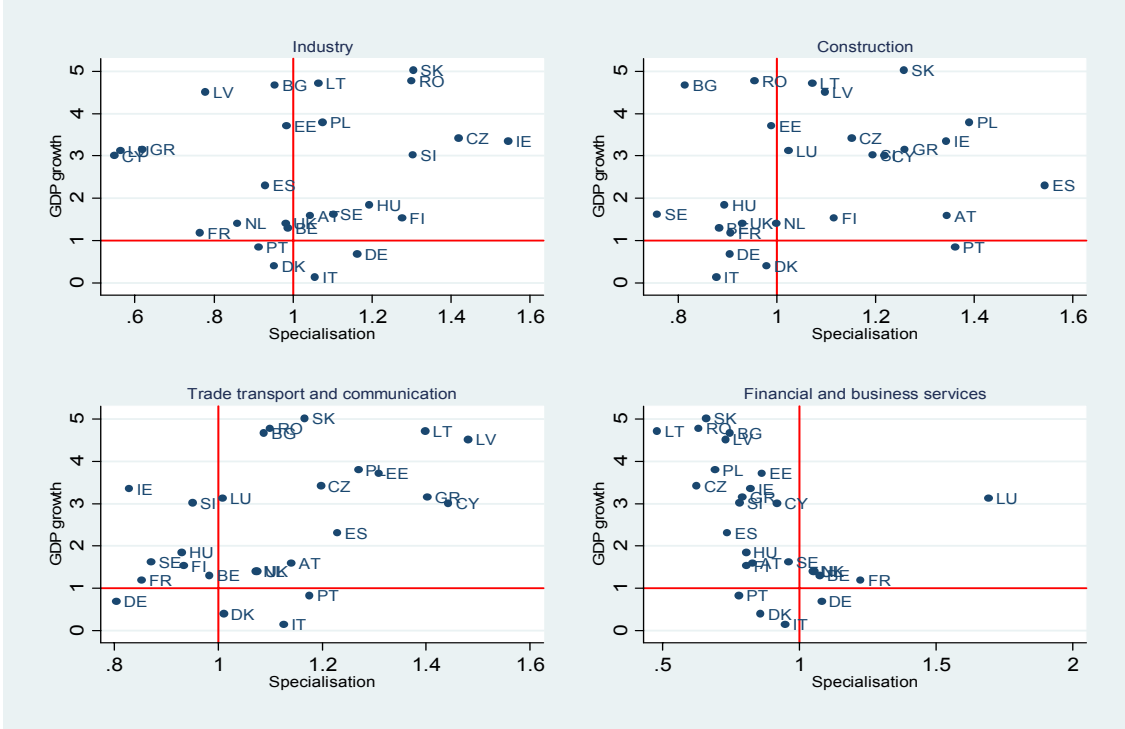
Source: Eurostat and ECFIN calculations

It could be that the crisis introduced noise into the relationships between sectoral specialisations and growth, but carrying out an exercise similar to the one done in Figure 3, i.e., cross-referencing specialisation in 2000 with Member States' annual GDP growth but this time growth from 2000 to 2007 instead of 2009 (thus leaving out the crisis) gives a similar picture.

1.1.2. The relative importance of employment growth and productivity growth in the individual Member States

This section is based on a decomposition of GDP growth in the EU and Member States over the period 1995-2007 into the contribution of employment growth and the contribution of labour productivity growth[12]. Aggregate results for the economy at large are presented first and then results at a more disaggregage sectoral level.

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[12]   The decomposition of GDP growth in "t" is as follows:

$$\Delta GDP_t = \sum_{i=1} \left(\Delta L_i + \Delta Lp_i + \Delta L_i \Delta Lp_i \right) S_{i,t-1}$$

where:

L = number of hours worked; Lp = labour productivity per hour; S_i = share of sector "i" in GDP. The number of sectors is 31, although an aggregation to 5 sectors is also used in the discussion of the results.

In Figure 4 below, a snapshot is provided of what drove growth in each Member State over the period 1995-2007 by looking at hours worked and labour productivity growth[13]. From the figure, it appears that labour productivity was generally more important than employment to the growth of individual Member States. It certainly is very clear that quite a few new Member States have grown very rapidly on the basis primarily of labour productivity growth, particularly Estonia, Lithuania, Latvia, Slovakia and Poland. Labour productivity is also the main contributor to growth in Hungary, Slovenia, Sweden, UK, Netherlands, Germany, France, Austria and Portugal. On the other hand, Luxembourg, Spain and, to a lesser extent, Greece stand out for having grown rapidly but on the back almost exclusively of employment growth; their productivity growth over the period was negligible. A few countries, such as Ireland, Cyprus, Malta, Denmark, Italy and Belgium experienced a more balanced contribution to growth by the two components.

Figure 4: Contribution of hours worked and labour productivity to GDP growth, 1995-2007

Note: To test the robustness of the results the calculations have also been run using the deflator from Eurostat's National Accounts for sector "DL - Manufacture of electrical and optical equipment". See Rincon-Aznar *et al.*, chapter 1 of Peneder (ed.) (2009) for a discussion of this issue.

Source: ECFIN service calculations using EUKLEMS data

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[13]   Labour inputs (hours worked) and labour productivity are the focus of Figure 3. The interaction element of the decomposition is negligible and is not reported.

Further insight into the growth patterns of EU countries can be obtained by going further than the previous section to see what was the contribution of employment and of labour productivity to overall EU GDP growth at a sectoral level. Figure 5 shows the results for a breakdown of the EU economy into five main sectors, the same five sectors that underlie the discussion in sections 1.1 and 1.1.1. The figure clearly shows what a large part of EU growth is explained by market services, via labour inputs and labour productivity, and by industry through labour productivity. Indeed, industry's contribution is entirely based on labour productivity, as employment and the number of hours worked decrease steadily over time. Industry obviously lends itself to specialisation and economies of scale, generating significant labour productivity growth. In market services, labour inputs and labour productivity contribute equally.

Figure 5: The share of overall EU growth generated by different sectors[14] and, within each sector, the contribution played by productivity and by hours worked, 1995-2007
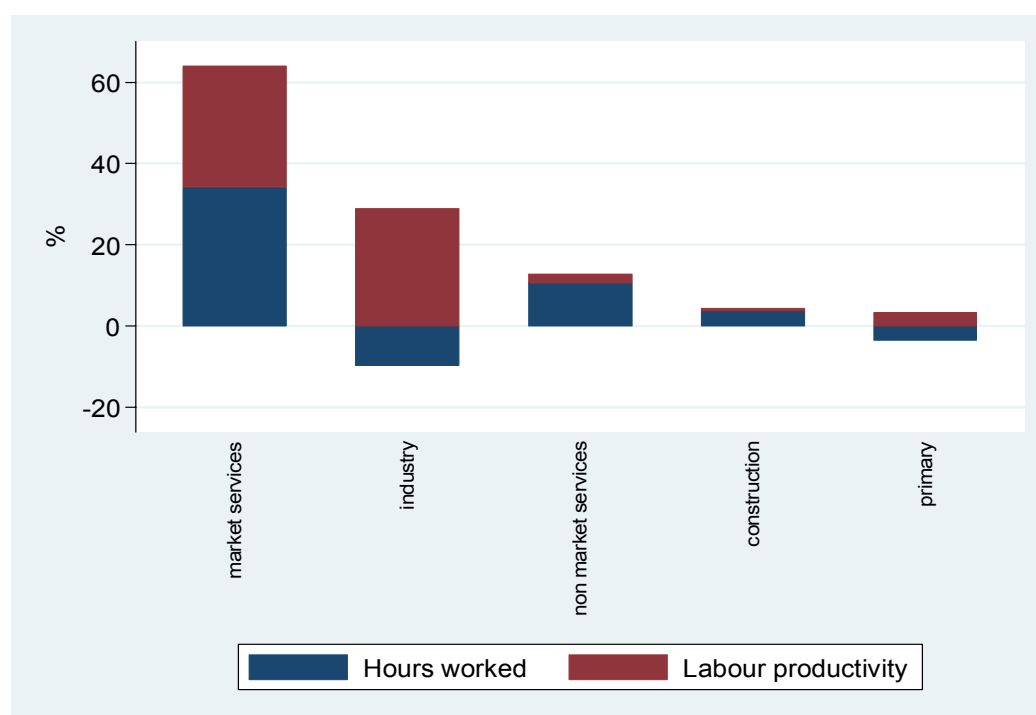
Source: ECFIN service calculations using EUKLEMS data

Other sectors' contributions are much less significant and industry's labour inputs actually make a negative contribution, reflecting decreases in the number of hours worked (as net labour shifts from industry to services). However, it is worth noting that non-market services, encompassing a variety of activities such as public administration, education, health and other community, social and personal services, accounts for nearly 13% of the EU's growth rate[15]. In

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[14] "Primary": agriculture, forestry, fishery and mining. "Industry": manufacturing and electricity, gas and water supply. Detailed results for 31 sectors underlying the five sectors in the decomposition are presented in Figure 10.

[15] Labour productivity figures in non-market services have to be interpreted cautiously due to measurement problems.

the future, demand factors related to demographic developments will most probably lead to an increase in the share of this sector in the future, particularly its subcomponents health and other social, community and personal services. The contribution of non-market services, via labour inputs, basically reflects the growth of education, health and other community, social and personal services.

The EU aggregate however masks individual Member States' experiences. While, broadly speaking, market services and industry are the largest contributors to economic growth across the EU, nonetheless different growth patterns can be identified depending upon the predominant factor(s) and the role of other sectors. In fact, using cluster analysis to assess how similar Member States are in terms of the contributions of hours worked and labour productivity in the five sectors to their overall GDP growth[16], three groups of Member States can be identified[17] (see the dendrogram in Figure 6).

Figure 6: Cluster analysis of GDP growth decomposition
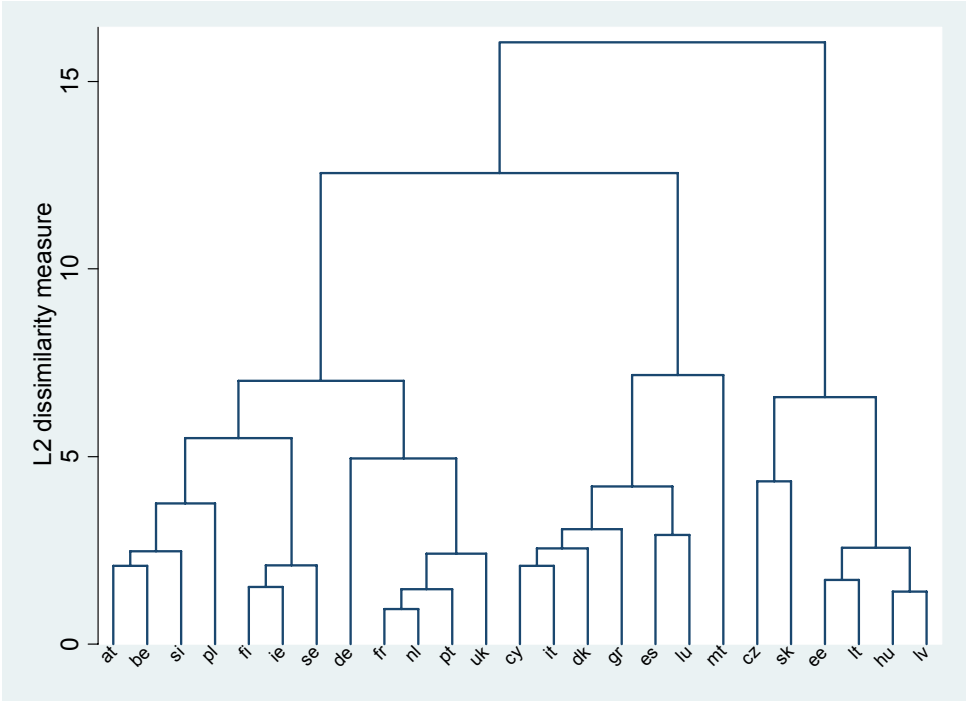
Source: ECFIN service calculations using EUKLEMS data

The cluster analysis identifies three groups of Member States. For a group of seven countries, Cyprus, Denmark, Spain, Greece, Italy, Luxembourg and Malta, it turns out that the major contribution to growth comes from market services' labour inputs. This contribution is above 50% or close to it (48% in Cyprus and 44.7% in Italy). Industry plays only a minor role, as does labour productivity in market services. It is worth mentioning, however, the role of construction (labour inputs) in Spain.

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[16] From 1995 to 2007.

[17] The analysis uses standardized data, the Euclidean distance and the Ward method

Meanwhile, six new Member States (the Czech Republic, Estonia, Hungary, Lithuania, Latvia and Slovakia) form a group characterized the role of labour productivity growth as the factor supporting economic growth. This applies to industry and market services but also, and this is a distinctive feature of these countries, to primary industries. Labour productivity in non-market services is also a factor of economic growth for this group of countries, although these figures need to be interpreted cautiously. The catching-up effect is apparent in the growth pattern of these countries, and this applies also to primary industries (agriculture and mining).

Finally, all other Member States, all of them old Member States with the exception of Poland and Slovenia, belong to a group whose growth is pushed by labour productivity in industry and market services (as well as labour inputs in Belgium and Slovenia). What distinguishes these countries from those in the second group is the fact that labour productivity in primary industries is not relevant whilst, on the contrary, labour inputs in non-market services play a role in some of them.

Data availability allows this analysis of the contribution to overall growth from employment and labour productivity to be examined in even greater sectoral detail – 31 sectors in fact. In Figure 7 below, sectors amongst the 31 sectors that have contributed most to overall EU25[18] growth can be identified.

In general, Figure 7 shows that market service sectors have been the most important contributors to EU growth, particularly other business services, real estate and financial intermediation. The relatively high share of these sectors, dominating the EU aggregate, underpins their contribution to growth. Furthermore, these same three sectors appear to have declined less during the crisis than other sectors; disaggregate data is harder to obtain from 2008, the first full year of the crisis, but what data there is shows that it was declines in manufacturing and construction that drove the economic slump, not declines in these sectors. However, Figure 7 also shows that the conclusion drawn from Figure 5 that labour inputs and labour productivity contribute equally to EU growth in market services is a conclusion that hides a lot of detail at the more disaggregate sectoral level. In the case of other business services and real estate, the contribution to EU25 growth was mainly generated by increases in hours worked; productivity developments were either negligible or negative. Conversely, other service sectors have been able to increase productivity – particularly financial intermediation and post and telecoms. In fact, the data shows that labour productivity in some market services (wholesale trade, transport and storage, post and telecommunications and financial intermediation) exhibits growth rates greater than the economy average. These differences in service sectors' productivity performances may reflect the different nature of services activities, some of which (e.g., other business services) have to be provided in person, limiting potential productivity gains whilst the output of others can be expanded significantly thanks to technology.

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[18]   The data is not available for Bulgaria and Romania, hence the analysis is constrained to the EU25.

Figure 7: EU25 sectoral growth patterns over the period 1995 – 2007 broken down into the percentage contribution from changes to hours worked and changes in labour productivity
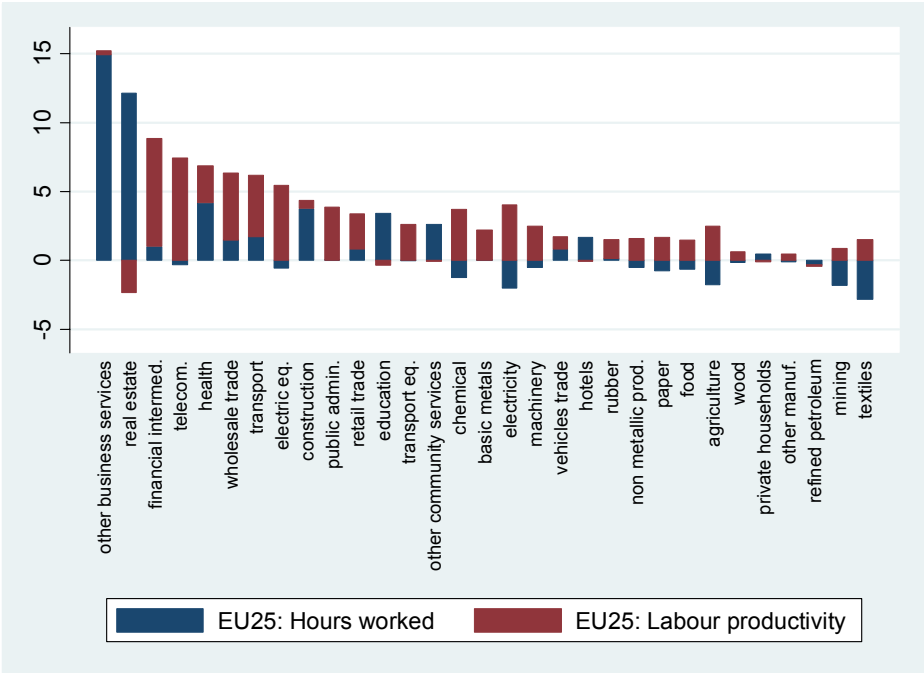
Source: ECFIN services calculations using EUKLEMS data

A look at the contributions of hours worked and labour productivity growth to the growth record of individual Member States (see Figure 10) also reveals some interesting results. For example, notwithstanding the aggregate result for the EU as a whole that labour productivity in other business services had a negligible impact on the EU25's overall growth, in fact the sector contributed positively to the overall growth of 16 Member States and contributed negatively to the overall growth of 9 Member States. New Member States figure prominently amongst the Member States with a positive contribution to their overall growth from increasing labour productivity, which is not a surprise as that could be expected as part of their catching up process. What is a surprise is the mixed productivity record of older Member States. This discrepancy may reflect the still rather aggregate nature of the other business services sector which comprises many quite different subsectors, but it might also suggest that there is potential for the sector to perform better in terms of productivity in a number of Member States and that therefore Member States should check whether they may not be able to learn from the experience of others.

1.1.4. Decomposing labour productivity growth in the EU and Member States, 1995-2007

Having seen the relevant role of labour productivity in EU countries' growth, this section decomposes each Member State's overall labour productivity performance more closely, examining to what extent it has been driven by productivity improvements within sectors, to what extent it has been driven by the reallocation of labour between sectors with different levels of productivity (the "static shift" effect), and to what extent it has been driven by the

interaction between productivity changes in sectors and sectoral redistributions of labour (the "dynamic" effect). This decomposition uses an approach – shift-share analysis[19] – that is well-established in the literature[20]. Past research looks at different countries, sectors and periods of time but, all in all, the general conclusion is that, overall, a country's aggregate labour productivity growth is largely explained by labour productivity growth within sectors and that structural change – changes in the employment shares of different sectors over time - plays a relatively less important, often negligible role

The result of the decomposition of productivity growth carried out for this report is given in Figure 8. The **within** effect - the growth of labour productivity within sectors - can clearly be seen to have been the largest driver of overall labour productivity growth in all Member States. This reflects the fact that productivity is generally rising in most sectors of the economy; although there are also sectors which exhibit negative growth in labour productivity, the fact is that these do not offset the general trend and labour productivity growth is positive for the economy at large in all countries. Meanwhile, the **static shift** effect and the **dynamic** effect have both been much smaller with the former effect tending to support the **within** effect and the **dynamic** effect undermining it, although in most cases this effect is negligible. The broadly positive structural effect suggests that, overall, labour in the EU has reallocated over the period to sectors where the level of labour productivity is higher. The broadly negative dynamic effect suggests, however, that labour has overall shifted away from sectors where labour productivity is growing fastest.

Labour productivity growth **within** sectors has (as expected) been strongest in Estonia, Lithuania, Latvia and Slovakia and weakest in Spain, Italy, Denmark and Luxembourg. Older Member States have generally experienced slower **within** sector productivity growth than newer Member States, reflecting catch-up. Regarding the **static shift** effect effect, for a little over half of Member States, sectoral employment shares have adjusted with sectors characterised by higher levels of labour productivity having grown more important at the expense of sectors with lower levels of labour productivity. This structural effect has been most pronounced and positive in Greece and Slovenia, in which, together with Spain and Luxembourg, the importance of the **static** shift effect was almost as important as the **within** sector productivity effect; however, that reflects more that all four Member States' have

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[19]   Labour productivity growth is decomposed as follows:

$$\frac{LP^1 - LP^0}{LP^0} = \frac{\sum_i LP_i^0 (s_i^1 - s_i^0) + \sum_i (LP_i^1 - LP_i^0) s_i^0 + \sum_i (LP_i^1 - LP_i^0)(s_i^1 - s_i^0)}{LP^0}$$

Where "i": industry; s_i: share of industry "i" in total employment. The first term of the right-hand side refers to the "*static shift effect*": the level of labour productivity is fixed but industries' shares of total employment change over time. The second term captures the "*within*" effect: labour productivity changes over time but the industries' share of total employment is kept fixed. The third term is the "*dynamic shift effect*" which combines changes in both labour productivity and industries' shares of total employment. "Coke, refined petroleum and nuclear fuel" has been excluded in the calculation for Cyprus, Latvia, Lithuania, Luxembourg, as the data are missing for this sector. For Poland, Portugal and Slovenia the period covered is 1995-2006. The decomposition has been carried out on a year-to-year basis and the results presented are mean values over the whole period.

[20]   See Fagerberg (2000), Timmer and Szirmai (2000), Von Wachter (2001), Peneder (2002), Peneder (2002b), Naastepad and Kleinknecht (2003), Havlik (2005), World Bank (2006), Biatour *et al.* (2007), Marcewski and Szcygielski (2007), Panfili (2008), Mas *et al.* (2008) and Woltjer and de Jong (2010).

recorded relatively weak within sector productivity growth performances. Meanwhile, a large number of Member States, all old Member States apart from Poland, have had negative structural developments, i.e., labour shifting on average away from sectors with higher labour productivity levels to sectors with lower labour productivity levels; this unwelcome development was most marked in the Netherlands, Sweden, Portugal and Finland[21].

Meanwhile, every Member State recorded either a negligible or a significantly negative **dynamic** effect, implying that labour has on aggregate shifted away from the fastest growing sectors. However, most of the Member States where this development was most negative were also the Member States that recorded the best within sector productivity growth – Estonia, Lithuania and Latvia; this may be an inevitable side-effect of a dynamic economy able to successfully improve productivity within sectors. Unfortunately, the dynamic effect was also significantly negative in Greece but not accompanied by large within sector labour productivity growth. Furthermore, the negative dynamic effect negated much of Greece's positive structural effect; in other words, Greece has undergone significant sectoral structural adjustment with labour moving to sectors where levels of labour productivity are higher but the growth of that labour productivity is weaker.

Figure 8: Decomposition of annual labour productivity growth rate across the EU, 1995-2007
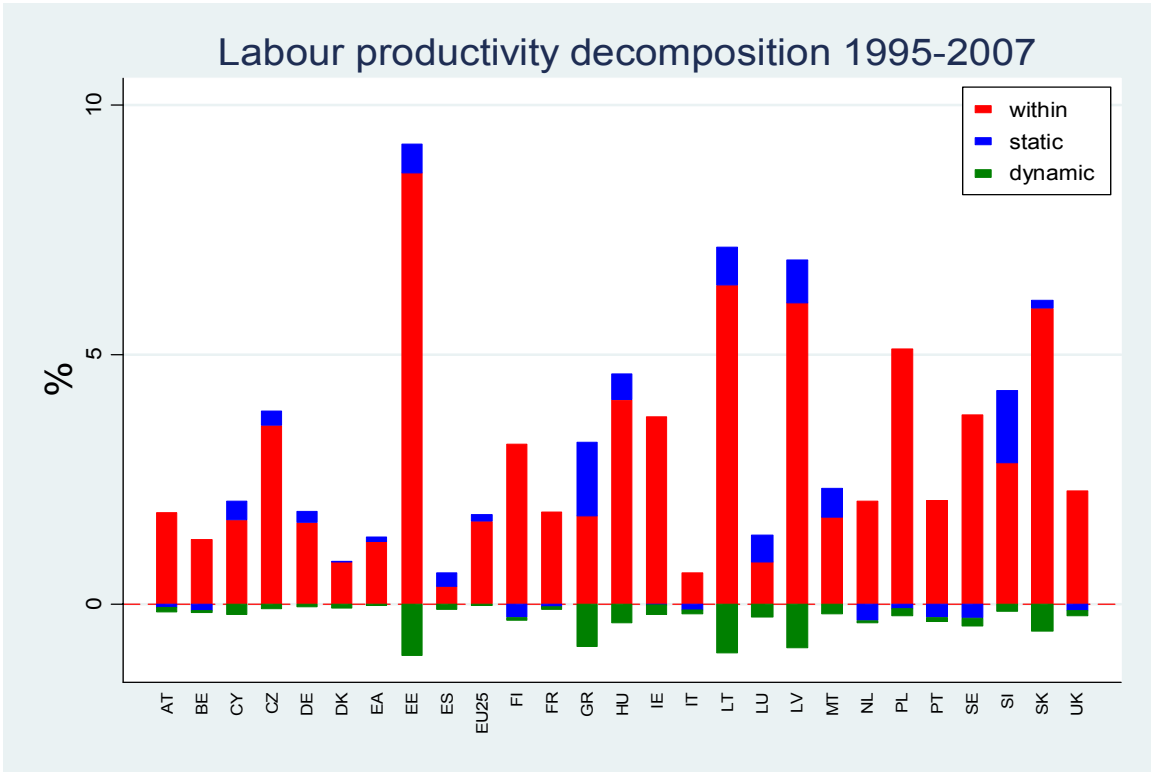
Note: Mean value of annual growth rate (%) over the whole period
Source: ECFIN service calculations using EUKLEMS data

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[21] It is important to note that, while the "within" effect sums up positive contributions from all or neally all industries, the "static shift" effect, in practice tends to combine contributions with opposite signs which tend to offset each other. See Peneder (2002).

The lesson to be drawn is that policy which aims to structurally change and upgrade the sectoral structure of the EU economy with the objective of enhancing overall EU productivity, say by encouraging high tech industries, must not neglect the importance of keeping up the pressure to improve productivity in the sectors that constitute the bulk of the EU's existing sectoral structure. Policy measures to optimise and enhance labour productivity growth within firms and industries is more likely to produce more immediate benefits for economic growth than those targeting mobility of resources across industries. Nevertheless, the importance of measures which facilitate structural change also has to be underlined. In those countries in which the **static shift** effect is significant, it tends to have a positive sign and to reinforce overall labour productivity growth. So, although structural change generally requires longer time horizons to produce significant effects, the need to create conditions that facilitate the reallocation of resources among industries should not be neglected.

Figure 9: Sectoral decomposition of EU annual labour productivity growth rate, 1995-2007
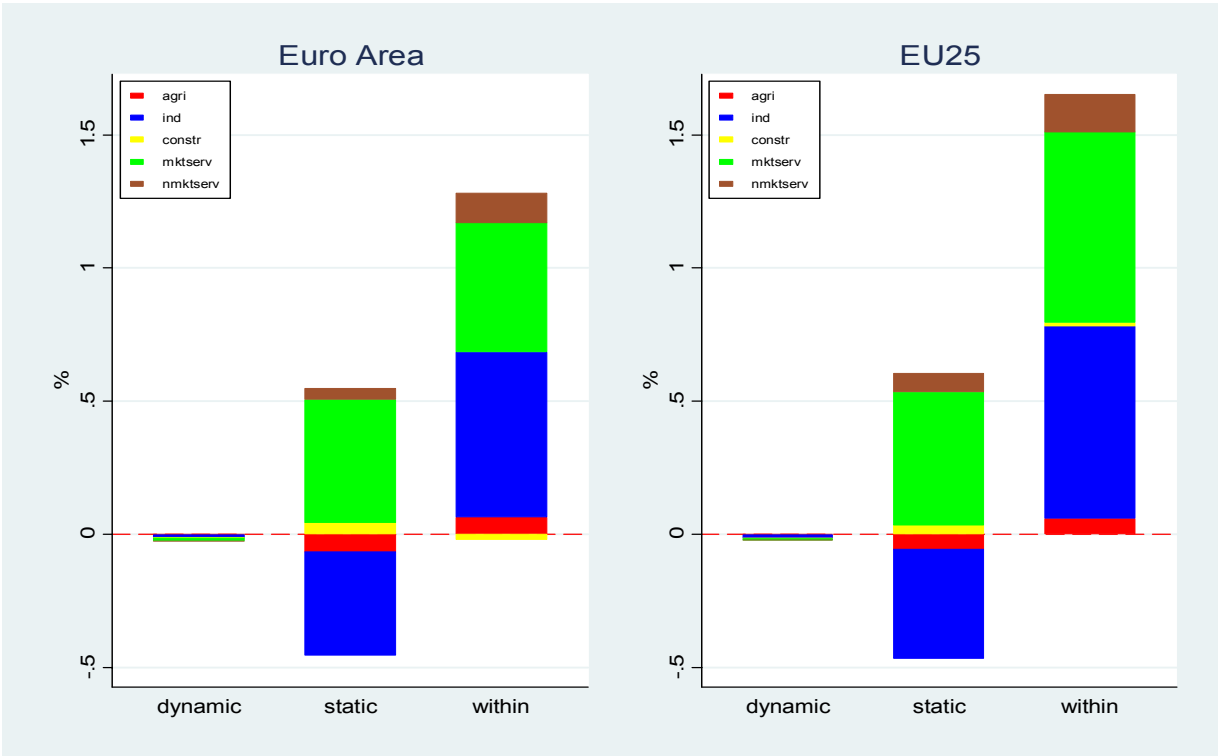
Source: ECFIN service calculations using EUKLEMS data

The analysis above looks at the decomposition of labour productivity growth across the whole economy without any sectoral disaggregation. However, a sectoral breakdown may provide further insight into overall labour productivity growth and the composition of structural change effects at sectoral level. Hence, Figure 9 decomposes labour productivity growth in the same five main sectoral groups (agriculture, industry, construction, market services and non-market services[22]) that have been examined earlier in this section into the three shift-share effects

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[22] The decomposition has been carried out using 31 sectors and it captures the reallocation of resources among them. For the sake of presentation the results are aggregated to the five main sectors mentioned. However,

discussed immediately above. The dominance of the "within" effect is apparent as well as the fact that, as expected, industry and market services are, in general, the main contributors to this effect. Meanwhile, the transfer of labour from industry sectors to market service sectors has a small net positive static effect[23]. Overall, the **static shift** effect reflects the growing share of market services, non-market services and construction over the period, as well as the declining relative size of agriculture and industry sectors.

Box 1-1: Resilience to shocks across sectors in the EU and product market regulation[24]

Faster economic growth is not the only desirable objective of economic policy-making. Resilience is another. At the macro level that means minimising fluctuations in income, employment and prices. The two goals are not independent; long-term growth is likely to be higher in a stable environment as transaction and menu costs, labour market hysteresis, investors' risk aversion, and other real world factors make markets imperfect. Economic policy seemed to have successfully reduced the amplitude of the economic cycle in the last two decades, but since 2007 the EU's economic crisis demonstrates that potential shocks remain. Economic policy-making should therefore focus not just on sustainable growth but also on resilience to economic shocks, especially as the policy implications may not be the same.

At firm level, resilence means the ability of enterprises to avoid bankruptcy or even significant losses during economic downturns thanks to prompt adjustment e.g. in their production technology, product characteristics, trade linkages, employment regimes, etc. At the sectoral level, resilience is supported by low entry and exit barriers. Firm flexibility and sectoral openness may reduce the correlation of sectoral output changes to aggregate common shocks.

Stabilisation policies (such as expansionary fiscal policy) can support flexible enterprises but cannot replace them. Policy makers need to be able to identify and distinguish policies which improve from policies which impair the resilience of firms in the EU - for instance, distinguish product market regulations that improve market integration from ones that introduce rigidities.

A study commissioned by the European Commission looks at sector-level business cycles and sets these cycles against a background of common euro-area GDP shocks. Low correlation between the sectoral output cycles and the common shocks is what the study defines as resilience, and analysis is carried out to see whether product market regulations affect resilience. Three alternative measures of product market regulation enter the panel-data regressions.[25] The analysis is undertaken both for the period 1980-2008, and separately for the 2008-2009 downturn.

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the reallocation of labour considered is not only among these five main sectors (e.g. from industry to market services) but also within them (e.g. from textiles to chemical industry).

[23] In considering these results the influence of "real estate" has to be taken into account given its high level of labour productivity relative to the other market services sectors. Excluding "real estate", market services as a whole exhibit lower labour productivity than industry, while when that sector is included labour productivity in market services is higher than the one of industry.

[24] Based on the main findings extracted from a commissioned study: "Product market reforms and adjustment in the European economy".

[25] (i) The OECD product market regulation composite indicators for 1998, 2002, and 2008, (ii) the World Bank "Doing Business" ranking, or (iii) mark-ups estimated by Cristopoulou and Vermeulen (2008) for periods 1981-1992 and 1993-2008. It also includes other control variables, such as sector and country

According to the regression estimates for 1980-2008[26], the United Kingdom, the Nordic countries, and Germany seem to have the most resilient broad industry sectors, arguably thanks to their regulatory environments which score well in product market regulation indicators. Luxembourg, Greece, and Poland display the lowest resilience. Luxembourg's low score seems to result from the financial sector's exceptionally important role in the economy and high financial integration with the rest of the euro area, thus magnifying and transmiting the impact of shocks to industry.

In a separate piece of analysis, focusing only on the crisis years 2008-2009, the study shows that countries with the most restrictive product market regulations were the least resilient, all other factors equal.

Amongst the EU's major sectors, industry displays the lowest resilience (in the sense that industry is the EU sector with the highest correlation to common EU shocks); other broad sectors such as wholesale and retail trade or construction and financial intermediation are much more resilient . Furthermore, product market regulations appear to affect the transmission of shocks differentially across sectors. The econometric results for industry are particularly strong, suggesting that higher levels of product market regulation are related to lower resilience to shocks by industry.

Considering the importance of product market regulation indicators in explaining industrial resilience to shocks in the EU, the study concludes that international integration – which may amplify the transmission of shocks – should go hand in hand with deregulation to reinforce adjustment capacity.

1.1.5. Conclusions

This section of the PMR has tried to take a close look at EU growth over an extended period and ending in recent times, in particular the contributions to that growth due to changes in hours worked and labour productivity growth in particular sectors. It has also taken a magnifying glass to the labour productivity experience. A number of conclusions can be drawn:

- First, GDP growth in most Member States over the period 1995-2007 has been mainly driven by labour productivity growth; only in a few did employment growth drive the aggregate. Service sectors have been the most important contributors to EU growth, particularly other business services, real estate and financial intermediation. Even in the subsequent crisis, the same sectors did not decline as much as construction and manufacturing. The relatively high share of these sectors, dominating the EU aggregate, underpins their contribution to growth. In the case of other business services and real estate, the growth was mainly generated by increases in hours worked. Productivity developments were either negligible or negative. However, other service sectors have been able to increase productivity – particularly financial intermediation and post and telecoms – and that has had a significant impact on the EU's overall growth owing to their large share in EU GDP.

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characteristics (EMU membership, size, openness, financial development, labour market institutions) and fiscal policy that may affect the resilience.

[26]   The actual period for some countries is shorter due to data availability.

- Industrial sectors tend to be sectors where labour productivity growth is most dynamic. An economy evolving towards a more services-based economy and away from a more industrial-based economy may therefore pay a price in terms of potential growth. However, not all service sectors suffer from poor labour productivity growth. Between 1995 and 2007, financial intermediation and post and telecoms recorded notably strong productivity growth, whilst wholesale trade and transport recorded growth rates higher that the economy at large. In addition, services activities are important inputs to manufacturing, especially other business services. As section 2.2 below shows, good quality services help to increase a country's export growth. In addition, service sectors also appear to have the virtue of being more resilient to economy-wide shocks such as the ongoing economic crisis.

- There is considerable variation in service sectors' labour productivity performance across Member States. This is not just a catching up phenomenon: productivity developments in, for example, other business services and their contribution to growth have been highly positive in some older Member States. This suggests that some Member States should ensure that they see if they could learn from others to improve their productivity performances in particular service sectors.

- Labour productivity growth is driven mainly by productivity developments within sectors rather than changes to the economic structure of economies; in other words, sectoral structural change involving the reallocation of labour from one sector to another has less of an impact than intra-sector productivity improvements;

Figure 10: Member States' sectoral growth patterns over the period 1995 – 2007 broken down into the percentage contribution from changes to hours worked and changes in labour productivity[27]

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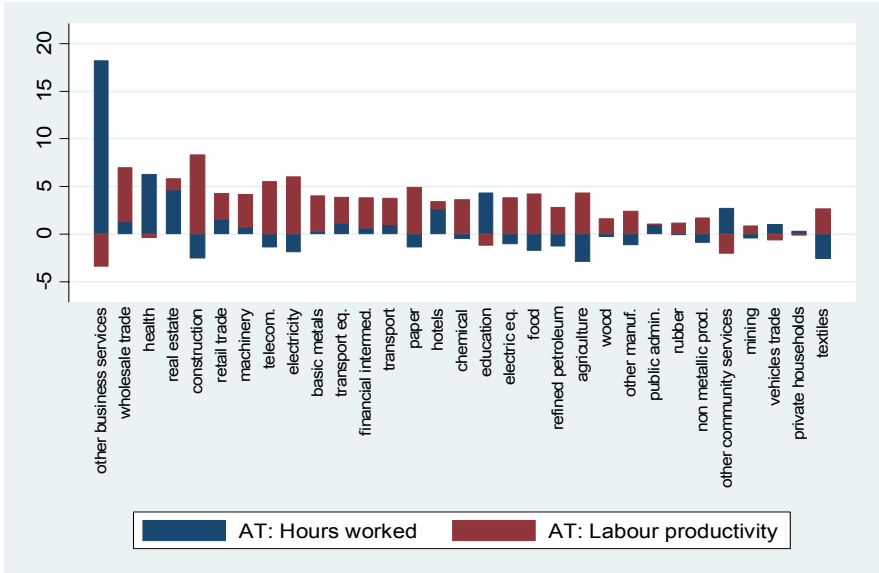
[27]   For all the figures, the source is ECFIN service calculations using EUKLEMS data

Left panel:

-10 -5 0 5 10

LT: Hours worked

LT: Labour productivity

wholesale trade
construction
retail trade
real estate
transport
food
other business services
public admin.
agriculture
electricity
vehicles trade
chemical
telecom.
education
other manuf.
wood
other community services
non metallic prod.
health
textiles
machinery
electric eq.
basic metals
financial intermed.
paper
transport eq.
hotels
rubber
mining
refined petroleum
private households

Right panel:

-10 0 10 20 30

IT: Hours worked

IT: Labour productivity

other business services
financial intermed.
telecom.
health
transport
construction
wholesale trade
basic metals
public admin.
real estate
hotels
machinery
education
other community services
electric eq.
private households
agriculture
non metallic prod.
vehicles trade
electricity
rubber
food
transport eq.
wood
paper
chemical
mining
other manuf.
retail trade
refined petroleum
textiles

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1.2. The impact of structural reforms on competition and labour productivity growth

Structural reforms have been part of a wide EU agenda over the past decade. Since the beginning of 2000 when the EU Heads of Government agreed to launch the Lisbon Strategy to foster competitiveness in Europe, EU countries have made progress in taking further improvements to their regulatory and competitive environment. In particular, efforts have been made to reduce state control, barriers to trade and investment, administrative burden and barriers to entrepreneurship while increasing research and innovation. More recently, the evolution of macroeconomic imbalances in the euro zone have highlighted the importance of implementing structural reforms in order to improve competitiveness, be it in the field of labour market, financial sectors and product or service markets[28].

Empirical studies have shown that structural reforms can boost productivity by giving incentives to firms to be more efficient. This section deals with the role of increased competition induced by product market reforms. The objective is to analyse competition enhancing structural reforms undertaken by Member States since the beginning of 2000 and their impact on competition and labour productivity growth. Although the analysis is focussed on a selection of countries, it is likely that policy implications can be derived for all Member States.

1.2.1. Structural reforms in Member States since 2000: stylised facts

The positive impact of structural reforms on growth is widely acknowledged (see Box 1-2) and has been taken up by policy makers. The Lisbon Strategy, launched in 2000 and its review in 2005, has emphasised the need to foster structural reforms in order to boost productivity growth. In 2005, the revised agenda enhanced the coordination of structural reforms through the adoption of the integrated guidelines for Member States[29]. Following this new governance, Member States drafted National Reform Programmes describing their main priorities to deal with their most important challenges, including enhancing growth. Reforming their product markets were clearly a part of this approach. The successor to the Lisbon Strategy, Europe 2020, continues to place an emphasis on structural reforms as a way of addressing bottlenecks to growth and reducing competitiveness divergences throughout the EU.

Box 1-2: Structural Reforms, Competition and Growth: empirical evidence

Structural reforms contribute to enhancing productivity growth by creating an environment conducive to innovation and entrepreneurship. Empirical literature has generally identified three channels through which product market reforms may impact productivity growth. Firstly, the efficient allocation of resources may be improved with an appropriate level of regulation. Therefore, reforming regulation may increase competition and reduce economic rents, thereby positively influencing productivity either directly or indirectly (allocative efficiency). Secondly, product regulation may influence the utilisation of production factors by firms thus reforming product markets may help to use production factors more efficiently (productive efficiency). Finally, burdensome regulation may reduce incentives to carry out research and innovation. In this case, product market reforms may have a positive influence on the

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[28] This section focuses on product market reforms and does not analyse financial and labour market reforms.

[29] Integrated Guidelines for growth and jobs (2005-2008) COM(2005) 141

development of new products and new technologies (dynamic efficiency). Theoretically, these three channels have a positive influence on productivity growth and economic performance.

There is an extensive literature on how regulatory reform improves economic performance. This literature mainly investigates the impact of product market reforms on economic growth, but there is also some empirical evidence on the positive link between regulation and growth via an increase in competition.

Regulation and productivtiy

Regulatory reform leads to greater entry and exit rates on average. This impact may vary from one sector to another and also depends upon the type of regulatory reform. Cincera and Galgau (2005) have analysed the link between regulatory reforms and economic performance. Entry and exit rates are an intermediate variable, along with turnover and mark-ups, which are directly affected by reforms and regulations, and which may in turn translate into macroeconomic outcomes. Griffith and Harrison (2004) analyse the impact of product market reforms on macroeconomic performance using the level of economic rents, induced notably by regulation, as an intermediate variable. The key assumption of the paper is that the impact of product market reforms on macroeconomic performance only acts through the level of economic rents available in the economy. The authors start the analysis by examining the relationship between the number of reforms and measures of rents. They estimate the impact of product market reforms on performance indicators (output per worker, decomposed TFP, factor accumulation and changes in the quality of factors). Nicoletti and Scarpetta (2003) have found evidence that reforms promoting private governance and competition tend to boost multi-factor productivity. Both privatisation and entry liberalisation are estimated to have a positive impact on productivity. In manufacturing, the gains are greater the further a country is from the technology leader, suggesting that regulation limiting entry may hinder the adoption of existing technologies, possibly by reducing competitive pressures, technology spillovers or the entry of new high-tech firms. Botasso & Sebanelli (2001) analyse the effects of the EU's Single Market programme on the market power of Italian manufacturing firms and find that mark-ups fall significantly as a result.

Djankov, McLiesh and Ramalho (2005) have tested the link between regulation and growth (annual average GDP per capital growth) by using World Bank indicators. They show that improving from the worst quartile of business regulations to the best implies a 2.3 percentage point increase in annual growth. Klapper, Laeven and Rajan (2006) study the effect of market entry regulations on the creation of new limited liability firms, the average size of entrants, and the growth of incumbent firms. The authors find that costly regulations hamper the creation of new firms, especially in industries that should naturally have high entry rates. These regulations also force new entrants to be larger and cause incumbent firms in naturally high-entry industries to grow more slowly. Barseghyan (2008) analyses the effect of entry barriers on total factor productivity and output. Using instrumental variable regressions, he shows that higher entry costs significantly reduce output per worker by lowering total factor productivity. In particular, an increase in entry costs of 80% of income per capita, which is one half of their standard deviation in the sample, is estimated to decrease total factor productivity and output per worker by 22% and 29%, respectively.

Competition and productivity

There have been many empirical studies investigating the relationship between competition and productivity. In general, these papers show a positive relationship between both dimensions.

Haskel (1991) uses UK panel data from 1980-86 to investigate the role of increased competition on productivity growth. He finds that high market concentration and market share have an adverse effect on total factor productivity. Nickell (1996) also investigates the role of competition in the economy by using a dataset of the published accounts of 700 British manufacturing companies between 1972 and 1986. He finds that high rent firms had consistently lower productivity growth than low rent firms and shows a negative relationship between market power and productivity. Disney, Haskel and Heden (2003) use a dataset of 143000 UK manufacturing firms between 1980 and 1992 and demonstrate the positive impact of a fall in rents and market shares on both productivity levels and growth.

When looking at a more disaggregated level, the starting degree of competition in a sector also plays a role. While acknowledging the positive role of competition on labour productivity growth in general, Bouis and Klein (2008) analyse the different impacts on sectors using EU KLEMS data for eleven OECD countries and 21 sectors across manufacturing and services. The authors show that the relationship between labour productivity growth and competition is not linear and that sectors with a low level of competition would gain more than sectors where competition is already high. The authors conclude that services would benefit more from increased competition compared to manufacturing. Bourlès *et al.* (2010) analyse the influence of upstream competition on productivity outcomes in downstream markets. The main prediction of their model is that weak upstream competition can curb efficiency growth in downstream firms. They test the prediction for fifteen OECD countries and twenty sectors over the period 1985-2007. The results suggest that the marginal effect of increasing competition, by easing regulations in upstream sectors, would increase multi-factor productivity growth by between 1% and 1.5% per year in the observed OECD countries.

An analysis of the MICroeconomic REForms (MICREF) database[30] shows an acceleration of structural reforms from 2005 and significant differences across individual EU-15 Member States' (i.e., the Member States pre-enlargement eastwards) reform patterns (see Figure 11 and Figure 12)[31]. In spite of that heterogeneity, however, it is also true that there was a broad trend towards an increased share of business environment and knowledge-based reforms in total reforms between 2004 and 2008 across the EU-15. Such a trend would be consistent with the mid-term review of the Lisbon agenda in 2005, which suggests that the review had a real impact on Member States' reform patterns.

Figure 11: Structural Reforms per broad dimensions – 2000-2003

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[30] MICREF is a database that registers reform activities and priorities in the framework of the multilateral surveillance under the former Lisbon strategy. MICREF is thus the platform for recording enacted microeconomic measures which foster the reform agenda, in order to facilitate comparisons and analysis of reform characteristics across countries and over time. MICREF is split into three broad policy domains: 'Open and competitive markets', 'Business environment and entrepreneurship' and 'Knowledge-based economy' (see Annex 3.6-1 for more details).

[31] Data are not available before 2004 for EU10. One caveat to bear in mind with MICREF is that there is no information on the stock of reforms taken by Member States before 2000 for old Member States and before 2004 for new Member States. Another is that the recorded measures are given the same weight independently of their importance or potential impact. Another way to assess structural reforms would be to look at the Product Market Regulation indicator developed by the OECD. When looking at the evolution of this indicator over time, it appears that regulatory stringency decreased across OECD countries between 1998 and 2008, indicating a process of product market liberalisation. However, the authors also point to the huge heterogeneity across countries. See Wölfl *et al* (2009).
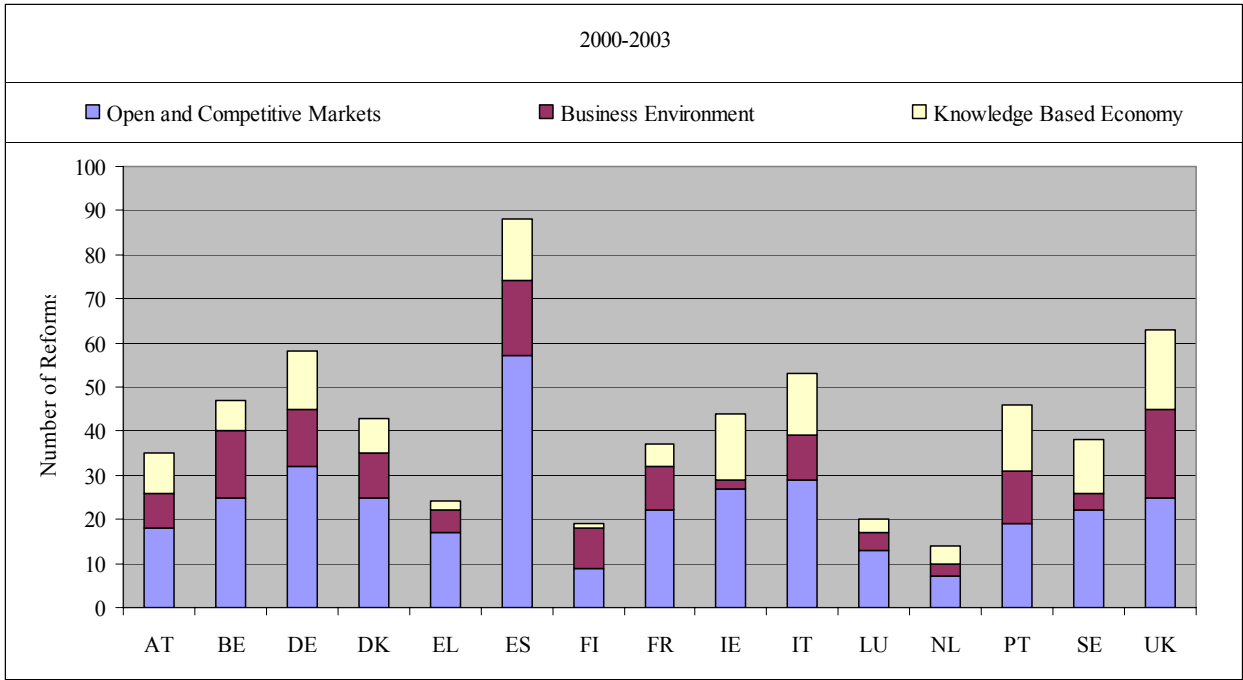
Source: MICREF

The acceleration in the numbers of structural reforms enacted by individual Member States may be common to all Member States and so may be the acceleration of reforms targeting the business environment and knowledge-based economy but, overall, Member States' reform patterns not only differ significantly, they have grown more different over time. This is made very clear by computing an index of reform similarity[32] (represented graphically in Figure 13), which shows how the median difference of EU-15 Member States' reform patterns from the EU-15 average increased after the mid term review of the Lisbon agenda. The difference in Member States' profiles is even true of reforms to create "open and competitive markets" which are part of a Community legislative framework and so might be expected to generate similar reform efforts; in fact, because EU-15 Member States have enacted quite different numbers of reforms specifically to liberalise their domestic network industries, this means that the total number of reforms enacted by EU-15 Member States in the overall domain differs substantially.

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[32] The indicator of reform similarity measures the deviation of the reform pattern of one Member States from a reference point (EU27 for all Member States, EU-15 for old Member States or EU12 for new Member States). It provides an indication of how similar or different reform patterns are across Member States from the EU average. The indicator is computed as: $RP_j = \sqrt{\sum_i^I \frac{(x_{i,j} - x_{i,EU})^2}{I}}$ with x_{ij} as the share of measures carried out in policy field 'i' in the Member State 'j', x_{iEU}, as the share of measures carried out in broad policy field 'i' for EU, and 'I' as the number of areas of reform (3 here). See Report to the General Public - Tracking microeconomic reforms in the EU Member States with the MICREF database, 2008.

Figure 12: Structural Reforms per broad dimensions – 2004-2008
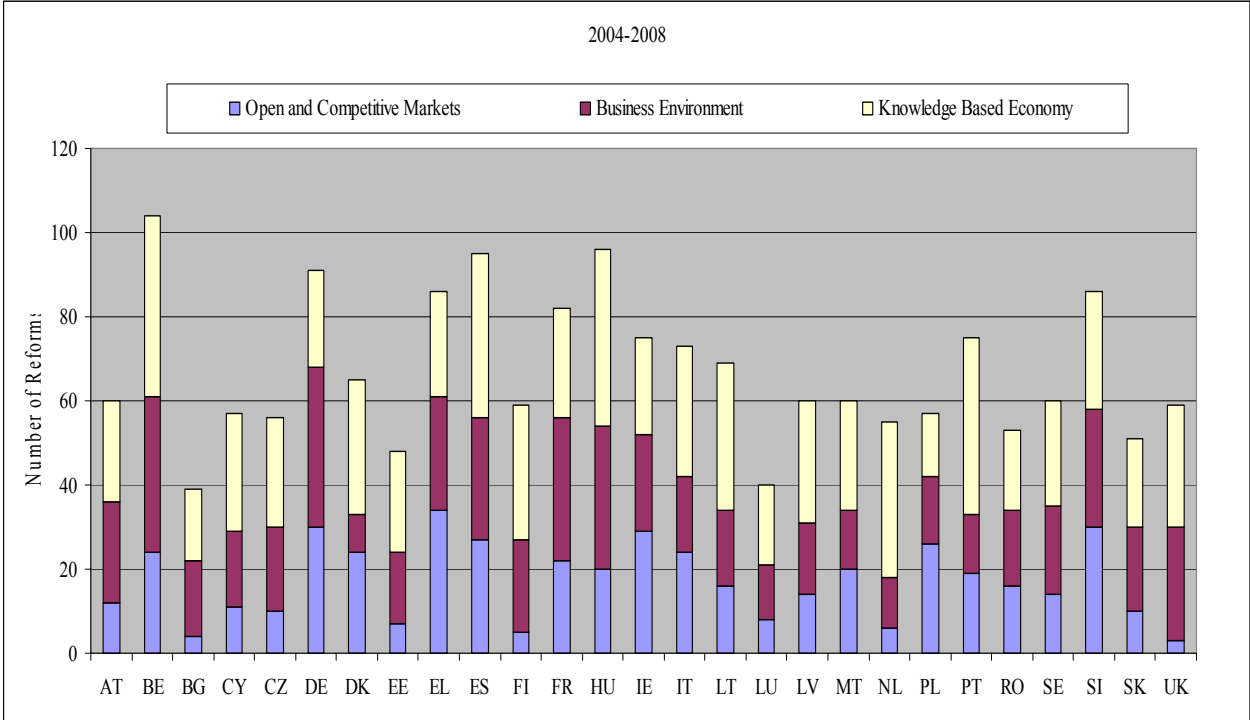
Source: MICREF

Further use of the similarity indicator also shows (in Figure 14) that the difference between individual EU-15 Member State's reform patterns is much greater than the difference between EU-12 (i.e., the Member States that joined the EU this century) Member State's reform patterns; in other words, the newest Member States have reform patterns that are relatively similar to each other, at least by comparison with the reform pattern heterogeneity of the EU-15.

Figure 13: Evolution and dispersion of reform patterns in EU-15
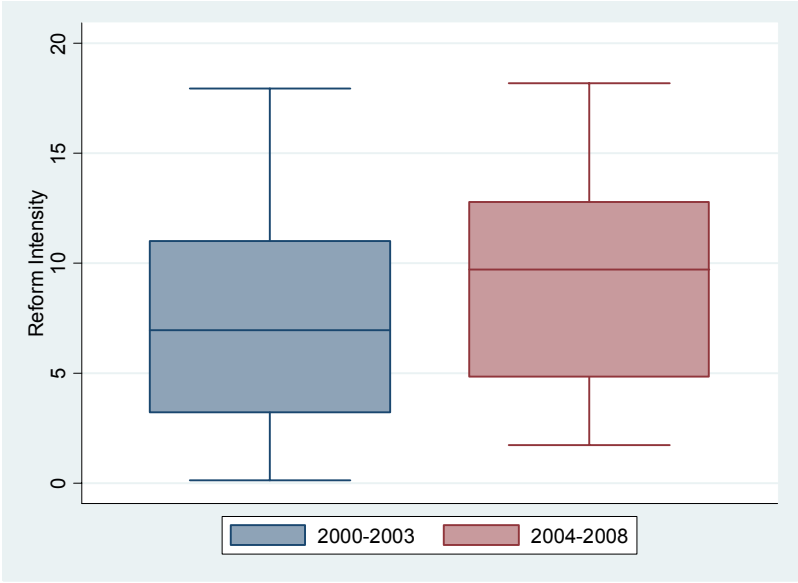
Figure 14: Dispersion of reform patterns in EU-12 and EU-15 over 2004-2008
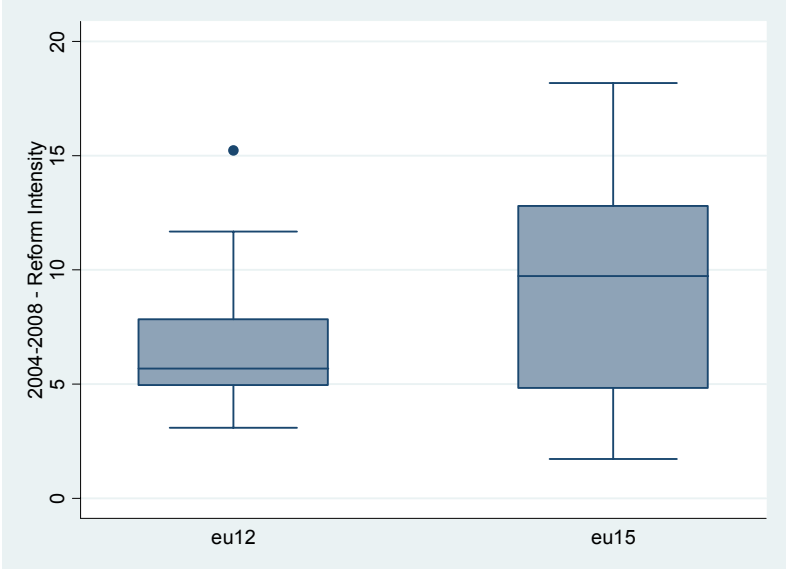
Note: Figure 13 & Figure 14: The horizontal line in the box corresponds to the median of reform similarity across countries. The closer it is to zero, the more similar countries' reform patterns are; the further from zero it is, the more different countries' reform patterns are. The edges of the box represent the dispersion of reform patterns across countries. They are measured by the first and third quartile of the cross-country distribution. The lines below and above the box correspond to the extreme values of the distribution (measured by the upper (lower) quartile range + (-) 1.5 times the inter-quartile range). The dots represent outliers. Footnote 32 explains how the indicator of reform similarity is calculated.

1.2.2. *Do reforms improve competition? Evidence from selected countries*

As described above, EU countries have implemented structural reforms aiming to improve framework conditions for companies. Furthermore, the mid-term review of the Lisbon agenda in 2005 led to an acceleration of structural reforms across Member States, especially in the field of business environment and knowledge. This section investigates the impact of structural reforms on competition bearing in mind that they may have other possible effects[33]. The objective is to see whether countries implementing structural reforms do seem to develop a more competitive environment.

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[33]   Prior and after the 2000s, there have been other various events which have led to an increase in competition in the EU (proxied here by price cost margins). During the 1990s, the implementation of the Single Market had an impact on price-cost margins. During the first period (1990-93), the price effect was dominant with increased competition due to the lowering of barriers to trade. In the second period (1997-1999), an increase in price-cost margins appeared mainly due to improved efficiency (Sauner-Leroy, 2003). The 2000 decade brought several changes affecting competitive outcomes – the introduction of the euro in 2002 in eleven countries and the enlargement of EU to ten new Member States in 2004 - both events certainly contributing to increased competitive pressure.

Ideally, the analysis would look at all Member States, but the focus here is on a sample of only eight countries, as data for the proxy of competition used in this section of chapter (price cost margins - PCM) are only available for these eight countries as result of a recent study by Altomonte *et al* (2009). That study selected those countries on the basis of various characteristics including social model, size, euro zone membership and new Member State status. The eight are Belgium (BE), France (FR), Germany (DE), Italy (IT), Spain (ES), Poland (PL), Romania (RO) and Sweden (SE)[34].

As structural reforms are often not sector-specific, except those dealing with network industries and other specific services, it is worth looking at their impact across sectors. Moreover, even sector-specific reforms dealing with network liberalisation (electricity, telecommunications, transport) have an impact well beyond the network sector as network industries are used as inputs for the rest of the economy[35]. From Altomonte *et al.* (2009), thirty sectors across both manufacturing and services have been selected at NACE rev1.1 3 digit level and are examined in this section[36].

1.2.2.2.Structural reforms in the selected countries: greater detail on some of the stylised facts

The eight selected countries account for 64.5% of EU-27 GDP and for 42.2% of EU27 reforms aiming to improve competition and the business environment during the 2000-2008 period[37]. In general, within the two MICREF reform domains of open and competitive markets and business environment and entrepreneurship, there was a concentration by Member States on sector-specific reforms in network industries and, to a lesser extent, other market services such as retail and professional services (averaging 41% of total reforms recorded in the two MICREF domains). Improvements to the business environment were also a particular focus of reforms (33% of the total number of reforms in the domain on average for the eight countries).

However, the eight selected countries also have quite distinct country-specific differences in the two reform domains (Figure 15). Amongst the eight countries, Poland and Sweden seem to have a preference for reforms that improve their trade integration with other countries, especially other EU countries; relatively speaking, Belgium and Romania, by contrast, seem least concerned with reforms in this area. Italy and Spain seem relatively more active in sector specific regulation reform whilst Romania and Sweden seem least concerned to be active in this sphere. Reform activity directed at improving the business environment is most important, relatively speaking, to Belgium and Romania, and least important to Italy, Spain and Poland. Reforming competition policy is a target for relatively more reforms in Spain and Romania, but

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[34] See Altomonte *et al.* (2009) for the discussion on countries' characteristics. This section uses data (PCMs) calculated by Altomonte *et al.* (2009), which covers a selection of countries and sectors over the period 2000-2007.

[35] See Bourles *et al.* (2010) in box 1.

[36] See Altomonte *et al.* (2009). Sectors are taken at the NACE (Rev.1.1) 3-digit level in food and beverages (15.1, 15.2, 15.3, 15.4, 15.5, 15.6, 15.7, 15.8, 15.9), chemicals (24.1, 24.2, 24.3, 24.4, 24.5, 24.6, 24.7), motor vehicles (34.1, 34.2, 34.3), retail (52.1, 52.2, 52.3, 52.4, 52.5, 52.6, 52.7), telecommunications (64.2) and real estate (70.1, 70.2, 70.3).

[37] MICREF database.

relatively few reforms in Belgium and Sweden. Finally, France and Belgium are relatively more active in enacting reforms to improve start-up conditions for firms whilst Sweden, Spain, Italy and Romania are relatively inactive in this sphere.

Figure 15: Reform pattern

Reform pattern of countries compared to EU27	Reform pattern of each country in the field of business and competition reforms
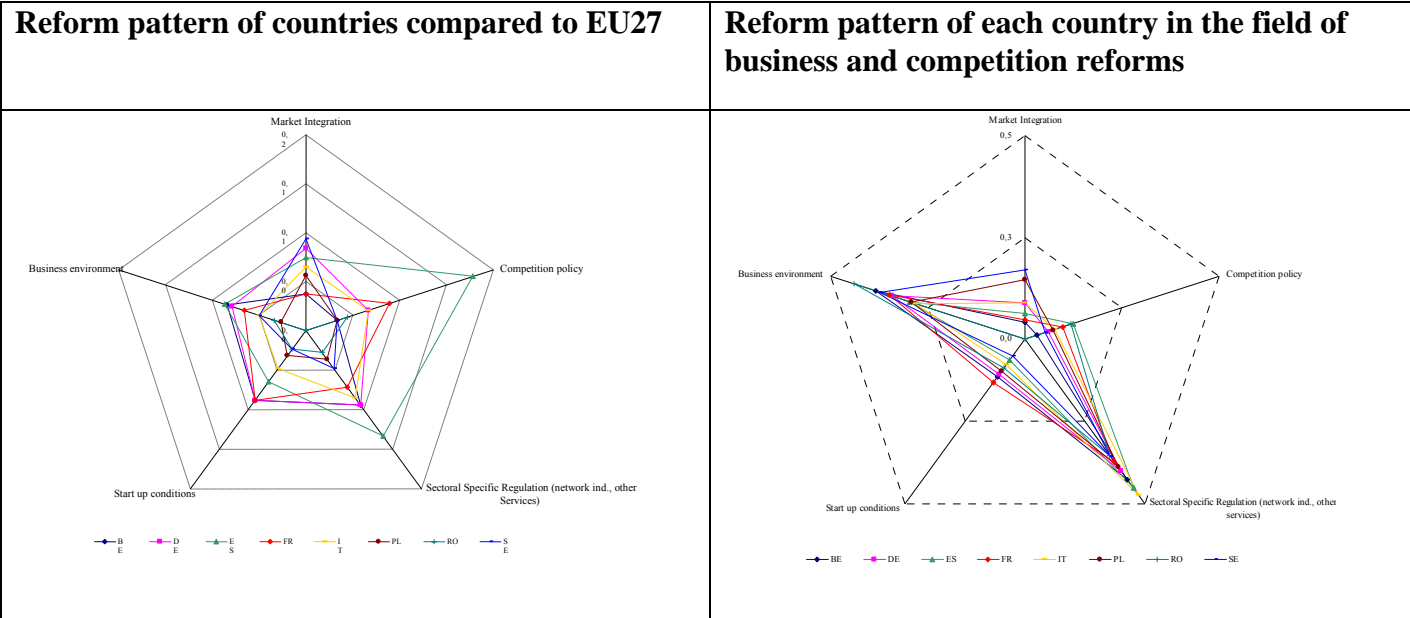
Source: MICREF.

Notes: These two figures provide a different picture of reforms undertaken in Member States. The left hand figure displays the share of reforms of country j in policy field i in the reforms of EU27 in policy field i (Share$_{ij}$= x$_{ij}$/x$_{iEU27}$) for each country. In other words, the left hand figure gives an overview of the reform pattern of the countries compared to the EU27. For example, Spain displays relatively higher shares in the field of competition policy and sectoral specific regulation. The right hand figure displays the share of reforms of country j in policy field i in total business and competition reform of country j (Share$_{ij}$= x$_{ij}$/Σx$_{ij}$) for each country. It therefore gives an indication of the reform pattern of each country. Many of them have implemented reforms in the field of sector specific regulation and business environment.

Overall, in terms of the actual numbers of reforms taken, reforms to start-up conditions seem rather neglected across all eight Member States. This could be for a number of reasons: there may be less need for reform, or reform may be able to progress on the basis of fewer, wider scope reforms than are needed in other reform areas, or there may simply not be enough reform effort devoted to start-up conditions. The data could be seen as triggering the need for further investigation. This is all the more true when the results are cross-referenced with those of the 'Doing Business Indicators' developed by the World Bank (discussed in Box 1-3). According to the World Bank, of the eight countries discussed here, the worst for starting a business in order are Spain, Poland, Germany and Italy. Best of the eight for starting a business are France, then Belgium. MICREF meanwhile, reports that amongst these eight Member States, the ones that have been relatively most active in reforming start-up conditions are, in descending order, France, Belgium, Germany and Poland. In other words, the most active of the 8 Member States in terms of reforming their start-up conditions are already the easiest of the 8 to start a business in. By contrast, in Spain especially, but also Italy, the situation is that it is not only less easy to start a business but also apparently relatively little effort is being put into making it easier. This suggests that there is a risk that the gap between leaders and laggards in encouraging entrepreneurship could be growing. It also suggests that Member States may need to consider whether they are attaching the appropriate priorities to the profile of their reform programmes.

1.2.2.3. Selection of competition and regulatory variables

Competition is proxied by price-cost margins (PCM) during 2000-2007 as calculated in Altomonte *et al.* (2009) (see Box 1-3). PCMs display the ability of firms to price above their marginal costs, reflecting their market power and their ability to acquire monopoly rents. The theory is that the more competitive the industry, the lower the price-cost margin and vice versa. Increased competition, induced by higher entry in the market, induces incumbents to react by lowering prices and/or inefficient firms to exit the market[38]. Over the period 2000-2007, PCMs have decreased in general, which could provide evidence that competition has increased in the EU. The trend is more pronounced in manufacturing than services and the median PCM for services is higher than that for manufacturing for the eight selected Member States over the given time period[39].

Regulation intensity is proxied by the share of reforms undertaken in the fields of business environment and competition in total reforms (see Box 1-3). These reforms aim *inter alia* to ease entry and exit, open markets in network and services and enhance the role of competition authorities. The implicit assumption is that the higher the number of reforms undertaken, the more competitive the environment in which economic actors operate.

Box 1-3: Competition and Regulation: proxies used in empirical studies

Price- cost margins as a proxy for competition

To analyse competition, several indicators can be used to proxy competition intensity, including the concentration indices (C4, Herfindahl index), price-cost margins (PCM) and profit elasticities, relative profit differences (see Boone (2008), Altomonte *et al.* (2009)). Many empirical industrial organisation studies have used price-cost margins as a measure of competition, especially as the index requires data that is available in most datasets (Boone, 2008). In general, authors use different methods to calculate the index - direct calculations from financial and accounting data (Nickell (1996)), or econometric techniques regressing output on production factors to estimate the Lerner index as a proxy of imperfect competition (Hall (1988), Roeger (1995)).

Using firm level data, the calculation of the PCM indicator raises two particular problems which may "disturb" the interpretation of the indicator (Altomonte *et al.* (2009). Firstly, the indicator does not capture the heterogeneity arising from the presence of different competitive situations across firms. Secondly, the aggregation inevitably misses economic changes such as reallocation effects. The evolution of the PCM may therefore not always reflect the entire picture, i.e. the sources of the observed changes. For example, an increase in efficiency (reflected by lower costs) may induce a high PCM, especially if inefficient firms exit the market thereby inducing a reallocation process. In this case, interpreting the high PCM as evidence of competition problems could be wrong and lead to false interpretations.

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[38] Such a relationship may however be challenged by other evolutions such as higher PCMs observed simultaneously with higher competition due to higher efficiency. See Box 1-3 for a discussion of the use of PCM as a proxy of competition.

[39] Altomonte *et al.* (2009).

These drawbacks are remedied by cross-checking the PCM-driven competitive assessment against other competition indicators. Boone (2007, 2008) in particular has investigated other indicators that would make competition assessment more robust. For example, he suggests using Profit Elasticities (PE) as a measure of competition where profit depends on marginal costs. The assumption behind this is that firms with lower marginal costs will have higher profits and increased market share. In Boone (2007), he tests the correlation between PCMs and Profit Elasticities (PE) and concludes that PCMs and PEs are not consistent in some cases. More specifically, PCMs can increase when competition increases while PE would decrease, in particular in concentrated markets where the reallocation effect is important. The author concludes that the use of PCM, in particular in highly concentrated markets, should be treated cautiously. Boone (2008) also suggests using the Relative Profit Difference (RPD). The intuition behind the suggestion is that an increase in competition means that the most efficient firms gain more relative to the less efficient firms. It follows that an increase in competition raises RPD. Altomonte *et al.* (2009) test several competition indicators using PCMs, Profit Elasticities and Relative Profit Differences as proposed by Boone (2007, 2008).

Bearing in mind these discussions, price cost margins should be interpreted carefully. Ideally, the respective evolutions of prices and costs should be observed when analysing how price-cost margins vary. Nevertheless, and in spite of these caveats, PCMs have, until now, remained a popular competition measure (Boone (2008), Konings *et al.* (2001, 2005), Roeger (1995), Gorg & Warzynski (2003)..

Indicators of structural reforms in product and service markets

The analysis carried out in this section is based on the Commission services' MICREF database, which was developed by the European Commission as part of the Lisbon Strategy (see footnote30). The database is further described in Annex 3.6-1. However, other institutions have been making major efforts since the 1990s to build up regulatory indicators that measure regulatory burdens in different countries. Although recent, these datasets are used in many empirical studies attempting to measure the link between regulation and economic performance.

The OECD was one of the first organisations to work on regulation indicators (Nicoletti, Scarpetta and Boylaud, 1999). The authors constructed different sets of indicators from detailed to aggregate ones, based on questionnaires sent to OECD country governments. Countries were then ranked according to a common scale reflecting the impact of their regulation on market mechanisms. The detailed indicators refer to economic regulation (concerning state control, market access, the use of inputs, output choices, pricing and international trade and investment), administrative regulation (the interface between government agencies and economic agents), and employment protection legislation for regular and temporary contracts. Many subsequent empirical analyses have been carried out using these indicators (Scarpetta S., Tressel T. (2002); Scarpetta and al, (2002), Nicoletti and Scarpetta (2005), Convay and dal (2005)).

More recently, the World Bank has been developing a data base of indicators on administrative burdens. The data base (Doing Business) measures government regulation (entry and exit regulation, employment regulation, court efficiency) and the protection of property rights. It covers the following dimensions: starting a business, dealing with construction permits, registering property, getting credit, protecting investors, trading across borders, enforcing contracts, paying taxes, closing a business, getting electricity and employing workers. The data

set covers 183 countries. The ease of doing business index is calculated as the ranking on the simple average of country percentile ranking on each of the 11 topics in Doing Business. Indicators proposed by the World Bank are also used for empirical studies (see Box 1-2).

1.2.2.4. Impact of structural reforms on competition

In order to analyse the role of structural reforms in PCM evolutions, a test on the extent to which high reformers as identified by the MICREF database achieve better outcomes in terms of competition is carried out.[40] The assumption behind this is that a country implementing a higher number of reforms displays more competitive outcomes, which translates into lower PCMs. In order to analyse the effects of structural reforms on competition, a conventional difference-in-difference (DID) model is employed[41]. The logic of such a model is to estimate a double difference, one over time (before and after the implementation of structural reforms) and one between groups (high and low reformers). The sample is split between high and low reformers[42], with the second group being the "control" group. This controls for common characteristics and common trends that may otherwise affect the results. The structural reforms period has been split before and after 2006 because the review of the Lisbon agenda in 2005 increased the pace of reforms, especially from 2006.

The results estimated by OLS can be summarised in Table 1. α_1 provides the initial difference between the high and low reformers in terms of PCM before 2006. The negative sign -0.34 shows that, on average the high reformers had lower PCMs before 2006 than the low reformer cohort. α_2 describes what happens to the control group (low reformers) before and after 2006. The positive sign 0.18 shows that PCMs have increased over the period for low reformers. The negative difference α_3 (-0.14) shows that on average, the high reformer cohort has lower PCMs due to the acceleration of structural reforms than the low reformer group, which actually increased PCMs over the same period. This would tend to confirm the positive role of structural reform on the evolution of PCM over time.

As mentioned above, other factors can also influence the intensity of competition. After controlling for other variables influencing competition (such as trade penetration, country, sector or time effects), the results (reported in Table 2) are not altered and structural reforms still play a role in the evolution of price cost margins. Overall, the results in Table 1 and Table 2 show a negative relationship between competition enhancing structural reforms and PCMs, i.e. high reformers tend to be more competitive as proxied by lower price-cost margins. However, introducing trade into the regression leads to unexpected results, namely that intra-EU trade penetration seems to lead to higher PCMs. Extra-EU trade, on the other hand, increases competitive pressures, although the variable is not significant in all cases. It is not clear what explains this and it is a result which should be treated cautiously. Perhaps higher PCMs are attracting greater intra-EU imports, or that the approach needs to take a more

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[40]   Data details are available in Annex 1.2-1.

[41]   See Levchenko *et al.* (2009) where the authors analyse the effects of financial liberalisation using a difference-in-difference model.

[42]   The high reformer group is identified as the top four countries whose median stock of reforms is above the median number of reforms (for "open and competitive markets" and "business environment") of all eight countries. Thus, the low reformer group is the four countries whose median is below the total group median.

sectoral approach to see where exactly imports are having an impact and what that impact is. Finally, competition intensity tends to be higher in manufacturing than in services, which is consistent with other empirical studies[43].

Table 1: Impact of structural reforms on PCMs

$\log \text{PCM} =$	-1.4***	-	0.34*REF***	+	0.18*YEAR_REF_t***	-	0.14*REF_i*YEAR_REF_t**
	(0.02)		(0.03)		(0.04)		(0.06)

r^2=0.104
Adjusted r^2=0.102
N= 1910

In the most simple DID model, that ignores other possible effects influencing competition, the equation is:

$$\log PCM_{ijt} = \alpha_0 + \alpha_1 REF_i + \alpha_2 YEAR\_REF_t + \alpha_3 (REF * YEAR\_REF)_{it}$$

where competition is proxied by PCM (the "observed" median price-cost margin as calculated in the Altomonte study[44]) for country i, sector j and year t; REF is a time-invariant dummy equal to 1 for high reformers in the field "open and competitive markets" and "business environment" and 0 for low reformers[45]; YEAR_REF is a dummy equal to 1 for the period 2006 and after and 0 beforehand; REF*YEAR_REF is the interaction between REF and YEAR_REF. For this latter variable, only high reformers after 2006 would have a dummy of 1 and 0 otherwise.

α_0 shows the logged median PCM of the control group (low reformers) before 2006 i.e. the constant. $\alpha_1 REF_i$ provides the initial difference between the high and low reformers in terms of PCM before 2006. α_2 describes what happens to the control group before and after 2006 and corresponds to the pre-post 2006 difference of log median PCM of the low reformers ("control group"). The double difference is given by α_3 which provides the estimated difference-in-difference of logged median PCM between high and low reformers after 2006.

Source: Commission services. Based on a sample of 8 countries, 30 NACE 3-digit sectors over 8 years 2000-2007. Countries: Belgium, Italy, France, Spain, Germany, Poland, Romania, Sweden. PCMs are taken from Altomonte *et al.* (2009). Structural reforms are taken from the MICREF database.

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[43] Altomonte *et al.* (2009), Bouis & Klein (2009).

[44] Competition is measured with the "median observed PCM" calculated by Altomonte *et al.* (2009) for Belgium, Germany, France, Spain, Italy, Poland, Romania and Sweden for 30 sectors (3-digit) for 8 years, 2000-2007. In their paper, Altomonte *et al.* (2009) estimate PCMs by two methodologies. The first one calculates PCMs from balance sheet data. The second one estimates PCMs using the Roeger methodology (1995). The authors choose to use the former or "observed" PCM as the PCM obtained via the Roeger methodology is sensitive to the level of aggregation used. PCMs are thus calculated following the approach suggested by Tybout (2003) where the PCM is the difference between production value and total variable costs (employment plus material costs) divided by production value.

[45] See footnote 42.

Table 2: Impact of structural reforms on competition

Dependent Variable: log median PCM	(1)	(2)	(3)	(4)
High reformers (REF)	-0.356***	-0.357***	-0.217***	-0.269***
	[0.034]	[0.034]	[0.041]	[0.033]
Post 2006 (YEAR_REF)	0.167***	0.143**	0.144**	0.102**
	[0.040]	[0.068]	[0.057]	[0.046]
Interaction (REF*YEAR_REF)	-0.161***	-0.162***	-0.139**	-0.111***
	[0.062]	[0.062]	[0.054]	[0.040]
Intra-EU Trade penetration (logEU trade)	0.093***	0.090***	0.025	0.089***
	[0.017]	[0.017]	[0.015]	[0.020]
Extra-EU Trade penetration (logEXTtrade)	-0.021	-0.020	0.022**	-0.057***
	[0.013]	[0.013]	[0.011]	[0.017]
Manufacturing (manuf_dum)	-0.760***	-0.740***	-0.545***	
	[0.088]	[0.089]	[0.079]	
Year dummy	No	Yes	Yes	Yes
Country dummy	No	No	Yes	Yes
Sector dummy	No	No	No	Yes
Constant	-0.712***	-0.779***	-0.792***	-1.861***
	[0.096]	[0.109]	[0.099]	[0.081]
Observations	1493	1493	1493	1493
R-squared	0.161	0.167	0.414	0.687

The equation has the following form:

$$\log PCM_{ijt} = \alpha_0 + \alpha_1 REF_i + \alpha_2 YEAR\_REF_t + \alpha_3 (REF*YEAR\_REF)_{it} + \alpha_4 \log EUtrade_{ijt}$$

$$+ \alpha_5 \log EXTtrade_{ijt} + \alpha_6 MANUF\_DUM_j + \alpha_7 DUM_i + \alpha_8 DUM_t + \alpha_9 DUM_s + \varepsilon_{ijt}$$

where competition is proxied by *PCM* (the "observed" median price-cost margin as calculated in the Altomonte study[46]) for country *i*, sector *j* and year *t*; *REF*, *YEAR_REF* and *REF*YEAR_REF* are described as before. *EUtrade* is intra-EU-27 trade penetration; *EXTtrade* is extra-EU-27 trade penetration, *MANUF_DUM* is a dummy for manufacturing industries; *DUM_i* is a country dummy; *DUM_t* is a time dummy, *DUM_s* is a sector dummy. The estimation is carried out using a pooled OLS model. Table A 2 in Annex 1.2-1 shows the results estimated with panel random effects. The panel regression does not change the results.

Note: Standard errors in brackets: * significant at 10%; ** significant at 5%; *** significant at 1%.

Source: Commission services. Based on a sample of 8 countries, 30 NACE 3-digit sectors over 8 years 2000-2007. Countries: Belgium, Italy, France, Spain, Germany, Poland, Romania, Sweden. PCMs are taken from Altomonte *et al*. (2009). Structural reforms are taken from the MICREF database.

1.2.3. Channels through which structural reforms affect competition: evidence from selected countries

Whereas high reformer countries tend to display better competitive outcomes as proxied by price cost margins, the analysis does not differentiate across types of reforms. Depending on the type of measures implemented, the impact of structural reforms on competition can take different channels – via the discipline of imports when promoting market integration and opening up of markets, via increased entry and/or exit when easing the conditions to start and close a business, and finally via influencing competitive behaviour through the enforcement of

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46   See footnote 44.

a strong competition policy. Import discipline was the logic behind the implementation of the Internal Market Strategy where the opening of markets was expected to affect profit margins of European companies[47]. More recently, the empirical literature has investigated the role of measures facilitating entry and exit in enhancing competition (see Box 1-2).

From this, it is useful to analyse the channels through which business environment reforms can influence competitive outcomes. In this section, the eight countries, the 30 sectors analysed above and the PCM over the period 2000-2007 are used for the purpose of the analysis.

1.2.3.1. Channel "Total Number of Firms"

The variable "total number of firms" tries to capture the competitive pressure in the sector. The *first* channel investigated is the total number of firms. It is assumed that the higher the number of firms, the higher the competition pressure[48]. Using a two-step approach, the impact of competition-enhancing structural reforms recorded in MICREF on the total number of firms is analysed. The assumption behind this is that the more structural reforms carried out to improve business environment[49], the higher the total number of firms in a sector/market. More firms increase competitive pressures thereby lowering price-cost margins.

As regards the role of the total number of firms in a sector, the results from the first step suggest that business reforms have a positive effect on the firm count in a sector, as shown in Table 3. The results from the second step imply that the larger the number of firms in a sector, the lower the price-cost margin and hence the higher the competition.

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[47]   Jacquemin & Sapir (1990)

[48]   In other words, an increase in market size as measured by the total number of firms leads to a decrease in concentration, hence an increase in competition. Arguably, using the total number of firms as a proxy for competitive outcomes could be challenged as an increase in the total number of firms could simply reflect a large number of inefficient firms. Moreover, the relationship between market size and concentration might be broken down. Sutton (1991) suggests that in the presence of endogenous sunk costs (such as advertising costs for example), concentration may not fall even if market size increases. As their markets expand, firms can choose to increase endogenous sunk costs that will affect in turn their price cost margins. The relationship between firm population, mark-ups and market size has also been investigated by Bresnahan and Reiss (1988; 1991). The authors advance an empirical framework designed to analyse the relationship between entry and competition in concentrated markets. In their empirical analysis, they show that most of the increase in competition comes with the entry of the second and third firm, which translates into a fall of mark-ups or variable profits.

[49]   Given the focus on entry and exit, the analysis considers reforms aiming to improve business environment (start-up conditions, administrative burden on firms, etc...). Reforms in the field of competition, as recorded in MICREF, deals with horizontal measures (improving the competition framework) and sectoral measures such as opening up network markets. The opening up of network markets reduce mark-ups which would translate into increased efficiency in the rest of the economy. See Bourles *et al* (2010).

Table 3: Channel of structural reforms on competition – Number of firms

First Step - Dependent Variable: Total Number of Firms		
	ROLS	Panel Random effect
Business Environment Reforms (REF)	3,61***	3,61***
	[0.039]	[0.039]
Intra-EU Trade penetration (logEU trade)	-0.41***	-0.41***
	[0.04]	[0.04]
Extra-EU Trade penetration (logEXTtrade)	-0.095***	-0.095***
	[0.03]	[0.03]
Manufacturing (manuf_dum)	1,31***	1,31***
	[0.22]	[0.22]
Year Dummy	No	No
Constant	2,9***	2,9***
	[0.26]	[0.26]
Observations	1341	**1341**
Second Step - Dependent Variable - Log median PCM		
Total Number of Firms	-0.133**	-0.133***
	[0.057]	[0.049]
Intra-EU Trade penetration (logEU trade)	-0.014	-0.014
	[0.028]	[0.028]
Extra-EU Trade penetration (logEXTtrade)	-0.016	-0.016
	[0.016]	[0.017]
Manufacturing (manuf_dum)	-0.334***	-0.334***
	[0.112]	[0.115]
Year Dummy	No	No
Constant	-0.607**	-0.607***
	[0.251]	[0.215]
Observations	1341	1341
Number of group(country nace3)		

The analysis here adopts a two-step least squares (2SLS) technique. The first step equation instruments the count of the total number of firms by the business reforms dummy, trade penetration and a manufacturing dummy:

$$\log TF_{ijt} = \alpha_0 + \alpha_1 REF_i + \alpha_2 \log EUtrade_{ijt} + \alpha_3 \log EXTrade_{ijt} + \alpha_5 MANUF\_DUM_i + \varepsilon_{ijt}$$

The second step uses the fitted values from the first equation to analyse the effect of the number of firms in a sector on competition, via competition reforms.

$$\log PCM_{ijt} = \alpha_0 + \alpha_1 \log \hat{T}F_{ijt} + \alpha_2 \log EUtrade_{ijt} + \alpha_3 \log EXtrade_{ijt\ ijt} \ \text{whe}$$
$$+ \alpha_5 MANUF\_DUM_i + \varepsilon_{ijt}$$

re *TF* is the count of the total number of firms in country *i* in sector *j* at year *t*; *REF* is the share of business reforms in total reforms; *MANUF_DUM* is a dummy for manufacturing sectors; *PCM* is the "observed" median price-cost margin; $\hat{T}F$ is the fitted value of *TF*; *EUtrade* is intra-EU-27 trade penetration; *EXTrade* is extra-EU-27 trade penetration.

The results with time fixed effects are presented in Table A 3, Annex 1.2-2. The results are not changed .

Note: Standard errors in brackets: * significant at 10%; ** significant at 5%; *** significant at 1%

1.2.3.2.Channel "Entry and Exit"

The *second* channel investigated is entry into and exit from an industry. The assumption behind this analysis is that when reforms improve business environment by making entry and exit to the market easier, entry and exit increase, and this in turn has a positive impact on competition.

The results in Table 4 suggest that business environment reforms have a positive and significant effect on both entry and exit, although the reform effect on exit is stronger than the former. Overall, the effect of entry and exit on competition is positive (negative PCM), though only significant in the case of exit[50]. This latter result is in line with the the World Bank's Doing Business indicators (see Figure 16) which show that, regarding the ease of firm <u>exit</u> in general, the gap between many Member States and leading countries (those countries where exit is easiest) is wider than the gap between the ease of firm <u>entry</u> in many Member States and the leading countries. In other words, in the eight Member States under examination here, exit is probably more difficult than entry in general, and so the impact of reforming exit conditions may be larger than the impact of reforming entry conditions. Surprisingly, intra-EU trade penetration has a positive impact on PCMs while extra-EU trade penetration has no significant effect.

Table 4: Channel of structural reforms on competition – Entry/exit

	First Equation (Dependent variable entry)	Second Equation (dependent variable exit)	Third equation (dependent variable: log median PCM)
Business Environment Reforms (BUS)	1.107*** [0.340]	3.518*** [0.575]	
Entry (log entry)			-0.018 [0.031]
Exit (log exit)			-0.045*** [0.017]
Intra-EU Trade penetration (logEU trade)			0.118*** [0.031]
Extra-EU Trade penetration (logEXTtrade)			-0.043* [0.024]
Manufacturing (manuf_dum)			-0.910*** [0.148]
Constant	-2.912*** [0.086]	-5.040*** [0.146]	-1.089*** [0.179]
Observations	730	730	730

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[50] The impact of exit on competition is not straightforward. However, if exit leaves generally more efficient firms on the market that compete among themselves, then there should be a positive impact on competition.

Entry and exit are investigated separately whilst taking account of their relationship with competition. In this case, 'Business environment & entrepreneurship' reforms from MICREF are used as these measures are most likely to affect the entry and exit rates of an industry. The technique used here is that of the Seemingly Unrelated Regression (SUR) where a system of equations is estimated:

$$\log Entry_{ijt} = \alpha_0 + \alpha_1 BUS_{it} + \varepsilon_{ijt}$$

$$\log Exit_{ijt} = \alpha_0 + \alpha_1 BUS_{it} + \varepsilon_{ijt}$$

$$\log PCM_{ijt} = \alpha_0 + \alpha_1 \log Entry_{ijt} + \alpha_2 \log Exit_{ijt} + \alpha_3 MANUF\_DUM_i + \alpha_4 \log EUtrade_{ijt}$$
$$+ \alpha_5 \log EXtrade_{ijt} + \alpha_6 EA\_DUM_i + \varepsilon_{ijt}$$

where *Entry* is the entry rate into country *i* in sector *j* at year *t*; *Exit* is the exit rate from country *i* in sector *j* at year *t*; *BUS* is the share of 'business environment and entrepreneurship' reforms in the total number of reforms; *MANUF_DUM* is a dummy for manufacturing sectors; *PCM* is the "observed" median price-cost margin; *EUtrade* is intra-EU trade penetration; *EXTrade* is extra-EU trade penetration.

Note: Standard errors in brackets: * significant at 10%; ** significant at 5%; *** significant at 1%
Source: Commission services. Based on a sample of 8 countries, 30 NACE 3-digit sectors over 8 years 2000-2007. Countries: Belgium, Italy, France, Spain, Germany, Poland, Romania, Sweden. PCMs are taken from Altomonte *et al.* (2009). Structural reforms are taken from the MICREF database.

1.2.4. *Sources of competition and labour productivity growth: a preliminary analysis*

The analysis above shows that competition and business environment reforms, including reforms stimulating entry and exit, have a positive impact on competition in the sense that PCMs narrow. In this section, the focus is on the relationship between competition (as proxied by PCMs) and labour productivity growth. This relationship has already been explored in the empirical literature. In general, authors find a positive relationship between increased competition (in the sense of lower PCMs) and labour productivity growth (see Box 1-2), although the relationship may not be linear. Furthermore, the lower the initial intensity of competition, the higher the impact of any increase in competition (see Bouis and Klein, 2008). To go beyond the findings in the literature, analysis was carried out to go into more detail about different types of competition and their impact on labour productivity growth.

Changes in the intensity of competition as reflected in changes to aggregate PCMs in a market can be the result of a number of different phenomena: incumbent firms may, for example, adopt a more aggressive pricing strategy narrowing their PCMs by lowering their prices in order to increase their market share; inefficient firms may exit the market leaving more efficient firms; more efficient firms may enter the market, perhaps even with wider price-cost margins thanks to their higher efficiency. A process of restructuring will occur as a result of these various drivers of competition intensity which, in turn, will affect the evolution of labour productivity growth.

The various reasons why the intensity of competition in a sector or market may change can be identified by decomposing changes in aggregate PCMs into intra-firm PCM changes due to changes in firms' behaviour, changes due to the dynamic process of firm expansion and

contraction, and the emergence of new firms and disappearance of failed firms. The decomposed aggregate PCM changes can then be used to assess the impact on labour productivity growth of different drivers of competition and, hence, the relative importance of different types of competition as drivers of labour productivity growth. The specifics of the approach are described in Box 1-4.The analysis is still focussed on the 8 selected countries, but is carried out on 6 sectors at 2 digit level over the period 2000-2007.

Box 1-4: Decomposition of PCM

Changes in competition (proxied by PCMs) are the aggregate result of a number of different developments at firm level. These can be disentangled using a decomposition index (Boone (2007), Altomonte *et al.* (2009)). This decomposition method was proposed by Bark and Hoogenboom-Spilker (2003) in a different context; they were tyring to understand the sources of productivity changes, i.e. intra-firm productivity change or inter-firm reallocation. However, Altomonte *et al.* (2009) apply the same decomposition to changes in aggregate PCMs. The advantage of this decomposition approach is that it takes firm level heterogeneity into account as well as the interactions between firms and the market. This helps to clarify what is driving changes in PCMs – firm behaviour or reallocation effects due to changes in efficiency.

Given the aggregated weighted change in the PCM of a sector (between time t and t+1):

$$PCM_{t+1} - PCM_t = \sum_{i \in I_{t+1}} ms_{it+1} pcm_{it+1} - \sum_{i \in I_t} ms_{it} pcm_{it}$$

A Laspeyres-type decomposition index is constructed as:

$$PCM_{t+1} - PCM_t = \sum_{i \in I} \left[\underbrace{ms_{it}\left(pcm_{it+1} - pcm_{it}\right)}_{\text{within effect}} + \underbrace{pcm_{it}\left(ms_{it+1} - ms_{it}\right)}_{\text{reallocation effect}} + \underbrace{\left(pcm_{it+1} - pcm_{it}\right)\left(ms_{it+1} - ms_{it}\right)}_{\text{interaction effect}} \right] +$$
$$+ \underbrace{\sum_{i \in I_{t+1} \setminus I} ms_{it+1} pcm_{it+1} - \sum_{i \in I_t \setminus I} ms_{it} pcm_{it}}_{\text{entry-exit effect}} \qquad (3)$$

From this decomposition, changes in aggregate PCMs can be interpreted thus: (1) the "within effect", i.e. the pure impact on competition of reducing prices (which narrows firms' PCMs) keeping market shares (*ms*) constant. The interpretation of the "within effect" is consistent with the traditional way of interpreting PCMs, i.e. a decrease signifies improved competition; (2) the "reallocation effect", i.e., the impact on competition due only to changes in firms' market shares (their PCMs are kept fixed); (3) the "interaction effect" which measures the interaction of changes in firms' market shares and their PCMs. Intuitively, both terms should go in the opposite directions, i.e. an increase in PCMs should lead to a decrease in market share and *vice versa*. As a result, the product of both should always be negative. However, a positive sign would show that a firm with narrowing PCMs is losing market share and *vice versa*, possibly a case for further investigation; (4) the "entry and exit effect", the last part of the index takes into account the impact on aggregate PCMs of change to the population of active firms – i.e., the product of the market share of firms active in t+1 but not present in t and their PCMs net of the

product of firms that were active before the change in competition (in t) but which were forced to exit by t+1 and their PCMs. When entry is more important, the sign is positive[51].

By decomposing PCMs in this way, some assessment of the contribution of different competition effects – within, reallocation, interaction, net entry - to the evolution of the aggregate would hopefully be possible. Some preliminary tests have been carried out precisely to make such an assessment[52] [53]. Those tests tentatively indicate that changes in PCM due to firm entry may have a positive impact on labour productivity change, in line with intuition (new entrants can be assumed to be more efficient, hence contributing to increased labour productivity growth); and that catching up and levels of human capital may also have effects[54]. However, at this stage, unfortunately, the results have not been robust enough to draw any conclusions and further research is needed.

1.2.5. Concluding Remarks

The analysis has been mostly focussed on a selection of countries and sectors, but it is likely that the policy implications of the findings could also be applied to all Member States. One particular finding is that structural reforms aiming to improve competition and the business environment play a positive role on competition intensity through the channel of entry and exit. It is therefore potentially important for Member States to check whether they have sufficiently

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[51] Note that this item is very data dependent. In general, databases do not include information on entry and exit (unless data comes from official business registrations). Therefore, authors have to make assumptions about how to deal with entry and exit. Bark and Hoogenboom-Spilker (2003) supplemented their production survey data with information from the business register. It turned out to lead to a significantly lower contribution of entering and exiting firms to aggregate productivity changes. Altomonte *et al.* (2009) also discuss their assumptions and the limitations of their entry and exit data. A summary of their approach is to found in the annex to this chapter.

[52] More specifically, to test the initial assumption that changes in price cost margins are inversely related to labour productivity growth. For example, any increase in PCM would reduce labour productivity growth. Hence, the decomposition of PCM change (within, reallocation, interaction and net entry) could be tested against the change in labour productivity growth.

[53] The analysis focussed on the 8 selected countries, and was carried out on 6 sectors at 2 digit level over the period 2000-2006 (owing to data limitations). The results did not lead to any robust conclusions. The link between competition and labour productivity was estimated using OLS and the following equation:

$$LP_{ijt} = \alpha_0 + \alpha_1 PCM\_within_{ijt} + \alpha_2 PCM\_realloc_{ijt} + \alpha_3 PCM\_interact_{ijt} + \alpha_4 PCM\_entry_{ijt}$$
$$+ \alpha_5 PCM\_exit_{ijt} + \alpha_6 prod\_gap_{ijt} + \alpha_7 MSKILL + \alpha_8 LSKILL_{ijt} + \alpha_9 DUM_{ijt} + \varepsilon_{ijt}$$

where LP is labour productivity growth change for country i in sector j at year t; PCM_within corresponds to the within decomposition effect of PCMs; PCM_realloc is the reallocation decomposition effect; PCM_interact corresponds to the interaction effect, PCM_entry corresponds to the entry effect, PCM_exit corresponds to the exit effect, productivity gap is the ratio between the productivity leader in sector j in year t and the productivity of country i in sector j at year t; DUM is sector, country and time dummies. The productivity gap was also replaced by a sectoral productivity gap , MANUF_DUM is a dummy for manufacturing sectors, MskillL is a dummy for medium skill sectors and Lskill is a dummy for low skill sectors.

[54] See McMorrow *et al.* (2010). The authors analyse the determinants of the EU-US TFP gap and find, among other things, the role of the catching-up phenomena. However, the authors also find that TFP is driven by other developments such as R&D expenditures, higher adoption rates for ICT-intensive technologies and human capital.

facilitated regulatory conditions covering both entry and exit. Against this background, it should be a matter of concern that the evidence suggests that some Member States may be relatively difficult places for firms to start up in, yet they are also relatively less active in reforming their business entry conditions than Member States where entry is already relatively easy. On the other hand, the gains from improving exit conditions look to be larger, at least at the present time, than the gains to be reaped from improving entry conditions; evidence from the World Bank's 'Doing Business Indicators' finds that the effort required by Member States to reach the average of the three best ranked economies (the United Kingdom, Denmark and Ireland) would require, on average, a 7% improvement for starting a business and a 16% improvement for closing a business for the remaining 23 Member States[55] (see Figure 16).

Another finding is that many Member States have accelerated the implementation of structural reforms since the beginning of 2000 and especially after 2005. Furthermore, the reforms have had a positive impact on competition. However, some Member States are more pro-active reformers than others, and the latter do seem to have paid the price in terms of less competition. That leaves room for improvement by some Member States.

Figure 16: Efforts to reach the best performers – Starting and Closing a Business

Efforts to reach the three best performers* - 2011
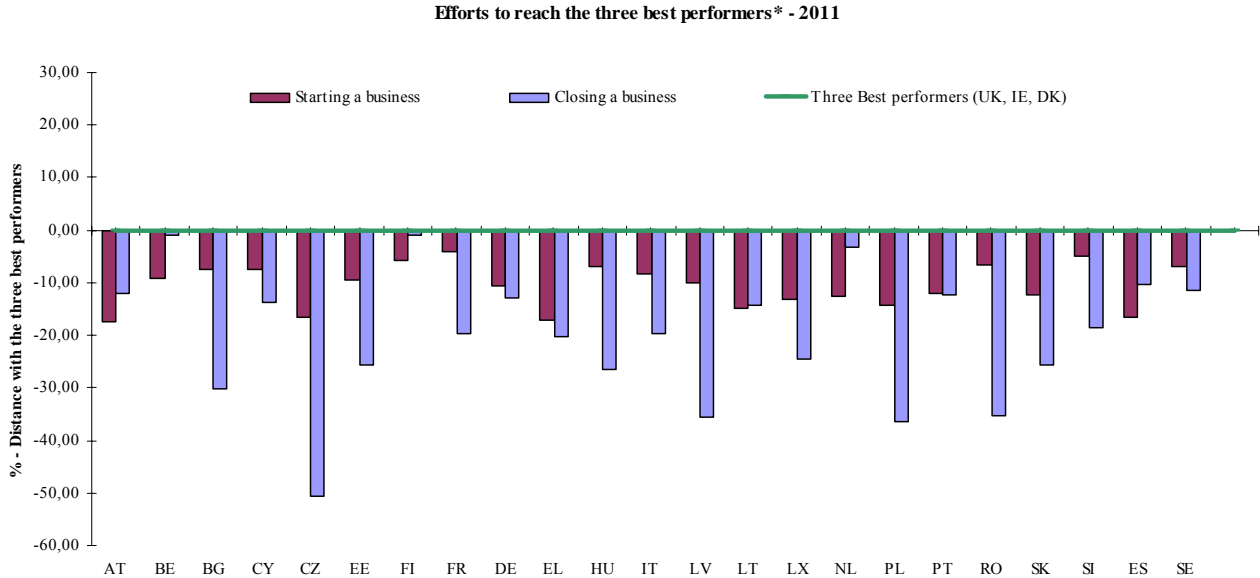
Source: calculations from WB Doing Business 2011.
* The calculation is weighted by the number of sub-indicators.

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[55] Weighted average. Under the assumptions of this exercise and assuming that the non-EU economies would not change their behaviour and keep their performance unchanged, these 23 Member States would subsequently be within the 50 top performing. Note that Malta is not included in these rankings

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Annex 1.2-1: DESCRIPTION OF VARIABLES AND DATA SOURCES

Dependent Variable: Price –cost margins

Price-cost margins are used as a proxy for competition. They are taken from the Altomonte study (2009). The PCM is the difference between production value and total variable costs (employment plus material costs) divided by production value, which corresponds to the "observed" PCM as referred to in the Altomonte study (2009):

$$PCM_{ijt} = Sales_{ijt} - VCost_{ijt} \Big/ Sales_{ijt}$$

Dependent Variable: Labour Productivity

Labour Productivity per hours worked is taken from EU KLEMS. Labour productivity is provided at 2-digit level.

Independent variables

Competition enhancing reforms

We use two broad policy domains from MICREF which are 'Open and competitive markets' and 'Business environment & entrepreneurship'.

One variable has been created and captures the extent to which structural reforms are business oriented. It is measured by the share of cumulated reforms 'Business environment & entrepreneurship' over the total cumulated reforms (in 2007).

A dummy has been created for high reformers, which is equal to 1 when the cumulated number of reforms in between 2000 and 2007 is equal to or above the median of the eight countries considered and 0 when below i.e. low reformers. The dummy is based on the reforms in both 'Open and competitive markets' and 'Business environment & entrepreneurship'

Entry/exit

The extent to which firms enter and exit the market impacts on competition intensity. We use the assumptions and the routine prepared by Altmonte *et al.* (2009) when decomposing the PCM (see Box 1-4). As regards entry, the authors consider a firm to have entered the market in a given year when a positive value of its revenues is present in that year, no values are present in the two preceding years and its incorporation can be dated no more than two years before that given year. As regards exit, a firm is considered to have exited the market when it is inactive in the last available year of the database or it has not reported data on revenues for at least two consecutive years till the end of the period of analysis[56].

Trade penetration

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[56]   For a discussion, see section 5 of Altomonte *et al.* (2009). The authors describe their assumption and the limitations of the method.

Other independent variables take account of external trade penetration (extra-EU trade), EU integration (intra-EU trade penetration). The variable trade penetration is calculated as follows:

TP= Import/(production + import – exports).

We split the trade penetration indicator between intra- and extra- EU-27 trade. The data on production are taken from the Altomonte database, which is the sum of sales for each sector.

Productivity gap

The productivity gap is calculated as the ratio between productivity level of country leader and the productivity level of country i. Data on value-added, hours worked, value price index and PPP (sectoral, economic wide) come from EU Klems. For non euro countries, we use exchange rates from the ECB.

Skills

A dummy has been created for human skills. We use the Eurostat classification for low, medium skill.

Table A 1: Data sources

Variable $_{ijt*}$	Raw Data	Source
PCM Sales$_{ijt}$-cost$_{ijt}$/Sales$_{ijt}$	Sales Employment costs Material costs	Altomonte Study (Amadeus)
Entry, Exit, Total Number fo Firms	Number of entry and exit/total number of firms	Altomonte Study (Amadeus)
Structural reforms	Reforms – Open and Competitive Markets	MICREF
Eutrade M_{ijt} / Y_{ijt}+M_{ijt}-X_{ijt}	Export (i) to EU27 Import (i) from EU27 Sales (i)	Comext Comext Amadeus
EXtrade M_{ijt} / Y_{ijt}+M_{ijt}-X_{ijt}	Export (i) to ROW Import (i) from ROW Sales (i)	Comext Comext Amadeus
Sectoral Value Added	Value Added at factor costs	Eurostat
Labour Productivity growth	Labour Productivity per hours worked	EU KLEMS
Labour Productivity level	Value added Hours worked Value price index (1995) PPP aggregate and sector Exchange rates	EU KLEMS ECB
Human skills (low, medium, high)	Dummy	Eurostat classification

* Member States (i) for sectors (j) for years (t).
MS: Belgium, France, Germany, Italy, Poland, Romania, Spain, Sweden.
Sectors: food and beverages (15.1, 15.2, 15.3, 15.4, 15.5, 15.6, 15.7, 15.8, 15.9), chemicals (24.1, 24.2, 24.3, 24.4, 24.5, 24.6, 24.7), cars (34.1, 34.2, 34.3), retail (52.1, 52.2, 52.3, 52.4, 52.5, 52.6, 52.7), telecommunications (64.2) and real estate (70.1, 70.2, 70.3).
Year: 2000-2007

Table A 2: Impact of structural reforms on competition

	-1	-2	-4	-5	-7	-8	-9	-10	-11
	OLS Robust	Panel Random Effect	OLS Robust	Panel Random Effect	OLS Robust	OLS Robust	OLS Robust	Panel Random Effect	Panel Random Effect
High reformers (REF)	-0.338 *** [0.031]	-0.334 *** [0.068]	-0.356 *** [0.034]	-0.347 *** [0.067]	-0.357 *** [0.034]	-0.217 *** [0.041]	-0.269 *** [0.033]	-0.345 *** [0.067]	-0.173 [0.115]
Post 2005 (YEAR_REF)	0.175 *** [0.040]	0.175 *** [0.018]	0.167 *** [0.040]	0.155 *** [0.020]	0.143 ** [0.068]	0.144 ** [0.057]	0.102 ** [0.046]	0.287 *** [0.030]	0.289 *** [0.030]
Interaction (REF*YEAR_REF°	-0.137 ** [0.058]	-0.138 *** [0.025]	-0.161 *** [0.062]	-0.144 *** [0.029]	-0.162 *** [0.062]	-0.139 ** [0.054]	-0.111 *** [0.040]	-0.145 *** [0.028]	-0.145 *** [0.028]
Intra-EU Trade penetration (logEU trade)			0.093 *** [0.017]	0.062 *** [0.021]	0.090 *** [0.017]	0.025 [0.015]	0.089 *** [0.020]	0.047 ** [0.021]	0.038 * [0.020]
Extra-EU Trade penetration (logEXTtrade)			-0.021 [0.013]	-0.026 [0.017]	-0.020 [0.013]	0.022 ** [0.011]	-0.057 *** [0.017]	-0.021 [0.017]	-0.013 [0.016]
Manufacturing (manuf_dum)			-0.760 *** [0.088]	-0.510 *** [0.137]	-0.740 *** [0.089]	-0.545 *** [0.079]		-0.412 *** [0.137]	-0.395 *** [0.126]
Year dummy	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Country dummy	No	No	No	No	No	Yes	Yes	No	Yes
Sector dummy	No	No	No	No	No	No	Yes	No	No
Constant	-1.459 *** [0.022]	-1.459 *** [0.048]	-0.712 *** [0.096]	-1.003 *** [0.156]	-0.779 *** [0.109]	-0.792 *** [0.099]	-1.861 *** [0.081]	-1.153 *** [0.156]	-1.081 *** [0.162]
Observations	1910	1910	1493	1493	1493	1493	1493	1493	1493
R-squared	0.104		0.161		0.167	0.414	0.687		
Number of group(country nace3)		240		240				240	240

Note: Standard errors in brackets: * significant at 10%; ** significant at 5%; *** significant at 1%
Source: Commission services. Based on a sample of 8 countries, 30 NACE 3-digit sectors over 8 years 2000-2007. Countries: Belgium, Italy, France, Spain, Germany, Poland, Romania, Sweden. PCMs are taken from Altomonte *et al.* (2009). Structural reforms are taken from the MICREF database.

Table A 3: Channel of structural reforms on competition – Number of firms

	ROLS	Panel Random effect	ROLS	Panel Random effect
First Step - Dependent Variable: Total Number of Firms				
Business Reforms	3,61*** [0.039]	3,61*** [0.039]	4,22*** [0.041]	4,22*** [0.041]
Intra-EU Trade penetration (logEU trade)	[0.04]	[0.04]	[0.04]	[0.04]
Extra-EU Trade penetration (logEXTtrade)	[0.03]	[0.03]	[0.03]	[0.03]
Manufacturing (manuf_dum)	1,31*** [0.22]	1,31*** [0.22]	1,21*** [0.22]	1,21*** [0.22]
Year Dummy	No	No	Yes	Yes
Constant	2,9*** [0.26]	2,9*** [0.26]	2,9*** [0.26]	3,3*** [0.26]
Observations	1341	**1341**	1341	**1341**
Number of group(country nace3)		48		48
Second Step - Dependent Variable - Log median PCM				
Total Number of Firms	-0.133** [0.057]	-0.133*** [0.049]	-0.153*** [0.054]	-0.153*** [0.044]
Intra-EU Trade penetration (logEU trade)	-0.014 [0.028]	-0.014 [0.028]	-0.022 [0.028]	-0.022 [0.027]
Extra-EU Trade penetration (logEXTtrade)	-0.016 [0.016]	-0.016 [0.017]	-0.018 [0.016]	-0.018 [0.017]
Manufacturing (manuf_dum)	-0.334*** [0.112]	-0.334*** [0.115]	-0.296*** [0.113]	-0.296*** [0.112]
Year Dummy	No	No		
Constant	-0.607** [0.251]	-0.607*** [0.215]	-0.596** [0.247]	-0.596*** [0.214]
Observations	1341	1341	1341	1341
Number of group(country nace3)		48		48

Note: Standard errors in brackets: * significant at 10%; ** significant at 5%; *** significant at 1%
Source: Commission services. Based on a sample of 8 countries, 30 NACE 3-digit sectors over 8 years 2000-2007. Countries: Belgium, Italy, France, Spain, Germany, Poland, Romania, Sweden. PCMs are taken from Altomonte *et al.* (2009). Structural reforms are taken from the MICREF database.

1.3. Access to finance

1.3.1. Introduction

There is strong evidence that access to finance is conducive to economic growth.[57] Finance can be accessed through external and internal sources[58]. However, since the beginning of the crisis, non-financial corporations have faced more uncertain cash flows, making it more difficult for them to rely on internal sources for their finance needs; as a result, more attention has been paid to access to external sources of finance, particularly bank lending. A failure of banks, triggered by liquidity problems and worries about bank solvency in a context of generalised loss of confidence in financial markets and financial institutions, would therefore have posed potentially considerable harm to the economy. Even without bank breakdowns, reduced bank lending activity has been identified as a major transmission channel for the financial crisis to the real economy, particularly as bank lending remains one of the major external sources of finance for non-financial corporations in the European Union. However, there remains a question about the direction of causality, as the reduction of bank lending not only reflects reduced bank capacity to provide credit but also the impact of the crisis itself on the activities and development of firms and, therefore, their demand for credit.

The European Economic Recovery Plan (EERP)[59] recognised the need for public intervention to support businesses during the crisis in order to guarantee the continuity of their access to finance, which markets were temporarily unable to provide (market failure). There was a concern that lack of access to finance could lead to unnecessary and wasteful labour shedding and the destruction of otherwise viable and sound companies. At the EU level, the Temporary Framework on state aid to the real economy to support access to finance[60] was put in place. A number of policy measures were also adopted by Member States. The full withdrawal of these support measures is linked to the restoration of financial markets functioning under conditions that can be considered normal.

This part of chapter 1 assesses how conditions of access to finance in Europe for non-financial corporations have been evolving in the context of the crisis and medium-term perspectives, with a particular emphasis on bank lending. Special attention is given to the sectors or categories of firms most seriously hit by the crisis. In particular, the situation of SMEs, which generally face greater difficulties in accessing finance than large firms and have a different degree of bank lending dependency, is examined. SMEs often rely on a limited number of bank relationships and have few alternative sources of external financing, while large firms can in principle draw on corporate bond markets. The chapter also looks at whether access to finance during the crisis has varied across countries and across sectors. Finally, the chapter considers what factors may potentially influence the evolution of bank lending constraints against the

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[57] Dell'Ariccia et al. (2005)

[58] In principle, firms can use various sources of financing, distinguishing between internal funds, debt financing and equity financing. In this chapter the focus is on firms' use of bank loans, which is the most important source of debt financing.

[59] Communication from the Commission: "A European Economic Recovery Plan", COM(2008)800, Brussels, 26.11.2008.

[60] Communication from the Commission: "Temporary framework for State aid measures to support access to finance in the current financial and economic crisis", 17.12.2008.

background of a gradual economic recovery, and whether there is a risk of a credit squeeze for firms once the recovery becomes more robust.

1.3.2. *The development of bank lending during the crisis and driving factors*

As in past financial crises[61], credit to non-financial corporations (NFCs) slowed but with a three quarter lag compared to the evolution of GDP (see Figure 17). Banks tightened their credit standards almost from the beginning of the crisis but bank lending to non-financial corporations was relatively resilient until spring 2009 when it started to fall. By autumn 2009 it had turned negative, and stayed negative through 2010, although at a diminishing rate. Past experience also shows that corporate loans generally recover after some lag vis-à-vis the turning point in the economic cycle. As the economic recession in the euro area ended in the third quarter of 2009, corporate credit growth should start to recover gradually. However, up until the first quarter of 2011, the annual growth of the real notional stock of loans to NFCs had still not turned positive again.

It is generally difficult to disentangle supply-side from demand-side factors to explain the evolution of credit growth as both affect bank lending. In particular, due to endogeneity or reverse causality problems, it is difficult to diagnose whether demand for bank loans is determined by future expected output or whether loan supply affects output.[62] In the context of the crisis, the weakness in credit growth was the result of a combination of demand and supply factors. The extreme deterioration of the situation in the financial sector during the 2007-09 financial crisis means that supply-side constraints certainly played a role in the reduction of bank lending.

According to the ECB Bank Lending Survey, the evolution of banks' credit standards in the euro area significantly tightened after the third quarter of 2007 coinciding with the on-set of the financial crisis. Interest rate margins and collateral requirements in particular became more onerous. This tightening of credit standards peaked in the second half of 2008, but continued into the first half of 2009 albeit at a slower rate (see again Figure 17). Then, despite a further deterioration of credit standards in the 2nd quarter of 2010 due to a deterioration of banks' liquidity positions and constraints in their access to wholesale funding, banks' credit standards nevertheless improved in the 3rd and 4th quarter of 2010. However, in the latest issue of the ECB Bank Lending Survey[63], euro area banks report a net tightening of credit standards in the first quarter of 2011, albeit moderate, on loans to non-financial corporations[64]. This deterioration mainly affected large firms while the net tightening of credit standards on loans to SMEs remained broadly unchanged.

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[61]   See Dell'Ariccia et al. (2005)

[62]   Capiello et al. (2010)

[63]   ECB, Bank Lending Survey, April 2011.

[64]   A positive net percentage indicates that a larger proportion of banks have tightened credit standards ("net tightening"), whereas a negative net percentage indicates that a larger proportion of banks have eased credit standards ("net easing").

Figure 17: Change of credit standards, real growth of loans to NFCs, and real GDP growth[65], euro area, y-o-y[66]

Change of credit standards, q-o-q (left-hand scale - negative figure depicts tightening)
Annual growth of real notional stock of loans to non-financial companies (right-hand scale)
Annual real GDP growth (right-hand scale)
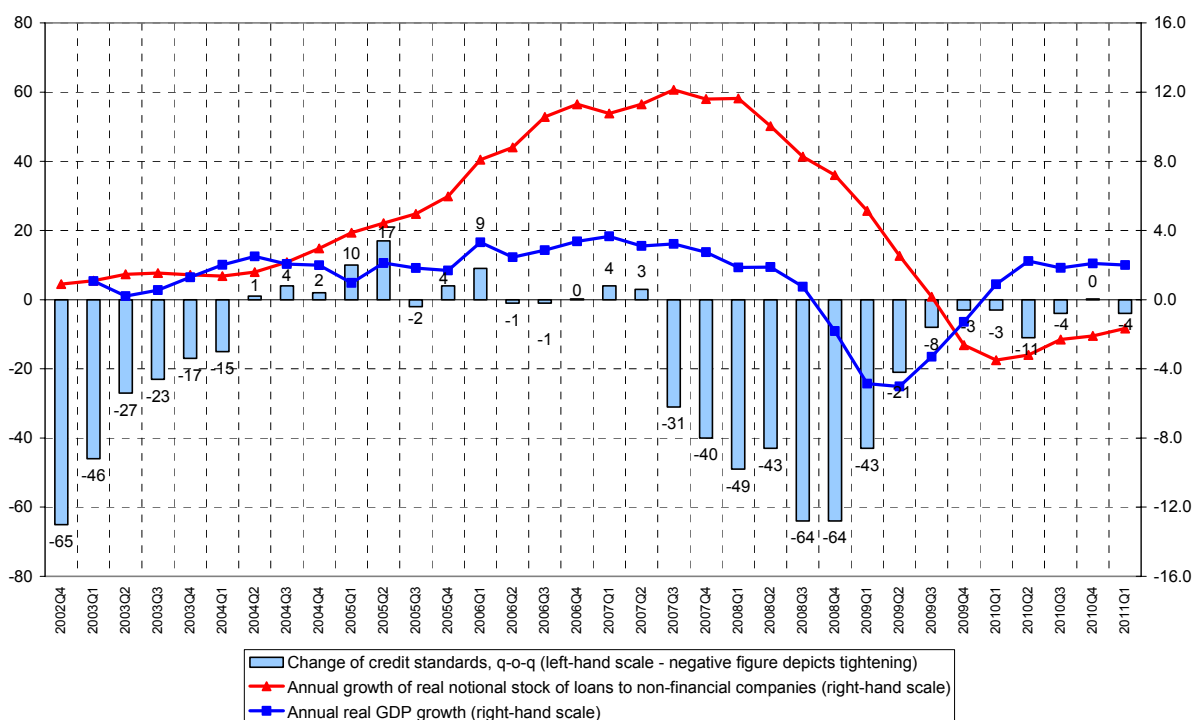
Source: ECB and Eurostat

Meanwhile, the net demand for loans to NFCs[67] has grown with the gradual economic recovery, becoming slightly positive in the 3rd quarter 2010 and further increasing afterwards; it stood at 19% in the first quarter of 2011, compared with 10% in the fourth quarter of 2010. This increase in the net demand for loans was mainly driven by sustained financing needs for inventories, working capital and, for the first time in more than two years, by positive developments in fixed investment.

Supply side factors helped to amplify the recession and could be an obstacle to the economic recovery, becoming more binding as the recovery broadens[68]. There could even be concerns about a credit crunch for certain categories of firms. There are indications that smaller firms lacking access to bond-based financing[69] could be constrained on the credit market. Banks

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[65] GDP growth for 2010 Q4 is from European Economic Forecast - Autumn 2010 (DG ECFIN).

[66] The results reported in the ECB Bank Lending Survey relate to changes over the previous quarter. In Figure 17 the change in credit standards refers to question 1 "Over the past three months, how have your bank's credit standards as applied to the approval of loans or credit lines to enterprises changed?" Data labelled 2010 Q4 are from the January 2011 publication.

[67] The term "net demand" refers to the difference between the share of banks reporting an increase in loan demand and the share of banks reporting a decline.

[68] IMF (2010b).

[69] Moreover, not all firms are able to issue debt securities. Traditionally, the market is dominated by utilities, but other large industrials have entered in recent years. In 2009, many non-rated corporate issuers entered, but also many with upper non-investment grades (worse than BBB+, but better than C).

which tighten credit standards require more collateral and demand higher risk premia. With corporate bond rates decreasing from the beginning of 2009 onwards, large companies saw the issuance of bonds becoming more attractive again whilst SMEs remained more dependent on bank lending and therefore more exposed to credit standards. The issuance of corporate bonds boomed in 2009 as firms switched from taking out bank loans to issuing bonds as a means of external financing probably as a result of impaired access to bank lending (see Figure 18). However, in the second and fourth quarter of 2010, corporate bond rates rose slightly making it less attractive as an alternative source of financing.

Figure 18: Growth of loans to NFCs and corporate bonds issuance, euro area, y-o-y
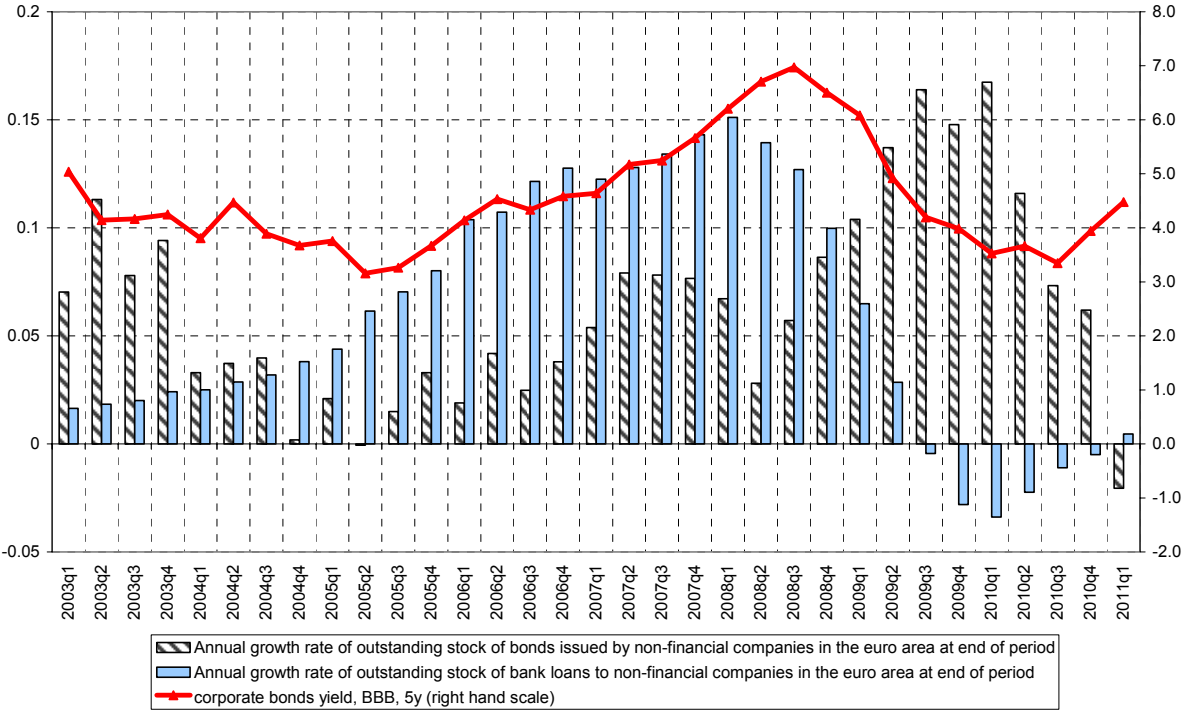
Source: EcoWin and ECB

Uncertainty surrounding the outlook for loan growth remains high for various reasons. Amongst other things, banks are deleveraging following the financial crisis, diverting resources from normal lending to build up liquidity buffers and prepare for the tightening of regulatory capital requirements. In addition, there are indications of spillovers from the sovereign debt crisis. Higher sovereign risks in some countries of the euro area increase institutions' vulnerability through banks' holdings of government bonds and have an impact on banks' funding costs. To a certain extent, these effects can be passed through to potential borrowers. Banks can react to changing market conditions in two ways: either by tightening credit standards or by rationing credit. As a result, firms relying most on bank lending, SMEs in particular, might be hit.

Figure 19: Evolution of the stock of outstanding loans to NFCs before and after the crisis, by Member State, in national currencies (%)
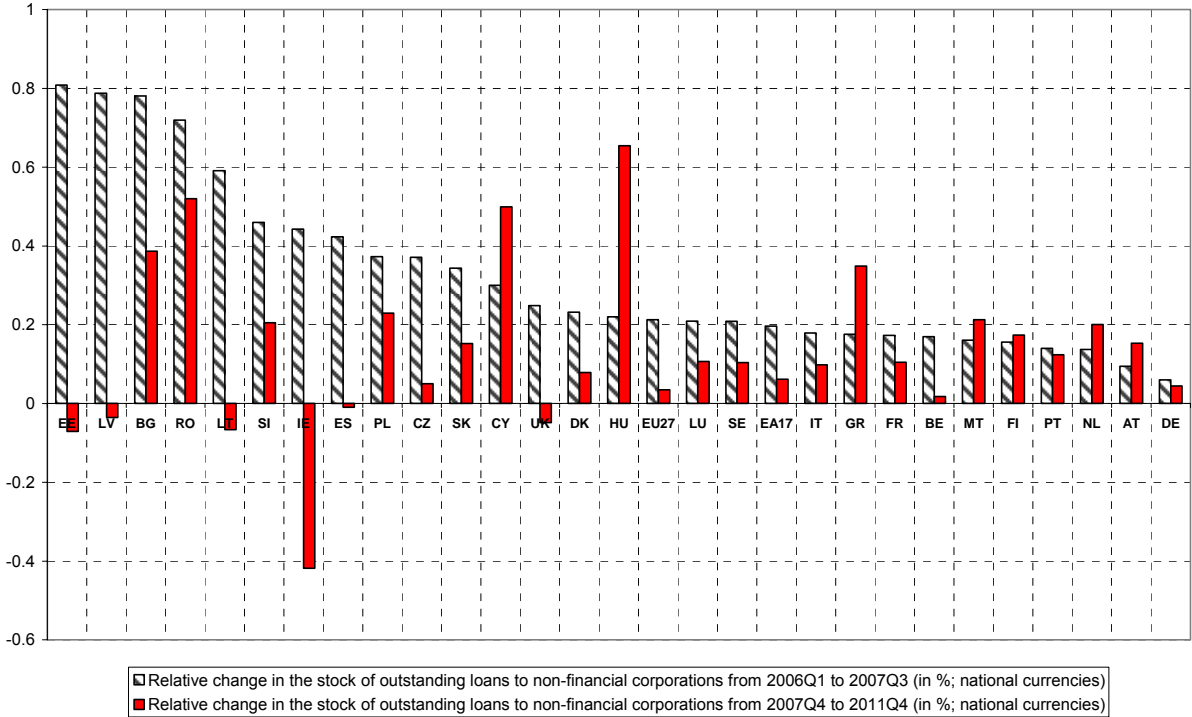
Source: ECB

Although the evolution of the stock of outstanding loans to non-financial corporations before and after the beginning of the crisis[70] has strongly decelerated in all Member States, some countries have been more seriously hit than others. In general, the countries most vulnerable to the crisis on the credit market were the same ones that had experienced excessive loan stock build-up (a bubble) before the crisis.[71] In relative terms (see Figure 19), the largest increases in the stock of outstanding loans before the crisis were recorded in many "new" Member States, particularly Romania, Estonia, Bulgaria, Latvia, and Lithuania, but also in Ireland, Spain and in the UK. After the beginning of the crisis, the stock of outstanding loans slowed sharply in most countries, but particularly Romania, Latvia, Lithuania, and Spain. In Ireland, the UK, Hungary and, to a lesser extent, Estonia the stock actually shrank.

In Figure 20 data is presented on the evolution (yoy) of new loans to non-financial corporations by size category, i.e. below and above 1million EUR, as a proxy for loans to SMEs and large firms assuming that large loans are taken out more by large companies whilst small companies take out small loans more. It shows that the growth of smaller loans became negative in early summer 2008, further decelerated in autumn 2008 and did not return to positive territory until now. In addition, Figure 21 shows that the share of small loans to total new loans hit bottom in

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[70] The two periods before and after the crisis are from Q1 2006 to Q3 2007 and from Q4 2007 to Q2 2010. The start of the crisis was set to the 3rd quarter of 2007, coinciding with the difficulties of the German IKB and the French BNP Paribas in July and August 2007 and the subsequent ECB liquidity injection designed to address the severe tensions in the interbank market (Brunnermeier 2009).

[71] Aisen et al. (2010)

August 2008 at 20%, down from 30% in 2004 and that they have been recovering only slowly. Currently, the share of small loans is back to about 25%.

Figure 20: Change in new loans to NFCs above and below 1 million EUR, euro area, y-o-y, 3-month moving average (%)
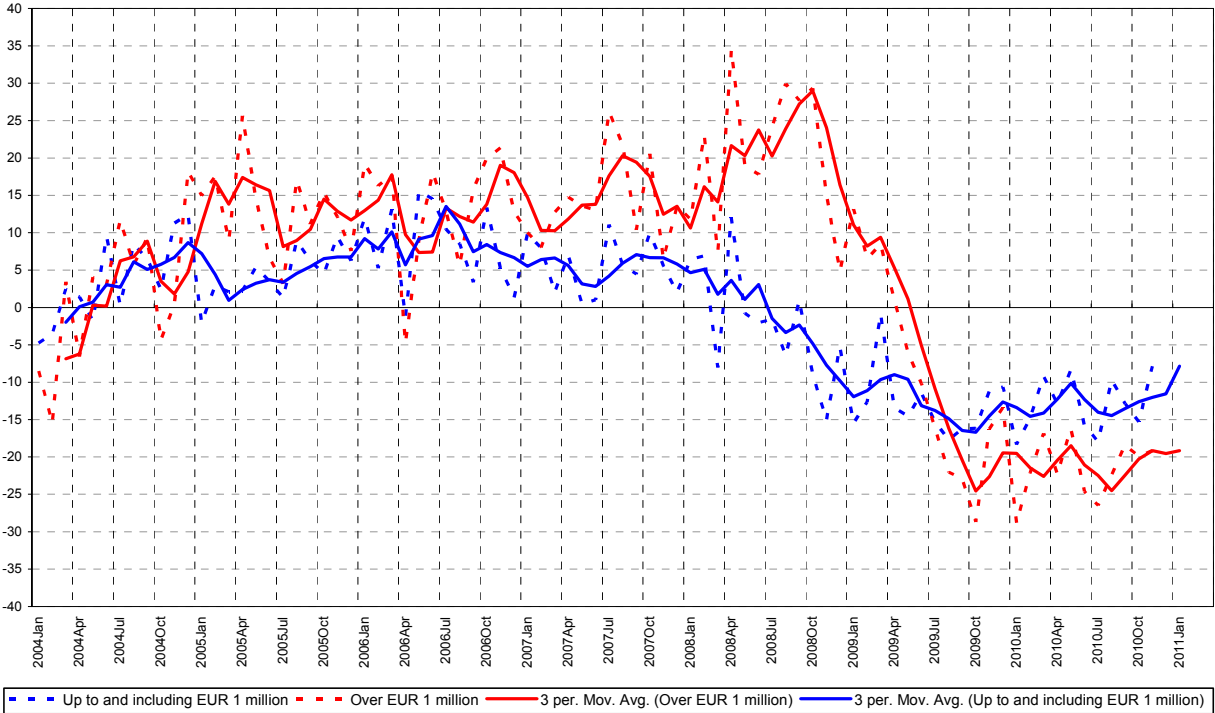
Source: ECB

The evolution of the interest rate spread between small and large loans for different loan maturities is shown in Figure 22; it indicates that interest rates are generally higher for small loans than large ones and that they increased sharply during the crisis, suggesting that SMEs had to pay an even higher price for credit[72], particularly high for loans in the mid-range of maturities (1 to 5 years), although larger spreads were recorded by short maturity loans at the beginning of the financial crisis owing to liquidity constraints. Recent data also indicate a pick up in the spread for all maturities as a result of changing market conditions in the context of the sovereign bond crisis.

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[72]   However, the reasons for these higher interest rates can also include firms' solvency issues and firms' ability to provide collateral, which are reflected in the risk assessment made by banks.

Figure 21: Share of loans below 1million EUR in total new loans to NFCs, euro area (%)
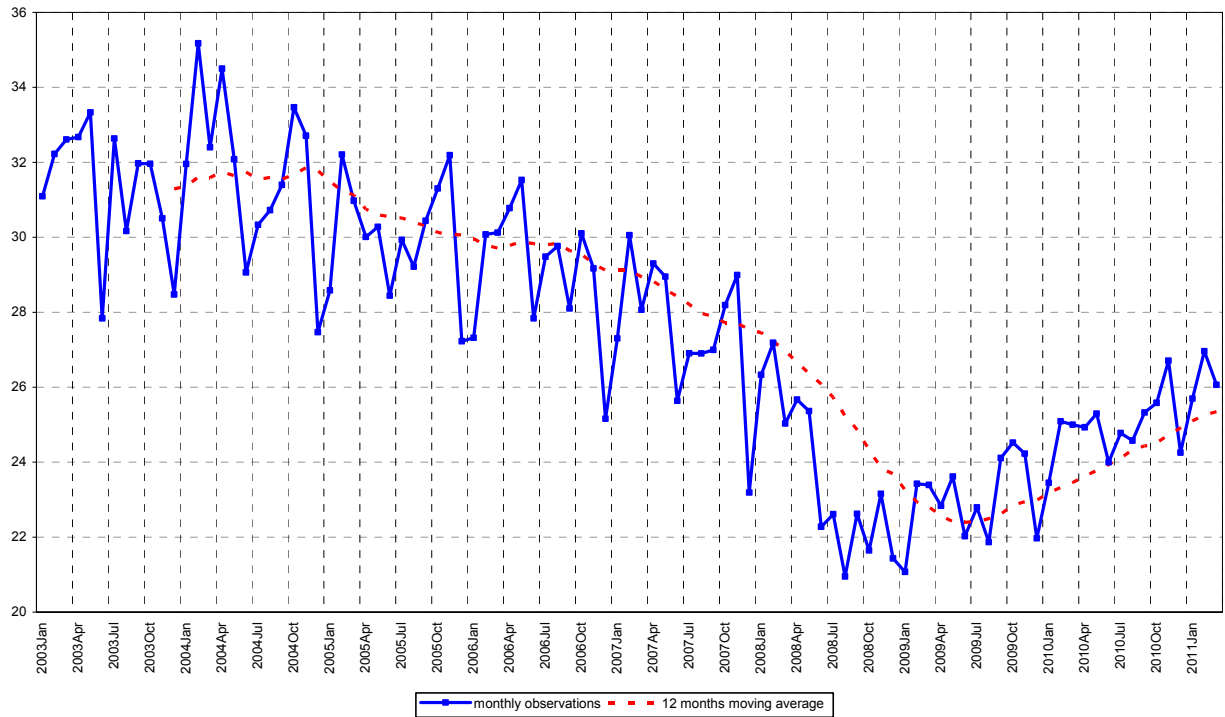
Source: ECB

Figure 22: Spread between loans rates on small (below 1 million EUR) and large loans (above 1 million EUR) by maturity, euro area
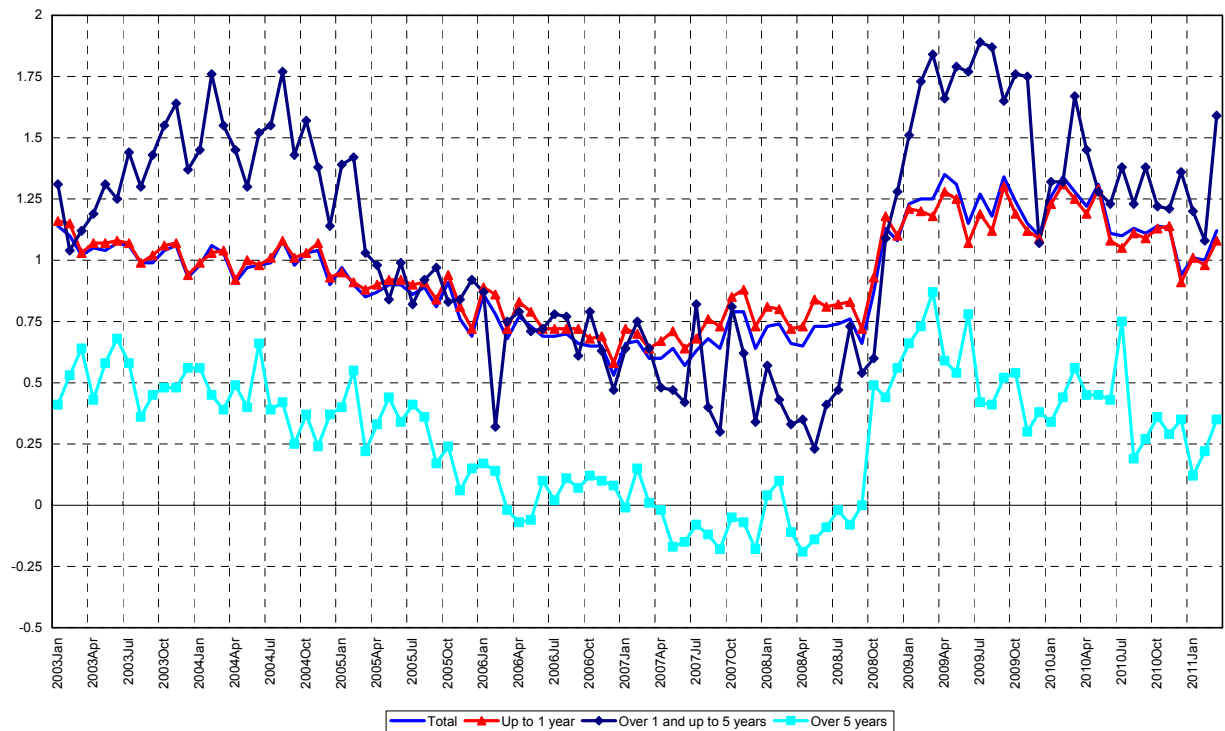
Source: ECB

1.3.3. Evolution of the availability of bank loans

This section focuses on how bank lending volumes and conditions in the various Member States on the one hand, and firms' characteristics such as sector of activity, size, and age on the other, have affected their access to finance during the crisis. The assessment is based on different surveys: the Eurobarometer survey on access to finance[73], the Survey on the access to finance of small and medium-sized enterprises in the Euro Area[74] , and the ECB Bank Lending Survey[75].

Table 5: Availability of bank loans over the last 6 months by country (First and second half of 2009, first and second half of 2010; euro area)

	Observations				% improved				% unchanged				% deteriorated			
	1H09	2H09	1H10	2H10	1H09	2H09	1H10	2H10	1H09	2H09	1H10	2H10	1H09	2H09	1H10	2H10
at	61	142	141	339	9.8%	3.5%	14.9%	14.5%	52.5%	63.4%	69.5%	65.5%	37.7%	33.1%	15.6%	20.1%
be	57	111	123	423	15.8%	17.1%	20.3%	15.8%	56.1%	63.1%	59.3%	67.4%	28.1%	19.8%	20.3%	16.8%
cy	38				5.3%				31.6%				63.2%			
de	266	741	642	680	11.7%	9.7%	12.6%	15.3%	50.0%	52.6%	69.9%	71.0%	38.3%	37.7%	17.4%	13.7%
es	439	867	755	732	7.7%	7.6%	16.8%	11.3%	31.4%	45.6%	59.6%	62.2%	60.8%	46.8%	23.6%	26.5%
fi	14	83	67	316	7.1%	19.3%	20.9%	23.4%	35.7%	69.9%	68.7%	66.5%	57.1%	10.8%	10.4%	10.1%
fr	299	740	799	795	13.4%	9.2%	17.3%	13.6%	53.8%	70.3%	65.7%	65.9%	32.8%	20.5%	17.0%	20.5%
gr	103	175	136	345	13.6%	16.6%	8.1%	6.1%	34.0%	42.3%	48.5%	51.3%	52.4%	41.1%	43.4%	42.6%
ie	36	82	72	377	2.8%	7.3%	4.2%	2.7%	44.4%	56.1%	51.4%	46.9%	52.8%	36.6%	44.4%	50.4%
it	409	849	736	787	12.2%	9.5%	14.3%	15.9%	45.5%	55.0%	71.2%	69.6%	42.3%	35.5%	14.5%	14.5%
lu	22				9.1%				45.5%				45.5%			
mt	20				20.0%				50.0%				30.0%			
nl	73	175	155	371	6.8%	8.6%	11.6%	17.3%	34.2%	52.6%	56.8%	57.1%	58.9%	38.9%	31.6%	25.6%
pt	93	144	188	296	10.8%	18.8%	6.9%	13.2%	38.7%	58.3%	60.1%	58.1%	50.5%	22.9%	33.0%	28.7%
si	50				12.0%				44.0%				44.0%			
sk	24				16.7%				45.8%				37.5%			
ea16	2004	4109	3814	5461	10.9%	9.8%	14.6%	9.9%	43.1%	55.6%	64.7%	46.1%	46.0%	34.5%	20.7%	16.6%

Source: Survey on the access to finance of SMEs in the euro area (DG ENTR/ ECB); question 9a

The Survey on the access to finance of SMEs in the Euro Area suggests that the availability of bank loans to non-financial corporations (based on firms' perceptions over the previous 6 months) deteriorated significantly in the first half of 2009 and again, though to a lesser extent, in the second half of 2009. In the first and second half of 2010, almost 20% of firms still

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[73] The survey sample used in the Flash Eurobarometer 271 was selected randomly but disproportionally, according to two criteria: country and company size. It excluded companies in the following sectors: agriculture, fishing, public administration, financial services, extra-territorial organisations and holding companies.

[74] The survey on the access to finance of small and medium-sized enterprises in the Euro Area is a joint project of the ECB and the European Commission based on firms' perceptions.

[75] The ECB Bank Lending Survey assesses the evolution of access to finance from the bank's perspective.

declared that the availability of bank loans deteriorated. However, there is also considerable country variation in these results. For example (see Table 5)[76], in Spain, 61% of firms declared that the availability of bank loans deteriorated in the first half of 2009 and 47% in the second half of 2009 and they were still about a quarter of them in the first and second half of 2010; in Germany, this percentage reached 38% in the first and second half of 2009 but improved in the first and second half of 2010 (17% and 13.7% respectively); in France, the percentage was even lower (33%) in the first half of 2009, improved already in the second half of 2009 (20%), and remained constant afterwards. By contrast, in Greece, Ireland and to a lesser extent Portugal, the high percentage of firms declaring that the availability of bank loans deteriorated during the crisis remained very high in the first and second half of 2010.

Figure 23: Changes in availability of bank loans for SMEs by main sectors of activity, euro area, first and second half of 2009, first and second half of 2010
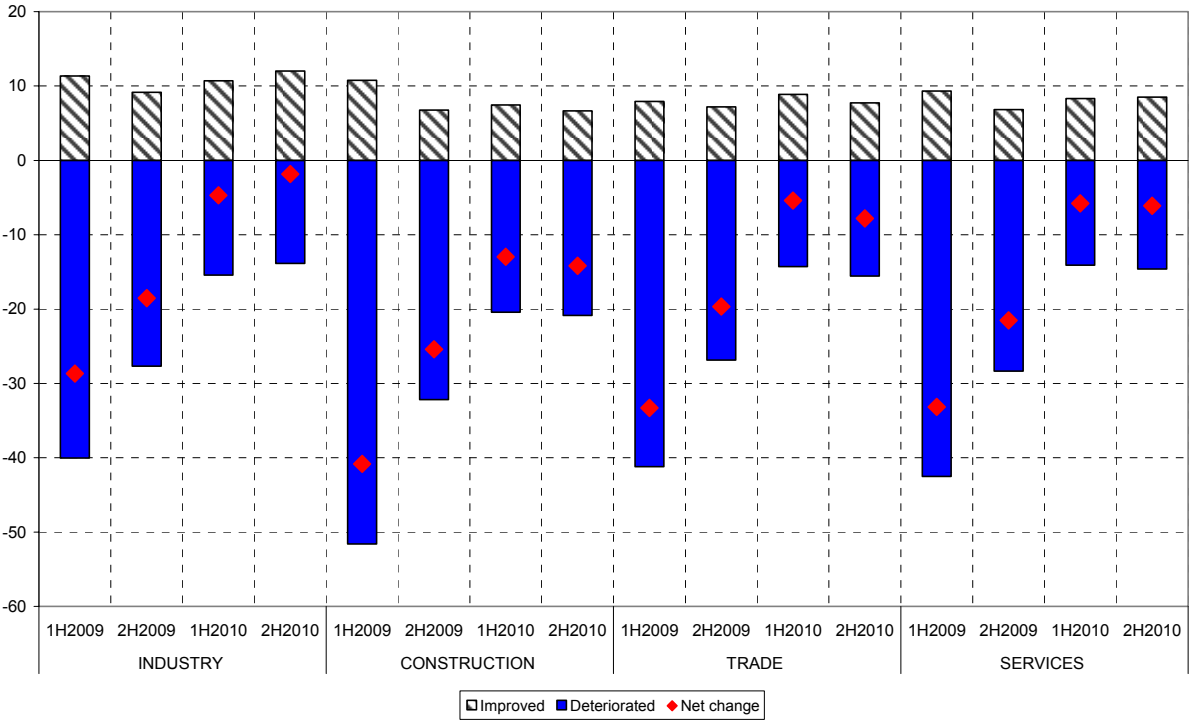
Source: ECB, European Commission (Survey on the Access to Finance for SMEs in the Euro Area); question 9a

Taking a sectoral perspective[77], the Survey on the access to finance for SMEs in the Euro Area shows that the most important net deterioration of bank loan availability in the first half of

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[76]   Finland was the only country in which more firms perceived an improvement rather than a deterioration of the availability of bank loans in the second half of 2009 and in the first half of 2010. Germany and Finland were in this situation in the second half of 2010.

[77]   The sectoral classification used in this chapter is based on the NACE-nomenclature (rev. 1.1). It relies on four categories, namely industry, construction, trade and services. Companies active in the fields "mining and quarrying", "manufacturing" and "electricity, gas and water supply" are categorised as being *industry*; companies in the "construction" sector are simply *construction*; *trade* includes "wholesale and retail trade, repair of motor vehicles and motorcycles, and personal and household goods", *services* include firms in "hotels and restaurants", "transport, storage and communication", "real estate, renting and business activities", "education", "health and social work" and "other community, social and personal service activities".

2009 was in the construction sector. It also suggests that the rate of deterioration of bank loan availability for SMEs slowed down in all sectors between the first and the second half of 2009, remained on the same trend between the second half of 2009 and the first half of 2010, and stabilised in the second half of 2010 (see Figure 23).

1.3.4.   Evolution of the demand for bank loans and outcome of bank loan requests

The Bank lending survey shows that SMEs' demand for bank loans (based on banks' perception in the previous 3 months) generally grew faster than large companies' demand. On the other hand, during the global recession in 2009, SMEs' demand for bank loans decreased faster than did large companies' demand (see Figure 24). In other words, SMEs' demand for bank loans seemed to react more strongly to business cycle fluctuations than demand by larger companies.

Figure 24: Changes in demand for bank loans by SMEs and large firms, euro area, q-o-q[78]
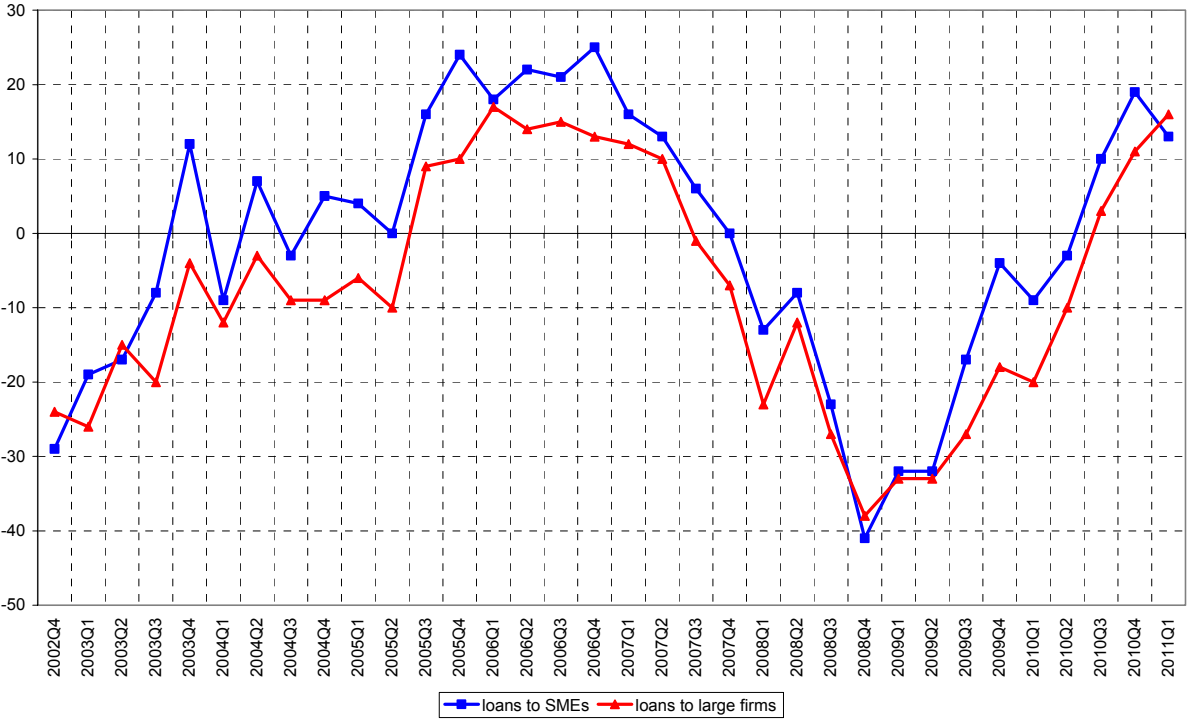
Source: ECB Bank Lending Survey; question 4

Looking at the evolution of the demand for bank loans by maturity, the Bank lending survey also shows that the demand for long-term loans grew faster than the demand for short-term loans in the period of economic expansion. Conversely, during the economic crisis the strong decrease in demand for loans was even more pronounced for long-term than for short-term loans (see Figure 25). One explanation could be that, during the crisis, economic uncertainty

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[78]   Figures 1-22 and 1-23 refer to question 4 of the ECB BLS: "Over the past three months, how has the demand for loans or credit lines to enterprises changed at your bank, apart from normal seasonal fluctuations?" Net percentages are calculated as the difference between the sum of banks responding "increased considerably" and "increased somewhat" and the sum of banks responding "decreased somewhat" and "decreased considerably".

discouraged companies taking out loans with long maturities (e.g. investment loans) as their future cash flows were increasingly uncertain. At the same time, due to more adverse economic conditions and tighter cash flow, companies were increasingly demanding more working capital financing to cover their short term needs.

Figure 25: Changes in demand for short-term and long-term loans, euro area, q-o-q[79]
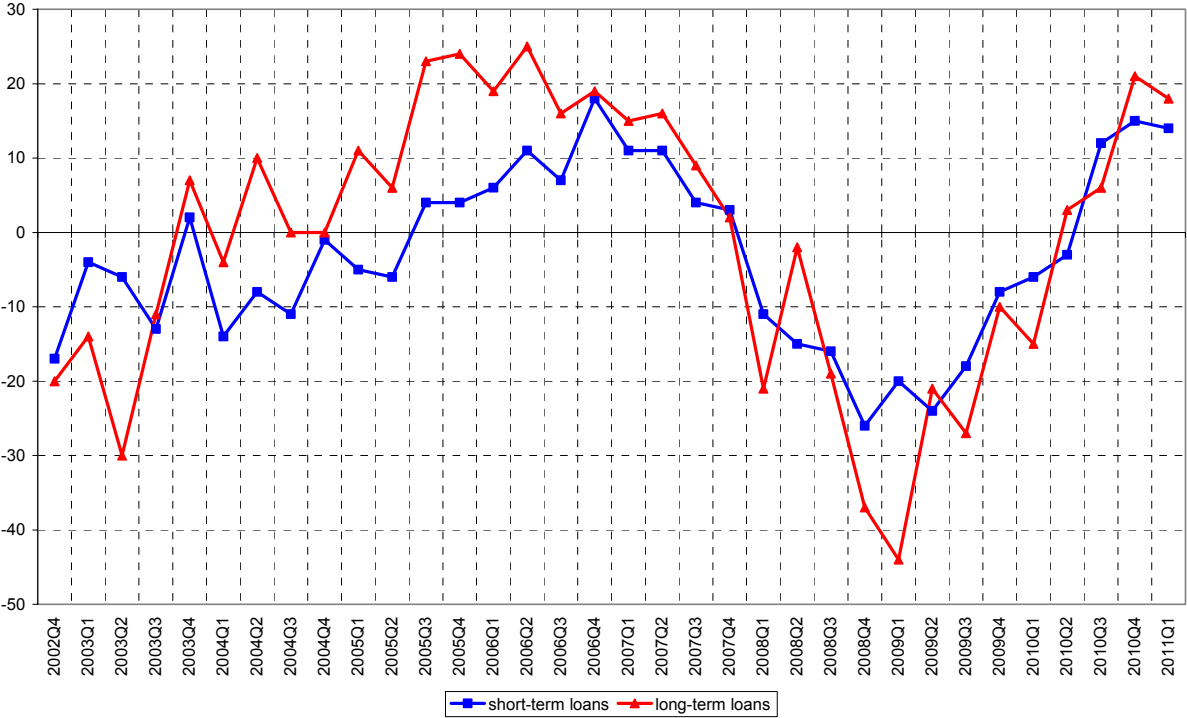
Source: ECB Bank Lending Survey; question 4

The Survey on the access to finance for SMEs in the Euro Area (based on firms' perception over the previous 6 months) shows that the firms' need for bank loans increased during the crisis, especially in the second half of 2009. In all sectors, the need for bank loans decreased during the first half of 2010 and increased again in the second half of 2010 (see Figure 26). Taking a sectoral perspective, the Survey also suggests that the firms' need for bank loans during the crisis increased particularly strongly in the construction sector, but decreased afterwards. The services sector registered a net decrease of the need for bank loans in the first half of 2010.

Another interesting aspect relates to the outcome of bank loan requests in the EU27. According to the Eurobarometer Survey, about 15.2% of companies reported a rejection of their bank loan request in the first half of 2009 whilst 6.2% of companies declined loan offers because they considered the price too expensive (see Figure 27). The outcome of bank loan requests was generally more successful for large companies, which were more likely to receive the full requested amount, than SMEs.

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[79]   Short-term loans have an original maturity of one year or less, long-term loans of more than one year.

From a sectoral perspective, the Eurobarometer Survey reports that companies in the construction sector were the least successful when applying for a bank loan in the first half of 2009. Therefore, since companies in the construction sector also registered the strongest increase in the need for bank loans, it can be assumed that the credit constraint was particularly severe in this sector.

Figure 26: The need for bank loans by main sectors of activity, euro area, first and second half of 2009, first and second half of 2010
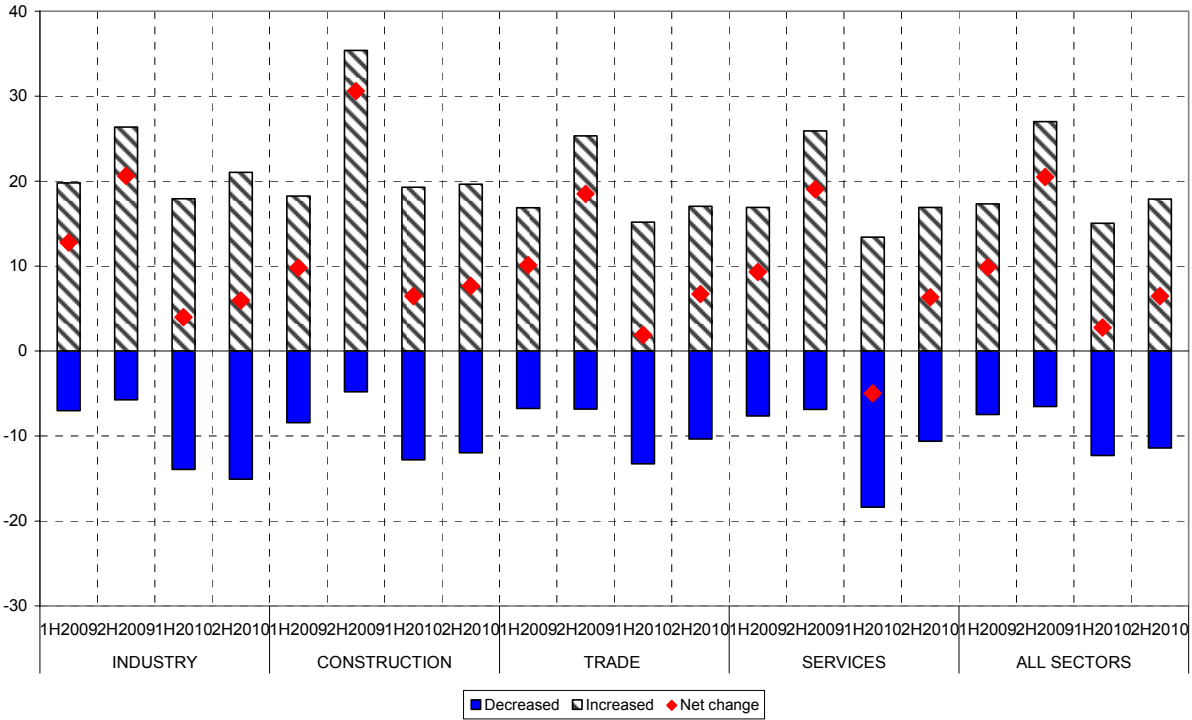
Source: ECB, European Commission (Survey on the Access to Finance for SMEs in the Euro Area); question 5a

Figure 27: **Outcome of loan requests in the first half of 2009, EU27**
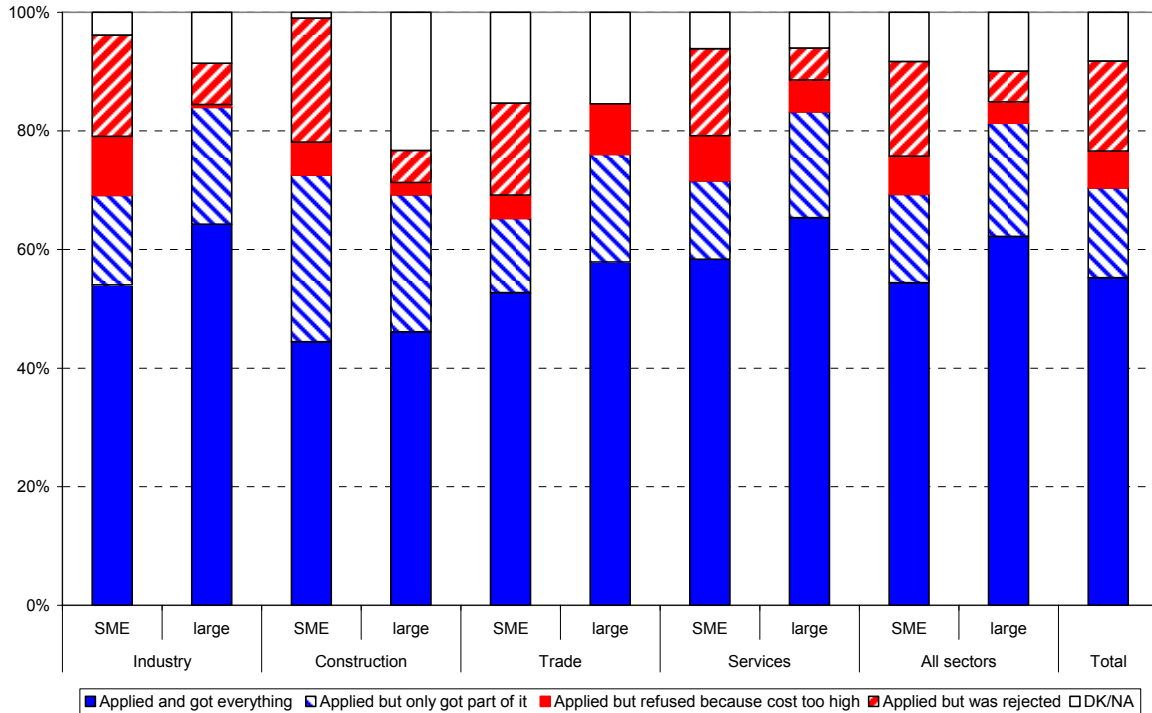
Source: Eurobarometer 271, 2009; question 7b_a

1.3.5. Access to credit during the crisis: firms' perspective

According to the Eurobarometer survey, the main factor that restricted companies in the EU 27 from taking out bank loans during the crisis was not a lack of bank financing - only a limited percentage of firms ranked that factor as the main obstacle to obtaining credit. High interest rates or high prices as well as insufficient collateral and guarantees were more important factors (see Figure 28).

Figure 28: Factor most limiting companies from getting bank or other loans, EU27

Referring to the evolution of the price and non-price conditions of bank loans during the crisis (see Figure 29), the Survey on the access to finance for SMEs in the Euro Area suggests that the price factors increased in the first and second half of 2009 for all sectors examined, except for the services sector, but this increase slowed down in the first half of 2010. In the services sector, charges are reported to have increased at a slower pace in the second half of 2009 compared to the first half of 2009. However, they increased at a faster pace than in other sectors in the first half of 2010.

The Survey on the access to finance for SMEs in the Euro Area also suggests that the factors influencing the availability of external financing were different for SMEs and large firms. In Figure 30 and Figure 31, it can be seen that the share of large companies reporting an improvement in the general economic outlook and their firm-specific outlook rose significantly in the second half of 2009 compared to the first half of 2009 and even more so in the first and second half of 2010, while in the case of SMEs, the share of companies reporting an improvement in the general economic outlook and firm-specific outlook only increased significantly in the first half of 2010 and was reversed in the second half of 2010. Large companies' ability to recover relatively quicker from the crisis, compared to SMEs, can also be explained by their capital position as well as by their credit history. Generally, both access to public financial support and bank willingness to provide loans also appear better in the case of large firms.

Figure 29: Change in conditions for bank financing for firms, euro area (H1&H2 2009, H1 2010)
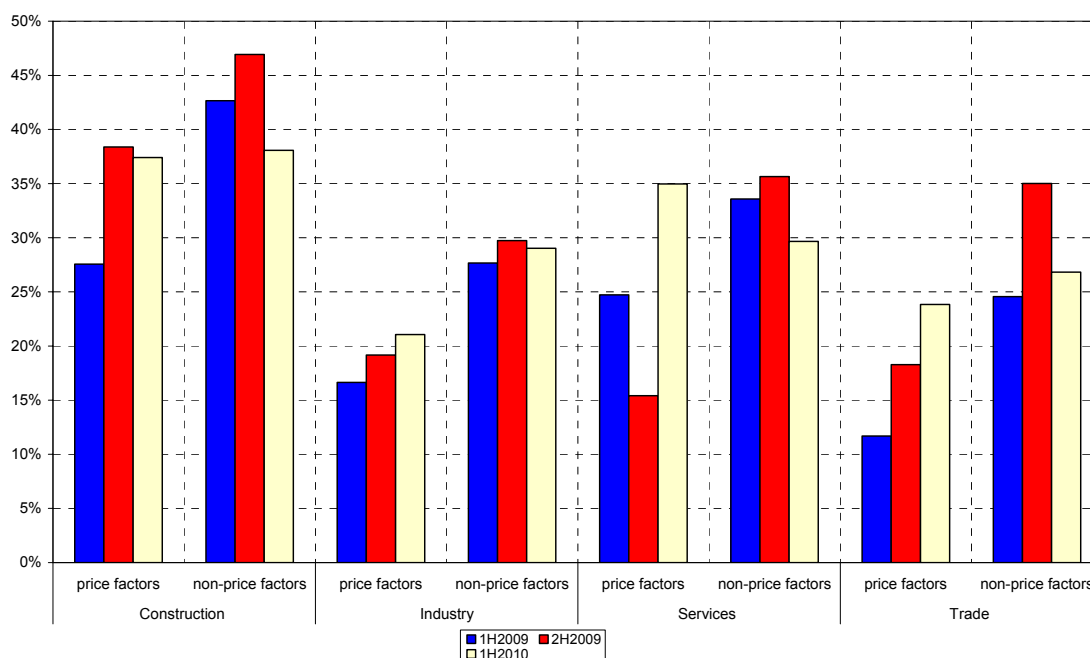
Figure 30: Factors influencing the availability of external financing for SMEs, euro area (H1&H2 2009, H1 2010)…
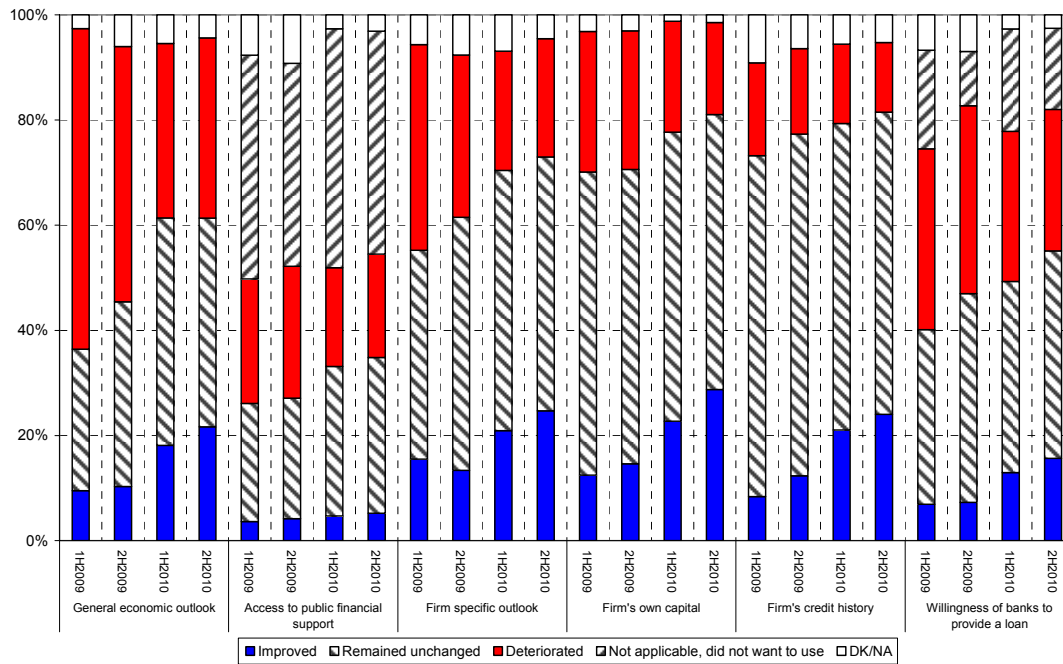
Source: ECB, European Commission (Survey on the Access to Finance for SMEs in the Euro Area); questions 11a to f

Figure 31: …and the availability of external financing for large firms
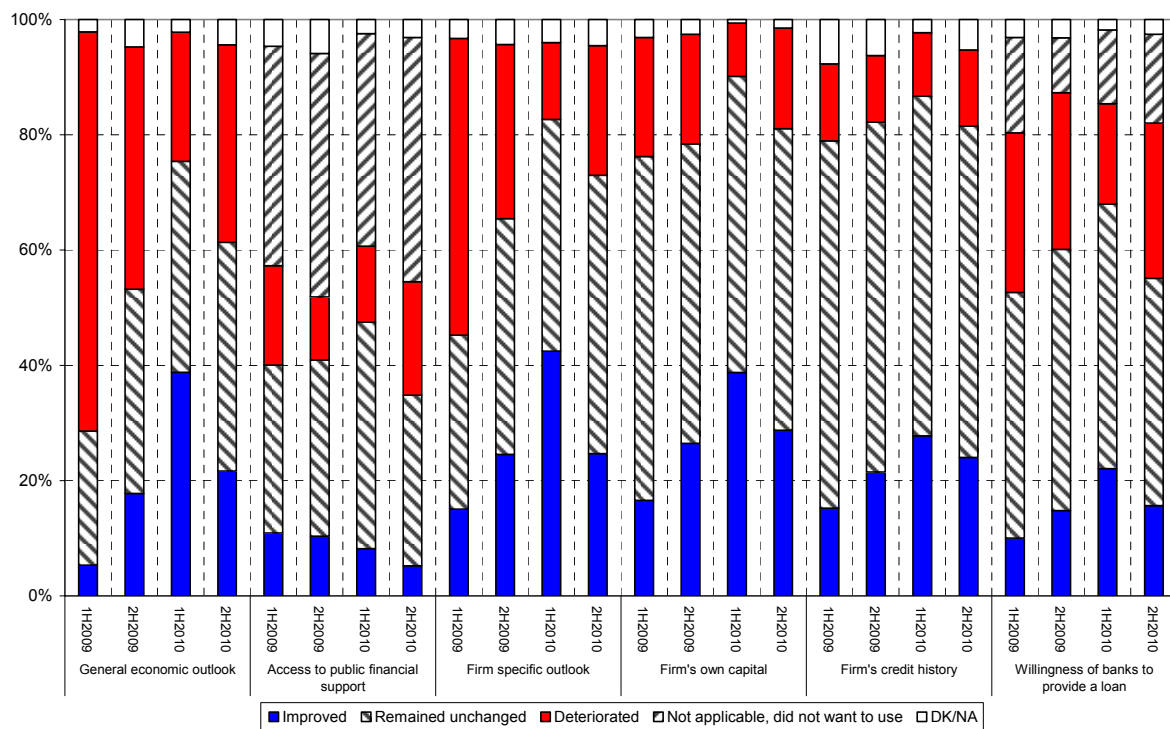
Source: ECB, European Commission (Survey on the Access to Finance for SMEs in the Euro Area); questions 11a to f

1.3.6. *Access to credit during the crisis: banks' perspective*

The ECB Bank Lending Survey provides information about the changes in credit standards for loans to enterprises in the euro area and about the factors affecting them. These include competitive pressures on banks (from banks and non-banks), banks' perceptions of risks related to their customers' balance sheets, such as the general economic outlook, the risk on collaterals as well as company and industry-specific perspectives, and finally constraints related to banks' own balance sheets.

From

Figure 32, it can be seen that factors influencing the perception of risks contributed most to the observed net tightening of credit standards in the euro area during the financial crisis. These factors were more important than factors related to banks' capital cost and balance sheet constraints and factors related to increased competition. However, factors related to banks' capital cost and balance sheet constraints also played a significant role during the crisis. In the recent period, the relative improvement in credit standards reflects a decrease in the impact of banks' risk perception and of banks' capital cost and balance sheet constraints. These results also give an indication that the relatively more difficult access to finance for SMEs can be related to both demand and supply-side factors.

Figure 32: Factors affecting the change of credit standards for loans to enterprises in the euro area (positive figure depicts tightening)
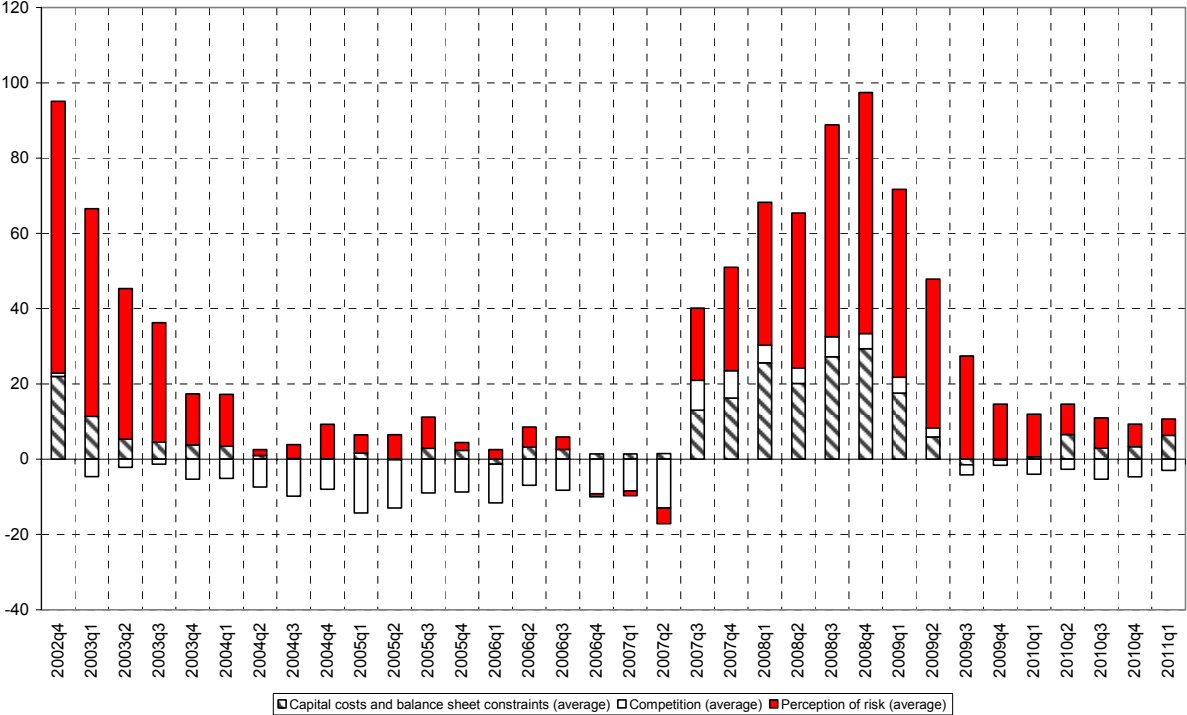
Source: ECB Bank Lending Survey; question 2

Notes: The "perception-of-risk" factor refers to the "industry and firm-specific outlook", the "expectations regarding general economic activity", and the "risk on collateral demanded"; the "competition" factor refers to competition from "other banks", "non-banks" and "market financing" respectively; the "capital costs and balance-sheet constraints" factor refers to "costs related to banks capital position", "banks' ability to access market financing" and "banks' liquidity position". The net percentages reported for the three groups of contributing factors are simple averages of the underlying factors listed above.

1.3.7. Analysis of perceived constraints on access to credit by firms

The ECB Bank Lending Survey records that both small and large companies faced tightening credit standards during the crisis. In addition, credit standards for large companies deteriorated faster but also improved faster than for small companies. This is important as bank loans are the most important source of finance for SMEs. By the end of 2009, about 31% of SMEs reported having used a bank loan in the previous six months and nearly 34% a bank overdraft or credit line[80]. Companies' use of bank loans is influenced by several factors, but company size, age and turnover are particularly important. In the following, the role of these factors is analysed more in-depth. Table 6 shows the results of a Probit model, with the "use of loans" as the dependent variable, and the influencing factors mentioned above as explanatory variables. Company size and age are modelled using dummy variables in order to capture non-linear effects.

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[80]   ECB and European Commission: Survey on the Access to Finance for SMEs in the Euro Area, 2nd half of 2009.

Table 6: Influence of company size, age and turnover on the use of bank loans, EU-27[81]

	all	Old MS	New MS	Industry	Construction	Trade	Services
Employees 1-9 (very small)	-0,310***	-0,320***	-0,137	-0,335***	-0,481***	-0,295***	-0,244***
	(0,000)	(0,000)	(0,324)	(0,000)	(0,000)	(0,000)	(0,000)
Employees 50-249 (medium-sized)	0,127***	0,097**	0,733***	0,098	-0,044	0,194**	0,166**
	(0,003)	(0,028)	(0,001)	(0,222)	(0,733)	(0,040)	(0,024)
Employees 250+ (large)	0,251***	0,218***	0,756***	0,274***	0,271	0,410***	0,163*
	(0,000)	(0,000)	(0,001)	(0,005)	(0,185)	(0,004)	(0,092)
Age of firm 0-2 (very young)	0,274***	0,283***	0,175	0,343	0,245	0,111	0,331***
	(0,001)	(0,001)	(0,603)	(0,244)	(0,378)	(0,434)	(0,005)
Age of firm 2-5 (young)	-0,042	-0,032	-0,113	0,025	-0,155	-0,080	-0,028
	(0,437)	(0,567)	(0,580)	(0,854)	(0,307)	(0,441)	(0,728)
Age of firm 10+ (old)	0,088**	0,103**	-0,097	0,214**	0,156	-0,030	0,053
	(0,029)	(0,014)	(0,551)	(0,026)	(0,165)	(0,704)	(0,393)
Change of turnover	0,113***	0,121***	0,010	0,143*	0,153	0,165**	0,066
	(0,001)	(0,001)	(0,945)	(0,084)	(0,150)	(0,014)	(0,235)
Constant	-0,482***	-0,477***	-0,607***	-0,534***	-0,445***	-0,351***	-0,559***
	(0,000)	(0,000)	(0,000)	(0,000)	(0,000)	(0,000)	(0,000)
Observations	8.027	7.517	510	1.637	989	2.187	3.214

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

Source: European Commission (Eurobarometer 271), calculations by Commission services

The regression results show that company size has a significantly positive effect on the use of loans as a means of financing in both old and new Member States; in addition, this relationship seems to be true for most sectors examined. This relationship is linear. One plausible reason why access to finance might have worsened for SMEs during the crisis is that the risk adversity of banks increased (and they also faced more stringent capital requirements in the near future), making them shift their exposure away from SMEs to generally less risky large companies.

Regarding the age of companies, there does not seem to be much sector specific influence, but generally it can be shown that the relationship is a non-linear one. In principle, older firms have better access to bank loans, although very young companies are also in a favourable position compared to young and medium-aged companies, a result that is rather an outlier. This result remains stable (especially for the old Member States) when cross-checking it with continuous variables in an OLS regression, including the square of the firm's age.

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[81] As reference groups for the dummy variables, "employees 10-49 (small)" has been used with regard to firm size, and "age of firm 5-10 (medium-aged)" with regard to the age of firms.

The established relationship between age of firm and access to bank loans is given support by examining the net change of the banks' willingness to provide loans by age of firm (see Figure 33), where the same non-linear picture emerges[82]. The development of a company's turnover is generally correlated positively with its use of loans. Including change of turnover in the model turns out to be significant for the use of loans in the trade and industry sectors especially.

Figure 33: Net change of willingness of banks to provide loans by firm age, EU-27, Q1 2009[83]
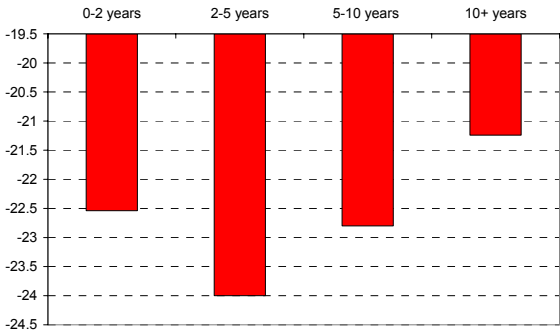
Source: European Commission (Eurobarometer 271), question 11f

1.3.8. Conclusions and outlook

Since the beginning of the crisis, attention has been paid to non-financial corporations' access to finance; this reflects the identification of banks' capacity and willingness to provide credit to the economy as being a major transmission channel for the financial crisis to the real economy. However, disentangling supply-side and demand-side factors is difficult. The decline in bank lending volumes during the crisis appears to have been strongly driven by insufficient demand, but a severe tightening of banks' lending conditions after mid-2007, partly reflecting supply-side constraints, also played a role.

Concerning the evolution of access to credit during the crisis and its main drivers, a number of observations have been made in this chapter.

First, the stock of outstanding loans to non-financial corporations decreased significantly after the start of the crisis, with some Member States more seriously hit than others, particularly countries where the stock of outstanding loans to non-financial companies had grown most before the financial crisis started (3rd quarter of 2007), exposing those countries to increased risks from the credit sector.

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[82]   A tentative interpretation of this result could be that very young companies have preferred access to bank loans, due to public programmes, state guarantees, and other forms of public aid for start-up companies.

[83]   Net percentages are calculated as the difference between the sum of the percentages for "increased considerably" and "increased somewhat" and the sum of the percentages for "decreased somewhat" and "decreased considerably".

Second, SMEs are generally more vulnerable[84] to credit constraints than large companies and restricted access to finance during the crisis seems to have been more persistent for SMEs than for large companies. There appears to be a positive linear relationship between the size of companies and their access to bank loans. However, with the expected return of confidence in financial markets and decreasing bond spreads, large companies are likely to find the issuance of bonds more attractive again and take advantage of this alternative to bank loans, an alternative which is generally not available to SMEs. In addition, renewed tensions on financial markets, in relation to higher sovereign risks, have spillover effects on bank lending conditions.

Third, sector-specific analysis of the need and availability of bank loans for non-financial companies reveals that access to bank loans was particularly difficult in the first half of 2009 for companies in the construction sector.

The latest data on how the volume and conditions of bank loans are evolving show that access to finance for non-financial corporations remains subdued. SMEs in particular need continued attention as they have only limited possibilities to finance themselves through internal funds and they are more dependent on bank loans than large companies, which can draw on additional sources of external financing such as the issuance of debt securities. In addition, huge sovereign needs may aggravate tensions and further decrease banks' loans to non-financial corporations[85]. Uncertainty related to the changing regulatory environment remains a source of pressure for banks which might affect their lending behaviour, in a context of global deleveraging and as banks continue to repair their balance sheets. Despite a certain recent improvement in credit standards, the risk of renewed credit constraints (especially for SMEs) cannot be excluded as economic recovery gathers pace.

Similar conclusions lie behind the Commission's decision in December 2010 to prolong into 2011, with some modifications, the special State aid rules to support access to finance[86], considering that the situation of the banking sector remained fragile and that support measures were still needed for firms continuing to have problems accessing credit. Particular attention was paid to SMEs as banks tend to provide credit preferably to larger companies (as they usually have longer credit histories and established track records); this motivated the extension of the possibility to provide subsidised guarantees and subsidised loans to SMEs. At the same time, it was reiterated that gradual phasing out of crisis rules and exceptional levels of state support would continue, in line with the growing capacity of financial institutions to supply adequate credit to the creditworthy corporate sector under conditions that can be considered somehow normal.

References

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[84] Small companies are typically short of collateral, thus increased bank demands for collateral are particularly perceived as limiting access to bank loans.

[85] See IMF (2010), p.24

[86] A number of support measures at the national level to ease access to finance have been implemented since the beginning of the crisis in order to ensure that viable businesses continue to have access to capital on reasonable terms. At the EU level, the introduction of the Temporary Framework on state aid to the real economy to support access to finance in the current financial and economic crisis was largely motivated by the need to ease access to finance in a situation of financial market failure.

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2. THE EXTERNAL COMPETITIVENESS OF THE EU AND ITS MEMBER STATES

The ability of a country to successfully participate in the expansion of international trade is a significant indication of the competitiveness of its external sector.[87] This section of chapter 2 provides a snapshot of the trade competitiveness of the EU and its constituent Member States at sectoral level over the last decade. It does this by providing a descriptive analysis based on a battery of standard indicators reflecting price or cost competitiveness, export performance, the role of sectoral specialisation and sectors' contributions to external imbalances. The second section of chapter 2 then moves on to look at particular factors that have an impact on export growth apart from the movement of relative prices. In spite of the fact that non-price competitiveness turns out to be important, it is nevertheless relatively unexplored. The chapter concludes with a brief look at what impact product market reforms could have on Member States' current accounts.

2.1. The trade competitiveness of EU Member States and industries

This section describes the trade competitiveness of the EU and the Member States over the last decade at a relatively disaggregate sectoral level. It begins by looking at price competitiveness, not only at the aggregate level, but also at the sectoral level. It follows that with a look at sectoral market shares and sectoral specialisation patterns. Finally, it looks at the contribution individual sectors make to chronic Member State trade imbalances, whether positive or negative, in Member States.

It is important to note straightaway the issue of intra-EU trade as it complicates the assessment. As intra-EU trade is very important for most Member States, excluding it entirely would only give a partial, non-accurate picture of countries' external behaviour. Conversely, when comparing the EU with other large countries (China, US) for which inter-province or inter-state trade is not included, we also exclude intra-EU trade so as not to introduce any biased comparisons. On the other hand, there is generally less trade integration between EU Member States than there is between different regions of large countries so intra-EU trade does not yet compare to the incidence of domestic trade between regions/states in the US or China either.[88]

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[87] Note that external competitiveness is only one aspect of a country's overall competitiveness, which can be defined as a sustained rise in living standards combined with as low a level of involuntary unemployment as possible (see e.g., Aiginger, K. (1998), "A framework for evaluating the dynamic competitiveness of countries," *Structural Change and Economic Dynamics* 9 and European Competitiveness Report, several issues). A well-known criticism of placing excessive focus on the comparative international perspective when thinking about competitiveness is found in Krugman, P. (1994), "Competitiveness: A Dangerous Obsession," *Foreign Affairs*, March/April.

[88] A growing body of literature has documented the negative impact of national borders on the volume of trade. In particular, Chen, N. (2004), "Intra-national versus international trade in the European Union: why do national borders matter?", *Journal of International Economics* 63, finds the trade reducing effects of national borders in European countries.

2.1.1. Country and sector-level price/cost competitiveness[89] [90]

Real effective exchange rates (REER) are aggregate relative price and cost indicators which may be used to assess a country's price or cost competitiveness relative to its principal competitors in international markets. They correspond to the nominal effective exchange rate deflated by selected relative price or cost deflators. The evolution of selected REERs has become a key indicator for identifying external imbalances (though not in isolation).

The evolution of ULC-based REERs in recent years (Figure 34) shows that only a minority of EU Member States improved their cost competitiveness in the 2000s: Austria, Germany, and Sweden. Some other countries have had broadly stable REERs, but Belgium, Finland, and France experienced V-shaped developments between 1995 and 2009, reaching their lowest REER (i.e. greatest degree of cost competitiveness) in 2000. Poland was another country which maintained its long-term cost competitiveness but with large short-term fluctuations (appreciations and depreciations) exceeding 25%.

Most Member States' REERs globally and gradually appreciated after 2000, a year marked by a low euro dollar exchange rate. The largest appreciations occurred in the newest Member States. In Bulgaria, the Czech Republic, Estonia, Latvia, Romania, and the Slovak Republic the REER appreciation exceeded 50% in 2000-2008. These appreciations took place under different exchange rate regimes and to some extent reflected the catching-up process (such as the Harrod-Balassa-Samuelson effect).[91] A large number of other countries (Cyprus, Denmark, Greece, Spain, Hungary, Ireland, Italy, Lithuania, Malta, the Netherlands, Portugal and Slovenia) also experienced some REER appreciation after 2000. Appreciations linked to catching-up effects may be considered "benign" factors behind an apparent loss of competitiveness; more problematic however is the situation where the continuous deterioration of external competitiveness reflects accumulated internal imbalances.

One consequence of the global crisis has been a partial correction of external imbalances; exchange rates which appreciated most before 2009, depreciated slightly in 2009 in real effective terms. The sharpest REER depreciation occurred in the UK, offsetting much of the large appreciation of the late 1990s.

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[89] For a more detailed analysis of price and cost competitiveness developments at the aggregate level for euro-area countries see "Surveillance of Intra-Euro Area Competitiveness and Imbalances," *European Economy*, 1, 2010; and *Quarterly Report on the European Area*, several issues.

[90] Cost competitiveness and revealed comparative advantage indicators (sections 2.1. and 2.2) are calculated using NACE Rev 1 Subsections for manufacturing (14 sectors) and at Sections level for services (5 market service sectors) plus the "mining", construction and electricity sectors. The sectoral classification in section 2.3 on trade balances in manufacturing corresponds to NACE Rev 1 Divisions.

[91] Samuelson, P. A. (1994), "Facets of Balassa-Samuelson Thirty Years Later", *Review of International Economics*, Vol. 2, No. 3, pages 201-226.

Figure 34. Real effective exchange rate indexes (ULC-based)
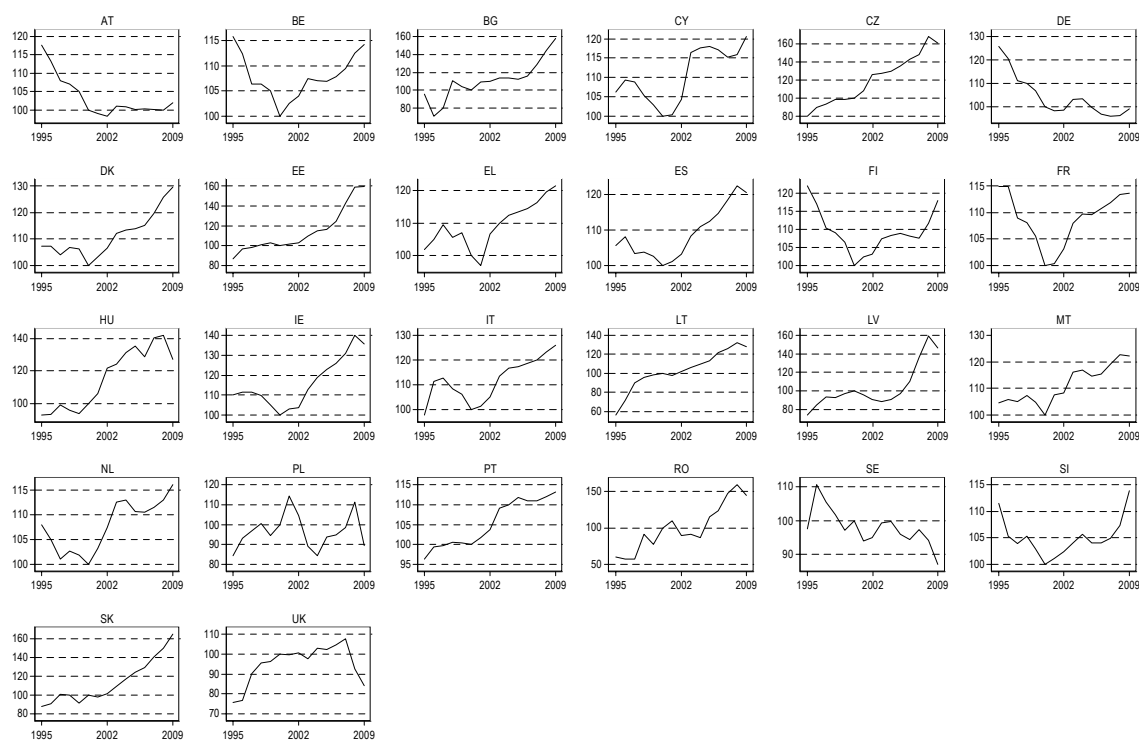
Note: 2000 = 100. Data for Luxembourg not available. The presented real effective exchange rates are based on unit labour costs in the whole economy and measure performance relative to 35 industrial countries (export-weighted).

Compared to REERs, which only provide information about relative performance over time, unit labour costs (ULC) also provide information on countries' relative levels of competitiveness. The evolution of sectoral unit labour costs (ULC) reflects sectoral developments in cost competitiveness within countries. Figure 35 displays average ULC growth across sectors and countries for two periods:1996-2009, and more recently in 2005-2009,[92] although the time coverage varies across Member States (see note to Figure 2-2).[93] Because of these time span differences, cross country comparisons need to be done carefully since ULCs figures tend to be quite volatile and the time period choice could have consequences on the final results. Note however that the focus is on sectors with the highest (shaded cells in Figure 2-2) and the lowest (bold cells) ULC growth *within* countries. Only in a second step, best- and worst-performing sectors across countries are counted and presented in

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[92]   Since business cycle analysis is beyond the scope of this chapter – we are interested in structural aspects only – the analysed periods do not reflect any business cycle considerations. We implicitly eliminate the cyclical country-specific components when we take averages for periods. By conducting cross-country comparisons, we eradicate the influence of common business cycles. The periods have been chosen arbitrarily. 1996-2009 represents a long period (with the starting point determined by data availability for many countries) and 2005-2009 is just a recent short period.

[93]   Unit labour cost (ULC) measures the average cost of labour per unit of output and is calculated as the ratio of total nominal labour cost per employee to real (i.e. in constant-prices) gross value added (GVA) per employee. GVA is used rather than gross production because of its wider availability (especially for services) but, where both denominators are available, ULC calculated in either way evolves similarly.

last two columns, but no comparison of absolute growth rates across countries is made. The ordering of sectors within each country according to their ULC growth is assumed to better represent the structural features of the economy, which are less volatile and more comparable across countries than the absolute growth rates (which are more subject to business cycles and the overall situation in the labour market).

It appears that services – which are less internationally tradable, and thus experience less competition – were subject to more labour cost pressure than manufacturing in general over the period 1996-2009 (except, on the one hand, fuel manufacturing which experienced high cost growth up to 2005 and, on the other, transport and communication as well as financial intermediation where unit labour cost growth was very moderate in many countries). In particular, labour costs developments outpaced productivity developments across a large majority of countries for real estate, renting and business activities, hotels and restaurants, construction and wholesale and retail sectors, electricity, gas and water supply, both in the entire period under analysis (1996-2009) and more recently (2005-2009).

By contrast, the manufacture of electrical and optical equipment showed the most cost-competitive behaviour in several countries both in the long term and more recently, followed by chemicals, rubber and plastic. Analysis of slightly more disaggregated data (available only for a smaller number of countries) confirms that both recently and over the whole period considered, radio, television and communication equipment as well as manufacturing of office machinery and computers were amongst the industries which enjoyed the largest ULC decreases, very likely in response to strong global competitive pressure and rapid technological progress.[94] Looking at the sectoral dispersion of the ULC developments (standard deviations), within the EU it appears that the catching-up economies had generally more diverse ULC growth across sectors compared to mature economies.[95]

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[94] See Table A.1 in the annex. Emerging or technology-intensive services in many EU Member States – e.g., recycling and R&D activities – recorded the highest ULC growth. In addition, high ULC pressures appeared in real estate activities. In the most recent years, however, amongst the top four industries in terms of ULC growth in Belgium, Greece, France, the Netherlands and the Czech Republic was motor vehicle manufacturing, whilst in Germany, the Netherlands and Sweden it was the production of basic metals. The manufacture of tobacco products was another industry experiencing high ULC growth in many countries.

[95] With the notable exceptions of Sweden and Germany which had the 7th and the 9th highest standard deviations.

Table 2-1. Average nominal unit labour cost growth (in %) for the period 1996-2009(*)

industry	AT	BE	BG	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IT	LT	LU	LV	NL	PL	PT	RO	SE	SI	SK	UK	Number of countries with largest ULC growths in that industry	Number of countries with largest ULC declines in that industry
Mining and quarrying	-3.1	-0.1	-1.3	7.1	3.2	-4.6	2.7	6.1	4.5	0.2	1.1	2.2	3.8	8.1	-0.2	-3.4	2.7	7.4	4.0	35.2	5.6	1.0	2.5	1.4	4	5
Manufacturing	-1.2	-0.2	-2.3	1.0	0.6	0.7	4.3	4.0	2.3	-1.4	0.3	4.9	3.4	1.5	1.2	4.6	1.0	0.1	1.7	31.2	-0.7	2.7	0.4	1.8	0	3
Manufacture of food products, beverages and tobacco	-0.1	0.9	4.3	3.9	2.6	3.1	4.6	11.0	3.0	-0.9	1.9	11.9	2.1	2.6	1.7		0.9		2.9	31.3	1.3	5.5	1.6	2.4	2	0
Manufacture of textiles and textile products	-3.0	-2.5	1.0	0.7	-1.3	2.2	5.4	2.8	1.3	0.4	-2.4	6.9	1.9	2.5	5.9		0.1		2.7	33.1	2.0	2.8	0.0	1.2	1	4
Manufacture of leather and leather products	0.4	0.5	7.2	1.1	-0.8	7.7	7.1	-0.3	1.2	-0.2	3.2	10.3	4.4	6.0			0.5		4.1	33.9	1.5	3.5	3.1	-1.2	4	4
Manufacture of wood and wood products	-0.2	-0.3	2.0	-1.6	-1.3	1.7	4.8	1.5	2.5	-0.3	-0.6	6.1	4.1	0.8	-0.7		2.9		0.9	33.4	1.1	3.1	-3.8	5.1	2	3
Manufacture of pulp, paper and paper products; publishing and printing	-2.5	-0.3	7.0	1.2	-2.2	2.2	6.5	3.4	2.2	0.9	0.3	4.3	2.5	2.1	1.8		1.3		3.4	27.9	1.5	1.7	2.2	3.5	1	3
Manufacture of coke, refined petroleum products and nuclear fuel	-7.9	5.0	-7.5	13.2	18.7	-6.9	6.7	1.0	5.0	-2.0	2.5	12.1	11.3				2.3		1.1	38.1	-13.4	28.5	7.2	6.7	9	4
Manufacture of chemicals, chemical products and man-made fibres	-3.9	1.2	-8.1	4.5	-2.1	0.1	3.7	-2.3	1.2	-1.3	-1.2	11.7	2.5	0.2	0.9		-1.4		2.0	33.3	-0.6	2.2	5.3	0.3	0	9
Manufacture of rubber and plastic products	-0.9	0.1	-9.4	-4.8	-1.3	1.5	3.0	4.9	2.7	1.6	-2.0	5.2	3.6	-3.7	2.8		1.6		2.0	27.0	1.3	4.9	0.5	5.4	2	5
Manufacture of other non-metallic mineral products	-0.2	1.9	-18.9	1.6	-0.9	3.0	4.8	6.6	2.8	2.9	1.4	6.2	4.1	3.0	3.2		1.8		1.4	29.5	0.9	4.1	0.2	1.6	2	2
Manufacture of basic metals and fabricated metal products	0.1	0.8	-1.7	5.7	-0.2	3.9	3.5	0.0	2.2	1.4	2.2	6.7	4.0	1.4	-1.3		1.9		2.5	31.1	4.4	3.2	2.3	1.2	0	1
Manufacture of machinery and equipment n.e.c.	-1.2	1.1	-6.9	0.5	0.9	4.4	4.0	-5.1	1.7	1.2	-1.1	3.5	4.3	0.6	1.2		2.2		2.0	32.9	2.8	3.0	-2.9	2.0	0	2
Manufacture of electrical and optical equipment	-1.2	-0.1	-9.3	-2.1	-3.6	-1.9	2.1	13.8	1.6	-7.1	-3.4	-5.2	3.5	-1.5	0.7		1.7		-3.2	34.0	-13.4	1.0	-3.2	-0.1	1	14
Manufacture of transport equipment	-0.9	0.2	-3.2	-3.1	0.9	6.0	3.6	1.6	2.9	2.7	4.1	4.1	2.8	-2.1	-0.8		1.7		-6.4	30.4	1.8	-0.1	-2.9	1.2	3	6
Manufacturing n.e.c.	-1.7	1.1	-12.3	1.1	0.2	2.5	2.6	7.4	3.1	2.1	2.9	7.7	3.9	1.0	1.8		1.5		5.9	32.0	-0.4	4.8	-5.7	3.0	1	3
Electricity, gas and water supply	-3.7	0.7	7.4	7.3	-0.8	3.6	7.5	9.0	0.2	0.9	0.4	10.3	-1.3	2.3	-1.1	6.9	0.7	8.4	0.5	35.1	5.2	6.3	11.0	-2.0	5	6
Construction	0.4	1.5	2.1	4.3	0.2	3.7	7.8	5.1	3.9	4.5	4.1	8.7	3.9	4.8	0.8	8.7	2.9	6.1	7.4	28.6	4.4	6.9	1.7	5.2	8	1
Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	0.9	3.8	4.0	0.7	-0.1	2.9	7.6	2.6	5.4	2.3	2.2	10.0	4.9	9.5	-1.3	10.4	0.8	7.4	3.6	29.9	0.5	5.7	4.8	2.7	6	1
Hotels and restaurants	1.9	4.1	1.4	14.7	1.5	5.0	8.2	4.8	6.8	2.1	4.0	12.0	4.1	12.3	2.3	10.9	3.9	8.9	8.6	40.7	3.0	7.7	8.0	4.7	15	0
Transport, storage and communication	-0.6	1.8	-1.1	4.5	-1.6	1.3	3.8	-5.3	1.6	0.7	-0.2	7.1	0.6	5.8	-0.1	4.5	-0.4	4.0	0.6	33.2	0.7	5.4	8.5	-0.6	1	6
Financial intermediation	-3.7	-1.3	-6.1	2.2	0.2	-1.0	-2.0	2.2	-2.3	0.1	0.4	16.8	-0.2	4.0	-0.8	12.4	1.7	2.4	-3.0	32.4	1.2	1.3	14.2	0.8	3	10
Real estate, renting and business activities	3.3	3.9	10.1	9.4	3.1	6.1	11.5	12.8	6.1	5.5	3.3	13.9	5.9	12.1	3.0	9.9	4.4	10.5	6.9	38.9	5.0	8.9	8.1	4.4	22	0
Standard deviation	2.4	1.8	7.4	4.9	4.4	3.4	2.8	5.1	2.0	2.5	2.2	4.7	2.4	4.3	1.9	5.0	1.3	2.7	3.5	3.4	4.9	5.7	5.1	2.3		

(*) Time coverage varies across countries. Data starts in 1997 (RO), 1999 (BG), 2000 (FR), 2001 (EL); and ends in 2005 (UK), 2006 (BG), 2007 (AT, PT), 2008 (FR, RO).
Note: The top four ULC growth rates are shaded whilst the bottom four are in bold italics. Data corresponds to NACE2 Rev1 Subsection (manufacturing) or NACE2 Rev1 Section (services), plus mining, construction and electricity. Empty cells as well as data for CY, IE, and MT reflect missing data. For some sectors in BE, DK, DE, PL, PT, and SE the available time series are shorter. Table A.1 in annex presents more disaggregated sectoral information but for a limited sample of countries.

Table 2-1 (continuation). Average nominal unit labour cost growth (in %) for the period 2005-2009(*)

industry	AT	BE	BG	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IT	LT	LU	LV	NL	PL	PT	RO	SE	SI	SK	UK	Number of countries with largest ULC growths in that industry	Number of countries with largest ULC declines in that industry
Mining and quarrying	-0.3	-4.6	-2.8	12.8	2.9	3.2	5.6	5.9	6.9	-1.7	1.6	-2.9	4.4	22.7	2.7	5.6	3.4	7.2	2.7	23.7	13.7	0.1	2.5	15.4	9	5
Manufacturing	-2.1	0.1	1.7	-2.1	2.7	-6.8	7.4	3.4	3.7	0.4	1.2	2.5	4.8	1.5	3.2	12.0	1.5	-2.2	1.9	17.2	2.7	2.3	0.5	6.7	0	2
Manufacture of food products, beverages and tobacco	0.3	-0.3	4.9	-0.3	4.4	3.6	6.7	8.2	2.2	1.5	2.5	3.9	2.0	-1.6	3.4		-0.5		2.6	20.0	-0.8	-0.5	0.3	5.0	2	5
Manufacture of textiles and textile products	-3.3	-4.1	1.9	-2.5	-1.2	2.5	5.1	3.4	1.8	-0.9	-0.8	3.9	0.6	1.8	14.8		0.7		3.0	18.9	2.9	-0.5	-3.5	7.6	1	7
Manufacture of leather and leather products	6.6	-0.4	8.5	-6.5	1.2	15.3	8.3	-2.3	-0.5	1.0	-0.7	-1.6	5.1	-0.4			1.6		-0.4	14.9	1.2	2.6	4.8	15.4	3	7
Manufacture of wood and wood products	-0.5	4.5	10.3	0.7	0.7	1.9	9.3	2.1	4.3	2.3	4.2	2.6	8.2	5.1	9.0		3.4		4.7	19.1	4.9	2.2	-3.5	10.5	4	1
Manufacture of pulp, paper and paper products; publishing and printing	-4.8	0.1	-0.3	0.4	-4.4	4.4	5.1	5.5	3.8	2.7	0.0	3.7	3.6	5.1	3.8		1.1		1.5	11.0	3.7	2.0	0.5	11.6	1	3
Manufacture of coke, refined petroleum products and nuclear fuel	-20.6	-6.3	-20.3	-20.2	45.9	-34.6	9.6	-3.3	7.9	13.9	0.2	1.0	10.3				-0.7		41.8	32.8	-29.0	13.1	12.9	1.9	8	10
Manufacture of chemicals, chemical products and man-made fibres	-6.3	5.8	1.5	0.9	-0.3	2.4	11.0	-2.0	1.6	-4.5	-2.4	5.8	3.7	-2.0	-2.4		-0.4		3.6	21.1	1.0	0.7	3.5	4.5	2	8
Manufacture of rubber and plastic products	0.7	-0.5	1.5	-5.1	-2.7	-0.7	8.0	4.4	5.6	-0.6	-1.0	2.9	5.7	5.6	1.9		1.2		0.5	15.8	0.8	8.2	1.3	9.4	2	5
Manufacture of other non-metallic mineral products	-0.1	1.4	-13.3	1.0	-0.6	5.3	10.9	9.7	5.2	6.4	2.2	3.0	9.2	8.4	5.0		2.0		-0.9	15.5	-0.6	6.8	2.6	6.4	4	3
Manufacture of basic metals and fabricated metal products	-1.3	3.5	17.3	2.9	1.9	6.3	9.9	-0.5	4.0	2.0	3.4	8.9	6.2	2.1	0.6		2.5		0.9	20.5	8.5	4.0	8.5	5.4	7	0
Manufacture of machinery and equipment n.e.c.	-3.9	3.7	1.0	-5.6	-0.1	6.3	11.5	-7.3	4.1	1.5	0.8	1.0	6.4	3.6	4.7		5.4		2.0	18.2	4.7	4.1	0.4	2.3	2	3
Manufacture of electrical and optical equipment	1.5	4.9	2.3	-2.6	-3.5	-4.6	3.5	22.2	4.3	-3.2	0.4	-1.9	5.8	-0.7	2.5		2.0		0.0	15.9	-4.8	1.1	-10.5	10.5	3	8
Manufacture of transport equipment	-2.3	1.7	8.0	-3.9	-0.8	12.8	7.3	1.5	6.2	4.6	3.3	4.8	3.8	2.2	1.5		7.0		-0.3	7.0	12.6	0.0	-1.6	6.2	4	3
Manufacturing n.e.c.	-1.9	4.2	3.7	-4.0	-1.4	1.6	5.0	7.3	4.7	5.6	2.5	5.3	4.0	2.5	-0.2		1.8		5.6	19.3	1.7	6.8	-4.6	4.7	1	3
Electricity, gas and water supply	-0.9	2.9	12.0	3.1	4.2	10.7	9.0	14.1	5.3	6.1	2.2	6.1	2.6	5.9	0.6	10.4	1.8	8.0	2.3	18.3	5.9	6.3	9.2	5.9	8	1
Construction	1.9	2.3	8.0	3.5	1.3	5.9	15.5	2.6	2.5	5.5	4.2	8.2	5.8	9.0	3.1	22.3	0.7	3.6	7.8	4.6	6.0	5.9	-2.0	4.1	7	1
Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	3.0	5.3	2.7	0.2	-0.2	5.2	10.7	7.2	3.5	6.3	0.9	5.5	6.5	10.0	-3.8	15.9	0.8	4.4	3.7	7.7	2.4	4.7	3.7	4.6	5	2
Hotels and restaurants	2.2	4.8	9.6	18.4	1.6	3.4	12.7	5.4	1.9	4.2	3.7	4.6	2.3	11.3	4.8	25.1	4.3	6.0	11.0	10.6	3.8	7.9	9.6	4.1	12	2
Transport, storage and communication	-0.5	2.1	0.3	0.6	1.6	4.1	7.3	-2.0	3.4	2.3	-0.1	3.2	2.4	6.6	1.0	13.4	0.5	2.3	-3.0	14.5	0.0	3.6	4.1	1.6	0	3
Financial intermediation	-3.6	0.9	-9.5	-0.1	-2.5	0.3	6.4	-0.8	-1.1	-2.0	0.6	12.9	0.1	8.9	-2.6	13.8	-0.8	4.3	3.5	15.1	0.8	-1.4	4.8	-0.3	1	9
Real estate, renting and business activities	2.9	3.2	16.0	7.4	2.1	4.8	12.2	7.5	4.7	5.3	3.3	6.1	5.4	13.2	1.3	13.2	3.4	4.3	10.5	17.6	3.4	5.4	4.2	1.2	6	1
Standard deviation	5.2	3.3	8.9	7.4	10.0	9.4	3.0	6.5	2.2	4.1	1.9	3.6	2.6	5.8	4.1	6.2	2.0	1.9	9.0	6.1	8.1	3.6	5.3	4.3		

(*)Time coverage varies across countries. Data ends in 2005 (UK), 2006 (Bulgaria), 2007 (Austria, Portugal), 2008 (France, Romania).

Note: The top four ULC growth rates are shaded whilst the bottom four are in bold italics. Data corresponds to NACE2 Rev1 Subsection (manufacturing) or NACE2 Rev1 Section (services), plus mining, construction and electricity. Empty cells as well as data for Cyprus, Ireland, and Malta reflect missing data. For some sectors in Belgium, Denmark, Germany, Poland, Portugal, and Sweden the available time series are shorter. Table A.1 in annex presents more disaggregated sectoral information but for a limited sample of countries

Finally, most countries suffering large competitiveness losses as measured by the REER (the Czech Republic, Estonia, Lithuania, Hungary, Spain and Italy, amongst others) experienced cost-factor pressures that were quite widely spread over the whole economy as most sectors registered positive ULC growth.[96]

2.1.2. Sectoral market shares and specialization

In addition to sectoral price and cost developments (as seen in the evolution of ULCs), changes in shares in the world market are often considered an indicator of a country's trade competitiveness. Achieving gains in world market shares is seen as more of a sign of success than simply growing exports.

Another useful indicator used to measure a country's sectoral specialization is the revealed comparative advantage (RCA) index. Specialisation and competitiveness are not independent country's characteristics: the more specialised a country is in high-technology products, the stronger in principle is its market power and hence competitiveness as relatively few countries can produce high-technology goods (it requires heavy investment in research and sufficient human-capital), but also, the higher the demand it faces given generally rising global demand for high-technology products.

Since it was first introduced by Balassa (1965), the definition of revealed comparative advantage has been revised and a number of alternative indices now exist. All of them however contain a comparison of export structures (national in the numerator against other countries or block of countries in the denominator) and show not only whether a country is specialised in exports of a sector, but also an idea of just how intensely specialised. The indicator used here is the symmetric revealed comparative advantage index (SCRA), a normalization of the standard RCA index.[97]

From Figure 35 and Figure 36, which show the evolution of market shares and the SRCA index for the EU, the US and China, the sectors into which countries have been reallocating their resources over time can be identified. Figure 37 compares the EU's sectoral market share growth in global trade for manufactures (over the period 2000-2008, in percentage points, vertical axes) with those of two large exporting benchmark economies: a mature one (the US) and an emerging one (China). The horizontal axes rank sectors according to the degree of dynamism in world markets measured as total world exports growth for that sector (average growth over the period 2000-2008). This is an indication of whether economies are becoming more competitive in promising industries (i.e. ones facing increasing global demand) or declining industries. Additionally, each sector is represented by a bubble, the size of which reflects the size of global demand in 2008. Fitted lines show broad specialisation in nominally slow-growing (negative slope) or fast-growing industries (positive slope). Non-linear patterns

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[96]   Country-specific factors such as labour market institutions (e.g. wage bargaining mechanisms) could play a role in determining to what extent sectoral wage pressures translate throughout the whole economy.

[97] $RCA_{ci} = (X_{ci}/\Sigma_i X_{ci}) / (X_{bi}/\Sigma_i X_{bi})$. The numerator represents the share of a given sector (*i*) in national exports (X_{ci} are exports of sector *i* from country *c*). The denominator represents the share of a given sector (*i*) in the total exports of a benchmark economy (*b*) (in our case the rest of the world). RCA can be in the range between 0 and infinity; with levels below 1 indicating a comparative disadvantage and above 1 an advantage (or specialisation. The symmetric RCA (SRCA), which is more convenient to interpret, equals $(RCA - 1)/(RCA + 1)$ and ranges from −1 to +1. Positive values of SRCA represent a comparative advantage while negative values reflect a disadvantage.

are also possible, with e.g. a U-shaped curve pointing to specialisation in both the slowest and the fastest growing industries, and medium-growth industries playing a less important role.

Figure 35. Market share changes and world export growth in manufacturing for the EU27, China and the US
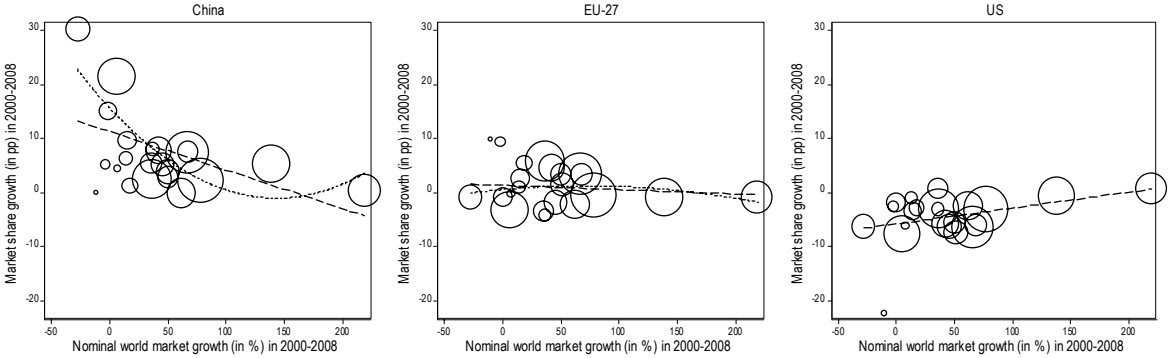
Note: The bubbles represent sectoral global demand in 2008 (market size). The sectors considered are (in order of market size): chemicals and fibres, motor vehicles, radio, TV and communication equipment, machinery and other equipment, basic metals, food products, office machinery and computers, electrical machinery, coke and petrol products, medical, precision and optical instruments, other transport equipment, rubber and plastic products, textiles, furniture, cloths, fabricated metal products, paper goods, other non-metal products, leather goods, wood products, prints, and tobacco products. The linear and the parabolic fits are weighted by the global market sizes (indicated by the sizes of the bubbles). China includes Hong-Kong and Macau. EU-27 trade does not include intra-EU trade. The parabolic fit for the US (not reported) very closely aligns with the linear one.

In many dimensions, the EU's trade performance is in-between China and the US. China's spectacular integration in world markets has translated into increasing market shares for all its manufacturing sectors. However, the evolution of its sectoral market shares shows a negative correlation with sectors' global demand growth: China's increasingly global presence is relatively concentrated in sectors with either decreasing or stagnant demand (e.g. an increase in market share of 30 percentage points in office machinery, a sector which experienced a nominal global decline in demand of 28%, and an increase in market share of 21 percentage points in radio and TV equipment, a sector whose global increase of demand was only 5.5% during the period considered). Indeed China, which had throughout the period a strong specialization in clothing and textile sectors (SRCA index above 0.5, see Figure 36) has dramatically shifted resources towards, and created a strong comparative advantage in, office machinery and radio and TV equipment. Resources have also been dedicated to reduce its comparative disadvantage in some high-technology sectors such as machinery and equipment, motor vehicles and scientific instruments, sectors characterised by medium-level global demand (ranging between 37% and 57% growth). But in the most globally dynamic sectors – oil refining and basic metals, sectors with global demand increases of, respectively, over 200% and 138% over the period – China is only maintaining its global position and has a strong comparative disadvantage (particularly in oil refining).

Meanwhile, the US has lost world market shares in all but two manufacturing sectors (oil refining and furniture, where there was a 35% increase in global demand). However, the US has a large (if declining) comparative disadvantage in oil refining (i.e. a negative SRCA in both years). As Figure 36 reveals, the US' comparative advantages are concentrated in high and medium-high technology sectors such as chemicals, machinery and equipment, scientific instruments and other transport equipment. Yet in all these sectors, which face moderate global

demand growth ranging from 50% to 75%, the US has lost ground in world markets. However, as the US' largest losses in world market shares have been concentrated in either declining or low-growth sectors, Figure 35 shows a positive correlation between the US' market share changes and global demand growth.

The EU performance has been more mixed and, although it has either maintained or increased its global presence in 11 out of the 22 manufacturing sectors (representing more than 42% of total world trade in manufacturing), the EU's external performance has been most successful in tobacco (with an almost 10 percentage points market share increase) and wood and wood products (with a more than 9 percentage points market share increase).

Apart from these two sectors, whose importance in global trade is relatively small, the relationship between the EU's changing shares of global sectoral markets and global demand growth suggests a concentration in medium-level global growth sectors. Among these are important high and medium-high technology sectors such as chemicals and motor vehicles. As Figure 36 further confirms, the EU has quite diversified comparative advantages – reflecting the diversity of Member States. Like the US, the EU has held or improved its comparative advantage in high and medium-high technology sectors such as chemicals, machinery and equipment (both electrical and mechanical), motor vehicles, as well as in medium-low and low technology sectors such as food, tobacco, rubber and plastics, paper etc. On the other hand, the EU's comparative disadvantage in large industries characterized by rapid technological progress and very intensive competition – business and consumer electronics (i.e. office machinery and computers[98] and radio, TV and communication equipment), making up together almost 16% of global manufacturing exports in 2008 – has worsened. Finally, the EU maintained only a marginal comparative advantage in another technologically advanced industry (precision instruments, including medical and optical devices, 4% of global manufacturing exports in 2008).

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[98] Somewhat paradoxically, this industry – very far from being technologically mature or declining in terms of volumes traded – exhibited the largest decline in nominal market size (almost 28% in 2000-2008), the result of extremely fast and continuous technological change and intensive competition resulting in a dramatic decrease of prices. For similar reasons, the other electronics sector (radio, TV, and communication equipment) recorded only moderate positive nominal growth (less than 6% over the same period).

Figure 36. Changes in Symmetric Revealed Comparative Advantage (manufactures) for EU27, China, US
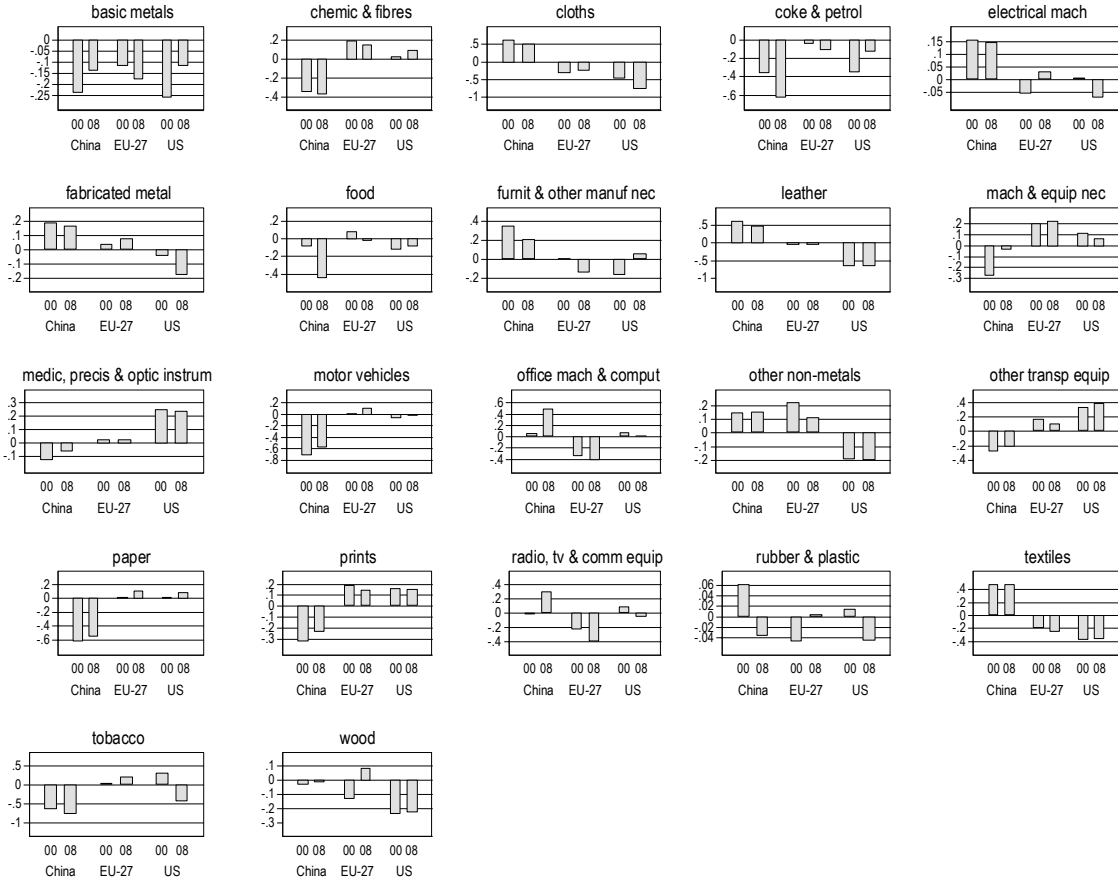
Note: Intra-EU trade excluded.

In order to identify individual Member States' varied performances and make cross-country comparisons, Figure 37 shows market share growth in per cent in manufacturing by country. The first panel essentially reflects two important processes: China's rapid integration into world markets and EU enlargement. Indeed, the new central and east European Member States look particularly good in this comparison, probably mainly due to a catching-up effect (i.e. a high increase, but from low market share starting points in 2000) resulting from the intensive preparation for, and immediate effects of, EU enlargement which boosted the intra-EU trade of those countries.[99] As regards other Member States, despite already being a major global exporter, Germany has still managed to increase further its high market share, faring very well compared to the US. Other big EU Member States (Spain, Italy, France, UK) saw their market shares in global manufacturing exports shrink, probably pointing to some deindustrialisation and an increasing role for services in their exports basket. The same story applies to small, peripheral Member States such as Malta, Ireland and Cyprus. Finally, Austria seems to have been very successful at gaining market shares, due perhaps to a successful strategy of making itself a hub for multinational production chains in an enlarged EU building up trade linkages

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[99]   The reasons for including intra-EU trade when analysing the performance of single Member States is given in the second paragraph of the introduction to this chapter.

with new Member States while keeping strong ties with older Member States and third countries.

Figure 37. Market share growth in manufacturing in 2000-2008 (in %)
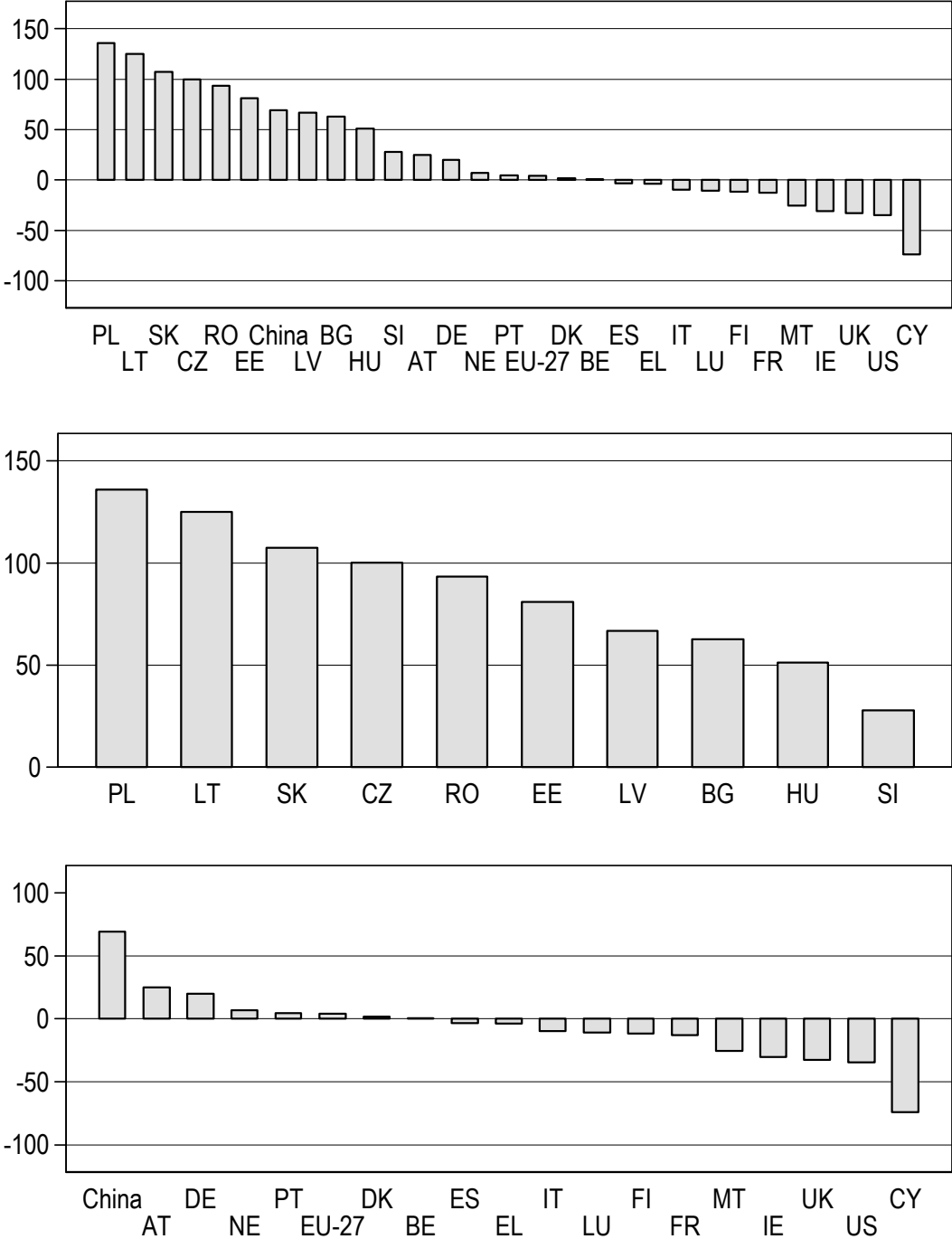
Note: The market share growth in per cent (as opposed to the market share change in percentage points) reduces the role of country sizes. It is defined as $(100 \cdot s_t / s_{t-n}) - 100$, where s_t is a market share in year t and $t-n$ is an earlier, reference year. Intra-EU trade is included. The two bottom panels of the graph differentiate the catching-up from the older EU Member States because the scales of their relative market share growth are quite different.

Any analysis of a country's external performance would be incomplete without a reference to service sectors, which have been growing in importance in the export baskets of advanced economies. This section of the chapter gives only a quick overview of services export patterns. The next section looks with some detail into what role well functioning, highly productive service inputs can play in facilitating the growth of manufactured goods exports.

In services, as in manufacturing, the EU increased its global market share during the period 2000-2007 (a 3.5 percentage point increase). This was mainly driven by gains in the insurance and communications sectors, although all sectors increased market share except for financial services and construction. By contrast, the US lost market share in all services markets except financial services and personal, cultural and recreational activities. Compared to the EU, the only services sector for which the US was the largest world player in 2007 was royalties and license fees.[100] The almost 20 percentage point difference in market share between the US and EU in this sector points to the EU's chronic deficiency in R&D and innovation activity. Their respective SRCA indices – see Figure A.2 in the annex – clearly show the EU's comparative disadvantage and the US' strong – and increasing – comparative advantage in the sector. Figure A.2 also shows that, reflecting its catching-up economy status, China is reducing its strong comparative disadvantage in most services sectors. Its global market share for services increased by 1.53 percentage points over the period considered. The largest increase was in construction services (4.6 percentage points), but the almost 2 percentage points increase in other services sectors – mainly covering business-to-business (B2B) activities where offshoring represents a strategic option for many firms – gave China a significant 9% market share.

2.1.3. Sectoral contribution to trade imbalances in manufacturing goods

Sectoral trade balances can be used to identify the sectors that are contributing most to chronic manufacturing trade deficits and surpluses in each EU Member State.

Figure 38 depicts the evolution of the relative trade balance in manufactures as a percentage of total trade between 2000 and 2009. A number of Member States, had persistent trade deficits in manufactures (Bulgaria, Cyprus, Estonia, Greece, Spain, Luxembourg, Latvia, Malta, Portugal, Romania, and the UK), but for Cyprus and Greece, these deficits represented over 50% of their total trade. Some other countries had persistent trade surpluses in manufactures including Germany, Ireland, Italy, the Netherlands, and Nordic countries.

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[100]   EU data for trade in services includes intra-EU trade (not the case for manufactures) therefore somehow distorting international comparisons. In addition, it should be also recalled that global trade in services faces barriers higher than trade in goods, which has been significantly liberalised e.g. in the framework of the GATT/WTO started in 1940s (compared to the process leading to the GATS, which gradually started in 1980s). Amongst many other factors, trade in services is hobbled by the sensitive issue of labour movements, as many services still cannot be delivered without transferring employees. Consequently, services trade is driven relatively less by market forces than manufacturing trade and more by existing bilateral agreements.

Figure 38. Evolution of manufactures trade balance (% of total trade)
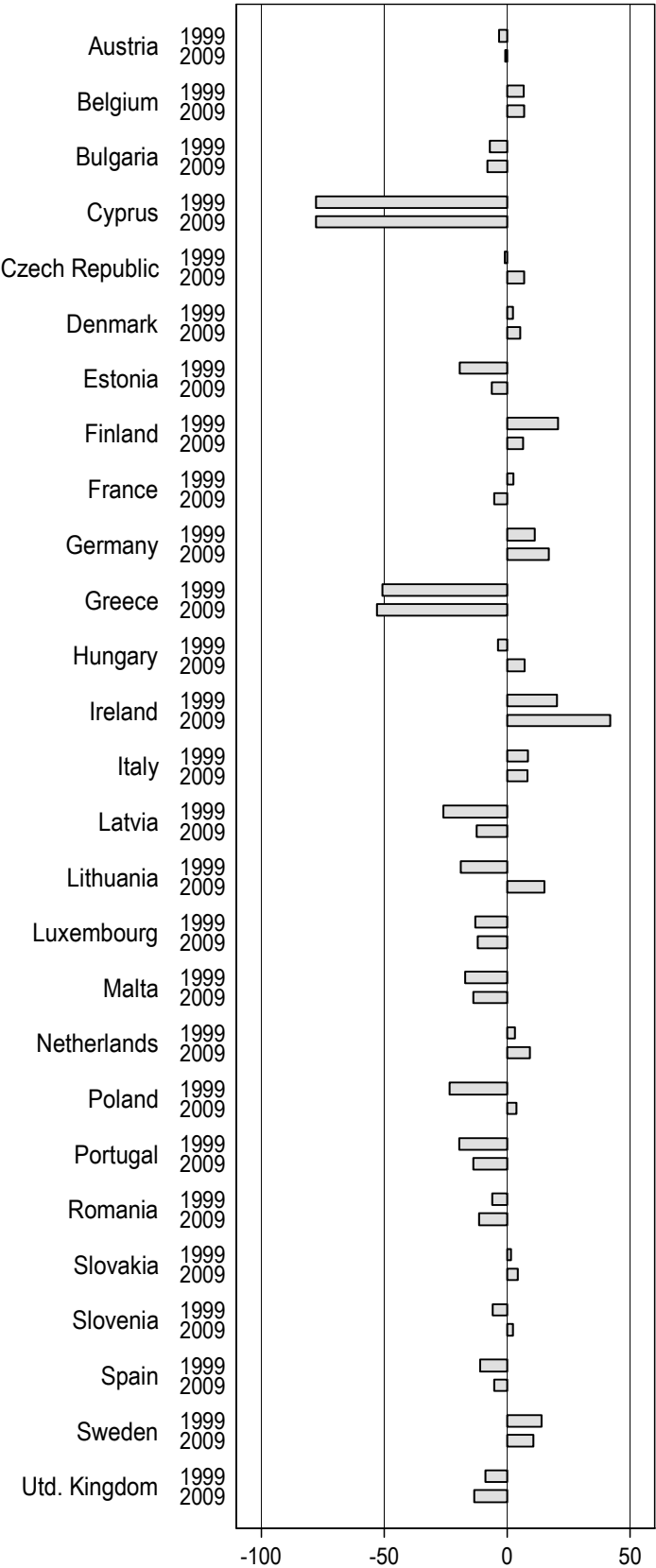
The sectoral contribution to trade balances in manufacturing in 2009 is presented in Table 7. For each country, the top three deficit sectors are shaded and the top three surplus sectors are in bold italics. Behind Cyprus's large trade deficit in manufactures were deficits across all sectors but especially fuels, food and motor vehicles. Greece had a similar pattern of negative contributions from all manufacturing sectors (with the exception of a small surplus in the fuel sector). For other Member States with important trade imbalances in manufactures such as Spain and Portugal, the sectors responsible are chemicals, clothing, and scientific instruments for Spain, and chemicals, food and motor vehicles for Portugal.

The second last column of the table shows the number of Member States for which a specific industry is among the top three deficit sectors. Chemicals followed by fuels, food, motor vehicles and clothing tops the table. At the other extreme of the spectrum are medium-technology or mature industries with no significant contribution to country's deficits in manufacturing such as: electrical machinery, simple fabricated metal products, leather, other non metallic mineral products, printed matter and recorded media, tobacco and wood product manufacture. This is consistent with the picture emerging from the earlier market share analysis which showed that the EU is specialised predominantly in medium-technology production.

Finally, in the last column the number of Member States for which a specific industry is among the top three surplus sectors is presented. It is useful to look at the last two columns bearing in mind that intra-EU trade is included in the analysis as they suggest that Member States have some complementary imbalances in trade. Indeed, the numbers in both columns appear to be positively correlated to some extent (Figure A.3 in the Annex). The most "deficit-yielding" sectors are also "surplus-yielding": chemicals, fuels, motor vehicles and food. On the other hand, two sectors (basic metals and machinery and equipment, not elsewhere classified) show high surpluses without many high deficits, again pointing to the comparative advantage in extra-EU trade in medium technology products.

Table 7. Sectoral contribution to trade balances in manufacturing in 2009

industry	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	UK	Number of countries with the largest negative contributions of that industry	Number of countries with the largest positive contribution of that industry
basic metals	-97	6	72	-3	-7	0	-11	1	0	12	19	-5	-12	-1	-13	-2	22	19	-12	2	17	-10	-2	8	-26	20	1	4	8
chemic & fibres	-44	77	-52	-9	-46	20	57	-57	-23	-48	-39	44	-17	98	-29	-14	-27	-39	-18	28	-111	-52	-61	21	84	-81	12	15	9
cloths	-123	-1	47	-6	-3	-5	-2	-2	-4	-24	-21	-21	-1	-3	8	6	-7	0	-10	-4	-2	5	27	-9	-20	-4	-16	8	3
coke & petrol	-215	4	43	-25	-14	-3	-3	-42	4	-21	27	-26	-9	-5	11	89	-37	-47	-55	29	-22	0	16	13	-164	40	5	13	6
electrical mach	68	2	-9	-3	10	9	12	9	-2	-3	20	11	16	0	8	-1	-3	-4	15	1	3	-3	-6	5	24	-14	-3	0	4
fabricated metal	25	-1	-13	-3	20	5	8	11	-2	0	0	-6	-8	-1	19	-1	-4	-1	-8	0	28	2	-18	3	15	15	-4	0	3
food	40	20	-21	-13	-16	1	94	-33	-12	4	-42	23	6	6	0	6	-22	-27	-71	40	38	-26	-39	-21	-71	-45	-24	12	6
furnit & other manuf nec	-9	-2	-3	-5	9	-1	9	26	-4	-14	-14	-19	7	-1	22	20	-9	4	-14	-4	74	0	12	0	40	12	-11	1	5
leather	-33	3	-3	-3	-4	-2	-5	-5	-3	-3	-6	-6	-4	-1	16	-3	-2	-5	-5	-1	-11	7	2	-4	-12	10	-7	0	1
mach & equip nec	196	-1	-45	-8	22	26	27	-12	-8	-13	50	-9	4	-1	84	-8	-2	-7	-21	7	-13	-17	-22	27	79	-3	-2	3	8
medic, precis & optic instrum	-6	-2	-10	-1	-6	6	18	-3	-5	-22	9	-5	3	15	-4	1	-3	-5	-5	1	-37	-8	-5	4	-3	-32	-2	3	2
motor vehicles	-53	-5	-33	-10	111	36	-34	-2	-13	52	-27	-31	108	-2	-42	1	-37	0	-21	-10	108	-21	16	9	115	179	-14	12	8
office mach & comput	-28	-3	-5	-1	-6	-1	-11	-5	-2	-14	-12	-8	9	1	-6	-2	14	-1	-2	5	1	-5	-4	-6	-10	-6	-6	2	2
other non-metals	26	4	-5	-4	9	2	8	-2	-1	16	-3	-7	5	-1	13	-3	0	-4	-14	-2	6	10	-9	-4	-6	-2	-3	0	2
other transp equip	64	-1	-3	0	6	-1	-37	3	-18	3	38	1	4	0	11	5	-1	0	8	1	19	-4	23	0	5	6	-1	2	3
paper	61	0	-10	-2	-2	1	-13	3	-2	-1	95	-5	0	-1	-1	-3	-4	-6	-14	0	-9	2	-8	45	14	11	-4	2	2
prints	-27	1	-2	-1	4	1	-4	3	0	1	-1	-1	-1	0	2	1	-2	1	21	1	2	-1	-2	0	9	2	1	0	2
radio, tv & comm equip	11	-3	-4	0	-1	-2	-2	-12	-1	-6	-5	-5	-8	-1	-7	0	2	0	150	1	-9	7	-3	-1	-1	7	-1	2	2
rubber & plastic	0	4	-17	-3	5	5	-8	-16	-2	-3	1	-8	3	-2	8	1	17	-9	-6	1	7	3	-11	-2	20	-3	-6	1	1
textiles	-19	2	-27	-2	1	0	0	2	-1	-5	-10	-8	-4	-1	9	-1	7	-2	3	0	-20	0	-22	-3	-3	-14	-12	1	0
tobacco	-5	0	0	-1	2	1	4	-3	-1	-9	-3	-5	0	0	-7	3	-1	-1	-4	7	17	4	6	-1	-10	-3	0	0	0
wood	67	-1	0	-1	6	0	-5	36	-1	-2	26	-4	0	0	-4	4	-3	35	-2	-2	15	8	10	17	20	6	-3	0	4

Note: The balances in a specific industry (*i*) are presented as percentage of the total absolute trade balance in manufacturing (exports, *X*, minus imports, *M*) of a specific country with the rest of the world: $(X_i − M_i) / |\Sigma_i(X_i − M_i)|$. Top three deficits in each country are shaded and top three surpluses are in bold italics.

2.1.4.   Summary and concluding remarks

Compared to the US and China, the EU generally seems to have managed to maintain its international position in world markets, although intra-EU trade (continued advancement in European integration) has probably played a major role. As for the diversity amongst EU countries, the bloc has a diversified comparative advantage structure but with an overall specialization concentrated in medium-technology product trade.

A disappointing development over the last decade however is the lack of significant improvement (in some cases, a deepening of the EU's comparative disadvantage) in some high-tech sectors such as business and consumer electronics sectors (a sector displaying one of the most globally rapid technological progress rates) and scientific instruments. In addition to the benefits in terms of dynamic value added creation and future productivity developments, these two high-tech sectors already now make up about 20% of total trade flows.

In the same vein, when trade in services is considered, EU comparative disadvantage in royalties and licence fees reflects the still large gap in EU R&D and innovation vis-à-vis the US. It also shows some underperformance in climbing the product "quality ladder"..

Looking at countries, accession to the EU has driven the spectacular performance of new member States (in some cases out-performing China in terms of relative market share gains, though starting from low initial market shares). With the exception of Germany and Austria however, all other older Member States recorded disappointing performances with stagnant or decreasing world market shares.

The analysis of the main sectors contributing to substantial trade deficits in manufacturing across Member States suggests that intra-EU trade imbalances could be a major driver. Sectors for which many Member States record large deficits are often the same sectors for which a large number of other Member States record considerable surpluses: chemicals, motor vehicles, food. For motor vehicles, intra-industry trade driven by international production chains could be part of the explanation. These intra-EU complementary imbalances are generally a natural consequence of specialisation in the single market. However, this implies that every country should find its specialisation – it cannot have persistent deficits in all industries or sectors.

Paradoxically, imbalances may reflect stronger specialisation and therefore improved competitiveness, rather than weaker competitiveness. Trade balances can vary strongly according to the level of sectoral disaggregation: as countries specialise more in specific parts of a supply chain, they may have deficits in a wide range of intermediate products but a strong surplus in one particular product. Hence, such deficits and surpluses should not be assessed independently of each other. Moreover, significant trade deficits in manufacturing goods may be offset by a strong specialisation in services. However, if only one narrow manufacturing industry (e.g. passenger cars) or a services sector (e.g. tourism) generates substantial surpluses, this can be risky as it exposes the whole economy to sectoral shocks. To be able to restructure their economies and remain competitive, Member States must have sufficiently flexible product and production factor markets.

ANNEX

Table A.1. Average ULC growth for 2-digit NACE industries for the period 1996-2009(*)

industry	AT	BE	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IT	LT	LU	NL	RO	SE	SI	SK	Number of countries with largest ULC growth in that industry	Number of countries with largest ULC declines in that industry
Manufacture of food products and beverages	-0.4	0.4	4.2	2.6	3.1	4.6	11.3	3.5	-0.9	2.0	11.7	2.2	3.9	2.1	0.8	31.1			1.2	0	0
Manufacture of tobacco products	8.1	5.9	-0.5	3.5	8.2		2.9	4.5	16.7	-3.2	14.7	-6.8		-0.7	0.4	42.1			26.3	7	2
Manufacture of textiles	-2.5	-3.1	-0.9	-0.9	1.7	4.5	6.4	2.0	0.5	-1.2	2.9	2.3	2.1	6.0	0.4	32.2	0.4	1.7	0.4	1	1
Manufacture of wearing apparel; dressing; dyeing of fur	-4.0	3.7	2.9	-2.0	2.5	6.8	1.8	0.8	0.8	-3.9	9.8	2.0	4.8	-1.0	-0.8	33.5	2.0	4.2	0.0	0	2
Manufacture of pulp, paper and paper products	-1.0	-2.0	-1.7	-1.4	2.6	1.3	5.1	4.2	0.1	2.4	4.4	1.4	0.0	4.4	0.3	26.1	0.0	-0.6	1.4	0	2
Publishing, printing and reproduction of recorded media	-3.6	0.0	3.1	-2.7	2.3	8.2	2.9	0.0	2.4	-0.5	4.4	2.2	3.8	1.8	1.6	28.7	3.1	3.2	3.2	0	0
Manufacture of basic metals	0.6	1.3	7.1	0.9	3.8	3.6	-0.9	0.5	-0.9	3.8	9.9	3.9	-0.5	-2.6	1.7	31.6	2.5	-0.4	6.7	0	1
Manufacture of fabricated metal products, except machinery and equipment	-0.3	0.2	5.1	-0.7	3.8	3.5	-0.3	1.7	2.7	1.7	5.3	2.6	3.1	1.4	1.9	32.4	2.8	4.4	-0.8	0	0
Manufacture of office machinery and computers	-17.7	6.0	-28.2	-24.5	-15.4	-0.1	-4.8	0.0	-8.8	-27.5	-16.6	6.5	-11.6	0.0	4.6	37.8	1.0	-5.4	8.7	3	11
Manufacture of electrical machinery and apparatus n.e.c.	-1.4	-0.8	-0.5	0.5	3.1	2.9	21.4	1.1	-2.1	3.6	-0.7	2.0	4.5	2.3	1.9	31.3	-22.4	2.3	2.6	1	3
Manufacture of radio, television and communication equipment and apparatus	0.4	-1.7	-3.1	-8.3	-9.0	5.8	9.4	-1.0	-8.6	-8.8	-4.2	1.6	-6.7	10.1	4.9	42.5		1.1	-13.8	3	8
Manufacture of medical, precision and optical instruments, watches and clocks	-2.8	0.8	4.7	-0.6	-1.4	1.9	4.2	1.0	4.4	-1.5	5.8	3.5	4.0	-0.5	0.1	27.6	1.1	-0.1	1.4	0	1
Manufacture of motor vehicles, trailers and semi-trailers	-0.5	0.2	-4.0	1.8	1.9	5.0	0.7	1.2	-1.2	3.9	3.7	1.2	-9.5	-2.1	3.6	28.7	-0.6	-0.3	-2.2	0	3
Manufacture of other transport equipment	-2.5	-1.0	7.0	-4.6	9.7	2.7	1.7	0.3	5.3	5.1	7.4	3.8	-1.4	4.0	0.7	38.2	3.7	2.0	1.0	2	1
Manufacture of furniture; manufacturing n.e.c.	-1.5	0.8	1.4	0.3	3.2	2.9	7.6	2.3	2.4	1.5	6.9	3.3	1.5	1.3	1.4	32.2	-1.4	4.8	-7.7	0	1
Recycling	-2.1	-2.5	7.8	3.7	-4.6	-0.7	5.7	8.3	9.2	13.0	35.7	9.0	8.4	2.8	5.4	25.2	2.3	4.8	2.1	6	3
Electricity, gas, steam and hot water supply	-4.4	-0.2	6.5	-1.6	1.7	5.7	11.4	-3.6	0.7	0.2	9.6	-3.5	1.9	-1.2	0.4	35.0	4.8	6.5	10.6	1	2
Collection, purification and distribution of water	3.9	6.6	12.3	-0.7	13.1	15.1	-0.8	5.5	2.4	2.5	12.2	5.7	12.1	0.2	2.9	38.0	5.9	6.0	15.4	7	0
Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel	3.5	5.8	5.5	0.4	5.8	10.2	3.7	4.3	5.4	3.3	8.5	5.0	12.0	2.7	2.1	25.5		6.2	6.6	4	1
Wholesale trade and commission trade, except of motor vehicles and motorcycles	-0.1	3.3	1.0	-2.5	1.3	7.5	2.0	6.4	1.2	1.6	8.9	3.6	9.6	-2.5	-0.3	29.3		5.7	3.1	1	2
Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	1.2	2.8	-0.4	1.4	3.4	7.1	2.6	6.4	2.6	2.3	11.4	4.9	10.1	-1.0	2.5	31.3		5.6	6.4	1	0
Land transport; transport via pipelines	1.1	2.5	1.8	0.5	4.8	5.1	3.4	3.6	4.3	1.2	10.1	1.3	6.3	0.6	2.2	32.4	2.9	7.0	8.7	1	0
Water transport	-4.5	-4.1	5.9	-13.1	-5.9	2.4	-8.4	-4.4	1.8	5.6	8.6	6.2	9.6	11.2	-1.1	34.6	-2.5	-0.5	6.7	3	9
Air transport	2.6	-6.8	3.6	7.2	-2.9	2.2	-11.4	4.1	0.4		10.8	2.4	7.1	4.3	1.8	34.3	0.0	2.9	-22.0	1	3
Supporting and auxiliary transport activities; activities of travel agencies	0.5	5.4	14.3	-0.5	4.8	5.3	4.9	4.4	3.1		11.9	4.3	5.5	1.0	2.1	31.7	3.4	4.1	16.1	2	0
Post and telecommunications	-4.1	-0.8	2.0	-5.9	-0.7	3.0	-4.1	-3.9	-5.5	-4.6	2.8	-4.4	7.0	-2.1	-5.0	35.6	-4.0	5.4	4.5	0	8
Financial intermediation, except insurance and pension funding	-2.3	-2.9	4.1	-1.6	-2.2	-0.3	3.5	-4.7	-0.3	-0.4	19.7	-1.1	5.5	-0.2	0.1	32.3	0.4	0.1	14.1	1	4
Insurance and pension funding, except compulsory social security	-5.9	-0.1	1.2	10.1	1.1	-16.6	3.4	0.8	-1.3	1.5	12.1	6.0	3.0	-0.5	4.0	34.2	1.7	4.4	19.0	3	2
Activities auxiliary to financial intermediation	-6.3	3.5	-19.0	4.9	4.9	10.9	1.7	4.4	1.7	1.9	13.0	2.2	17.3	-3.7	2.4	31.5	4.2	10.0	24.6	6	3
Real estate activities	1.2	4.4	14.2	-0.4	7.8	9.7	42.4	12.5	2.4	4.0	17.4	4.3	12.0	5.7	4.5	49.2	2.8	20.3	6.4	6	0
Renting of machinery and equipment without operator and of personal and household goods	-1.4	1.9	4.0	-0.7	6.0	2.6	16.9	2.9	0.5	2.5	14.0	0.9	3.1	-2.7	4.5	33.9	-2.1	-0.6	7.1	2	2
Computer and related activities	0.3	0.3	7.6	1.6	0.0	14.4	-9.7	3.2	3.3	1.7	6.4	2.6	2.8	6.7	2.5	45.5	4.1	4.0	11.2	3	1
Research and development	4.7	-0.3	9.8	0.7	8.1	11.3	7.2	-3.0	4.8	5.8	10.3	5.7	23.0	2.0	4.3	35.9	3.8	6.6	9.3	6	0
Other business activities	2.3	2.7	7.0	4.8	5.6	9.8	14.1	4.8	5.4	3.6	13.9	5.4	10.3	-0.3	3.8	30.0		8.3	0.0	4	0
Standard deviation	4.3	3.2	8.0	5.9	5.4	5.5	9.6	3.7	4.5	6.4	8.1	3.2	6.9	3.5	2.1	5.4	5.2	4.4	9.5		

(*) Time coverage varies across countries. Data starts in 1997 (RO), 2000 (FR), 2001 (EL); and ends in 2007 (AT), 2008 (FR, RO).

Table A.1. Average ULC growth for 2-digit NACE industries for the period 2005-2009(*)

industry	AT	BE	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IT	LT	LU	NL	RO	SE	SI	SK	Number of countries with largest ULC growths in that industry	Number of countries with largest ULC declines in that industry
Manufacture of food products and beverages	0.0	-1.7	0.2	3.9	4.0	6.7	8.2	3.4	1.6	2.7	4.3	1.8	2.1	2.5	-0.6	20.1			0.1	0	1
Manufacture of tobacco products	19.2	-0.1	-15.1	17.0	14.9		8.3	24.2		-7.4	-5.0	-0.7		5.5	-4.0	21.0			93.8	5	6
Manufacture of textiles	-3.7	-5.1	-2.3	-1.4	2.0	2.8	8.7	2.9	-2.2	-2.3	-0.7	1.4	3.5	14.9	1.6	19.4	-3.0	-0.3	0.1	1	2
Manufacture of wearing apparel; dressing; dyeing of fur	-2.2	12.3	-2.3	-0.7	0.1	7.8	2.3	3.9	1.9	0.9	7.0	1.1	5.2	0.4	-3.4	18.5	2.4	-0.9	-5.5	1	1
Manufacture of pulp, paper and paper products	-4.0	-0.1	-1.1	-2.0	4.8	3.9	1.8	3.0	1.1	2.1	-2.7	1.2	10.9	-2.2	1.6	9.5	1.2	2.6	2.7	0	0
Publishing, printing and reproduction of recorded media	-5.3	-1.8	1.2	-5.9	5.8	6.0	7.0	3.0	5.2	-0.7	6.5	2.3	8.3	5.6	1.1	11.6	4.8	1.7	-0.8	0	3
Manufacture of basic metals	1.4	8.5	3.8	5.6	5.5	15.9	-5.8	1.9	3.9	6.6	12.7	2.3	-6.6	-1.0	6.4	24.3	8.4	3.0	20.3	7	2
Manufacture of fabricated metal products, except machinery and equipment	-3.3	0.0	2.0	0.2	6.7	9.7	3.0	3.0	0.2	2.3	7.0	3.2	6.2	3.7	0.9	20.3	1.6	4.2	0.9	0	0
Manufacture of office machinery and computers	1.3	8.6	-65.6	-11.3	-18.8	15.3	-9.3	10.3	4.0	-2.9	13.1	7.5	-17.6	0.0	13.9	17.4	3.0	-7.3	3.2	5	7
Manufacture of electrical machinery and apparatus n.e.c.	1.6	2.0	-0.7	-1.2	3.2	6.6	40.8	4.7	-3.2	4.4	-1.5	4.0	18.6	4.4	1.3	14.1	-10.3	1.6	4.2	2	2
Manufacture of radio, television and communication equipment and apparatus	1.4	4.0	1.8	-9.8	-16.8	-4.6	5.2	-6.7	-3.7	-4.1	-6.8	0.4	-11.1	18.0	2.7	16.4		3.2	-31.4	1	9
Manufacture of medical, precision and optical instruments, watches and clocks	1.5	6.3	5.3	0.3	-6.4	12.2	17.3	1.3	0.8	-0.1	2.0	3.2	1.0	0.5	2.2	22.5	1.1	0.2	2.5	1	0
Manufacture of motor vehicles, trailers and semi-trailers	-1.9	1.9	-4.5	-0.4	8.0	8.0	8.9	2.8	-4.4	6.7	4.2	0.9	9.4	-1.3	15.0	5.4	10.8	0.5	-0.7	3	2
Manufacture of other transport equipment	-5.9	0.3	3.9	-3.9	16.6	7.0	-0.7	-6.3	10.5	-3.2	5.5	3.3	1.7	6.2	0.7	16.6	2.3	-0.3	-1.2	2	3
Manufacture of furniture; manufacturing n.e.c.	-1.7	0.3	-2.4	-0.5	2.7	4.6	7.4	3.9	6.3	1.9	3.7	3.0	4.6	5.4	1.6	19.0	-2.6	6.3	-5.9	0	0
Recycling	-0.9	9.1	-3.0	-3.0	-11.5	8.0	19.2	2.0	19.2	7.1	21.5	4.2	32.4	-3.7	6.0	26.0	8.6	12.3	2.2	10	1
Electricity, gas, steam and hot water supply	-2.2	2.3	2.6	3.2	7.3	8.6	16.7	2.9	6.7	2.3	5.6	-1.7	9.2	1.0	1.8	18.8	5.0	7.3	7.9	0	1
Collection, purification and distribution of water	12.2	13.5	10.4	0.8	23.5	11.0	5.6	8.8	1.5	1.2	6.0	9.4	11.3	-1.1	3.3	15.7	7.3	2.3	15.7	6	0
Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel	6.6	7.2	-1.9	3.4	9.6	8.2	9.6	3.8	11.3	2.3	2.3	3.7	15.7	7.5	4.1	-0.7		4.5	7.6	1	1
Wholesale trade and commission trade, except of motor vehicles and motorcycles	2.0	4.1	0.7	-5.7	3.1	10.1	5.3	2.9	6.6	0.0	5.2	5.0	12.8	-8.7	0.0	7.0		5.8	1.3	0	2
Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	3.2	3.9	0.8	1.4	4.2	13.0	9.1	1.8	3.9	1.3	6.6	5.7	10.8	-0.4	1.1	9.8		3.6	5.6	0	0
Land transport; transport via pipelines	0.8	1.0	-4.3	-0.4	6.0	9.9	2.2	1.7	5.1	0.4	6.3	3.4	10.8	0.6	1.0	13.2	3.1	7.8	2.7	1	0
Water transport	8.9	9.5	-7.5	-14.4	5.4	11.4	-1.9	3.8	2.5	11.2	-3.3	6.9	-1.7	22.4	0.4	27.0	-2.0	-4.1	6.5	5	6
Air transport	12.6	3.4	5.0	15.2	-15.8	0.9	3.9	9.7	7.2		-3.3	2.7	27.6	15.6	2.7	15.3	-8.4	-5.2	-80.2	5	6
Supporting and auxiliary transport activities; activities of travel agencies	7.5	3.5	11.2	0.2	8.3	7.6	2.3	13.6	3.9		9.3	3.7	11.5	0.6	1.9	20.3	1.3	1.3	10.4	2	0
Post and telecommunications	-8.3	0.7	1.6	-0.4	2.9	4.0	-3.3	-4.4	-3.1	-2.9	-0.7	-0.8	3.3	-1.5	-1.7	14.0	-5.6	1.1	4.8	0	7
Financial intermediation, except insurance and pension funding	-3.0	-0.8	3.8	-2.7	-0.4	7.3	-1.3	-8.0	-2.7	-0.6	10.7	-0.3	15.0	-4.0	-3.1	12.8	0.4	-3.9	2.0	0	5
Insurance and pension funding, except compulsory social security	-1.3	1.7	-14.3	4.7	3.3	-6.5	10.1	2.9	-2.5	2.2	23.0	-3.5	2.0	7.0	1.3	21.9	2.8	4.3	27.2	3	3
Activities auxiliary to financial intermediation	-12.0	5.5	-3.4	-2.8	4.4	17.4	1.4	5.9	3.3	2.3	15.5	2.1	31.6	-1.2	0.1	16.3	-0.6	13.5	-17.7	4	2
Real estate activities	3.0	4.8	13.6	-2.0	9.4	10.0	33.0	13.6	2.7	5.0	9.0	3.2	13.4	6.9	2.8	26.0	2.5	20.4	4.3	5	0
Renting of machinery and equipment without operator and of personal and household goods	-2.0	-0.3	10.1	-1.1	8.9	10.7	3.6	2.3	0.0	2.0	6.6	4.6	5.2	-6.1	3.5	15.9	0.8	-0.7	-12.7	1	2
Computer and related activities	0.8	1.2	-0.5	1.0	4.4	15.9	2.7	6.4	3.1	1.3	4.6	2.0	11.3	-5.3	2.6	12.1	-2.3	4.6	6.0	1	1
Research and development	25.8	2.4	3.5	0.1	10.8	14.0	7.1	-0.3	4.2	4.6	4.9	5.7	3.9	3.7	2.5	15.2	2.9	3.4	-1.0	2	0
Other business activities	1.7	1.6	7.2	2.7	6.2	8.3	6.8	2.6	6.8	3.0	4.5	7.2	16.6	-0.6	2.3	8.6		5.0	1.2	1	1
Standard deviation	7.4	4.2	12.9	6.0	8.9	5.3	9.7	6.0	4.9	3.7	6.7	2.7	10.5	6.8	3.8	6.2	4.8	5.4	23.6		

(*) Time coverage varies across countries. Data starts ends in 2007 (AT) and 2008 (FR, RO).

Figure A.1. Sectoral (manufactures) Market Shares Change (2000-2008) for EU27, China, and the US
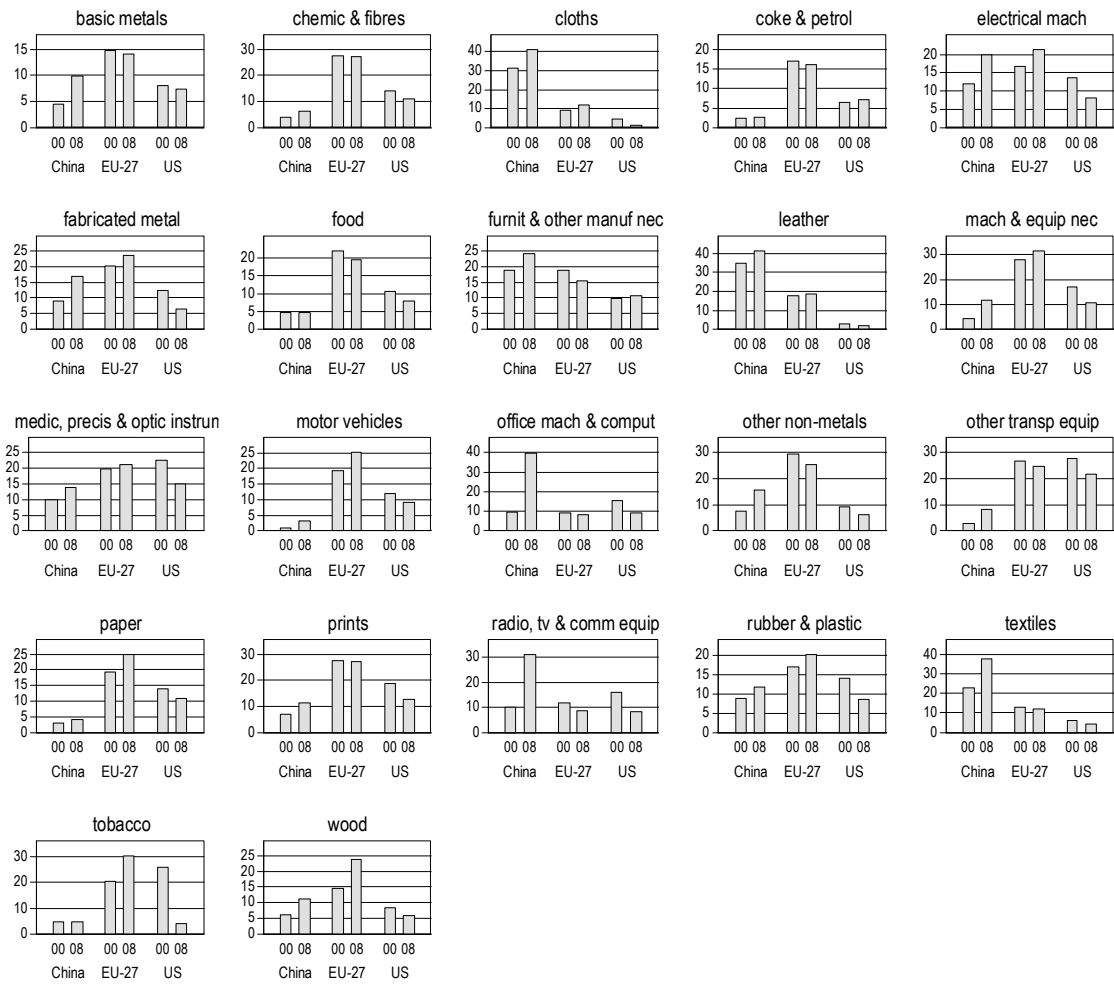
Figure A.2. Changes in Symmetric Revealed Comparative Advantage (services) for EU27, China, and the US

Intra-EU trade included
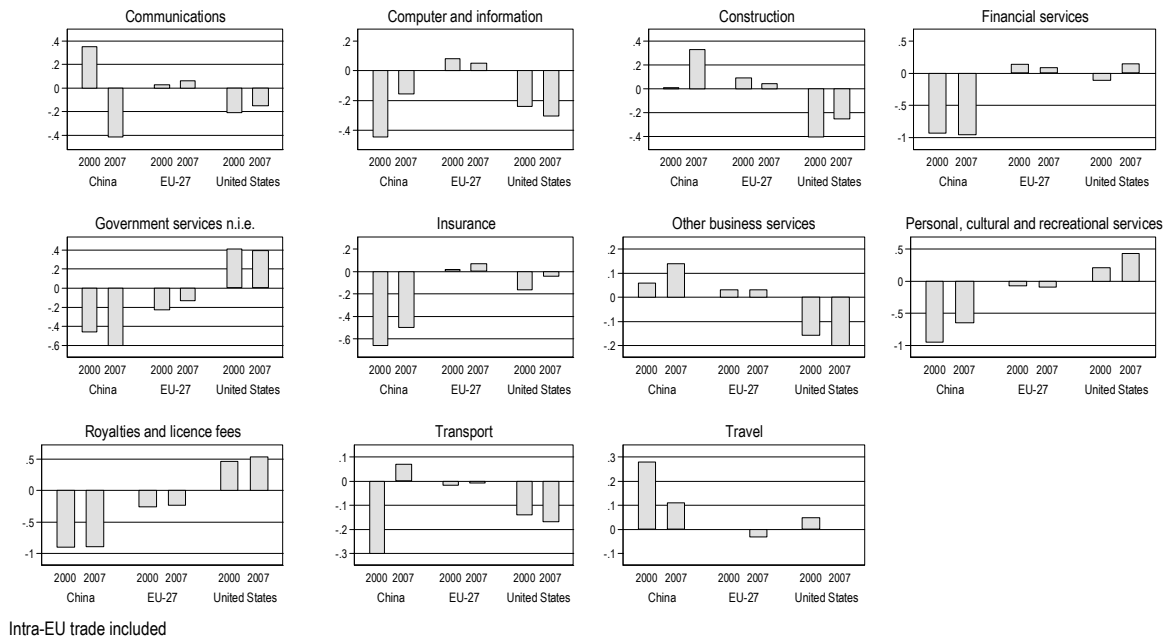
Note: Intra-EU trade included.

Figure A.3. Manufacturing industries with largest contributions to trade deficits and trade surpluses
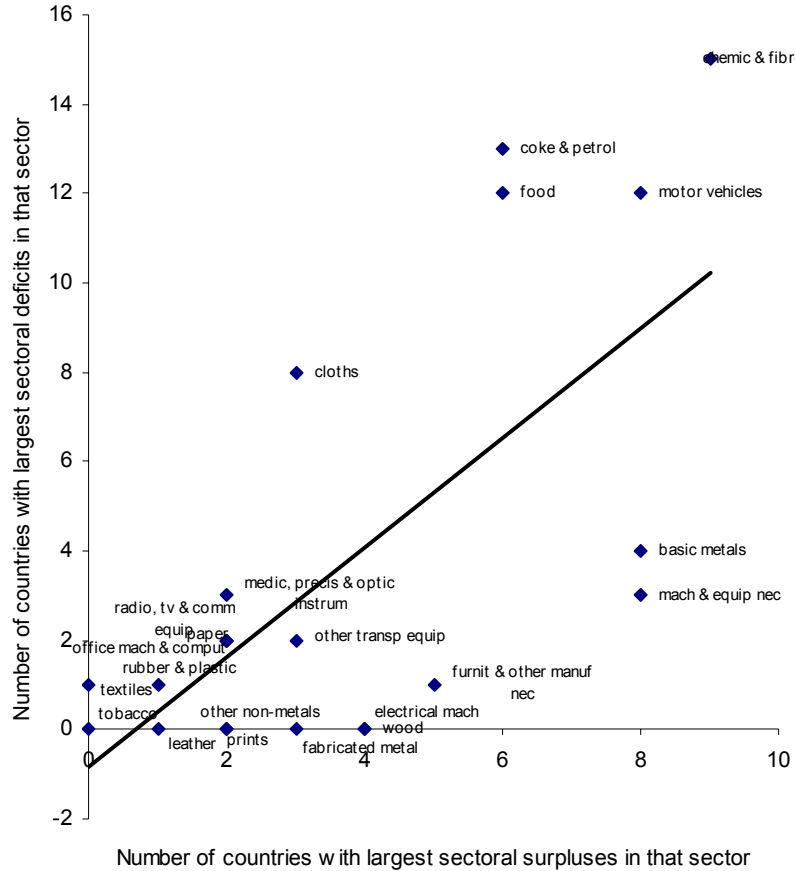
Note: Figures derived from the two right-most columns of Table 2-2 in the text. One dot represents more than one industry in some cases. The line represents a simple linear fit.

2.2. Non-price competitiveness

2.2.1. Introduction

Together with foreign demand, relative prices (*REER*) have been the traditional, standard factors used to explain export performance, with their importance in explaining competitiveness varying across sectors and countries and also evolving over time. Despite substantial empirical evidence suggesting that price and demand variables are only two of the factors determining export performance,[101] until recently, relatively few empirical studies included non-price competitiveness factors as explanatory variables.[102]

This section looks at non-price competitiveness determinants of exports in the European Union, both at country and industry levels, over the last decade. The analysis identifies both front-runners and problematic industries and countries (e.g. ailing in both price and non-price competitiveness) and provides hints about the channels which could be used to improve the non-price competitiveness of countries and industries. Hence, the section contributes to an understanding of what drives a successful export performance. This is important for several reasons: (i) exports are an important engine of growth both directly and through productivity improvements and job creation;[103] (ii) exports are a key element in the correction of, and adjustment to, the mounting external imbalances that plague many EU countries, particularly within the euro area.

Measuring non-price competitiveness is however a complex issue as there are a wide range of factors driving products' non-price characteristics. These include, for example, the quality and variety of inputs such as intermediate imports, efficient domestic service inputs, or the framework conditions in which firms operate. Innovation activity is another factor – not only product upgrades but also innovations in production and distribution processes, e.g. in terms of timing and delivery reliability;[104] so is a country's ability to attract FDI or use new services as a mechanism to differentiate otherwise relatively homogeneous products (e.g. customer care, training and after-sales support attached to a given product).

There are many possible factors determining non-price competitiveness, so any empirical analysis necessarily needs to focus on a selected number of drivers. The present analysis focuses on the effect of openness to imports of goods and capital, of quality of domestic services, and of business-related indicators linked to economic reforms. Although such factors have already been present in empirical analyses, they are all examined here under a common, consistent analytical framework. Of particular interest is the analysis of services' role in enhancing a country/industry's competitiveness, an important topic that should be at the core

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[101]   Kaldor (1978) showed for a number of countries that over the long term market shares for exports and relative unit costs or prices tend to move together (Kaldor's paradox). Fagerberg (1996), IMF (2005) among others found similar results for a more recent period. Di Mauro and Forster (2008) show that the correlation between real effective exchange rates and exports market shares has weakened since the late 1990s.

[102]   See, among others, ECB (2005), Monteagudo and Montaruli (2010), and the Quarterly Report on the Euro Area (several issues). These studies look at the size of unexplained variances in exports (i.e. after adjusting for relative prices and foreign demand) to assess the role of non-price competitiveness.

[103]   See Badinger and Breuss (2008) and Pugno (1996).

[104]   See Amable and Verspagen (1995); Leon-Ledesma (2002).

of policy makers' attention, yet is insufficiently explored in research. The approach to services proposed is innovative in the way it combines disaggregated country and sector-specific evidence on the evolution of services productivity with data on changes in export performance across different manufacturing industries in different countries via country-specific input-output parameters.

Another important characteristic of the analysis is the sectoral coverage. Most empirical analyses of export performance focus on the country dimension, while the sectoral dimension is either overlooked or treated at a very aggregate level. Yet the sectoral dimension is important: if the variance of variables of interest (exports, as well as price and non-price competitiveness factors) is decomposed into differences between countries and differences between industries, then more than 15% of the REER changes and over 36% of the export growth in our sample come from the contribution of the differences across industries.[105] Thus, including the sectoral dimension adds a significant amount of information about differences in export performances and their possible sources.

To boost non-price competitiveness, our results suggest that policy-makers could: (i) increase openness to imports and attract foreign direct investment;[106] (ii) stimulate services performance by opening up to domestic and foreign competition (especially by deregulating post and telecoms throughout the EU and further liberalising transport and professional services) which would also stimulate the development of R&D and IT services; and (iii) improve the business environment (especially by reducing exit barriers and improving employing workers conditions). This list overlaps with many structural reforms under the Europe 2020 Strategy with its comprehensive and ambitious agenda for smart, sustainable and inclusive growth and employment.

2.2.2. Estimating the contributions of price competitiveness, foreign demand and other unobserved factors to export performance at the industry and country levels

New Trade Theory, influenced by the theory of industrial organization, added new insights about the possible factors affecting demand for exports and imports such as foreign direct investment or the quality of traded goods (see among others Krugman (1979) and more recently Sutton (2007)). In particular, non-price product features other than price that have been found to be significant determinants of export performance are products' degree of horizontal and vertical differentiation.[107] Horizontally differentiated goods are goods sold on international markets that meet the same consumer needs and are equivalent in quality but catering to different tastes, whereas vertically differentiated products are products made to fulfil the same consumer needs but differentiated by quality.

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[105] See Annex A.1 for a detailed explanation as well as for the contribution of the industry dimension to other variables' variance.

[106] Policies aimed at a better business environment, developed infrastructure, good education and training system, low tax burdens, publicity through investment promotion agencies, etc., could all be effective in attracting FDI.

[107] For an international perspective see Fagerberg (1988); Padoan (1998); Funke and Ruhwedel (2001); Hummels and Klenow (2005); Madsen (2008); Van Hove (2010). For a national perspective see among others Ozcelik and Taymaz (2004); Brooks (2006); Basile et al (2009); Athanasoglou Bardaka (2010).

It is easy to imitate simple or low-quality goods, so horizontal and vertical product differentiation often go hand-in-hand (because higher quality products usually have more elements, functions or special features – e.g., automatic rather than manual functionality or constructed with extra-durable materials –they are often perceived as unique varieties).[108] Empirical analysis of the determinants of non-price competitiveness therefore considers the horizontal and vertical differentiation of exported products as complementary components of competitiveness (Van Hove, 2010).

However, before examining the role played by non-price drivers, this section looks at the contribution to industries' export performance of the standard drivers (relative prices and demand) as well as the contribution of unknown factors (omitted and unobservable), which in a first approximation are identified with non-price competitiveness factors. The basic model to be estimated is an exports equation for a panel of 23 manufacturing industries and 27 Member States over the period 1999-2009. See Box 2-1 for details on the estimation strategy. Note that although the variables enter the model in growth rather than levels (first differences of logs), the estimated coefficients can be interpreted as standard price and demand elasticities (i.e. proportional changes in exports caused by proportional changes in relative prices or foreign demand).

Box 2-1: Estimating an exports growth equation

The basic model to be estimated is an exports equation for a panel of 23 manufacturing industries and 27 Member States over the period 1999-2009. The time coverage is determined by the availability of appropriately disaggregated data for all countries in COMEXT database.

Given the short sample period and the low power of unit root test in small samples, it was considered inappropriate for our analysis to follow a cointegration approach. Instead, we minimize the risk of serial correlation and of spurious regressions (see Granger and Newbold, 1974) by estimating the model in first differences of variables in logarithms:

$$\Delta \ln(X_{cit}) = \gamma_{ci} + \alpha\, \Delta \ln(D_{cit}) + \beta\, \Delta \ln(REER_{cit}) + \varepsilon_{cit} \quad (1)$$

for exporting country c, industry i, at time t. Where X_{cit} is real exports, $REER_{cit}$ is a proxy for sectoral ULC-based real effective exchange rate, which reflects price competitiveness, and D_{cit} is country and industry-specific foreign demand approximated by average GDP of the importing countries weighted with disaggregated bilateral trade. Foreign demand could also be approximated by foreign imports. However, a higher price or non-price competitiveness of imported goods could influence the share of total income spent on these rather than domestic goods. Therefore, imports could be correlated with REER and endogenous (correlated with residuals). They could also be correlated with relative unit values, added later to the basic exports equation. GDP seems more exogenous, representing the potential entire foreign market. Annex A.2 contains the explanation of how variables are constructed. Finally, fixed effects for each country and industry (γ_{ci}) capture unobserved influences that remain constant over time. All other factors are captured in the normally distributed error term ε_{cit}.

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[108] Thus, models of imperfect competition with horizontal differentiation can be seen as special case of a more general model of vertical differentiation (Cremer and Thisse, 1991).

The fixed-effects estimator reduces the omitted variable bias as fixed effects represent all the time-invariant specificities of countries and industries that are likely to have an impact on medium-term export growth. Alternatively, random effects could be employed. They are often used for data where the cross-sectional dimension is much larger than the time dimension, e.g. firm-level data which contains only a "random representation" of all enterprises. However, here we have a "full population" of countries and industries. In addition, the random effects estimation is based on the assumption of no correlation between the country and industry effects on the one hand and the explanatory variables on the other hand, while it is likely that this assumption does not hold in our case (see e.g. Figure 3-3 – scatterplot for industries).

By including country and industry fixed effects in the model in differences, the differences in trends (rather in levels) that are specific to a particular country and industry are controlled for. That is, the underlying model in levels allows for different trend paths in exports across countries and sectors, which can be interpreted as resulting from different technical progress growth rates. This is a more flexible specification than imposing the same trend (in the level specification, which becomes constant in the first differences specification) to all countries and sectors.

Leaving aside the fixed effects, the specification imposes the same price and foreign demand elasticity across countries and industries. Although it could be argued that this is restrictive, this is an accepted methodology in the trade literature (e.g. Anderton et al., 2005) and there are papers which impose the same parameters across somewhat more heterogeneous countries than the EU 27 sample considered here (see e.g. Kinal and Lahiri, 1993). In addition, the intention here is to pool the data across countries and industries such that the results obtained approximate the parameters of the EU area. Still, as shown below, the large estimated residuals obtained for the Member States which joined the EU recently point to possibly different elasticities of price and demand in that group.

Finally, note that to correct for the presence of possible heteroskedasticity from groupwise differences, equations are estimated using the Huber-White heteroskedasticity-robust standard errors. Differences in variances across sections could emerge if, for example, a larger variation in growth of exports is observed in large countries or in industries characterised by a larger degree of product diversification. The Huber-White heteroscedasticity consistent covariance estimator with ordinary least squares estimation in fixed effects models can yield standard errors robust to unequal variance along the predicted line (see Greene, 2002; Wooldridge, 2002).

The explanatory power of the basic model (1) is low, but this is consistent with the expectation that omitted factors are important; in other words, we expect residuals to be meaningful. In this section, non-price competitiveness is roughly measured as the average residuals (including error term and the country and sector fixed effects) of the panel regression pooling Member States' manufacturing industries, where export volume growth is explained by the growth of real effective exchange rates (*REER*) and foreign demand growth. This measure of non-price competitiveness includes the fixed effect estimates, as they cover unknown factors contributing to export performance. A word of caution is needed concerning this measure of non-price competitiveness. By including fixed effects, it includes country and sector characteristics outside the control of firms' strategies and policy design; however, to the extent that these characteristics do not evolve over time, their importance on the non-price competitiveness variable is diminished by working in growth rates.

The basic estimation results are presented in Table 8. *REER* enters the equation with a one-year lag to avoid endogeneity, as exports are likely to influence the exchange rate. Both *REER* and foreign demand have a significant impact on real exports and the sign is the expected one: raising foreign demand growth increases exports growth (elasticity of almost 1.5), while increasing *REER* negatively affects real exports growth (elasticity of −0.22). The magnitude of these results seems consistent with similar estimations in the literature.[109] The high contribution of foreign demand may result from partly capturing a non-price competitiveness aspect: consumers in wealthier countries are likely to pay more attention to non-price product features and import relatively more higher-quality goods (Hallak, 2006; Vollmer, 2009).

Table 8. The basic exports model

Dependent variable is real exports

REER in	−0.224***	GDP1.469***	Number of	5 337
t−1	(0.000)	(0.000)	Observations	
			Number of groups	621
			R^2	0.277

Note: OLS estimation. *** p<0.05, ** p<0.1, * p<0.2. Robust p-values in parentheses. Huber-White heteroscedasticity-robust standard errors clustered for panels. All variables (dependent and explanatory) in Δlog. Panel fixed effects (for industries and countries) included and jointly significant, but not reported.

The parameter estimates of this basic regression can be used to calculate, across industries and countries, the contribution of changes in the *REER* and foreign demand to export growth as well as the contribution of residuals and fixed effects i.e. non-price competitiveness factors (see Figure 39, Figure 40 and Figure 41). For ease of interpretation, the contributions of different variables to export growth presented in the graphs are recalculated as percentage points.[110]

Figure 39 depicts the results by countries. Given the general positive trend in world demand (at least before the global financial crisis), the contribution of foreign demand growth to export growth is always positive, but it has benefited some countries more than others: over 2 percentage points at EU level, but almost 4 percentage points for Cyprus compared to slightly over 1 percentage point for Romania.

For the EU, the losses in terms of price competitiveness are offset by the slightly favourable contribution of the unobservable factors (non-price competitiveness factors). A large number

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[109]   Funke and Ruhwedel (2001); Ca' Zorzi and Schnatz (2007); Danninger and Joutz (2008).

[110]   E.g. the contribution of *REER* growth to export growth (in percentage points) is calculated as $100\,e^{\beta \Delta \ln(REER)} - 100$, where e is the base of the natural logarithm and β is the estimated coefficient (elasticity): −0.224 as presented in Table 1. Each factor's contribution to changes in real exports is calculated as a double average: mean over time of weighted means across either industries or countries. Weights are shares of sectoral exports in total exports and shares of individual countries in total EU exports.

of Member States (around half of them) show a pattern similar to the EU, with price competitiveness factors contributing negatively, but non-observable factors contributing positively. However, when catching-up effects in New Member States are deducted from the residuals, the contribution of these revised non-price competitiveness factors does not compensate for the negative contribution of price-competitiveness for Latvia, Hungary, Estonia and Bulgaria.[111] Also showing negative contributions from both price and non-price competitiveness factors are Italy, Portugal, Malta, Finland and France, although the contribution of negative price competitiveness is small in the case of the latter two.

Figure 41, left panel, condenses the information by adding up the contribution of relative prices and demand. Two observations emerge: (i) the contribution from omitted factors is larger in absolute value than the contribution from the standard variables for a large number of countries. For some of them, non-price competitiveness accounts for over a half of total exports growth (Luxembourg, the Netherlands, Slovenia, Ireland, Poland, the Czech Republic); for others, it offsets positive exports growth due to the joint impact of price competitiveness and foreign demand (Bulgaria, Latvia, Italy, Malta); (ii) Member States are very heterogeneous especially in terms of non-price competitiveness, with only Germany doing better than the EU average in both dimensions. France, Portugal, Denmark and Spain are old Member States doing worse than the EU average, in all cases due mainly to the relative underperformance of their non-price competitiveness.

Looking at a similar decomposition by industry (Figure 40),[112] price competitiveness evolution has had a small and negative contribution to export growth in all sectors (the only exception being printing and reproduction material). As regards EU industries' non-price competitiveness (i.e. the regression residuals and industries' fixed effects include changes in product differentiation, distribution channels and all other unexplained factors), the picture is more mixed. The pharmaceutical sector appears to be a clear front-runner followed by coke and refined petroleum products, food and beverages, the manufacture of basic metals, chemicals and the manufacture of transport equipment (other than motor vehicles).[113] For sectors representing 53% of total exports in the EU, only foreign demand made a positive contribution to real export growth whilst the contributions of both price and non-price competitiveness were negative.

The joint contribution of demand and relative prices is presented in Figure 41's right plot; it shows that there seems to be some trade-off between benefitting from higher price-competitiveness and foreign demand and enjoying higher non-price competitiveness.[114] Not

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[111]   Reflecting catching-up effects directly preceding and following the EU enlargement, the original residuals of the ten Central and South European Member States that joined the EU in 2004 or 2007 were clearly above the residuals of other Member States. For comparability, they have been adjusted to reflect only long-term structural factors. A simple mean of these countries' residuals was subtracted from their residuals to correct for this temporary effect. Note that allowing elasticities (i.e. sensitivity of exports to prices and foreign demand) to differ across countries could have partially reduced the residuals of catching-up economies.

[112]   The table shows short industry labels, full industry names are presented in Annex A.5.

[113]   The relatively good performance of the petrochemical industry should be interpreted with caution as it may partly reflect the impact of strong global demand on fuels and fuel prices, exceeding what can be captured by the *GDP* and the estimated elasticity as well as total export deflators.

[114]   Correlation of −0.74 for all industries or −0.54 if outliers, pharmaceuticals and textiles, are excluded.

surprisingly, pharmaceuticals and textiles represent two extreme cases: a dynamic sector where innovation and product differentiation are key for success versus a declining, mature sector.

Textiles have benefitted most from foreign demand growth and pharmaceuticals least, possibly consistent with the argument that some non-price competitiveness may be captured by foreign demand (wealthier consumers buying more higher-quality goods, such as European textiles). By contrast, pharmaceuticals have been exported more to mature markets (i.e., richer but slower growing economies), as foreign trade in these goods appears to be dominated by a few large multinational corporations all producing expensive high-quality and unique products, with low- and even middle-income countries consuming to a large extent domestic generics whenever they can.

Besides pharmaceuticals, coke and refined petroleum products, basic metals and metal products, rubber and plastic products, machinery and electrical equipment performed better than the simple benchmark (unweighted linear fit across industries shown in Figure 41)[115]. Conversely, textiles, printing, the reproduction of recorded media, wood (including furniture) and leather goods were least successful relative to the benchmark. The benchmark's negative slope may suggest a possible trade-off between a strategy relying on improvements in cost competitiveness and foreign demand vis-à-vis a strategy based on developing non-price competitiveness, which would be influenced by the sector's characteristics (pharmaceutical products are easier to differentiate than textiles).

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[115]   Two fits are presented: with and without outlier industries.

Figure 39. Average annual contribution of the three basic components to export performance of countries, 1999-2009

Contrib. of cost competitiveness to real export growth (percentage points)

EU

DE SE LU EL BE SI MT IT ES IE HU CZ BG RO
AT UK CY FI FR NL PT DK PL LT EE SK LV

Contrib. of foreign demand to real export growth (percentage points)

EU

CY LV LT EE HU PT UK AT SI MT PL BE NL RO
EL IT DE SK FI CZ DK FR SE IE BG LU ES

Contrib. of residual factors to real export growth (percentage points)

EU

LU SI PL LT SK RO ES CY BG PT HU FI LV MT
NL IE CZ BE DE AT SE EE DK EL FR UK IT

* The high residuals for EU10 are unadjusted.
‡ The adjusted residuals for EU10 are net of the EU10 mean (catching-up effect)
For other countries residuals are unadjusted
The dashed lines indicate the weighted EU averages

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Figure 40. Average annual contribution of the three basic components to export performance of industries, 1999-2009

Contrib. of cost competitiveness to real export growth
(percentage points)

Contrib. of foreign demand to real export growth
(percentage points)

Contrib. of residual factors to real export growth
(percentage points)
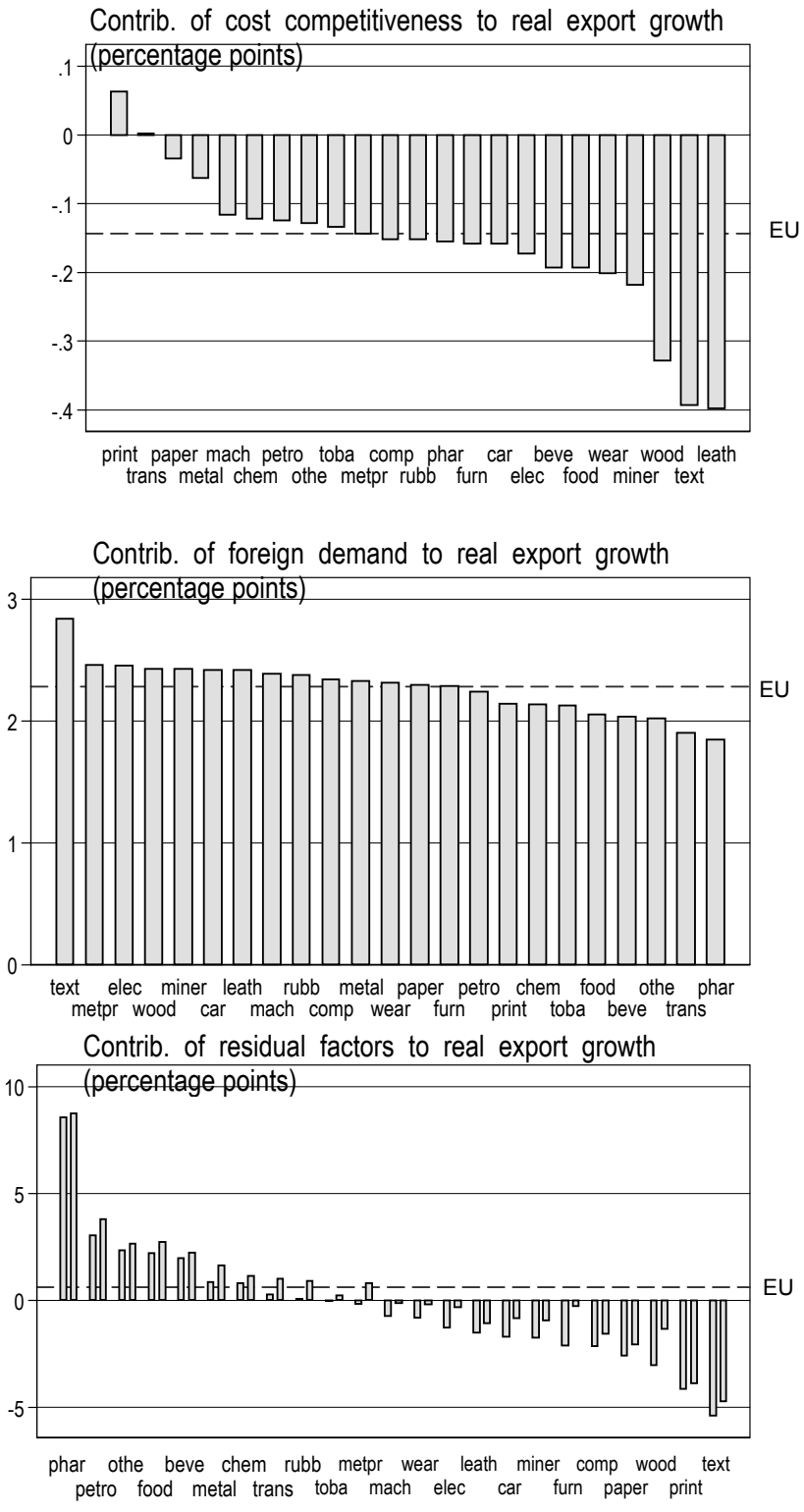
Left bar for each industry is an adjusted residual. The residuals are adjusted for EU10 net of the EU10 mean (catching-up effect). See notes to Figure 3-1.

The dashed lines indicate the weighted EU averages

Figure 41. Joint contribution of price competitiveness and foreign demand versus other factors to export performance, 1999-2009

The residuals for EU10 are net of the EU10 mean (catching-up effect)
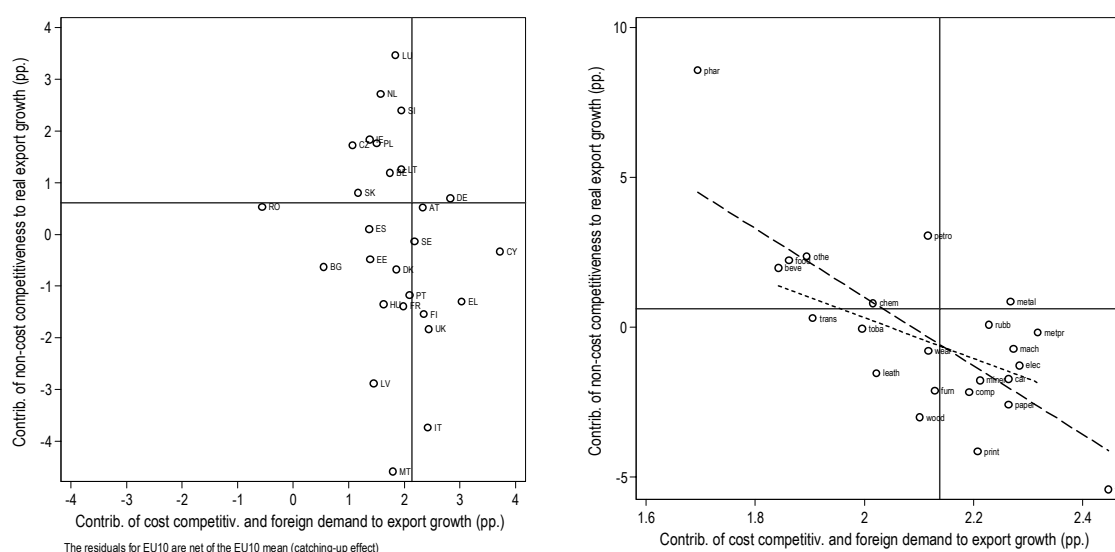
2.2.3. Relative unit values: measuring non-price competitiveness

A more direct measure of non-price competitiveness is introduced by using sectoral relative unit values, given that the non-observed factors (i.e. the residuals, including regression errors and fixed effects of the basic exports equation above) are only a rough approximation of non-price competitiveness in the broadest sense: i.e., all export growth not determined by changes in *REER* or foreign demand.

Following a standard approach used in the empirical literature, relative unit values (*RUV*) can be employed as a proxy for a much narrower part of non-price competitiveness: export growth determined by changes in horizontal or vertical product differentiation, i.e. increasing product uniqueness or quality upgrading.[116] *RUV* is defined as value/volume ratios for exports divided by the same ratios for imports and it is calculated here using disaggregated, product level data (see Annex A.2 for details).

Using relative unit values to proxy product differentiation can be derived from a monopolistic competition model in which the more differentiated products are, the less substitutable they are (Kang, 2008). However, it needs to be mentioned that unit values should be interpreted only as a *proxy* rather than as a *precise measure* of product differentiation, especially vertical differentiation (quality) as, for example, the relation between price and quality may be monotonous but non-linear (i.e. ever upward but changing slope), depending on the market and the exporter due, say, to price discrimination.[117] In addition, although our assumption is that *RUV* changes are driven by quality increases, rising export prices not reflecting quality

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[116]   See among others Greenaway et al., 1993; Aiginger, 1998; Navretti et al., 2004; Hummels and Klenow, 2005; Hallak, 2006; Mannarino et al. 2009; Vollmer, 2009; Bastos and Silva, 2010.

[117]   Lavoie and Liu, 2007; Szczygielski and Grabowski, 2009.

(e.g. cost pressures) could, in principle, also be a driving factor. We assume that if *RUV* predominantly captures the product-differentiation-based non-price competitiveness rather than price competitiveness, the association between *RUV* growth and export growth should be positive.

Figure 42 combines information about initial levels and changes over 1999-2009 in *RUV* for countries and industries.[118] Almost all countries (except Romania) and industries (except manufacture of coke and refined petroleum products) had initial *RUV* above one (i.e. ln *RUV* > 0). These results suggest that European countries and industries are relatively specialised in up-scale production segments. Assuming that factors other than differences in product characteristics (quality or uniqueness), such as transport and other freight costs, account for (a small) part of the export over import price differences only reinforces the argument.[119] The evolution of *RUV* embodies information about the relative ability of firms/countries to improve the composition and quality of their export production over time. Although *RUV*s have declined over time in some countries – Finland, Lithuania, Luxembourg, and Malta (being an outlier and not displayed in the Figure) in spite of their relatively good starting positions – most countries have either flat or increasing *RUV*s.

As regards industries, tobacco products, machinery and equipment (not elsewhere classified) and metal products experienced a drop in their *RUV*s. Transport and beverages display the largest increase in *RUV*s, while the remaining sectors showed either no change or a slight improvement. Countries and industries differ when a systematic relationship between initial levels and changes of *RUV* is examined. As shown in Figure 42 (linear fits), there is a negative correlation between the levels and changes for countries (−0.36) but a somewhat positive correlation for industries (0.18). This suggests a generally declining dispersion and convergence in the degree of countries' product differentiation, perhaps because their (i) export composition is becoming more similar or (ii), goods exported *by the same industry* are becoming more similar across countries (in terms of product uniqueness or quality). Conversely, differences *across* industries appear to be increasing, which suggests that industries that traditionally produce rather standardised or lower quality goods have introduced few changes to their products, whilst industries producing more unique or higher quality goods have kept on developing their products.

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[118] The graph for countries omits Ireland and Malta, both being clear outliers. Ireland has a very low level (0.12) and high change (2.3) and Malta a very high level (4.66) and very low, negative change (-0.31). The figures are weighted averages over time and country or industry. The weights are export sizes (where each year is given equal importance so that the impact of the overall real export growth is eliminated).

[119] The import unit values, which include these auxiliary costs, are likely to make the *RUV* underestimate the true differential in product quality or uniqueness.

Figure 42. Levels and changes of relative unit values across countries and industries, 1999-2009
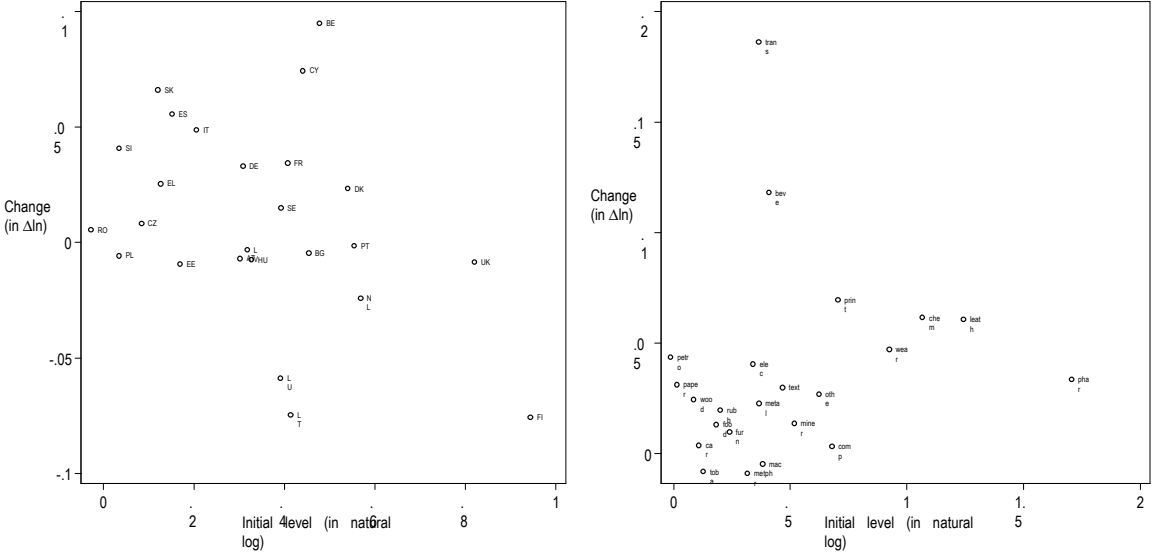
Do these apparent changes in production technologies and product differentiation across industries have a significant impact on exports growth? In order to capture the effect that changes in *RUV* have on exports growth, the basic model in equation 1 is extended to include the *RUV* variable (equation 2). The estimated relationship also allows for differentiated effects across sectors (η_i) of the *RUV* changes.[120]

$$\Delta \ln(X_{cit}) = \gamma_{ci} + \alpha \, \Delta \ln(D_{cit}) + \beta \, \Delta \ln(REER_{cit}) + \eta_i \, \Delta \ln(RUV_{cit}) + \varepsilon_{cit} \qquad (2)$$

After controlling for changes in relative production costs and in foreign demand, industry-specific changes in relative unit values do not seem to have a large economically significant impact on exports growth. However, although small, the estimated industry coefficients are mostly statistically significant. Nevertheless, the explanatory power of the model improves only marginally compared to the basic specification and the estimates should be interpreted with caution and only in qualitative and relative terms to rank industries. The estimation results are presented in the Annex A.4. Industry-specific elasticities are shown in Figure 43 and have the expected positive sign across all sectors with only textiles, computers and furniture showing a statistically significant but negative coefficient, perhaps capturing the evolution of cost-related factors that may dominate quality pressures for these sectors over the period considered.[121] The result however may also reflect the exit of low-quality producers (thus increasing quality while lowering real exports), which seems a reasonable explanation for the computer sector. The positive elasticity values for the large majority of industries

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[120]   Coefficients (η) for interaction effects (*RUV* changes × industry dummies) measure to what extent the sensitivity to changes in *RUV* is industry-specific.

[121]   Note that coefficients presented in the graph have been recalculated to show absolute industry-specific elasticities rather than relative to the reference group used in the estimation (manufacture of motor vehicles, trailers and semi-trailers).

(with rubber and plastic products displaying the highest value) provide some evidence in favour of EU exporters' attempts to compete by differentiating their exported goods in these industries through quality or uniqueness. However, improvements in product differentiation as measured using *RUV*s have so far yielded only very modest impacts in terms of contribution to export growth.[122] Chemicals, electrical equipment, machinery plus not-elsewhere-classified equipment, and transport equipment (other than motor vehicles) top the list of industries where product quality improvements or uniqueness have contributed most to export growth (shown in Figure 43, bottom panel for those sectors with positive *RUV* elasticities).

Figure 43. The role of product differentiation in export performance of industries as measured with relative unit values, 1999-2009

Elasticity of real export growth to changes in relative unit value

Contrib. of improv. in quality or uniqueness to export growth (pp.)

Only those industries included which have positive elasticity

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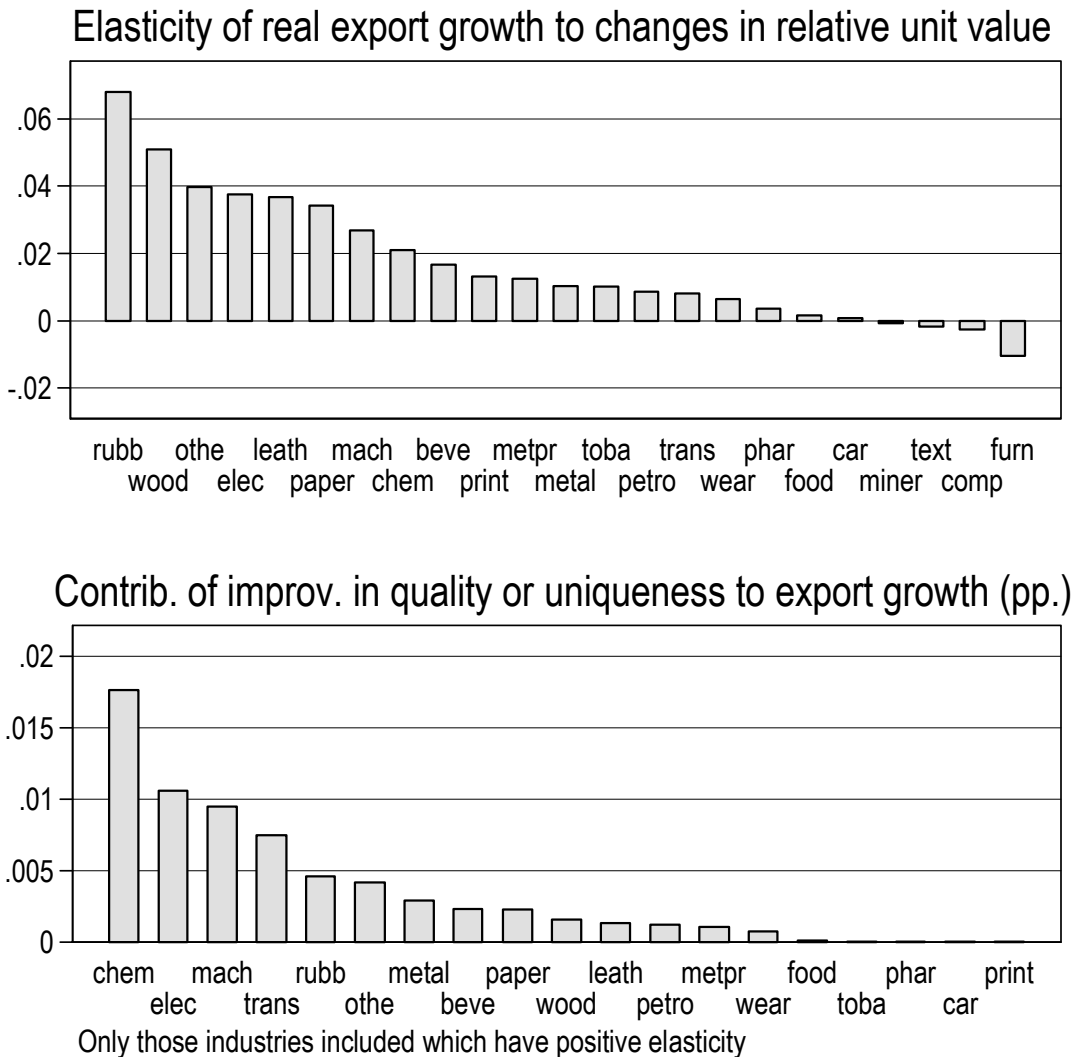
[122] The coefficients for *RUV* interaction terms capture only the impact of short-term changes in *RUV* growth in time *within* countries and industries. The longer-term impact of differences in *RUV* growth *across* countries and industries are captured by the fixed effects.

2.2.4.   *The drivers of non-price competitiveness*

In order to produce unique and high quality goods, an exporter needs unique and high quality inputs, which can be divided in two groups: (i) ones that can be purchased in other markets and (ii) ones which are not tradable across borders i.e. available only in the domestic market such as services and framework conditions (business environment). Accordingly, external and domestic drivers of non-price competitiveness are explored and their impact estimated using an augmented version of the basic exports equation (1) presented above.

$$\Delta\ln(X_{cit}) = \gamma_{ci} + \alpha\,\Delta\ln(D_{cit}) + \beta\,\Delta\ln(REER_{cit}) + \delta\,\Delta\ln(\boldsymbol{Z}_{cit}) + \varepsilon_{cit} \qquad (3)$$

where $\boldsymbol{Z}_{cit}$ is a vector of other explanatory variables used in the extended versions of the model. $\boldsymbol{Z}$ contains variables capturing alternative drivers (more distant proxies) of non-price competitiveness such as:

- openness-related drivers as captured by foreign direct investment and intra-industry trade;[123]

- the "quality" of specific production inputs: services – measured by their efficiency (approximated by wage-adjusted labour productivity) and weighted by industry and country-specific coefficients from the input/output matrices;

- reforms that improve the business environment – measured by reform dummies based on the World Bank's "Doing Business" survey.[124]

Different specifications of the augmented export growth equation can be seen as robustness checks on alternative, closer or further proxies of non-price competitiveness. The robustness check is performed not only for different proxies but also across varying data subsamples. The drivers should not all be put together in one equation as they are not mutually independent determinants of non-price competitiveness; on the contrary, they are expected to be correlated e.g. reforms are likely to attract *FDI* and influence the performance of services, *FDI* and imports are likely to enter services and influence their performance too, the quality of services may also attract foreign investors.[125] Moreover, the availability of data across these variables varies and is limited for some of them, which reduces the available sample of observations. In addition, these subsamples overlap only partially and the subsample common to all variables would be very small.

2.2.4.1. Openness related drivers

Intra-industry trade – the exchange of similar manufactured products, with specialization in different varieties of similar goods and increasing reliance on foreign suppliers to provide intermediate inputs and components used in the production process – is likely to improve competitiveness via two channels: access to the best internationally available components and

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[123]   Here we focus only on the impact of openness to trade and capital flows within the same industry. The cross-industry impact (of FDI and trade in other industries, upstream or downstream the value chain) is another important channel through which openness may influence competitiveness.

[124]   http://www.doingbusiness.org/Reformers/

[125]   See Campos and Kinoshita (2010), Blind and Jungmittag (2004), Moshirian (2004).

stimulation of competition (through sectoral import penetration). Indeed, empirical evidence has shown that decomposing the impact of intra-industry trade into (i) knowledge diffusion via international outsourcing of intermediate inputs and (ii) stimulation of competition is statistically significant and that the direct disciplining effect of imports appears to be stronger than the impact of competition.[126]

Intra-industry trade is here measured by the Grubel-Lloyd index (*GLI*) based on product level data (see Annex A.1). *GLI* can be interpreted as a share of intra-industry trade for a given product, lying between zero (no intra-industry trade, there are only exports or only imports of a given product) and one (highest intensity of intra-industry trade, exports and imports of given products are equal). As Figure 44 shows for both countries and industries there is a negative correlation (−0.62 and −0.69 respectively) between levels and changes of *GLI*.[127] This seems natural, as it is difficult to increase *GLI* further proportionally once it is close to its upper limit. In general, larger, wealthier Member States and industries producing more processed products have higher *GLI*.

Figure 44. Levels and changes of Grubel-Lloyd intra-industry trade index across countries and industries
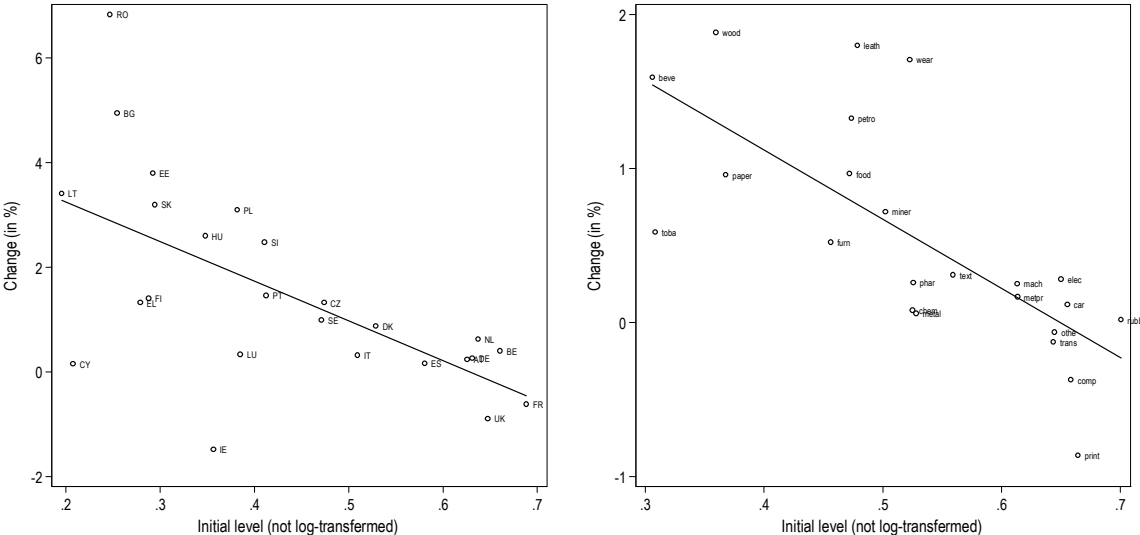
Inward foreign direct investment can raise exports both: (i) through the increased production capacity established by multinationals (for example when firms locate different stages of production in different countries and the foreign affiliate is used to produce inputs imported by the parent company or as a substitute export base for the parent company); and (ii), through improving the quality and uniqueness of products by upgrading human resources or using better technology. As theoretically argued by Konan (2000) and supported empirically by Alfaro and Charlton (2009), large multinational enterprises can invest abroad to lower the

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[126] See Bitzer and Geishecker (2006) and Kee and Hoekman (2007).

[127] Latvia and Malta are omitted as outliers. Latvia has low initial level (0.14) and very high growth of *GLI* (11.14), whereas the situation for Malta is the opposite (-13.27 growth rate). The figures are weighted averages over time and country or industry. The weights are export sizes (where each year is given equal importance so that the impact of the overall real export growth is eliminated).

cost of multistage production, thus inward foreign investment stimulates exports (in particular intra-corporate trade) rather than substituting for it (as suggested e.g. by the "tariff jumping" argument and by market driven considerations).[128] In countries that are members of large free-trade areas, such as the EU, the link between trade and inward foreign investment may be particularly strong as foreign firms can establish plants in one country to serve the whole area and exploit scale economies.[129] Omitting *FDI* inflows could be particularly problematic for New Member States that have attracted large amounts of *FDI* linked to their accession to the EU. As Allard (2009) shows, the strong export performance of these countries can be better explained when *FDI* inflows are accounted for. Moving to indirect effects, Oladi et al. (2008) present a theoretical model in which inward *FDI* improves host country export quality. According to that model, investment in quality by the multinational corporation has positive spillovers on the local firm and its exports under different types of two-stage duopolistic competition regimes (quality first and price or quantity subsequently). Despite the spillovers, the multinational does not cut its investment because it is still more profitable to engage in competition on quality.

The estimation results are reported in Table 9. Compared to the previous estimation, the basic control variables *REER* and foreign demand increase the sizes of their coefficients. Two alternative specifications are tested, one with a one-year *FDI* lag, the other with a two-year *FDI* lag, thus allowing for different lead times of investment necessary to build up exporting capacity.[130] [131] As expected, *GLI* and *FDI* have statistically significant positive coefficients providing further evidence of the supportive role that the two openness-related variables have on non-price export competitiveness. This is in line with the hypotheses that competition from imports and imported components as well as expanded production capacity, technology, managerial know-how, and access to foreign distribution channels brought by foreign investors all boost exports. The coefficient of *FDI* increases if a longer lag is applied, suggesting the importance of the lead-time.

The estimated coefficient on *FDI* is not very big, but it should be interpreted with caution (only as an approximation of elasticity) owing to the transformation of the variable (see

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[128]   Alfaro and Charlton (2009) used a global firm level dataset on 650 000 subsidiaries of multinational corporations. They found that more than half of all subsidiaries supplying inputs to their mother companies represented intra-industry FDI (subsidiaries could only be distinguished from their parent company's industries at the four-digit level as the subsidiary's output of inputs for their parent company appeared identical at the two-digit level to the parent's final good). This shows how much intra-industry FDI can positively influence the non-price competitiveness of exports via inputs (components) compared to the competition channel.

[129]   See Neary (2009).

[130]   Due to both missing original data for some countries, years and activities and no possibility to assign FDI to some industries, the number of observations in this estimation is significantly smaller than in the basic model or the extended model with *RUV*. Obviously, the implication is that the precision of such estimates is lower.

[131]   *GLI* and *FDI* could be potentially correlated as argued by Baldwin and Ottaviano (2001); Fukao et al. (2003), and Xing (2007). For example, the Visegrad group countries (the Czech Republic, Hungary, Poland and SK) have attracted substantial investment in the automobile sector, and much of the intra-industry export growth in this sector may be associated with these investments. But overall, this association does not show up strongly in our data: the variance inflation factor (VIF) indicators for all variables are very close to 1.

Annex A.6). Considering standardised coefficients (not reported),[132] the magnitude of the impact of *FDI* is in the range 17-28% of the impact of *REER* and that of *GLI* exceeds *REER*'s impact (by 28-61%). The sectoral composition of *FDI* would very likely affect this impact as investment in knowledge-intensive high-tech sectors, where the potential for spillovers is highest, for example, could generate stronger effects. However, due to limited data coverage of sectoral FDI, we cannot look at this differentiated effect.

Table 9. FDI, intra-industry trade and exports

Dependent variable is real exports

REER in t−1	−0.376***	−0.403***
	(0.000)	(0.000)
GDP	1.617***	1.663***
	(0.000)	(0.000)
GLI	0.364***	0.304**
	(0.000)	(0.064)
FDI in t−1	0.040***	
	(0.047)	
FDI in t−2		0.068***
		(0.017)
Number of observations	1 934	1 771
Number of groups	378	378
R^2	0.371	0.376

Note: *** $p<0.05$, ** $p<0.1$, * $p<0.2$. Robust p-values in parentheses. All variables (dependent and explanatory) in Δlogs. Fixed effects included, but not reported.

2.2.4.2. Services as inputs in manufacturing

Apart from being the largest sector in EU economies, services are important for a number of reasons: (i) they are relatively labour intensive and thus a natural source of job creation, an important consideration when emerging from a crisis; (ii) they are a key element of adjustment mechanism within the euro area (where national nominal exchange rate

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[132] Calculated as the estimated coefficient of a variable divided by the standard deviation of that same variable. Such standardisation is used to take into account possible differences in the variability of different explanatory factors: for some of them it can be normal to evolve by only a few per cent annually, much more for others, so their likely impacts may be different under the same elasticities.

adjustment is no longer possible) because price rigidities in services markets may hinder the adjustment necessary to facilitate adaptation to shocks; and, more importantly, (iii) services have become more and more interconnected with other sectors and can thus have a positive impact on other sectors' economic performance. This is because services are vital intermediate inputs, but also due to the increased fragmentation of production processes into parts that can be outsourced, which has led to more complex systems for manufacturing production, enhancing the role of co-ordination, administration and transportation services. Finally, services are also increasingly being used to differentiate products that can compete on the package of associated services (after-sales service, maintenance, training, etc.).

Box 2-2: The literature on the role of services in exports

Manasse and Turrini (2001) present a theoretical model where changes in communication technology enabled suppliers to improve the perceived quality of their products and to raise consumers' satisfaction. Empirical investigations have also shown that, especially in catching-up economies, the quantity and quality of transport infrastructure and the quality of information and communications services as well as a good regulatory environment appear to have facilitated exports.[133] King and Levine (1993) show theoretically, and support it with international empirical evidence, that better financial systems can increase the chances of successful innovation while, symmetrically, financial sector distortions are likely to reduce innovation. Well functioning financial systems are expected to (i) correctly evaluate entrepreneurs to reveal the difference between the expected profits from innovation and the profit from producing existing goods using existing methods, (ii) finance the most promising productivity-enhancing activities, and (iii) diversify innovation risks. Berman and Hericourt (2009) emphasised the role of efficient financial markets as a facilitator for starting to export, which requires incurring high fixed cost. In their cross-country firm-level analysis, they demonstrated that a productivity edge over foreign firms is not sufficient *per se* and can be exploited only if it interacts with the availability of financing.

Further insights are provided by the literature on linkages between different services sectors and manufacturing. Wolfmayr (2008) examined the effects of services inputs on the manufacturing sector's competitiveness for 16 OECD countries and 17 industries from 1995 to 2000. She estimated an export market share function on a panel data set introducing an explicit link between services input and export performance. The empirical evidence confirmed a significant positive correlation between international service linkages mainly related to high skilled, technology driven industries and increases in the market shares. However, the impact of in-house services was less significant than international service linkages. Francois and Woerz (2008) showed that imported services were important inputs stimulating exports of manufactured goods in skill- and technology-intensive industries.

To capture the importance of services, the model includes the wage-adjusted labour productivity in services sectors as a proxy for the quality of domestic services used as inputs in the production of exported goods (*PROD*). The research question to be examined is not only whether service inputs into manufacturing industries contribute positively to the export performance of this sector but also whether high productivity services have a larger effect.

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[133]   See Iwanow and Kirkpatrick (2009); Shepherd and Wilson (2009)

The data on services productivity is linked with data on manufacturing exports via input/output (I/O) direct coefficients or multipliers of manufacturing industries' demand on services. While the direct coefficients reflect the services' shares as direct inputs into the production of manufacturing sectors, multipliers also include the indirect inputs via other industries. Hence, multipliers comprise a feedback effect: the additional demand of all other industries for products manufactured by industry i resulting from industry i's increase in demand for all other industries' goods.[134] Annex A.7 provides a description of how the variable *PROD* is computed and how the allocation of services inputs to manufactures is done.

Figure 45 displays the average multipliers of manufactures' demand for services (weighted averages across manufacturing industries and countries for the years determined by the I/O tables, see Annex A.7) against productivity growth (weighted averages across countries and time).[135] The negative correlation between the two variables (as indicated by the dashed and dotted lines, where the latter show a linear fit when the outlying sector other business activities is excluded) indicates that those services sectors for which the average multiplier effect of manufactures is largest (mainly other services, but also land transport, real estate and other transport) are those experiencing the lowest productivity gains. On the contrary, the average multiplier effect of manufactures on services sectors is lower for the sectors with high productivity growth such as air and water transport and telecom services. To the extent that other business services is a sector still relatively highly regulated and protected in some cases from external competition, this indicates the untapped potential for productivity gains in the sector (reinforcing findings from chapter 1.1) and, given the large interlinkages with manufacturing production, the potential for exports growth.[136] Figure 45 displays EU results and while most large countries driving EU results show negative correlation between high average manufacturing multipliers on services sectors and low productivity growth (Germany, France, Italy, the United Kingdom) a number of countries show a different pattern (Poland, Portugal, Sweden). The country-specific figures can be found in Annex A.8.

As far as the distributions of multipliers across countries is concerned (Figure 45, second chart), the total multipliers of manufactures' demand on services differ widely across countries. If productivity growth across services sectors were the same, these coefficients could be interpreted as the potential for gains from quality improvements in services. The Czech Republic, France, Portugal, Italy and Germany are the countries with the largest potential gains. At the other extreme are Ireland and, to a lesser extent, Greece and the Slovak Republic amongst others which seem to be specialised in producing manufacturing goods that use relatively few services inputs. The distribution across sectors is more homogeneous, although there are still significant differences between manufacturers of coke and refined petroleum products (who, on average, rely less on the selected services inputs) and manufacturers of other non-metallic mineral products.

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[134] These I/O multipliers show by how many euros the total demand for specific domestic services sector increases if the domestic manufacturing industries raise their production by 100 euros.

[135] The weights are export sizes (where each year is given equal importance so that the impact of the overall real export growth is eliminated).

[136] Other business services include inter alia: architectural and engineering activities, related technical consultancy, labour recruitment and provision of personnel, legal, accounting, book-keeping and auditing activities, tax consultancy, market research and public opinion polling, business and management consultancy, management of holdings, technical testing and analysis, packaging and industrial cleaning.

The weighted wage-adjusted productivity of services variable enters the regressions with lags to avoid endogeneity problems owing to the possible impact of the growth of goods exports on the growth of productivity in the services used to produce these goods – i.e., via some economies of scale in services, and to allow a sufficiently long production cycle (goods must be produced first and only then exported after some delay). The estimation results are presented in Table 10 for different versions of the variable productivity of services: an aggregate services index that includes (columns 1 and 2) or excludes (columns 3 and 4) financial sectors,[137] constructed both using direct I/O coefficients ($PROD_D$) and using multipliers ($PROD_M$). The last column presents estimations of the effect of disaggregated services sectors' productivity.[138] These sector specific results are based on the weighted productivity variable using multipliers, which generally perform better than those based on direct I/O coefficients (not reported). The sector specific $PROD$ variables with the best-performing lags, in terms of positive signs and statistical significance, are presented in Table 10.

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[137]   For three financial sectors (financial intermediation with auxiliary activities and insurance) available data is scarce and no sector specific quality variable is constructed. Financial sectors however could enter the aggregate quality indicator ($PROD$). This variant of $PROD$ including financial sectors has more information but may suffer from structural breaks (in terms of time series statistics). Therefore, to ensure the robustness of results, the model is also estimated with $PROD$ excluding the three financial sectors.

[138]   The $PROD$ variable for specific services sector is calculated as the product of the I/O multiplier (between a given manufacturing industry and that services sector) and the labour productivity in that sector. The possible multicollinearity of the services-sector-specific $PROD$ variables is tested, but does not appear to be a problem (VIF below 2 for all variables). The availability of data at the level of specific services reduces the number of countries in the regression and only 14 countries are included in this final specification (Austria, Belgium, Denmark, Estonia, Greece, Spain, Finland, France, Hungary, Italy, Lithuania, Portugal, Slovenia, the United Kingdom).

Figure 45. Productivity in the analysed service sectors and average input/output multipliers of manufacturing industries' demand on domestic services
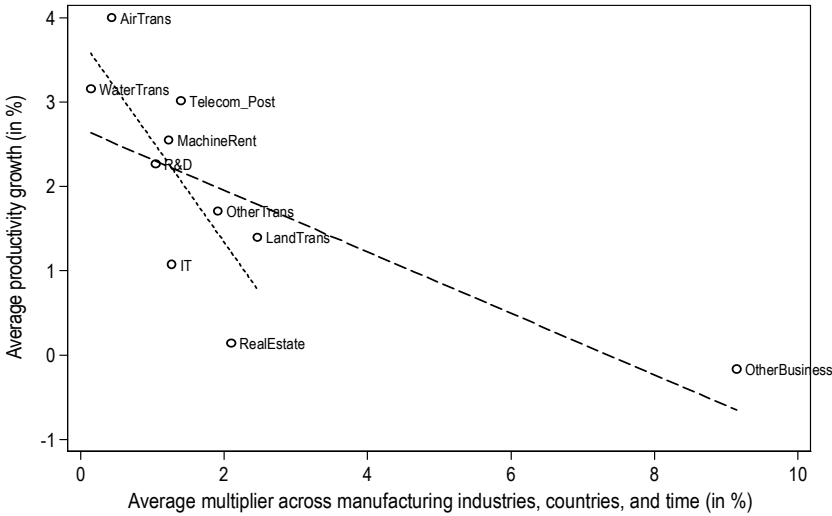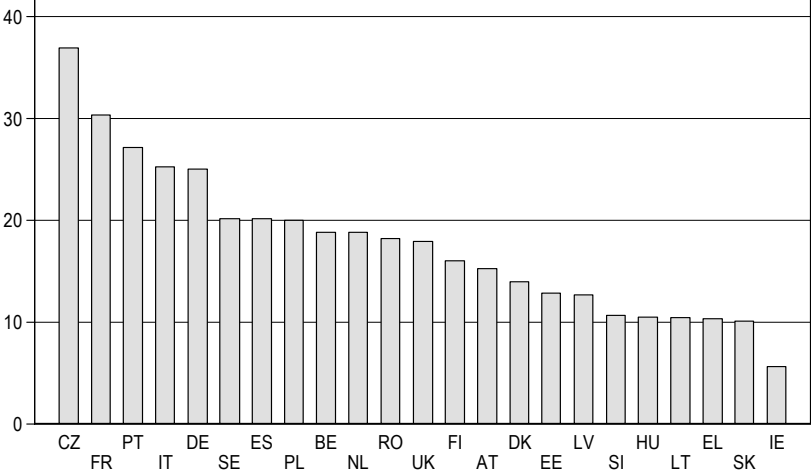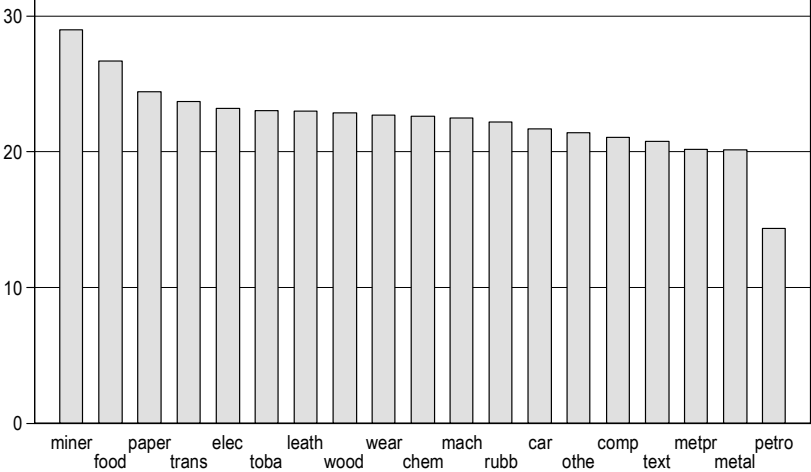
Table 10. Services as inputs and exports

Dependent variable is real exports

	With financial sectors		Without financial sectors		
REER in t−1	−0.441***	−0.438***	−0.444***	−0.441***	−0.188*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.145)
GDP	1.586***	1.587***	1.601***	1.601***	1.044***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.012)
PROD$_D$ in t−1	0.042***		0.033*		
	(0.031)		(0.127)		
PROD$_M$ in t−1		0.050***		0.040**	
		(0.023)		(0.080)	
PROD$_{AirTrans}$ in t−1					0.052***
					(0.000)
PROD$_{LandTrans}$ in t−1					0.146**
					(0.053)
PROD$_{R\&D}$ in t−1					0.093***
					(0.000)
PROD$_{RealEstate}$ in t−1					0.060***
					(0.014)
PROD$_{Telecom\_Post}$ in t−1					0.153***
					(0.000)
PROD$_{IT}$ in t−2					0.087**
					(0.057)
PROD$_{MachineRent}$ in t−2					−0.037
					(0.375)
PROD$_{OtherBusiness}$ in t−2					0.070*
					(0.138)
PROD$_{OtherTrans}$ in t−2					0.013
					(0.744)
PROD$_{WaterTrans}$ in t−2					−0.020*
					(0.193)
Number of observations	3 333	3 333	3 333	3 333	1 489
Number of groups	477	477	477	477	262
R^2	0.354	0.355	0.354	0.354	0.401

Note: *** p<0.05, ** p<0.1, * p<0.2. Robust p-values in parentheses. All variables (dependent and explanatory) in Δlogs. Fixed effects included, but not reported. The *PROD* variables for specific services are calculated based on I/O multipliers.

As regards the aggregate estimations, both for *PROD* based on direct I/O coefficients and for the variant based on I/O multipliers, the estimated elasticity is positive, slightly larger for the latter. Again, the elasticity is not very large in absolute terms, but, considering the standardised coefficients, the magnitude of the impact of *PROD* is as large as 24-27% of the impact of *REER*. By and large, the quality of services (approximated as labour productivity) used by exporting manufacturing industries seems to be an important determinant of the non-price competitiveness of goods exports. The estimations excluding financial services display somewhat lower coefficients, but are subject to less bias resulting from breaks in the time series.

As far as the estimations for specific services sectors are concerned, the impact of their efficiency on manufacturing exports differs considerably. Post and telecoms as well as land transport seem to have the greatest potential impact, as a 10% improvement in labour

productivity could improve exports by about 1.5%. A similar magnitude productivity rise in R&D, IT and other business services appears to improve exports by 0.7-1%. Real estate services and air transport have a smaller but also still statistically significant impact. Three other sectors (water and not-elsewhere-classified transport and machine rent) do not appear to have a statistically significant impact on exports (at least, not with the analysed lags). These results seem to support calls for further liberalisation in post and telecoms as well as more competition in land transport and business services in the EU.

2.2.4.3. Reforms

Determinants of country competitiveness are often assessed using global indicators, a comprehensive and multifaceted approach that emphasises non-price factors combining statistical and survey data. Among these global indicators, the *Doing Business Index* by the World Bank focuses on countries' business environments, particularly business enhancing/restricting regulations in a number of areas:

- Closing a business (*CLOSE*)
- Dealing with construction permits (*CONSTR*)
- Enforcing contracts (*CONTRACT*)
- Getting credit (*CREDIT*)
- Employing workers (*EMPL*)

- Protecting investors (*PROTECT*)
- Registering property (*REGIS*)
- Starting a business (*START*)
- Paying taxes (*TAX*)
- Trading across borders (*TRADE*)

The final extension of the model presented in this chapter includes reforms to the institutional business environment – an important determinant of export competitiveness directly influenceable by policy makers. A number of recent analyses have indicated the existence of a robust relationship. Based on comprehensive cross-country research, Moenius and Berkowitz (2004) find that improvements to the quality of institutions increases the share and volume of exports of differentiated, high-value added products through stronger enforcement of contracts and better protection of property rights. They also find that the initial quality of institutions matters; countries with the least developed institutions have a generally small share of differentiated products in exports and institutional reforms do not seem to affect simple product exports. These findings are consistent with those of Cuervo-Cazurra and Dau (2009) as well as Iwanow and Kirkpatrick (2009), who show that structural reforms in catching-up economies, by reducing transaction costs, encourage enterprises to improve their efficiency and competitiveness to international levels, thus helping them to export.[139]

In conformity with all other variables used in the analysis, which represent *changes* (growth) rather than levels, the years of improvements to the quality of the business environment are

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[139] Much of the existing empirical literature focuses on developing economies. Lu *et al.* (2009) demonstrate that better business environments in different regions in China have both direct and indirect positive effects on corporate propensity to export, by enhancing the role of corporate governance (mitigating principal-agent and principal-principal conflicts) and thereby facilitating export decisions in an emerging economy. Ma *et al.* (2010) make an empirical firm-level investigation demonstrating the positive influence of the quality of the judicial system, which determines the ability to enforce contracts, on exports in several transition and developing economies. The positive link goes through the reduction of risk of relationship-specific investment under incomplete contracts. Such specific investment permits the production of more differentiated export goods which enjoy higher non-price competitiveness.

approximated through reforms. The reforms are represented by country-, time-, and reform-specific dummies, taking the value 1 when a reform improving a specific part of business environment was introduced in a given country in one of the ten reform areas and zero otherwise, based on the World Bank's "Doing Business" survey. Consequently, the reform dummies are not "sluggish" variables (which hardly change across time) as they do not measure the *state* of business environment but rather its *change.*

In contrast with other non-price competitiveness drivers, however, the indicators considered are not industry-specific and are only available from 2005. The number of reforms and the number of countries undertaking reforms (which are strongly correlated) differ across reform areas (Figure 46). The largest reform effort (in terms of simple reform numbers and the number of reformist countries) was taken in removing obstacles to business registration, streamlining property registration, and simplifying tax payments. On the other hand, EU Member States made fewer reforms in the areas of closing a business, investor protection, and construction permits.

Figure 46. Numbers of reforms and numbers of countries undertaking reforms in different reform areas in 2005-2009
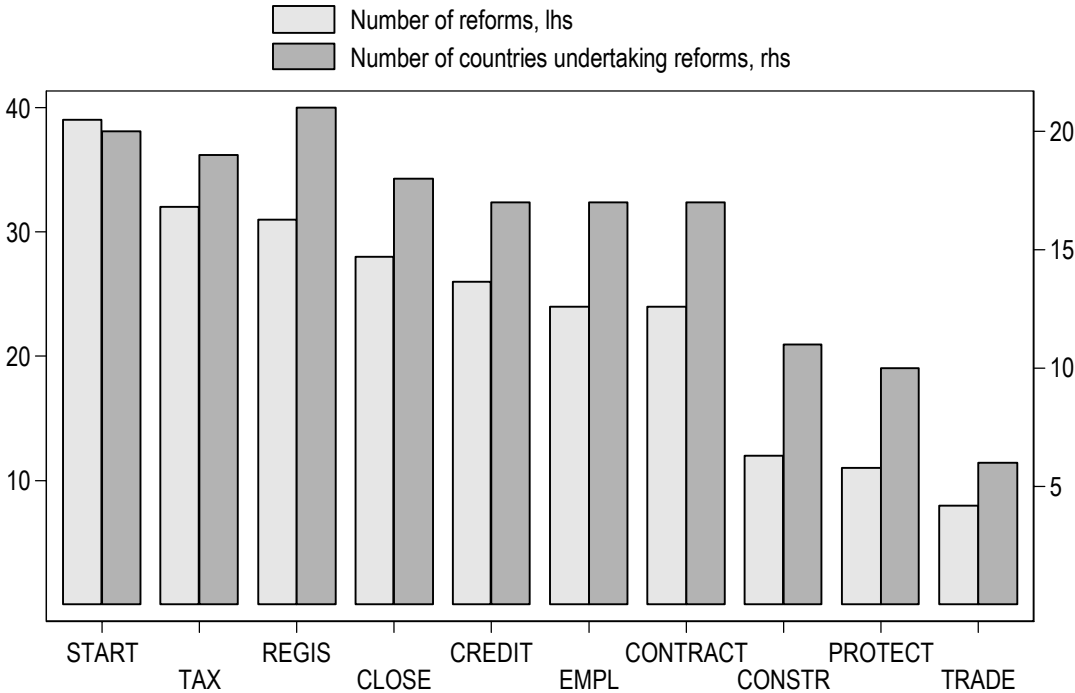
Structural reforms do not usually have immediate effects because they operate on the supply side of the economy where the reaction is gradual – enterprises need to adapt their technologies and managerial techniques (Mickiewicz, 2005). Hence, reform-specific lags are applied. In order not to excessively reduce the number of available observations and bearing in mind that the reform dummies are available only for the period starting in 2005, lags between 0 (contemporaneous relationship) and at most 2 years are considered. It could be argued that some reforms could take more than 2 years to produce significant effects. This may be the case e.g. for labour market-related reforms, but reforms such as those facilitating trading across borders or opening a business may deliver positive effects more quickly.

In order to select the lag-structure, the reform variables with the best-performing lags both in terms of positive signs and of statistical significance are included in the final version of the model. All but one reform dummy (tax reforms) are included in the extended exports equation.[140] Estimation results are presented in Table 4.

Considering the standardised coefficients, the magnitude of the average statistically significant impact of reforms is roughly as large as the impact of *REER*. Ceteris paribus, with the separate effects of single reforms controlled, improvements in the ease of closing business (*CLOSE*) appears to have the most powerful positive impact on export growth, followed by the labour market reforms (*EMPL*) and reductions of trade barriers (*TRADE*). Interpreting the results in intuitive terms, the first reform may reduce the risk, especially for foreign investors (hence a long lag of 2 years), of a costly withdrawal from an export-oriented investment. *EMPL* is related to the reduction of the cost of optimising personnel which is key for an efficient business, whereas *TRADE* includes reforms which reduce the administrative barriers for exports but also demonstrates the importance of imports (as substitutes exerting competitive pressure or as components) for competitive exports. Five more dummies are statistically significant, all of them related to the cost of initiating and running a business, in particular investing. The possible multicollinearity of reforms is examined but does not seem to be a problem.[141] Nevertheless, the performance of reforms as individual drivers of competitiveness is examined in additional specifications.

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[140]   Tax reforms do not seem to positively affect exports in the analysed lag span, possibly because of widespread tax-deductibility in exports.

[141]   The variance inflation factor (VIF) indicators for all variables are below 2.

Table 11. Reforms and exports

Dependent variable is real exports

REER in t−1	−0.367***	−0.164***	−0.189***	−0.570***	−0.609***	−0.156***	−0.750***	−0.255***	−0.166***	−0.552***
	(0.027)	(0.041)	(0.029)	(0.000)	(0.000)	(0.047)	(0.000)	(0.001)	(0.039)	(0.000)
GDP	1.113***	1.305***	1.307***	1.883***	1.489***	1.293***	1.880***	1.448***	1.265***	1.915***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
START in t−1	0.026**	0.011								
	(0.082)	(0.214)								
CONSTR in t−1	0.063***		0.078***							
	(0.000)		(0.000)							
EMPL in t−2	0.089***			0.056***						
	(0.000)			(0.000)						
REGIS in t−2	0.062***				0.099***					
	(0.000)				(0.000)					
CREDIT in t−1	0.067***					0.008				
	(0.000)					(0.492)				
PROTECT in t−2	0.012						−0.065***			
	(0.595)						(0.001)			
TRADE	0.075***							−0.013		
	(0.011)							(0.413)		
CONTRACT in t−1	0.067***								0.035***	
	(0.000)								(0.010)	
CLOSE in t−2	0.098***									0.087***
	(0.000)									(0.000)
Number of observations	1 660	2 235	2 235	1 660	1 660	2 235	1 660	2 799	2 235	1 660
Number of groups	575	575	575	575	575	575	575	575	575	575
R^2	0.495	0.258	0.271	0.440	0.456	0.257	0.437	0.267	0.261	0.450

Note: *** $p<0.05$, ** $p<0.1$, * $p<0.2$. Robust p-values in parentheses. All variables (dependent and explanatory) in Δlogs. Fixed effects included, but not reported.

2.2.5. Summary of results and policy insights

This section has shown that foreign demand and real effective exchange rates, the two standard variables used to analyse export performance, can only explain a fraction of export growth across countries and sectors in the EU, therefore adding evidence to an increasing number of empirical studies which find that non-standard, i.e. non-price competitiveness factors need to be taken into account when considering what drives export performance.

Measuring non-price competitiveness is however a complex issue and the analysis presented offers merely tentative answers to a difficult question. In particular, the complexity of the relationship between price and non-price variables may be only very crudely captured by the analysis carried out. This could be the case if for example product differentiation variables also have an effect on cost-based price elasticities (beyond the effect captured by product-specific relative unit values) and not just a direct effect on exports as assumed here. The same could occur if reforms also affect the price sensitivity of exports for given countries or sectors and not only directly exports. Still, although improvable, the approach proposed here has the benefit of simplicity while at the same time providing elements and insights to stir discussion about export drivers and international competitiveness.

Non-price competitiveness has been measured indirectly here. First very broadly as all exports not determined by real effective exchange rate or foreign demand (i.e. with residuals unexplained by a standard exports equation including fixed effects); and more directly, though narrowly, using industry-specific relative unit values of exports (relative to imports). Since the analysis is done in growth rather than in levels, results refer to the evolution of non-price competitiveness. Countries or industries which have achieved a high level of non-price competitiveness may find it difficult to maintain a high growth rate and may therefore look relatively worse in terms of recent non-price competitiveness growth. Nevertheless, the comparison based on growth of non-price competitiveness is useful as an early warning: if sluggish growth continues, the countries or industries concerned, even if they have currently high non-price competitiveness levels, may be overtaken by those which durably catch-up.

In Figure 47 a synthetic summary of the results concerning the contribution of changes in non-price competitiveness to exports growth is shown. The summary indicator presented is an average score summarising the (country and industry) ordering in terms of performance. The average score ranges from 0 (worst performer) to 100 (best performer) and is calculated based on two individual scores: (i) countries/industries scores from the contribution of residuals – including fixed effects, the broad non-price competitiveness measure – to exports growth in the basic exports equation;[142] and (ii) countries/industries scores based on the contribution of relative unit value changes to export growth. The results indicate that the ordering of industries' performance is the same irrespective of the dimension (the score based on residuals or the score based on relative unit values), whilst for countries the picture is more diversified – three groups can be distinguished (occupying three quadrants of the bottom chart of Figure 47).

Finland seems to be a good example of a country with a high level of non-price competitiveness (see e.g. the level of its average relative unit value in Figure 42) which nevertheless seems to be finding it

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[142]   For industries, this score is calculated as a mean of two sub-scores using the residuals of the basic export equation: one derived from the absolute residuals (see Figure 2) and the other one based on relative residuals relative to the fit between industrial residuals and the total contribution of foreign demand and cost competitiveness (see Figure 3).

difficult to maintain high rates of improvement in its non-price competitiveness. According to the results of cluster analysis shown in the second chart of Figure 47, Finland is more like other middle-group countries (including inter alia its peers: other Nordic countries, two Baltic republics, or the largest EU exporter – Germany).[143] This group has a relatively high contribution from residuals, but a low contribution from relative unit value changes. They seem to be (i) either dependent on industries where product differentiation (quality or uniqueness) matters less, (ii) or unable to sustain the speed of product differentiation (relative to the level they have already achieved).

On the other hand, the group of top-performers consists of some mature economies probably benefitting from their positions as investment and trade hubs (Belgium, the Netherlands, Ireland) and catching-up economies (the Slovak Republic, Slovenia, the Czech Republic, Romania). This group has both high residuals and high contributions of relative unit values to export growth. Even after adjusting for the temporary EU enlargement effect, the above-mentioned catching-up economies appear successful, but it should be borne in mind that they started from low levels and should continue upgrading their exports given their still relatively low levels.

The countries in the last group, including inter alia three large economies: France, United Kingdom, Italy, also have relatively high contributions of relative unit values (product differentiation), but underperform when changes in non-price competitiveness is measured using the residuals (including fixed effects), i.e. the contribution of other factors (which may consist of e.g. broadening distribution networks or development of after-sale services) may be relatively low.

As far as industries' scores are concerned, the manufacture of pharmaceuticals, beverages, chemicals, manufacturing products not-elsewhere classified, and transport equipment (other than motor vehicles) appear to be top-five rising stars in the EU in terms of their export growth resulting from non-price factors. At the other extreme, textiles, printing and reproduction, electronics, furniture, and the car industry seem to be the five industries where the contribution of non-price competitiveness is lowest. This does not necessarily mean that their total export growth is sluggish. It may be satisfactory, but dependant on factors probably not-sustainable in a long run such as improvements only in cost-competitiveness or foreign demand growth. This could be so because advantages based purely on prices are more sensitive to labour cost pressures and international competition from emerging markets. Prices of production factors are expected to converge for trade in standardised goods making price advantages transitory. This is not the case however where trade is based on technology differences (Falvey, 1999). In addition, it may be difficult for some countries to keep up the high pace of non-price competitiveness upgrading once a high level has been achieved. Nevertheless, a technological break-through is probably needed in these industries to prevent them falling behind in the future.

What can be done to stimulate improvements in non-price competitiveness? Three groups of non-price competitiveness drivers have been considered: openness, weighted productivity of services, and reforms; all of them turned out to be significant alternative determinants of non-price competitiveness. Making a rough comparison of these ratios,[144] the impact of intra-industry trade is about 1½ times the impact of *REER*, the impact of reforms on average approximately equals the impact of *REER*, and the impact of *FDI* and the overall quality of services (as measured by productivity) each amount to about ¼ of the impact of *REER*. As regards the significance of quality

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[143]   Cluster analysis is a technique that groups similar elements (countries and industries in this case).

[144]   In order to consistently measure the magnitude of the impact of the different explanatory factors in the model, the standardised coefficients of factors driving non-price competitiveness are compared with the *REER*'s standardised coefficient *within* each equation.

improvements in specific services, telecom, post and land transport seem to be key sectors, followed by R&D, IT and other business services (which include the usually tightly regulated professional services). As far as estimation results for specific reforms are concerned, improvements in the ease of closing business, labour market reforms, and reductions in trade barriers might possibly yield the most in terms of increasing export growth.

Consequently, it can be concluded that in order to boost non-price competitiveness policy-makers could: (i) increase openness to imports and adopt measures to encourage inward foreign direct investment, (ii) stimulate improvements to the quality of domestic services production by opening them up to domestic and foreign competition (especially by deregulating post and telecoms and further liberalising transport and professional services within the EU) as well as stimulating the development of R&D and IT services, and (iii) improve the business environment (especially by reducing exit barriers and costs associated with employing workers). The broad emerging lesson is the need to stimulate liberalisation and competition by accelerating implementation of single market legislation and introducing the front-loaded growth-enhancing structural reforms identified in the Europe 2020 agenda.

Figure 47. Summary of the measurement of the evolution of non-price competitiveness
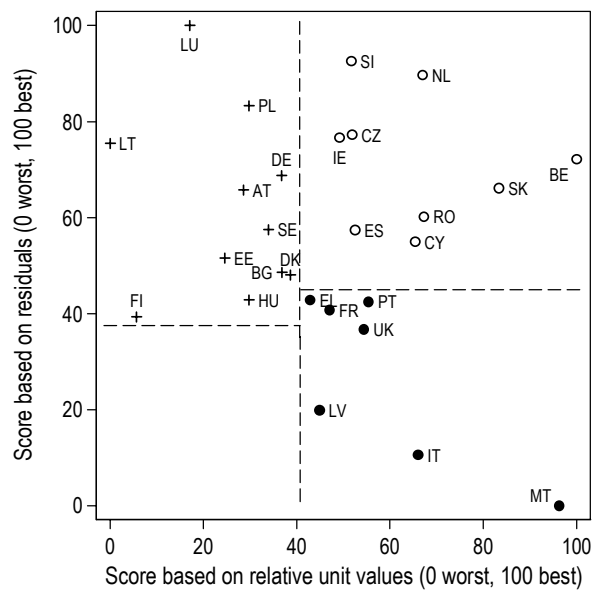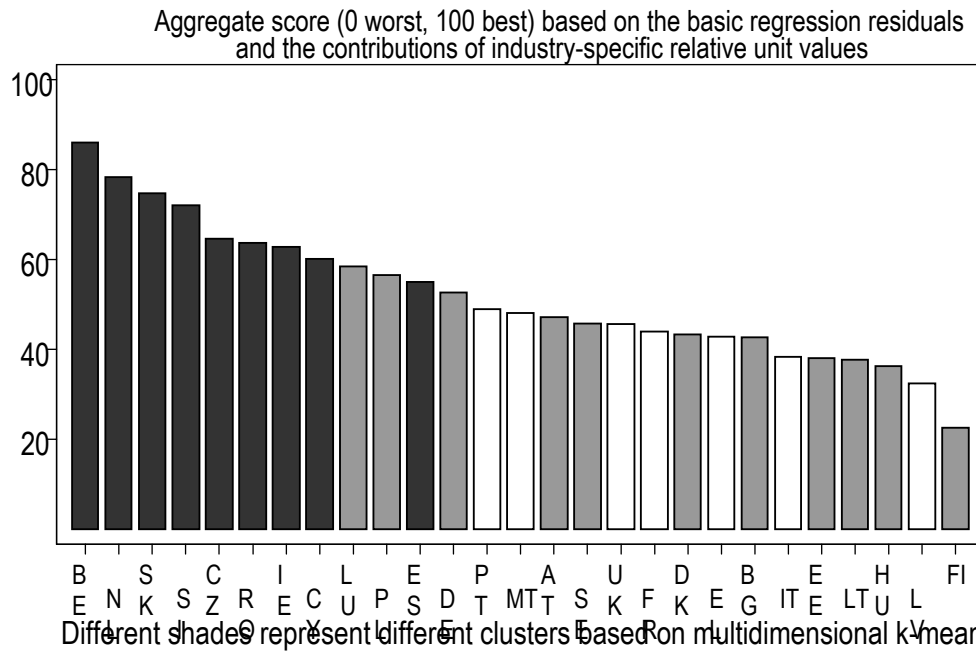
Aggregate score (0 worst, 100 best) based on the basic regression residuals and the contributions of industry-specific relative unit values

Different shades represent different clusters based on multidimensional k-means clustering (k = 3).

Aggregate score (0 worst, 100 best) based on the basic regression residuals
and the contributions of industry-specific relative unit values

Different shades represent different clusters based on multidimensional k-means clustering (k = 3).
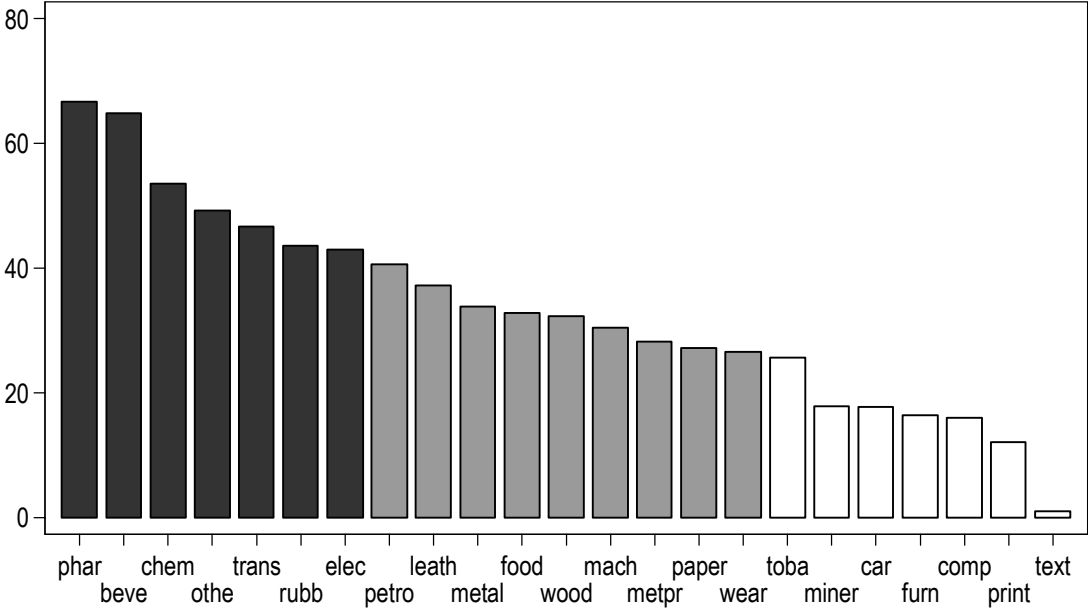
ANNEX: Technical notes

Annex A. 1. The contribution of the sectoral dimension

For each variable (x), this contribution is calculated as the ratio of the standard deviation (sd) for industries (i) to the sum of this standard deviation for industries and countries (c): $sdi/(sdi+sdc)$, where $sdi = sd[mean_i(x_{cit})]$ for industries i.e. the standard deviation of industry-specific means (across countries and time, t) and, similarly, $sdc = sd[mean_c(x_{cit})]$ for countries. These variance indicators are calculated for a sub-sample of observations without outliers (see Annex A.3). The subsample encompasses 96.1% of non-missing observations and 99.7% of exports (in terms of total value in constant prices). This contribution varies from more than 15% for the changes of *REER* to over 49% for the growth of relative unit values. It shows that the industry dimension adds a significant amount of information on the export performance differences and their possible sources.

Table A 4: Contribution of industry dimension to the cross-sectional variation

Variable (dln)	Export	REER	Foreign Demand	Intra-industry trade	Relative unit values
(%)	36.7	15.3	27.2	33.7	49.2

Annex A. 2. Data and variables

A special characteristic of the dataset employed in the analysis is the use of disaggregated product level (π) bilateral trade flows (from COMEXT, disaggregated at the level of 4-digit Combined Nomenclature codes, around 8 600 products) to calculate industry-level variables (2-digit NACE Rev. 2, 23 manufacturing sectors). The correspondence between the industry and product classifications is based on the official key. For a minority of product codes (7.4% representing about 16.8% of total EU27 exports) there is more than one industry to which they could be assigned. In such cases, the product trade data enters the calculations of the industry-level figures of each industry concerned proportionally to export value (each year).

Industry real exports are thus based on disaggregated bilateral export values at product level deflated with country-level export deflators from AMECO as export deflators for the 2-digit NACE industries are not available. The *REER* and the foreign demand (importers' GDP growth rates) are approximated at industry level by using detailed product bilateral trade flows with main EU member states' trade partners (intra-EU trade included) as weights. The detailed product level trade data is also used to calculate intra-industry trade and relative unit value indicators. The variables definition follows next.

All variables are calculated for the 27 EU Member States over the period 1999-2008. Foreign demand for sector i in country c in year t (D_{cit}) is calculated as the weighted average of GDP in constant prices of country c's main trading partners (p, rest of EU plus 30 other large economies). Weights are the share of exports (E) of product (π) to each partner over total exports of that product.

$$D_{cit} = \sum_p \sum_\pi \left(GDP_{pt} \cdot \frac{E_{cp\pi t}}{\sum_p \sum_\pi E_{cp\pi t}} \right)$$

Instead of using the aggregate country-level real effective exchange rate (*REER*) as most studies do, a quasi-sectoral exchange rate is constructed as:[145]

$$REER_{cit} = REER_{ct}^{AMECO} \frac{REER_{cit}^{proxy}}{\sum_i E_{cit} REER_{cit}^{proxy} \Big/ \sum_i E_{cit}}$$

where country-level *REER* from AMECO is used to align the intermediate variable based on disaggregated trade data ($REER_{cit}^{proxy}$) with the commonly used macro level (country and period) figure. The export weights allow for a differentiation across industries within each country. To compute the intermediate $REER_{cit}^{proxy}$, nominal exchange rates (*NER*) deflated with unit labour costs (U), both from AMECO, are weighted by the share of bilateral exports at product level (π) over total exports of c.

$$REER_{cit}^{proxy} = \sum_p \sum_\pi \left[\left(\frac{NER_{ct}}{NER_{pt}} \Big/ \frac{U_{pt}}{U_{ct}} \right) \frac{E_{cp\pi t}}{\sum_p \sum_\pi E_{cp\pi t}} \right]$$

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[145] A truly sectoral real effective exchange rate would apply industry-level deflators which are not available with sufficient disaggregation and country coverage.

Since the *REER* is ULC-based, in purity it is a cost-competitiveness indicator. Throughout the section however it would be referred to as a price-competitiveness indicator to emphasize the difference between price-based (*REER*) and non-price-based drivers of competitiveness.

Two other variables are also calculated based on the 4-digit CN exports and imports: relative unit values (RUV) and the intra-industry trade indicator (Grubel-Lloyd, GLI):

$$RUV_{cit} = \sum_p \sum_\pi \left[\left(\frac{E_{value}}{E_{volume}} \bigg/ \frac{I_{value}}{I_{volume}} \right) \cdot \frac{E_{value}}{\sum_p \sum_\pi E_{value}} \right]_{cp\pi t}$$

$$GLI_{cit} = \sum_p \sum_\pi \left(\frac{E + I - |E - I|}{E + I} \cdot \frac{E}{\sum_p \sum_\pi E} \cdot \frac{I}{\sum_p \sum_\pi I} \right)_{cp\pi t}$$

where again *c* is a declaring country (an EU Member State), *i* is a 2-digit NACE industry, *t* a year, *p* a 4-digit COMEXT product, *E* exports and *I* imports (values in euros and volumes in tonnes).

Annex A. 3. Dealing with outliers

The outliers are the observations with real export growth higher than about +112.5% and lower than about −50.5% in a specific country, industry and year,[146] and seem to result from some *absolute* measurement error of export values which, for the smallest countries and industries (in terms of export levels), results in very high *relative* volatility across years (see the figure below).

Figure A. 1: Relationship between export growth and export level in the dataset

All avalable data shown – outliers included.

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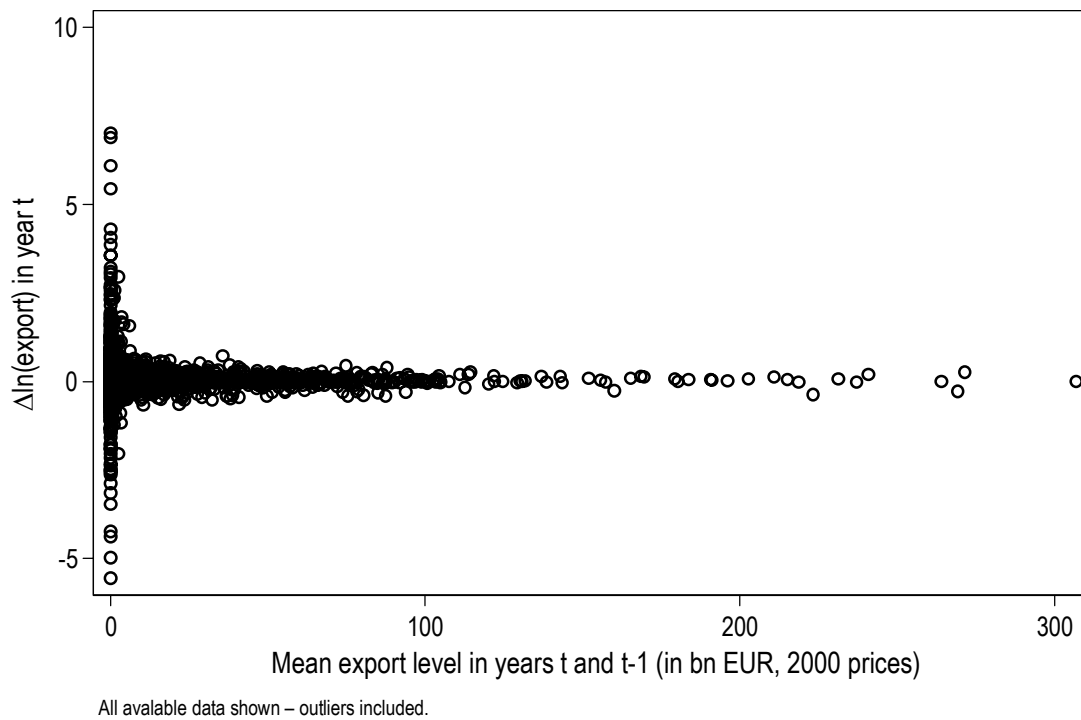
[146] These values result from setting a maximum allowed median absolute deviation (MAD) for $\Delta\ln(X)$, our dependent variable, at 8. Loops of regressions across different MAD levels show that this MAD produced reasonably large coefficients (lower levels of MAD result in smaller coefficients) while still allowing to produce reasonable predictions and residuals for small countries and industries not inflated by outliers.

Annex A. 4. The extended model with industry-specific relative unit values

Dependent variable is real exports

REER in t−1	−0.226***	RUV × chem dummy	0.020***
	(0.000)		(0.000)
GDP	1.436***	RUV × phar dummy	0.003
	(0.000)		(0.376)
RUV	0.001	RUV × rubb dummy	0.067***
	(0.524)		(0.000)
RUV × food dummy	0.001	RUV × miner dummy	−0.002
	(0.266)		(0.338)
RUV × beve dummy	0.016***	RUV × metal dummy	0.009***
	(0.000)		(0.000)
RUV × toba dummy	0.009***	RUV × metpr dummy	0.012***
	(0.003)		(0.000)
RUV × text dummy	−0.003***	RUV × comp dummy	−0.004***
	(0.000)		(0.000)
RUV × wear dummy	0.006***	RUV × elec dummy	0.037***
	(0.000)		(0.000)
RUV × leath dummy	0.036***	RUV × mach dummy	0.026***
	(0.000)		(0.000)
RUV × wood dummy	0.050***	RUV × trans dummy	0.007***
	(0.000)		(0.000)
RUV × paper dummy	0.033***	RUV × furn dummy	−0.011***
	(0.000)		(0.000)
RUV × print dummy	0.012***	RUV × othe dummy	0.039***
	(0.000)		(0.000)
RUV × petro dummy	0.008*		
	(0.160)		
Number of observations			5336
Number of groups (countries × industries)			621
R^2			0.283

Note: *** p<0.05, ** p<0.1, * p<0.2. Robust p-values for clustered industries in parentheses. All variables (dependent and explanatory) in Δlogs. Fixed effects included, but not reported. Manufacture of motor vehicles, trailers and semi-trailers is the reference industry.

The standard errors in this estimation are adjusted to allow for intra-industry correlation, relaxing the requirement that the observations inside industries be independent. That is, the observations are independent across industries (clusters) but not necessarily within industries.

Annex A. 5. Industry labels, codes, and full names

Short label	NACE Rev. 2	Full name
beve	11	Manufacture of beverages
car	29	Manufacture of motor vehicles, trailers and semi-trailers
chem	20	Manufacture of chemicals and chemical products
comp	26	Manufacture of computer, electronic and optical products
elec	27	Manufacture of electrical equipment
food	10	Manufacture of food products
furn	31	Manufacture of furniture
leath	15	Manufacture of leather and related products
mach	28	Manufacture of machinery and equipment n.e.c.
metal	24	Manufacture of basic metals
metpr	25	Manufacture of fabricated metal products, except machinery and equipment
miner	23	Manufacture of other non-metallic mineral products
othe	32	Other manufacturing
paper	17	Manufacture of paper and paper products
petro	19	Manufacture of coke and refined petroleum products
phar	21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
print	18	Printing and reproduction of recorded media
rubb	22	Manufacture of rubber and plastic products
text	13	Manufacture of textiles
toba	12	Manufacture of tobacco products
trans	30	Manufacture of other transport equipment
wear	14	Manufacture of wearing apparel
wood	16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

Annex A. 6. Correspondence between FDI activities and manufacturing industries

The classification by activity available at the Eurostat database does not directly correspond to the NACE classification. More than one activity can be assigned to some industries and vice versa. For a few industries, it is impossible to find a match. Therefore, some arbitrary choices had to be made. The table below shows the assumed correspondence between the 2-digit NACE Rev. 2 industries and the *FDI* activities.

If *FDI* can be assigned to a number of industries, it enters those industries as a self-weighted mean (higher number receives proportionally higher weight), since the probability of covering more industries seems to be proportional to the amount of investment. There is one more difficulty in using *FDI* to explain export performance at the industry level: *FDI* is calculated based on Eurostat data on inward foreign direct investment flows, which are available only in net terms. Thus, to do the log transformation (which does not accept negative values) an arbitrary constant has been added for observations:

$FDI_{cit} = \ln[fdi_{cit} - 1.1 \times \min(fdi_{cit})]$, where *fdi* is the country- (*c*), industry- (*i*) and year- (*t*) specific figure (self-weighted mean of original data for activities).

Consequently, the estimated coefficients should be interpreted with caution and not directly compared with elasticities of other variables. Prior to the transformation, the nominal figures from Eurostat have been deflated with the country-level deflators of the gross fixed capital formation in the whole economy from AMECO.

Table A 5

NACE Rev. 2 industry codes	FDI activity code	FDI activity names
10, 11	1605	Food products
13, 14	1805	Textiles and wearing apparel
16, 18	2205	Wood, publishing and printing
19	2300	Refined petroleum products and other treatments
20	2400	Manufacture of chemicals and chemicals products
20, 21	2423	Pharmaceuticals, medical chemical and botanical products
22	2500	Rubber and plastic products
24, 25	2805	Metal products
26, 27, 28	3295	Total office machinery, computers, RTV, communication equipments
26, 27, 28	3300	Manufacture of medical, precision and optical instruments, watches and clocks
29	3400	Motor vehicles
30	3500	Other transport equipment
32	3990	Miscellaneous manufacturing

Annex A. 7. Services included in the productivity indicator

The wage-adjusted productivity indicator is defined as the ratio of gross value added per person employed over average personnel cost, i.e. essentially: gross value added over total personnel cost (which consists of wages and salaries and employers' social security contributions). The data is sourced from the Eurostat Structural Business Statistics (SBS) dataset and available for 13 service industries and for the period until 2007 only (with a number of observations missing for some industries, countries, and years).

The table below shows the services industries included in the analysis. For three financial-related sectors (financial intermediation with auxiliary activities and insurance), the available data is too scarce (as regards country and time coverage)[147] to create a separate *PROD* variable for them. They only enter an aggregate version of the variable *PROD* for all services used in one of the regression specifications. Thus, this variant of *PROD* includes more information but may suffer from structural breaks (in terms of time series statistics). Therefore, to ensure the robustness of results, we estimate the regression also with an aggregate variant of *PROD*, which does not include the three financial sectors.

The I/O coefficients used in the analysis to link services as inputs with manufactures are calculated based on only the domestic flows in the latest I/O tables published by Eurostat for 24 EU Member States.[148] An important problem is that I/O matrices and the data on services are all based on the NACE Rev. 1.1 classification and need to be linked with NACE Rev. 2 industries.

In order to make the productivity coefficients correspond with the NACE Rev. 2 classification used in the main dataset, an official correspondence key is employed.[149] In addition, the following assumptions are made: for each two-digit NACE Rev. 1.1 industry only one corresponding two-digit NACE Rev. 2 industry has been picked, the one with the highest number of four-digit industries. If two or more Rev. 2 industries have the same number of four-digit industries, the whole two-digit NACE Rev. 1.1 is dropped. Subsequently, the weighted productivity coefficients have been averaged for each two-digit NACE Rev. 2 industry (thus dealing with cases where the same Rev. 2 code has been assigned to more than one Rev. 1.1 codes). As a result of imperfect matches between the two classifications and due to the applied procedure, four two-digit NACE Rev. 2 sectors are missing.[150] Two of them, considered easier to proxy, are assigned *PROD* of the similar industries which are likely to use similar mix of services.[151]

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[147]   For "financial intermediation", data for 2 years is available for 2 countries each (Lithuania and Latvia). For insurance, there is data for 3 countries: France (1 year), Latvia (5 years), Slovenia (1 year); in addition, data for Latvia appears to suffer from structural breaks. For activities auxiliary to financial intermediation, data is available only for Lithuania (1 year).

[148]   Bulgaria and Malta are not included because they present only supply and use matrices but not the symmetric I/O tables. Table for Cyprus is not available. The tables are for 2005, except for the Czech Republic (2000), Denmark (2004), Lithuania (1998), Romania (2006), and United Kingdom (1995). See: http://epp.eurostat.ec.europa.eu/portal/page/portal/esa95_supply_use_input_tables/data /workbooks

[149]   NACE Rev. 1.1 – NACE Rev. 2,

http://ec.europa.eu/eurostat/ramon/relations/index.cfm?TargetUrl=LST _REL_DLD&StrNomRelCode=NACE%20REV.%201.1%20-%20NACE%20REV.%202

[150]   Manufacture of beverages, printing and reproduction of recorded media, manufacture of basic pharmaceutical products and pharmaceutical preparations, and manufacture of furniture.

[151]   Manufacture of beverages receives the same values of *PROD* as manufacture of food products. For manufacture of basic pharmaceutical products and pharmaceutical preparations, *PROD* of manufacture of chemicals and chemical products is used as a proxy.

Table A 6

Short label	NACE Rev. 1.1	Full name
AirTrans	62	Air transport
Finance	65	Financial intermediation, except insurance and pension funding
Insurance	66	Insurance and pension funding, except compulsory social security
IT	72	Computer and related activities
LandTrans	60	Land transport; transport via pipelines
MachineRent	71	Renting of machinery and equipment without operator and of personal and household goods
OtherBusiness	74	Other business activities
OtherFinance	67	Activities auxiliary to financial intermediation
OtherTrans	63	Supporting and auxiliary transport activities; activities of travel agencies
R&D	73	Research and development
RealEstate	70	Real estate activities
Telecom_Post	64	Post and telecommunications
WaterTrans	61	Water transport

Annex A. 8. Average multiplier and services productivity growth for single countries

SK

UK

CZ

DE

DK

EE

EL

ES

164

FI

Average productivity growth (in %)

Average multiplier across manufacturing industries, countries, and time (in %)

R&D

IT

AirTrans
MachineRent

Telecom Post
RealEstate

LandTrans

OtherBusiness

WaterTrans

OtherTrans
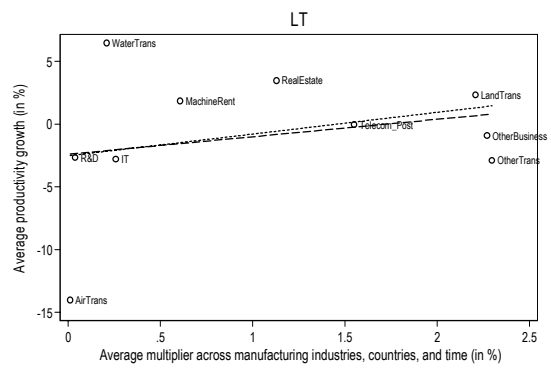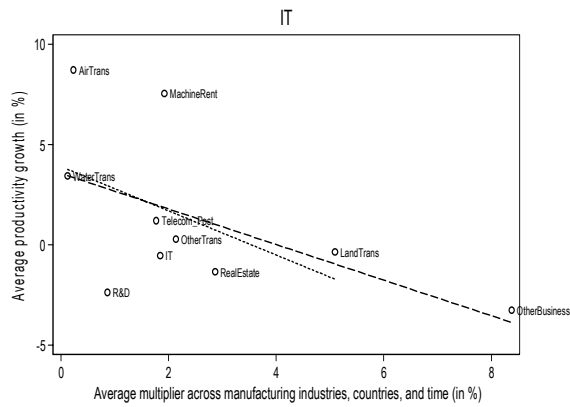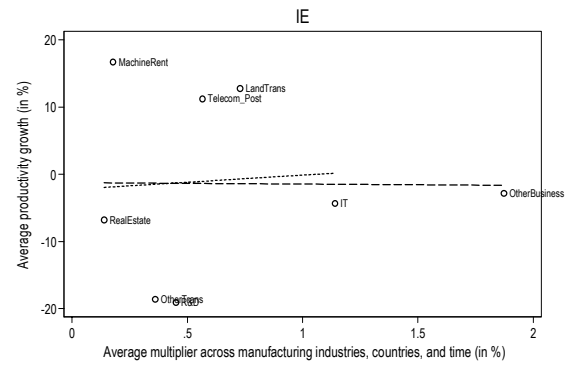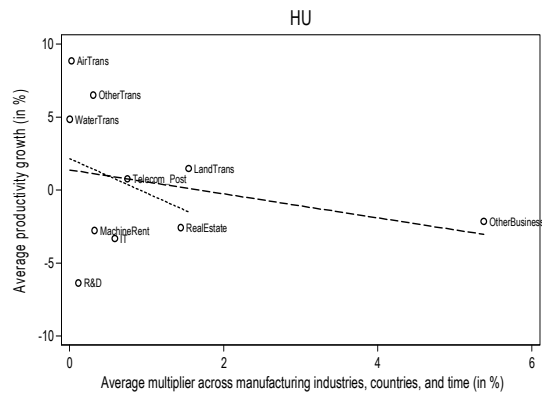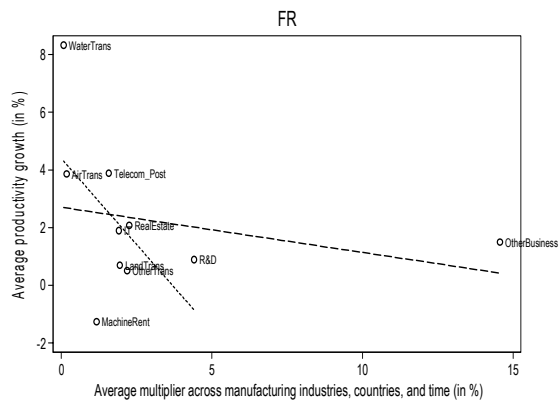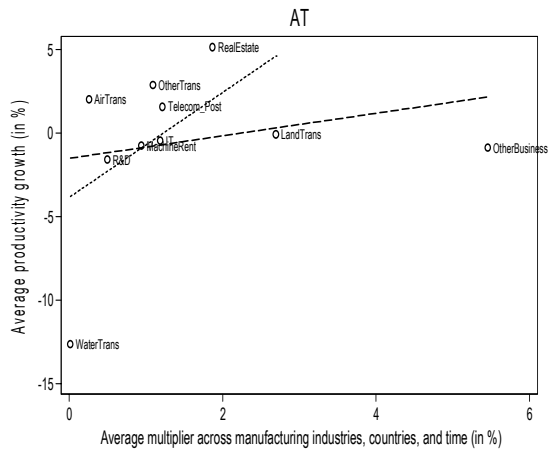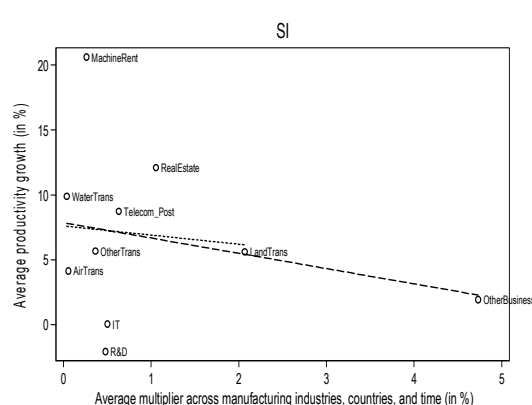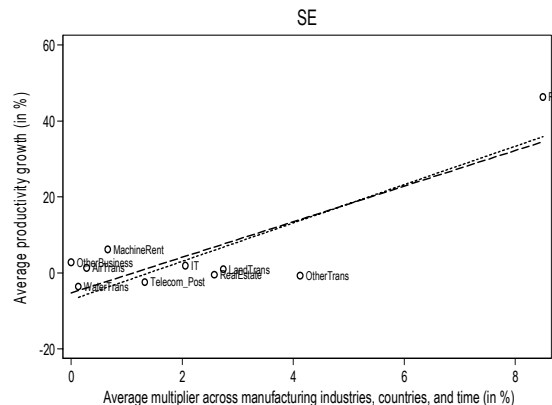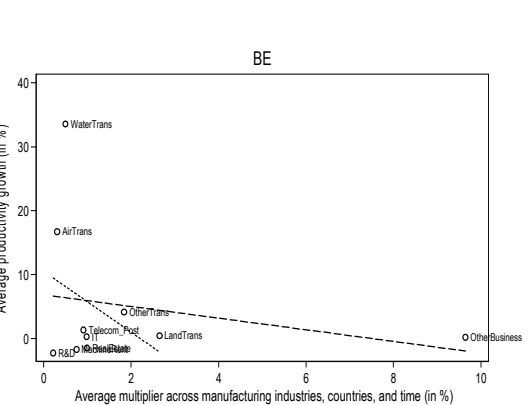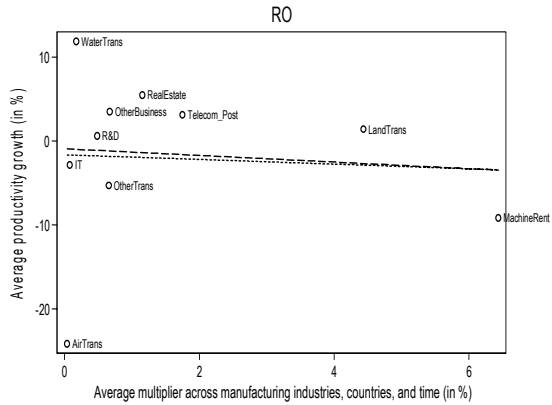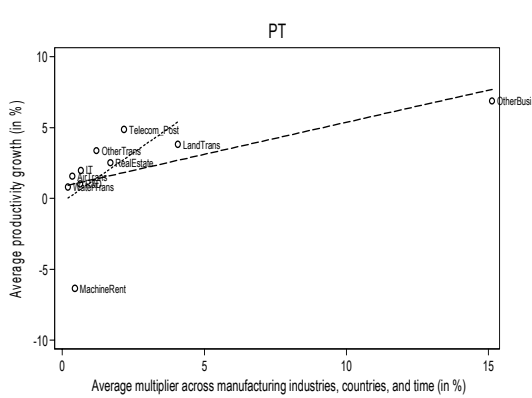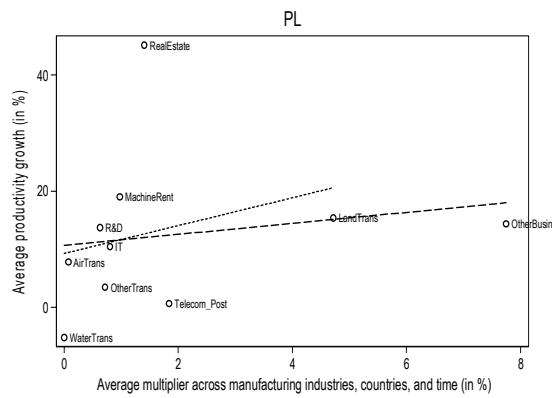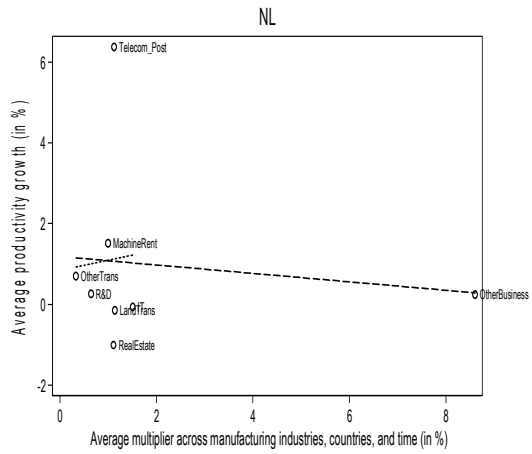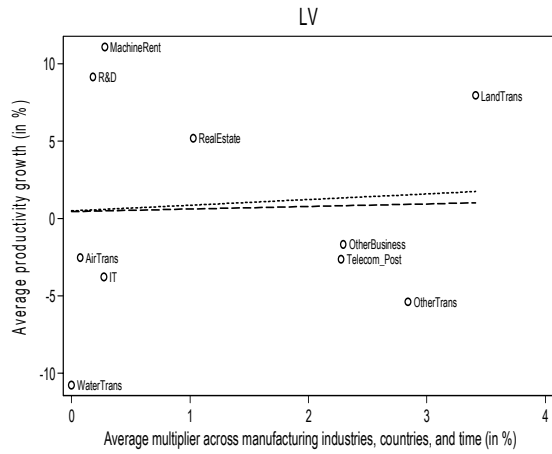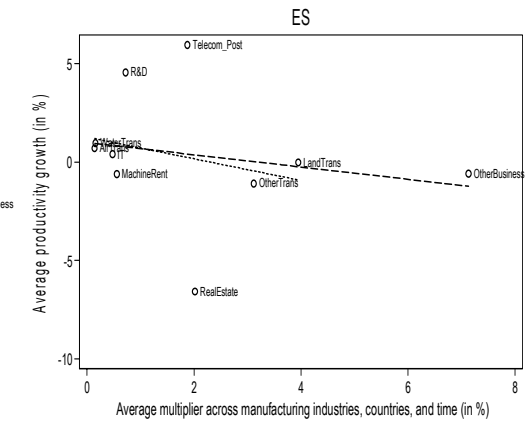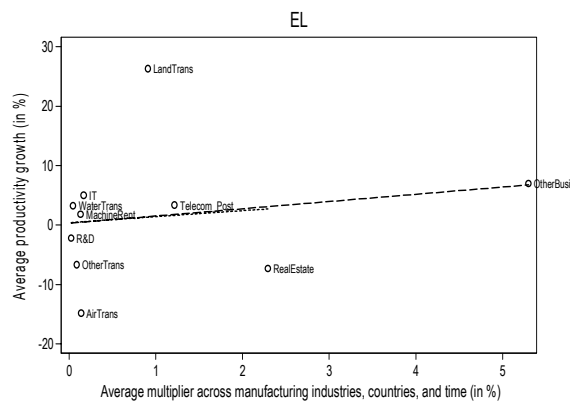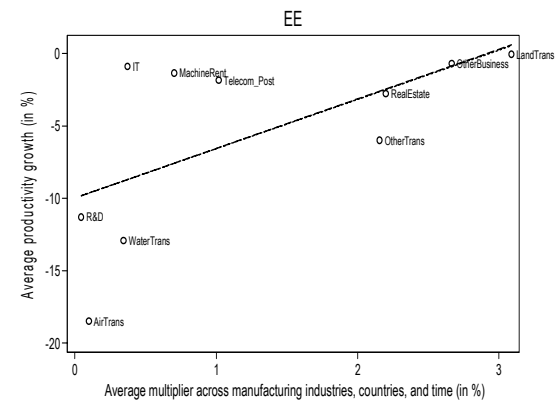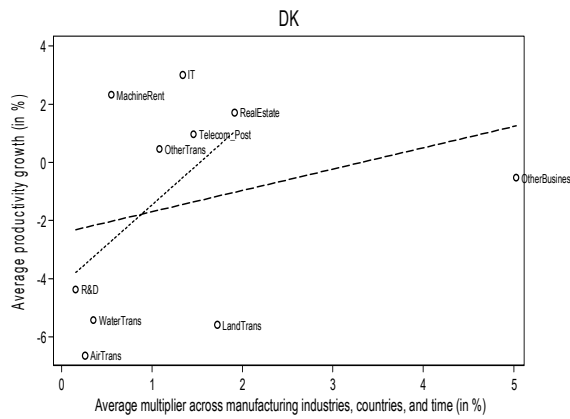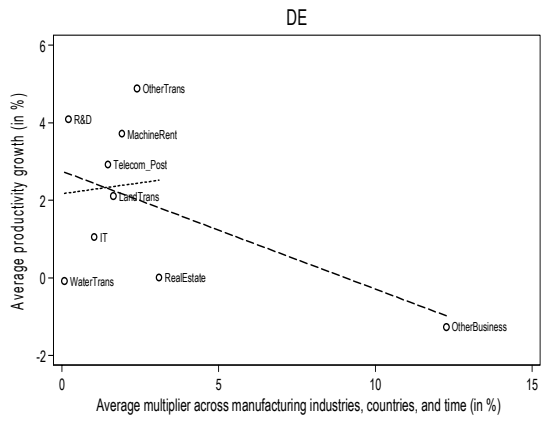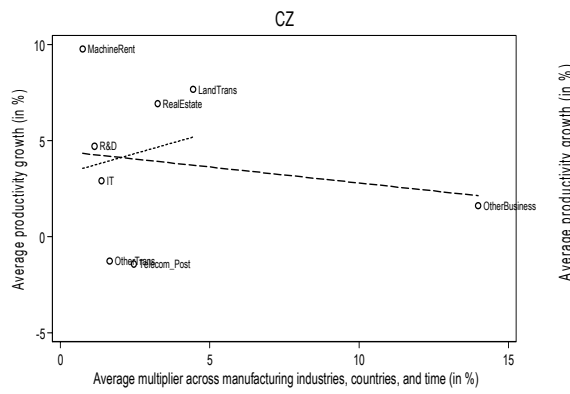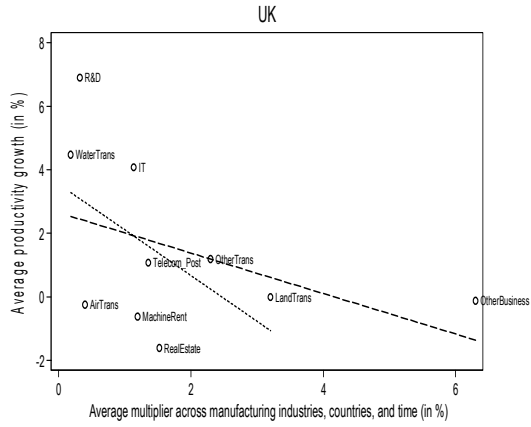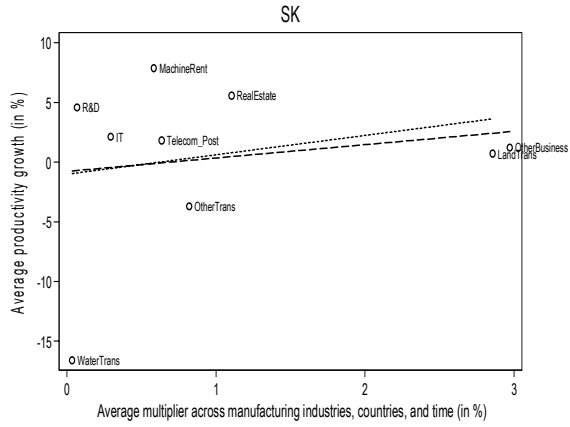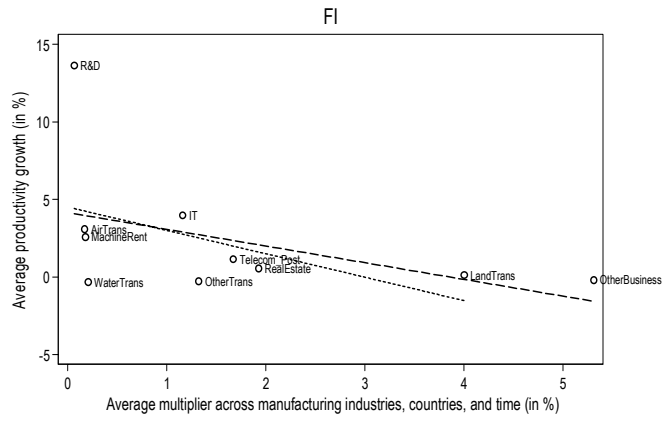
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2.3. Modelling the impact of product market reforms on current account (im)balances

In the European context, the primary benefit from structural reforms would be to establish open, competitive and well functioning markets with a high degree of flexibility in wages and prices, strengthening the resilience of the EU economies in the face of shocks. A contribution to reducing global imbalances would be an additional benefit.

While not a dominant driver of external balances, structural reform measures could impact the current account, especially in the short- to medium-run. It is useful to consider these impacts when designing structural policy agendas as some of the reforms could contribute to mitigating the existing imbalances, insofar as they address existing market malfunctioning and boost potential output. Evidence on this issue is relatively scarce, so additional quantitative analysis arising from economic models could cast more light on it.

2.3.1. The complex theoretical links between structural reforms and current accounts

From a theoretical point of views, the sign of the effect of a structural reform is typically ambiguous and will depend on whether the reform will provide a bigger stimulus to demand or supply. The results of the interplay of various transmission channels (e.g. exports, imports, savings, and investment and capital flows) are often uncertain as these channels can work in opposite directions. Moreover, the different effects materialise with varying time lags, which impacts the time profile of the overall effect on current account.

As different types of reforms affect the economy in different ways, the following text briefly outlines the main mechanisms that come to work in the main areas of reforms and how they are likely to interact. However, due to the large degree of uncertainty it should be kept in mind that this classification should only be considered as very tentative.

- *labour market reforms increasing effective labour supply* lead to a fall in the country's relative wages and prices, assuming less than fully elastic domestic demand for labour. This increases the profitability of labour and capital. As the relative fall in wages and prices is likely to affect trade flows faster than the improvement in relative profitability affects financial flows, these reforms may lead to a short term improvement of the current account.[152] Conversely, strict employment protection, a high minimum wage, and generous and unconditional unemployment benefits reduce the responsiveness of wages to unemployment. Low labour mobility hinders the reallocation of production factors across sectors and increases the burden of price and wage adjustment. Moreover, some features of wage formation processes can reduce wage flexibility and foster unit labour cost growth, and hence, real exchange rate appreciation, generating a worsening in current account.

- *product market reforms, e.g. reductions in product market regulation, reductions in administrative burdens or general improvements in business environment,* have ambiguous effects on the current account. On the one hand, such measures facilitate entry into domestic markets and thus investment, including from abroad. At the same time, product market reforms increase efficiency and in turn, permanent income which could lead to a decrease in the saving rate as households increase domestic consumption.[153] They could also increase the income elasticity of demand of imports, which will add to the pressures on the current account. On the

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[152] Kennedy, M. and Slok, T. "Are structural reforms the answer to global current account balances?". OECD Economic studies no. 41, 2005/2.

[153] This intertemporal expectation-based effect is probably weak in the EU.

other hand, increased efficiency in the allocation and use of resources boosts domestic competitiveness and tends to improve external balance through stronger exports. The overall effect depends on the strength and timing of these individual effects. As the competition-enhancing effects are likely to come with some delay, the initial impact of product market reform on the current account could be negative. This is particularly true for reforms targeting the non-traded sector of an economy. Obstfeld and Rogoff (2004), on the other hand, argued that reforms concentrated on the tradable sector could increase production of tradable goods over domestic consumption needs which should lead to an improvement in the current account balance.

- *financial market reforms* tend to boost investment and reduce savings, thus weakening the current account, at least in the short- to medium-run. On the investment side, such reforms stimulate the inflow of foreign capital and exert downward pressure on the price of capital. On the savings side, better functioning financial markets improve access of households to credit and lead to a reduction in the saving rate and an increase in consumption. However, to the extent that capital inflows lead to faster capital accumulation and a corresponding improvement in productivity and bolstering of competitiveness they could lead to strengthening of the current account in the longer-run.

- *reforms to stimulate knowledge and innovation*, e.g. increasing R&D spending, promoting innovation and upgrading human capital, tend to increase investment and attract inflows of capital which weakens the current account balance. However, these reforms could also improve the quality of products and services, increase non-price competitiveness and thereby reduce current account deficits.

2.3.2. Some insights from model simulations

The model simulations with the QUEST III model[154] indicate that the impact of structural reforms on reducing trade/current account imbalances is in most cases rather limited. Table 12 shows the effects of different types of structural policies on external balances.

- According to these simulations, product market reforms that reduce entry costs or administrative burdens would have a slightly negative impact on current account. On the other hand, effects of competition-increasing product market reforms leading to decreases in mark-ups would be positive and could be relatively important in the case of big reforms. If mark-ups in the final goods markets were reduced by 3 p.p., EU current account could improve by almost 1% of GDP in 10 years.

- The impact of labour market reforms on current account is also relatively small and generally positive, in line with theoretical reasoning. A reduction in wage mark-ups which would bring about 1 p.p. increase in employment rate would improve current account by 0.2% after 10 years. The effects of a 5 p.p. reduction in the unemployment rate replacement rate would be close to 0.5% (this shock is presumably rather large).

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[154] QUEST III is an estimated dynamic stochastic general equilibrium model which was developed in DG ECFIN and is used for policy analysis (for a description of the model see Ratto et al. (2009) and Roeger et al. (2009)). The QUEST III is suitable for the analysis of macroeconomic effects of structural reforms as it is a micro-funded model with full dynamics, whose equations are explicitly derived from intertemporal optimisation under technological, budgetary and institutional constraints. It also features nominal and real frictions, as well as financial frictions in the form of liquidity constrained households. It also incorporates semi-endogenous growth features and accumulation of human capital.

Table 12: Impact on current account balances of some policy instruments (empirical evidence)

Stylised policy impulse	Medium term effect (5 years)	Medium term effect (10 years up to 2020)		Long term effect (20 years)	*Comparing different shocks:* Reducing half of the average gap to the three best EU27 performer (effect after 10 years)		**Conclusion** (partly judgmental)
	QUEST III	QUEST III	OECD[155]	QUEST III	Avg. gap to 3 best	Measure to compare shocks	
Labour market (including labour taxes)							
Wage mark up reduction	0.00	0.18		0.39			
A 1 percent of GDP tax shift from labour to VAT, lump-sum tax	-0.02	-0.02		-0.08	17.7	0.1	+
1% of GDP tax shift from low to high skilled labour	-0.09	0.02		0.12	17.7	0.1	+
A 5 pp reduction in the benefit replacement rate	0.08	0.47		0.88	17.0	0.5	+
Reduction in NAIRU			-				**Unclear**
Product market							
A 1 pp level reduction of the final goods market mark-up	0.17	0.30		0.45	5.9	0.9	+
A 1 pp level reduction of the intermediate goods market mark-up	0.12	0.18		0.20	3.2	0.3	+
Reduction in PMR			-				-
10% reduction in intermediate firms' entry barriers	-0.02	-0.02		-0.02			-
10% reduction in final good firms' administrative burdens (overhead labour)	0.02	-0.01		-0.02			-
Innovation policies (including education/training)							
1pp tax-credit R&D subsidy to the non-liquidity constrained households	-0.12	-0.20		-0.25			-
0.1% of GDP wage subsidy to the R&D sector	-0.13	-0.22		-0.24			-
A 1 pp increase of the share of medium skilled workers	0.01	0.03		0.06	24.6	0.4	+
A 1 pp increase of the share of high skilled workers	-0.12	-0.20		-0.30	4.2	-0.4	-
Capital market							
Reduction of tangible capital costs of 50bp	-0.08	-0.12		-0.06			-
Reduction of intangible capital costs of 50bp	-0.09	-0.14		-0.14			-
Stock market capitalisation			-				-
FDI restrictiveness			-				-

Readings: "++" signals policy actions, for which the literature suggests with some degree of certainty a strong impact on growth (or fiscal and external imbalances). A "+" could suggest that the impact is less strong or more uncertain.

- In line with the theoretical reasoning, financial market reforms tend to worsen the current account as they increase investment and lower savings. Improved access to capital (modelled as

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[155] Kennedy, M. and Slok, T. "Are structural reforms the answer to global current account balances?". OECD Economic studies no. 41, 2005/2.

reductions in risk premia on tangible/intangible capital) leading to a drop in capital costs by 50 basis points would have a negative impact on current account of slightly above 0.1% of GDP.

- The effects of policies that promote R&D and innovation are typically negative, though of a relatively low magnitude. Not surprisingly, reductions in capital costs have a negative impact on current account due to inflow of capital but also in this case the size of the effect is small.

2.3.3. *The empirical evidence remains inconclusive*

In order to get a more rounded view of the impact of structural reforms on external imbalances it is also useful to see whether the theoretical assumptions and model simulations, which to a large extent rely on the theoretical structure of the model, are corroborated with the available empirical evidence. The existing empirical literature on the impact of structural reforms on the current account however does not provide conclusive evidence. Due to the fact that some transmission channels are working in opposite directions, different empirical approaches generate contradictory results at times. Kennedy and Slok (2005), using panel regressions to assess the impact of some structural results on current account, concluded that reforms in product and financial markets (measured by PMR indexes and changes stock market capitalisation respectively) have statistically significant negative (short- to medium-term) impact on current account balances. The results concerning the impact of labour market reforms are inconclusive. Some variables are not statistically significant (e.g. EPL, trend participation) while the impact of reducing NAIRU is significant but with a counter-intuitive sign, i.e. reduction in structural unemployment would lead to worsening of current account. Cheung, Furceri and Rusticelli (2010) also show that the quality of regulations has overall negative and statistically significant relationship with current-account balances. The negative relationship may be interpreted in several ways. For some countries it may reflect the "bypass effect" of capital flowing from emerging economies towards countries perceived to possess more efficient institutions. Additionally, improved institutions and financial markets lower the need for precautionary savings, thereby reducing current account balances. However, the relation is insignificant, when considering the industrialised countries only.[156]

The ambiguity of the (sparse) empirical evidence calls for further research on this issue. This is particularly relevant in the current economic context when external imbalances, after having been reduced due to the global slump, are likely to start re-emerging. Deeper knowledge of the effects of structural reforms on external positions will thus be crucial for devising effective policies to prevent external imbalances from widening to such extent that macroeconomic stability of a country would be compromised or smooth functioning of the euro area would be put in danger. In this respect, it needs to be borne in mind that empirical evidence needs to be interpreted carefully and specific situations of countries in question need to be taken into account:

- The interpretation of high imbalances is far from being obvious. For instance, current account deficits could be justified in catching-up economies by the need to invest (beyond the available national savings) to generate future economic growth and new incomes. The latter could allow an emerging economy to meet the inter-temporal balance of its current account. Therefore, current account imbalances at one point in time are not a reason for policy

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[156] Cheung, C., D. Furceri and E. Rusticelli (2010), "Structural and Cyclical Factors behind Current-Account Balances", OECD Economics Department Working Papers, No. 775, OECD.

intervention *per se* unless they reflect market malfunctioning, are unsustainable or could lead to a disorderly adjustment, with negative spill-over effects.[157]

- A potential weakness of the existing empirical evidence is that it concentrates on average effects or effects when economies are close to the steady state. Many studies assume that countries are initially placed on their balanced growth path. The effects of reforms on external balances could therefore be stronger in countries which suffer from very high imbalances in the first place, despite scarce empirical evidence. Often in this case, there is a need to reallocate resources across sectors, e.g., towards the tradable sector of the economy.[158] Unfortunately in the presence of regulatory rigidities, the relative price of non-tradables may not fall enough (adjustment via prices) and/or resources may not move sufficiently across sectors (adjustment via quantities). Biroli, Mourre and Turrini (2010) confirm that labour and product market institutions/regulations, notably those affecting price and wage nominal flexibility and employment protection, hamper the adjustment in price competitiveness. A slower reaction of the latter will delay the correction of current account imbalances, induced by cyclical divergences or different reactions to shocks. These rigidities are particularly damaging in euro area countries with large external imbalances and weak competitiveness position, as they can no longer count on exchange rate devaluations.[159].

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[157] In this respect, adjustment may require changes in the real exchange rate, in domestic relative prices (i.e., the relative price of non tradables to tradables) as well as in labour and product market institutions.

[158] The 2008 competitiveness report shows that current accounts and real exchange rates are also connected via changes in the allocation of internal resources and demand. The 2008 report finds that the non tradable component of the real exchange rate accounts for a significant share of observed fluctuations in real exchange rates. Moreover, it also concludes that developments in the current account are much easier to explain when non tradable prices are taken into account. To illustrate, consider a rise in the relative price of non tradables. This rise leads to increased demand of tradable goods and shifts supply to the non tradable sectors, hence deteriorating the current account balance.

[159] Biroli, Mourre and Turrini (2010), "Adjustment in the euro area and regulation of product and labour markets: An empirical assessment", paper presented at the annual conference of the European Economic Association, 23-26 August 2010, Glasgow, UK.

3. KNOWLEDGE INVESTMENTS AND INNOVATION - INSIGHTS ON THE DETERMINANTS OF REFORMS

3.1. Introduction

R&D and innovation are increasingly acknowledged as the main drivers of economic growth, jobs and social welfare. Being at the core of the growth policy agenda, it is not surprising that many policy initiatives have been registered in the field of R&D at the European level and in many European Member States under the framework and objectives identified by the Lisbon strategy. Nevertheless, the ambitious 3% R&D target, 2/3 of which should be funded by businesses, had still not been reached by 2010, which is why the European Council has maintained it as an objective in the new Europe 2020 strategy.

The latest available data for the EU-27 indicates that Europe remains far from the target: overall R&D spending represented 1.9% of EU-27 GDP in 2008 (for comparison, the latest figures were 2.67% in the USA and 3.4% in Japan in 2007). However, although extremely important, R&D investments represent only part of the overall performance of Europe's research and innovation system. Education and innovation need to be added as they represent the other two vertices of the so-called "knowledge triangle", a concept which identifies the interactions and complementarities between different policy areas in support of the broader concept of the "knowledge economy".

Europe's gap with the USA is even wider in education expenditure. Investments in tertiary education represented only 1.2% of EU-27 GDP in 2007 (5.2% for total education) compared to 3.1% in the USA (7.6% for total education).

Finally, some evidence on innovation performance - although innovation data are less comparable across different countries than R&D and education data - indicates that Europe badly needs to increase its effort in sustaining the exploitation and commercialization of its inventions. Various policy initiatives could improve the situation in this vertex of the knowledge triangle, such as reform of the European patent system, better access to finance for young innovative companies and strengthening of the internal market for innovation - all policy actions envisaged under Europe 2020.

This chapter reviews the performance of EU Member States and their reform record in the "knowledge economy" domain . It also provides an empirical assessment of the factors affecting a country's propensity to engage in market reforms. The aim is to shed some light on the underlying factors and complementarities driving reforms in the area of R&D, innovation and education. In particular, data on R&D, education investments and innovation performance are matched with data on reform measures registered in the European Commission's MICREF database which systematically records product market reforms adopted by Member States. In this way, the chapter seeks to extend the understanding of the influences that may drive structural reforms in the "knowledge economy". As a first attempt in this direction[160], the chapter is mostly empirical with a focus on specific economic factors beyond the control of governments (such as the business cycle) - although the empirical analysis may be extended to include some factors endogenous to the political process itself (at least in the medium / long run, such as the debt level or the tax burden in the economy).

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[160] To the author's knowledge, there are no other empirical papers dealing with the determinants of reforms in the area of R&D, education and innovation.

3.2.   A Rationale for Reforms in the area of R&D, Education and Innovation

There is a widespread consensus recognising R&D as the main engine of long-run economic growth (Romer, 1990). R&D activity generates new knowledge (inventions) which is then transformed into commercially-viable innovations (the development stage of the R&D process). These innovations diffuse through the economy (by being adopted by consumers and imitated by firms) and so induce a long term positive effect on economic growth (Schumpeter, 1934)[161]. This is the main reason why public authorities take an active role in stimulating a country's R&D system by providing the type of infrastructure and institutional framework that supports innovation activity.

In addition, R&D has specific characteristics which make it different from other types of profit-motivated investments. For example, R&D is characterized by indivisibilities and economies of scale that create strong incentives for firms to monopolize markets. Moreover, the uncertainty inherent to innovation itself makes R&D activities highly risky from a firm's perspective[162]. This uncertainty, together with asymmetric information about the ultimate nature of the R&D investment, makes it more difficult for firms - especially in the current economic conditions - to obtain external financing. Finally, the partial non-excludability of R&D undermines private incentives to invest in it (Jones and Williams, 1998; Aghion and Howitt, 1992)[163], and private returns to investment in R&D are less than the social returns of the investment, so government policies try to promote R&D in order to increase R&D investments to their socially desirable level[164].

Indeed, both the current economic slowdown and the gap between the 3% target and the actual R&D performance of European countries make "R&D and innovation" one policy field where government policy has been very active. The former requires policy initiatives designed to counteract any possible slowdown in R&D - especially in the private sector - and, thus, preserve the knowledge base built up over recent years. The latter is reflected by policy initiatives taken within the context of the Lisbon/Europe 2020 strategy which try to create a situation in which the standard TINA - There Is No Alternative[165] - argument applies to the evolution of long-term R&D. Financial measures such as the expansion of direct public R&D investments and/or more generous schemes of fiscal incentives for business R&D offer a measurable outcome but have become much more difficult to maintain against a background of difficult economic conditions and the need for fiscal consolidation. This is the reason why different Member States often engage in a policy mix of financial and institutional reforms – the latter being aimed at increasing the overall efficiency/effectiveness of national research systems (see below).

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[161] Endogenous growth theory extends Solow's framework (1956 and 1957) by providing a formal link between the creation of knowledge (Romer, 1986), the accumulation of human capital (Lucas, 1988) and economic growth. Amongst others, the relationship between technological change and growth is discussed by Mankiw *et al.* (1992), Sala-i-Martin (1997) and Helpman (1988). For a review of the literature on technological change and growth, see Conte (2006).

[162] In particular, the additional "technological uncertainty" embedded in the innovation itself, together with the common "market uncertainty" faced by firms acting in markets, makes R&D activities highly uncertain and risky from a firm's perspective.

[163] A crucial determinant of this outcome is the role played by technological "spillovers" (Mansfield, 1985; Jaffe, 1986; Acs *et al.*, 1994).

[164] Market failures in R&D can be addressed either directly (i.e. by targeting them at their source) or by influencing the incentives (i.e. via the IPR regime) faced by private actors (Goolsbee, 1998; Hall and Van Reenen, 2000; Martin and Scott, 2000).

[165] This means that higher policy activity should be registered in those policy areas - such as R&D - where targets are clearly defined and any lag in actual performance generates incentives for active policy.

The argument for government to take an active role in supporting educational investments follows similar lines. Educational externalities are benefits from the education of individuals that benefit others in current and future generations. They are over and above the private benefits taken into account by individuals when deciding how much to invest in education. The externality benefits are the main rationale, on efficiency grounds, for public support of education. Increases in the overall level of education can benefit society in ways that are not fully reflected in the wages of educated workers, partly because of labour and product market imperfections. Human capital spillovers may increase productivity over and above the direct effect of education on individual productivity[166].

A large literature has built on this idea, proposing models where human capital externalities are the main engine of economic growth, especially in new growth theories and recent neoclassical growth theories by Romer and Lucas. Lucas (1988) argues that human capital externalities in the form of learning spillovers may explain long-run income differences between rich and poor countries. Human capital may continue increasing even without an increase in educational attainment, because human capital adds to a public body of knowledge. Romer (1990) assumes that the growth of productivity depends on the stock of human capital (the existing stock of ideas and the number of people employed in the R&D sector, devoting their time to the accumulation of new ideas). The human capital used in the R&D sector to stimulate innovations is relevant to countries at the technology possibility frontier, while in other countries, the average level of education available to facilitate the dissemination of technology is likely to be much more relevant. Education also has an indirect effect on productivity and employment through the quality of institutions that may be considered a component of social capital and the well-being of individuals and societies (de la Fuente and Ciccone, 2002). De la Fuente (2003) estimates that an additional year of average school attainment raises productivity in the average EU country by 6.2% and by a further 3.1% in the long-run through the contribution of faster technical progress. Nicoletti *et al.* (2003) find that higher skill levels have a positive impact on total factor productivity (TFP) growth, although the effect is not always significant. Vandenbussche *et al.* (2007) analyse aggregate TFP determinants in a panel of OECD countries and show that high-skilled human capital has a positive effect on TFP growth. The effect is stronger the closer a country is to the world technology frontier.

All the contributions mentioned above underline the positive linkage between research, education, innovation, and economic growth. This provides the framework for investigating when and why governments intervene in support of the three vertices of the knowledge triangle. Indeed, there are several contributions in the political economy literature which investigate the determinants of policy reforms across countries (Fernandez and Rodrik, 1991; Duval and Elmeskov, 2005; Hoej *et al.*, 2006). Most of these studies adopt a general approach to the determinants of reforms by testing different sets of economic and political variables. On the contrary, this chapter is one of the few adopting a policy field-specific approach (namely, the knowledge triangle). As a result, it is able to focus the choice of the determinants more on indicators specific to the knowledge triangle rather than on more general institutional aspects (i.e., governance of public funding) which will be discussed only marginally.

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[166] Furthermore, increases in education may also reduce criminal participation and improve voters' political behaviour. Higher levels of education may also result in better health for educated individuals and their children. If parental education indeed improves child health, then the total benefits from human capital accumulation are certainly not captured by private estimates of the (monetary) returns.

3.3.   Member States' Performance in the Knowledge Triangle

This section describes the main features of the research, education and innovation system across different EU Member States and the overall EU performance in comparison to other major economies (i.e. the USA, Japan and China)[167].

3.3.1. Research

EU27 R&D intensity (R&D expenditure as a share of GDP) in 2008 stood at 1.90%, considerably lower than R&D intensity levels in the USA (2.62%) and Japan (3.44%)[168]. Over the last 5 years, Europe has registered no growth of R&D intensity compared to a (small) positive trend in the USA, more marked growth in Japan and a strong catching-up process in China (+27%) where - although overall R&D intensity is still lower (1.44%) than in the EU - the volume of R&D investment has more than doubled over the last 5 years[169].

R&D intensity varies across Europe (see Figure 48). Seven Member States had R&D intensity levels above the EU27 average in 2008. Finland and Sweden were the only Member States with R&D intensity above 3%. Most countries - especially those which joined the EU in or after 2004 - have been catching-up in terms of R&D intensity whilst France, Luxembourg and the Netherlands - although close to the EU average – have recorded negative R&D intensity growth over the last 5 years.

The composition of R&D investment is very different across countries (see Table 13). 55% of total R&D across the EU27 is funded by private sources (compared to 66% in the USA and 77% in Japan). Values within Europe range from Cyprus and Lithuania (16% and 21% respectively) to Finland and Luxembourg (above 70%).

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[167]   Appendix 2 describes the main indicators used in this chapter.

[168]   Data for USA and Japan refer to 2007.

[169]   Although R&D intensity may show decreasing returns to scale, a linear extrapolation of EU and Chinese trends would indicate China possibly catching-up with the level of European R&D intensity by the middle of this decade.

Figure 48. R&D investment as a % of GDP
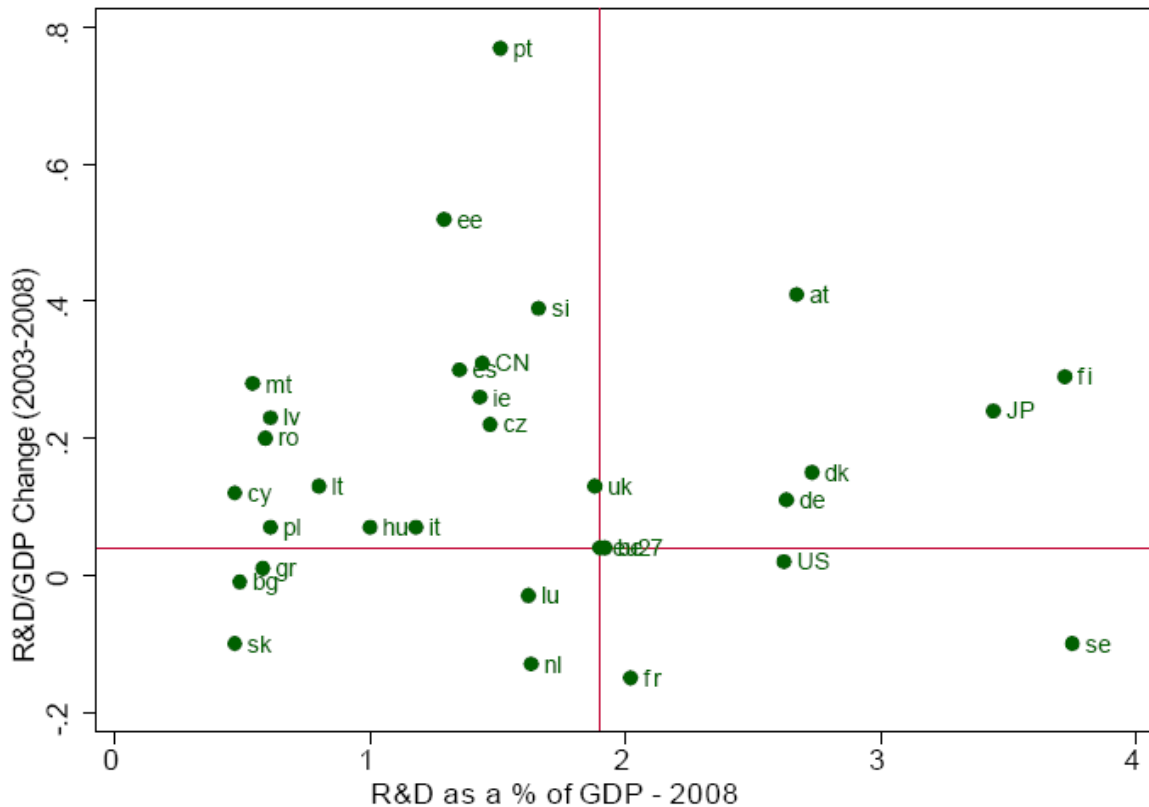
R&D performed by the business sector is steady at 1.21% of EU27 GDP - the same intensity registered in 2001. Moreover, international comparisons reveal that the European R&D gap with the USA and Japan - as well as its gap in growth compared to China - is mostly due to its private component rather than its public one (see Figure 49). The gap in government-funded R&D between the EU27 and the USA accounts for only 0.04 GDP points (China has the same level of government-funded R&D intensity as the USA) whilst the gap in business sector funding increases to 0.67 GDP points. The business sector is also responsible for the gap in R&D personnel between the EU27 and other major economies. Although the number of researchers in the EU (2.4 million FTE in 2008) has been increasing at a faster rate than in the USA and Japan, the EU's share of researchers in the total labour force still lags behind. Indeed, R&D personnel as a percentage of total employment was 1.11% in the EU in 2008 (45% in the business sector; 45% in the Higher Education sector), compared to 1.46% in Japan (61% in the business sector; 42% in the Higher Education sector). The difference is mostly due to a lower share of researchers in the business sector.

Given the relative importance of private R&D – as discussed in Section 2 - supporting private investment is a crucial objective of the Europe 2020 strategy and one policy area where major political initiatives have been taken by the EU. In particular, there has been a general trend towards more fiscal incentives than direct subsidies in many European Member States. More specifically, some countries chose to strengthen the whole portfolio of policy instruments by maintaining or even increasing their level of direct funding (e.g., Portugal, Spain, the United Kingdom) while keeping generous R&D tax incentives. On the contrary, some countries with high R&D intensities and a favourable business innovation climate (such as Finland, Sweden or Germany) have both low R&D tax incentives and low direct subsidies for R&D. The latest data indicate that support for R&D investment across

European Member States is very heterogeneous – ranging from relatively unfavourable treatment of R&D in Italy and Germany to generous tax treatment in Spain and Portugal[170].

Figure 49. R&D investment by the Business Sector as a % of GDP
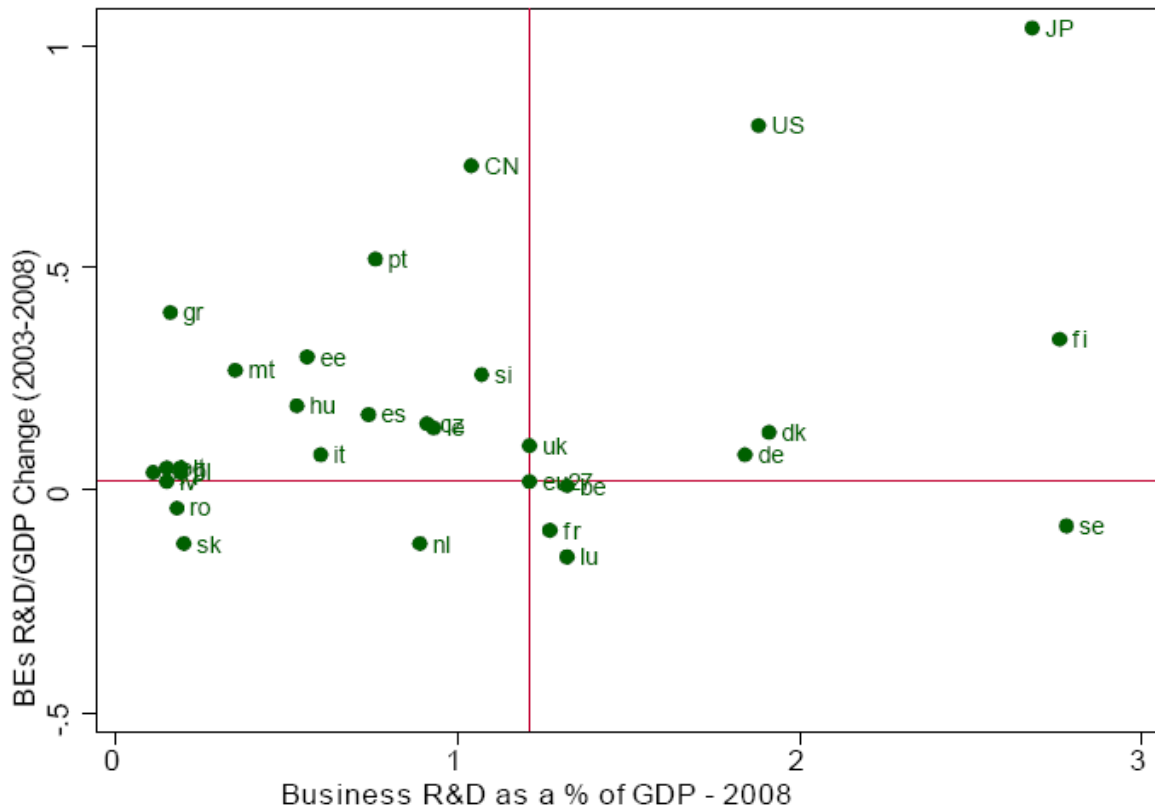
Beyond the business sector, the composition of Europe's R&D is more dependent on government-funded activity (33%) than in the USA (28%) and Japan (16%) while the relative weight of higher education funding is lower (0.9% versus 2.7% and 5.6% in the USA and Japan respectively). However, relative trends indicate (slow) substitution in recent years from the former to the latter source of R&D funding in Europe.

The relative institutional and funding balance between government- and higher education-funded R&D illustrates the existence of different governance features of national research systems across the EU 27. For instance, the former is very high in France and Hungary, the latter is dominant in Sweden and Austria. Second, the relative role of public and private institutions in the higher education sector affects the volume of overall funding and research funding of tertiary education institutions.

The increased internationalization of European R&D is a trend worth mentioning. On average, about 9% of R&D across European Member States is funded by foreign sources. In turn, this is an important step in developing a more effective European Research Area as well as an important tool for promoting international cooperation and excellence across countries.

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[170]   Table 18 reports country data on subsidies and the "B-index". The former are proxied by the share of business R&D funded by government, the latter indicate the "before-tax income needed to break even on one dollar of R&D outlay". In other words, the lower the B index, the higher the relative generosity of tax treatment for R&D.

Table 13. Research Performance across Countries.

	R&D/GDP	% Business	%	% Higher Educ.	%	%	Subsidies	B
CN	1.44	70.40	24.60			1.30	0.05	
JP (07)	3.44	77.70	15.60	5.60	0.70	0.30	0.01	0.85
US	2.62	66.40	27.70	2.70	3.20	.	0.09	1.00
EU27	1.90	55	33.5	0.90	1.60	8.90	0.07	
at	2.67	46.30	37.20		0.40	16.10	0.10	0.92
be	1.92	61.40	22.20	2.80	0.70	13.00	0.06	1.01
bg	0.49	34.20	56.70	1.00	0.50	7.60	0.03	
cy	0.47	16.40	64.60	2.80	1.70	14.50	0.24	
cz	1.47	52.20	41.30	1.20	0.00	5.30	0.13	0.70
de	2.63	67.90	27.70		0.40	4.00	0.04	1.03
dk	2.73	61.10	25.30	0.30	3.60	9.70	0.02	1.01
ee	1.29	33.60	50.00	0.50	0.30	15.50	0.07	
es	1.35	45.50	43.70	3.30	0.50	7.00	0.16	0.56
fi	3.72	70.30	21.80	0.20	1.00	6.60	0.03	1.01
fr	2.02	50.50	39.40	1.30	0.80	8.00	0.12	0.86
gr (05)	0.58	31.10	46.80	1.70	1.50	19.00	0.06	1.01
hu	1.00	48.30	41.80		0.60	9.30	0.09	0.84
ie	1.43	49.60	32.20	0.40	1.90	15.90		0.95
it	1.18	42.00	44.30	1.30	2.90	9.50	0.07	1.03
lt	0.80	21.40	55.60	7.20	0.30	15.50	0.03	
lu	1.62	76.00	18.20	0.00	0.10	5.70	0.04	
lv	0.61	27.00	47.30	2.50		23.10	0.03	
mt	0.54	50.80	28.10	0.00	0.10	21.00	0.01	
nl	1.63	51.10	36.20	0.10	1.30	11.30	0.02	0.89
pl	0.61	30.50	59.80	4.10	0.20	5.40	0.12	0.98
pt	1.51	47.00	44.60	0.70	2.30	5.40	0.03	0.72
ro	0.59	23.30	70.10	2.60	0.00	4.00	0.39	
se	3.75	64.00	22.20	0.70	3.80	9.30	0.04	1.02
si	1.66	62.80	31.30	0.30	0.00	5.60	0.06	
sk	0.47	34.70	52.30	0.30	0.40	12.30	0.13	
uk	1.88	47.20	29.50	1.20	4.50	17.60	0.07	0.90

Note: R&D data are disaggregated across countries by four macro-sectors (business, government, higher education, private non-profit). In some countries, they refer to the latest available year

3.3.2. Education

Expenditure on higher education as a percentage of GDP is much higher in the USA (3.1%) than it is in the EU27 (1.2%), largely as a consequence of relatively massive private sector funding of education in the USA (1.8% of GDP compared to 0.2 % in the EU), mostly due to higher student fees and philanthropic contributions. Such a gap accounts for most of the gap in total education expenditure indicated in Table 14. This gap in financing tertiary education has some effects on the perceived performance and quality of higher education institutions. Europe has fewer universities that act as major research centres of large scientific size and impact compared to the USA and a lower share of contribution to the 10 % most cited scientific publications[171]. However, expenditure on higher education as a percentage of GDP also varies considerably across the EU27 (see Figure 50).

Figure 50. Tertiary Education Expenditure as a % of GDP (US excluded)

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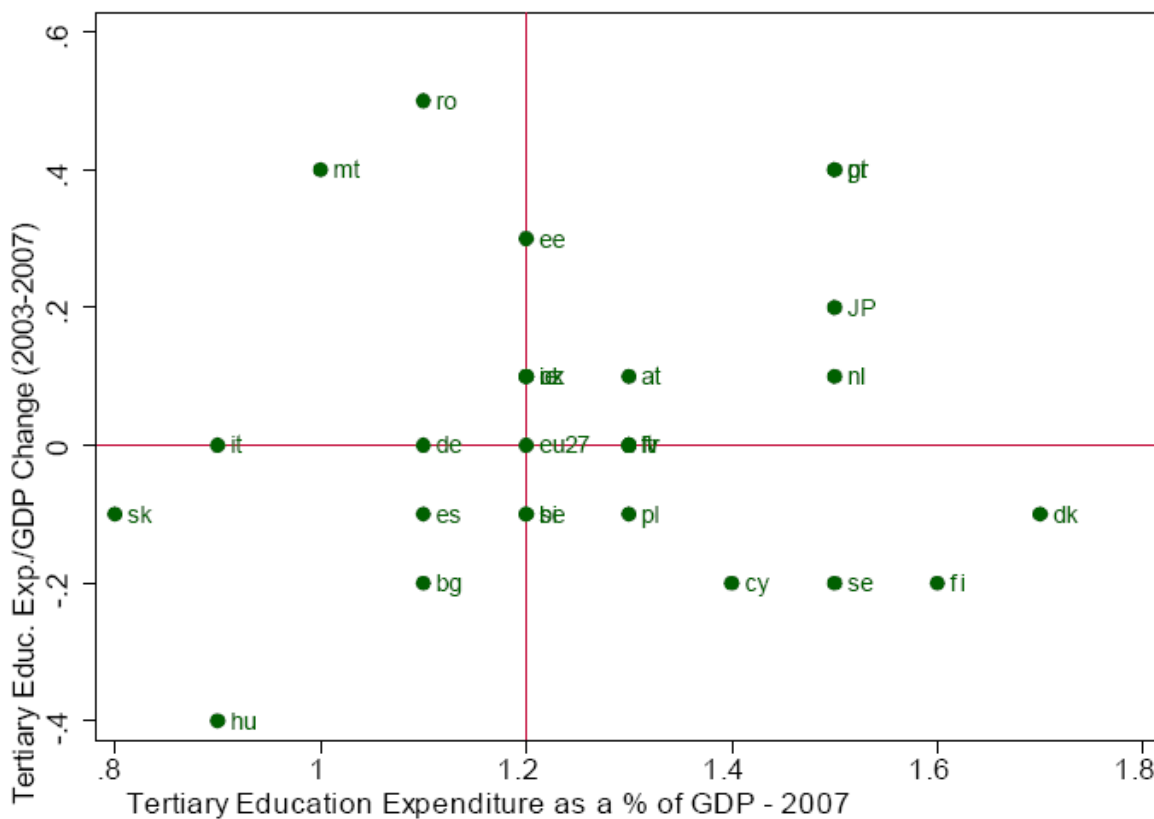
171   However, European countries are increasingly reforming their national research systems, opening up to international cooperation, increasing the share of public research expenditure allocated to universities, shifting funding models to more competitive and output-based university funding and increasing institutional autonomy for higher education institutions (European Commission's ERA Key Figures 2009; St. Aubyn *et al.*, 2009).

Table 14. Education Performance across Countries

	EDUCATION (latest data: 2007)			
	Education/GD	**Public Education/GDP**	**Private**	**Tert.**
CN	.			.
JP	4.90	3.45	1.64	1.50
US	7.60	5.29	2.58	3.10
EU27	5.20	4.96	0.72	1.20
at	5.40	5.40	0.48	1.30
be	6.10	6.02	0.34	1.20
bg	4.20	4.13	0.62	1.10
cy	7.20	6.93	1.27	1.40
cz	4.60	4.20	0.51	1.20
de	4.70	4.50	0.69	1.10
dk	7.10	7.83	0.53	1.70
ee	4.90	4.85	0.32	1.20
es	4.80	4.35	0.61	1.10
fi	5.60	5.91	0.14	1.60
fr	5.90	5.59	0.53	1.30
gr	4	.25	4.2	1.5
hu	4.90	5.20	0.54	0.90
ie	4.60	4.90	0.24	1.20
it	4.40	4.29	0.40	0.90
lt	4.90	4.67	0.45	1.30
lu	3.10	3.15		.
lv	5.30	5.00	0.56	1.30
mt	6.70	6.31	.38	1.00
nl	5.50	5.32	0.90	1.50
pl	5.30	4.91	0.50	1.30
pt	5.60	5.30	0.46	1.50
ro	.	4.25	.50	.
se	6.20	6.69	0.16	1.50
si	5.50	5.19	0.73	1.20
sk	3.90	3.62	0.53	0.80
uk	5.70	5.39	1.75	1.20

3.3.3. Innovation

Among the different technological and non-technological features that characterise European innovation performance, the issue of knowledge creation - the inventive capacity of an economy - generally deserves high political attention (van Pottelsberghe and Danguy, 2009). Europe' patent intensity, defined as the number of patent applications in terms of GDP, is lower than it is in Japan and the USA (see Table 15). Although data are not fully comparable with the USA owing to different institutional settings between the European Patent Office (EPO) and the equivalent US office (USPTO), the gap indicates the need to intervene to enhance the inventive capacity of the European economy[172]. This is mostly due to an unfavourable sector specialization of the European economy which, in turn, implies lower level of business R&D, lower specialization in high technology (and high patenting) fields such as pharmaceuticals, computers, office machinery, telecommunications and electronics than in medium technology fields such as general machinery, machine tools, metal products and transport (JRC, 2009) as well as lower employment shares in science and technology across EU countries (Table 15).

Innovation is a multifaceted phenomenon. It encompasses many different policy aspects related to R&D and education; but it also involves finance, firm investments, entrepreneurship, knowledge commercialization and diffusion. The innovation performance of an economy therefore depends on economic factors which go beyond the pure technological dimension, such as market structure and the nature of competition in product and labour markets. These dimensions are integrated and complementary[173].

A broader look at innovation performance in Europe is offered by the European Innovation Scoreboard which provides a composite indicator of different innovative dimensions. Among these dimensions, Table 15 reports data on three aspects: "Finance and support", namely the availability of finance for innovation projects and the support of governments for innovation activities; "Linkages & entrepreneurship", namely entrepreneurial and collaborative efforts amongst innovating firms and the public sector; and "Outputs", which captures the economic success of innovation in employment, exports and sales due to innovation activities as well as the number of firms that have introduced technological and non-technological innovations onto the market or within their organisations. As expected, data varies across countries. However, leading innovative countries score well in all these three dimensions, highlighting the complementarity between different dimensions of innovation.

The ultimate value-added of innovation is the exploitation of results obtained by pre-market research and development. The commercial exploitation of successful innovations is the goal and stimulus of business R&D. Promotion of the single market is a major tool for opening up business to international competition and generating a wave of market-induced innovations in Europe. Enhancing business R&D in Europe therefore goes hand in hand with the advancement of the single market and the establishment of the European Research Area. Conversely, an important dimension for stimulating growth and evaluating the health of the Single Market in Europe is to assess the extent of technological diffusion in Europe.

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[172]   Patent applications for Japan refer to the EPO. Indeed, although the so-called "home bias" in favor of the EU, Japan displays a higher patenting ratio.

[173]   In turn, this makes innovation data more difficult to process and to compare across countries than data on R&D and education. Moreover, some of these aspects are not comparable across countries due to a lack of available data.

The share of companies in the EU demonstrating innovative behaviour (via the introduction of new or improved products, processes, services, marketing methods or organisational changes) stood at about 50% in 2006, but only 25% of such companies introduced new goods or services in other non-domestic national markets within the EU, thus failing to take full advantage of the single market. Enhancing the single market would have a positive effect not only on innovation diffusion but also on the commercial exploitation of innovations introduced into markets (% of turnover due to the introduction of innovations in the market - see last column of Table 3). Half of Europe's innovative firms rely on the development of innovation through collaboration with other enterprises/institutions or by direct acquisition from other innovative firms. In other words, innovation diffusion is crucial to the enhancement of many European firms' innovative capacity. At the country level, there also appears to be a positive relationship between the capacity to innovate directly and the "absorption" of innovation developed elsewhere (Cohen and Levinthal, 1990), as indicated in Figure 51[174].

Figure 51: Innovation and Adoption rates by countries

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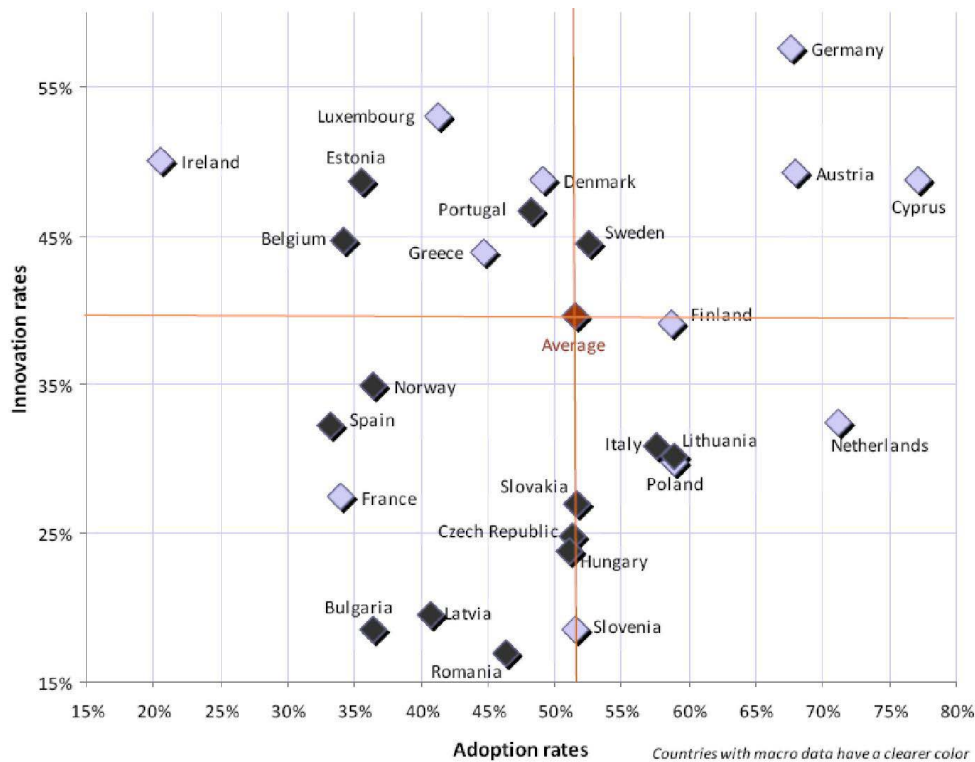
[174] Data allows innovative products (i.e. final goods / knowledge assets) to be distinguished from innovative processes (i.e. machinery). For all countries, it is not surprising to find that the adoption rate is higher in the case of process innovation (46%) than product innovation (32%). Indeed, the former encompasses mostly embodied technology which is more tradable than e.g., intangible assets.

Finally, Table 16 provides some data on macroeconomic indicators useful for assessing the relative position of a country and the potential benefit of enhancing its innovation system. A better innovation performance may enhance a country's export and investment capacity as well as increase overall productivity. There is a productivity gap with the USA as well as wide differences between both productivity levels and productivity growth rates across the Member States.

Table 15. Innovation Performance across Countries

	% Empl. in S&T (2008)	INNOVATION (latest data in parenthesis)			Pat/ GDP (2007)	Pat/ GERD (2007)	% Prod. Innov. (2006)	% Innov. Turnover (2006)
		EIS Finance & Support (2008)	EIS Linkages & Entrepren. (2008)	EIS Outputs (2008)				
JP	.	.	.	.	6.46	.	.	.
US (USPTO)	.	.	.	.	8.42 (04)	.	.	.
EU27	.	.	.	.	4.67	252.06	.	0.66
at	38.60	0.47	0.70	0.55	6.64	261.67	0.55	0.79
be	48.70	0.51	0.66	0.55	4.39	231.48	0.51	0.64
bg	.	0.32	0.05	0.24	1.00	207.87	0.60	0.39
cy	44.20	0.53	0.63	0.52	0.56	126.75	0.33	0.71
cz	38.30	0.33	0.38	0.55	1.27	83.02	0.51	0.62
de	46.90	0.49	0.57	0.76	9.85	389.21	.	0.90
dk	52.80	0.64	0.71	0.47	4.66	182.28	0.44	0.69
ee	45.40	0.51	0.56	0.46	1.50	134.64	0.48	0.70
es	41.70	0.59	0.25	0.45	1.38	108.74	0.36	0.70
fi	51.30	0.63	0.61	0.53	7.37	211.97	0.48	0.82
fr	44.60	0.56	0.41	0.56	4.44	217.67	.	.
gr	32.30	0.32	0.43	0.58	0.48	83.41	0.46	0.73
hu	35.10	0.31	0.32	0.38	1.71	176.65	0.53	0.63
ie	43.20	0.51	0.48	0.58	1.52	118.40	.	0.75
it	36.60	0.41	0.24	0.45	3.30	280.13	.	0.62
lt	43.90	0.38	0.34	0.25	0.29	35.13	0.46	0.60
lu	46.70	0.54	0.35	0.56	2.93	185.26	0.58	0.80
lv	41.70	0.38	0.18	0.16	0.91	152.63	.	0.42
mt	33.50	0.45	0.07	0.46	1.53	262.12	0.58	0.60
nl	51.10	0.61	0.52	0.44	6.43	375.88	0.55	0.60
pl	.	0.22	0.18	0.35	0.47	82.51	0.49	0.60
pt	23.90	0.46	0.32	0.46	0.74	61.45	0.47	0.64
ro	24.60	0.18	0.27	0.43	0.17	32.29	0.55	0.48
se	.	0.76	0.61	0.57	8.21	227.71	0.56	0.66
si	.	0.50	0.39	0.53	2.99	206.73	0.58	0.65
sk	34.40	0.25	0.23	0.43	0.77	167.60	0.51	0.58
uk	43.70	0.74	0.63	0.39	2.65	145.96	.	0.35

Table 16. Main Economic Indicators across Countries[175]

	PERFORMANCE (latest data: 2008)						
	GDP	Government	Exports	GFCF	Gap GDP	K/L Substitution	TFP
	% EU27	Gross Debt	% GDP	% GDP	% of Potential GDP	2000 = 100	2000 = 100
JP	26.50	89.50	17.50	23.30	1.75	94.99	109.13
US	78.50	94.90	12.70	18.50	-0.19	87.98	105.82
EU27	100.00	100	41.20	21.10	.	.	100
at	2.30	2.29	59.40	21.80	2.71	93.81	107.47
be	2.80	4.02	85.80	22.60	1.50	95.67	103.57
bg	0.30	0.06	60.50	33.40	5.02	.	.
cy	0.10	0.11	44.80	23.30	3.36	.	.
cz	1.20	0.53	77.10	23.90	4.79	.	.
de	20.00	21.39	47.30	19.00	2.96	96.11	104.29
dk	1.90	1.04	55.00	20.90	0.23	95.43	100.03
ee	0.10	0.01	75.60	29.30	4.49	.	.
es	8.70	5.62	26.50	28.80	0.76	90.52	99.25
fi	1.50	0.82	47.00	20.60	4.13	97.03	112.65
fr	15.60	17.09	26.40	21.90	0.76	93.19	101.67
gr	1.90	.	23.20	19.40	.	.	.
hu	0.80	0.94	82.10	20.90	2.74	.	.
ie	1.50	1.04	83.50	21.70	-0.53	87.39	103.81
it	12.60	21.61	28.80	20.90	1.23	94.83	97.15
lt	0.30	0.07	60.20	25.20	8.96	.	.
lu	0.30	0.07	172.80	19.30	1.72	91.73	93.69
lv	0.20	0.06	41.70	29.40	8.31	.	.
mt	0.00	0.05	81.50	15.70	1.10	.	.
nl	4.80	4.50	76.80	20.40	2.26	93.44	107.34
pl	2.90	1.88	40.00	22.10	2.24	.	.
pt	1.30	1.43	33.00	21.70	0.21	88.85	98.84
ro	1.10	0.22	30.40	31.90	9.34	.	.
se	2.60	1.44	54.30	19.50	1.76	94.62	111.35
si	0.30	0.11	67.70	28.90	6.63	.	.
sk	0.50	0.24	83.00	24.90	7.61	.	.
uk	14.50	10.28	29.20	16.80	1.77	91.91	106.27

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[175] GFCF: Gross Fixed Capital Formation; Gap GDP: Gap between actual and potential GDP.

3.4. Policies in Support of the Knowledge Triangle

After the analysis of the main indicators in the domain of the knowledge triangle, the analysis moves to the assessment of the policies carried out by Member States in support of the so-called "knowledge economy". In doing so, this section draws evidence from the MICREF database (see Annex 3.6-1) which provides information on Member States' policies towards their knowledge economies according to the taxonomy indicated in Figure 52.

Figure 52. Structure of MICREF –policy domain "Knowledge-Based Economy"
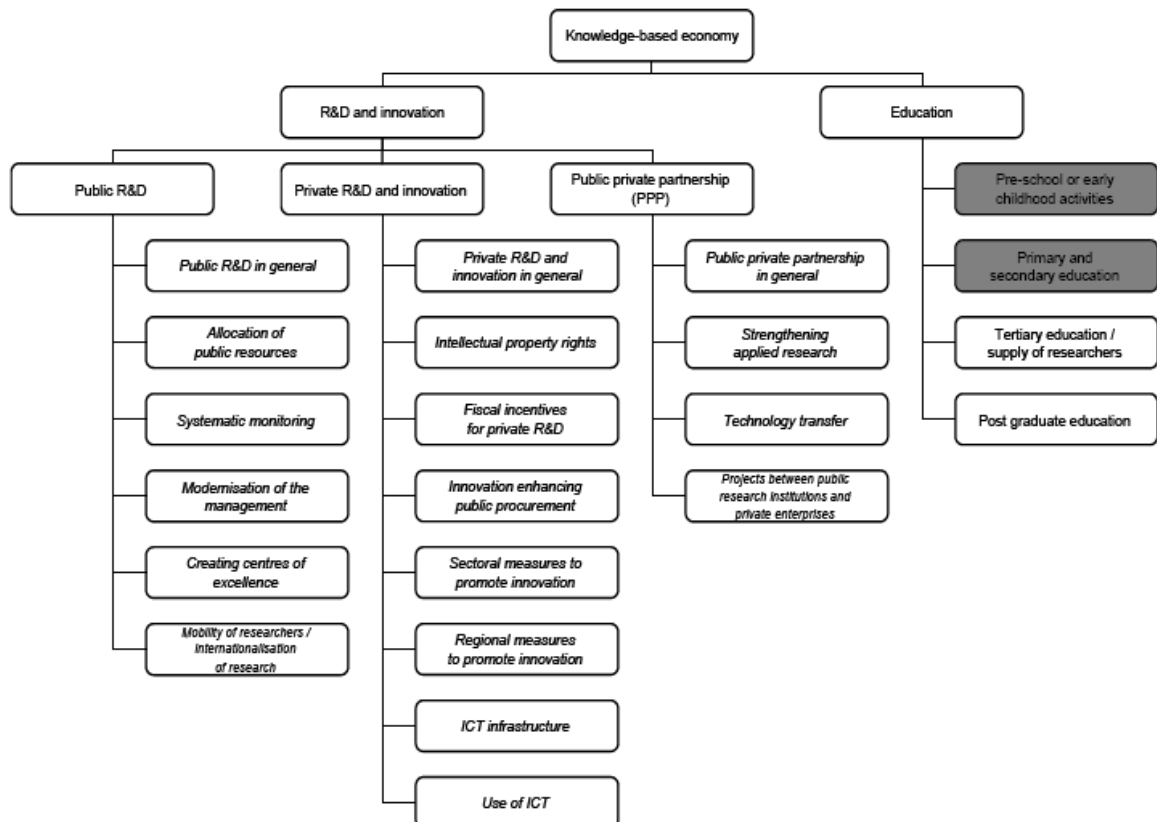
The policy domain "knowledge-based economy" consists of two broad policy fields: "R&D and innovation" and "education". In turn, the former is disaggregated into three components. The first - public R&D - comprises measures involving national investments on R&D and innovation. The second - private R&D and innovation - includes measures giving incentives to enterprises to invest in research. The last one - public private partnership - describes policies aimed at reinforcing / establishing a form of co-operation between the public authorities and economic agents. Measures in the "education" domain include all reforms aiming to adapt education and training systems to new occupational needs, key competences and future skill requirements as well as measures improving the openness and quality of education[176]. Over the period 2004-2008, 611 reform measures were registered in the broad policy field of the "knowledge-based economy"

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[176] In this domain, the analysis focuses only on reforms in tertiary and post-graduate education. "Pre-school education" and "secondary education" are not included in the analysis:

The policy domain "knowledge-based economy" represents one of the three broad policy domains around which MICREF database is thematically organized. The other two domains are "open and competitive markets" and "business environment and entrepreneurship". In turn, these domains correspond to 7 broad policy fields: market integration; competition policy; sector-specific regulation; start-up conditions; business environment; R&D and innovation; and education. Each policy field is subdivided further into areas of policy intervention which are in turn subdivided into reform areas. Figure 53 summarises the Member States' reform patterns according to MICREF's taxonomy[177].

The variability of reform patterns (discussed already in section 1) reflects different policy mixes across countries. Over the period 2004 to 2008, the Netherlands and Finland have had the highest ratio of reforms in the area of R&D and innovation. Examining the results across countries, the results clearly indicate that the relative importance of reforms in each specific policy domain to a Member State is independent of the Member State's relative performance in that same specific policy domain; for instance, in the case of R&D and innovation, catching-up countries and innovation leaders appear in both tails of the distribution. In fact, Figure 53 seems to suggest that Member States' reform patterns rather reflect the combination of their institutional and sector-specific characteristics as well as the identification of bottlenecks and the consequent policy initiatives.

Figure 53: Reform patterns of EU-27 Member States 2004 to 2008

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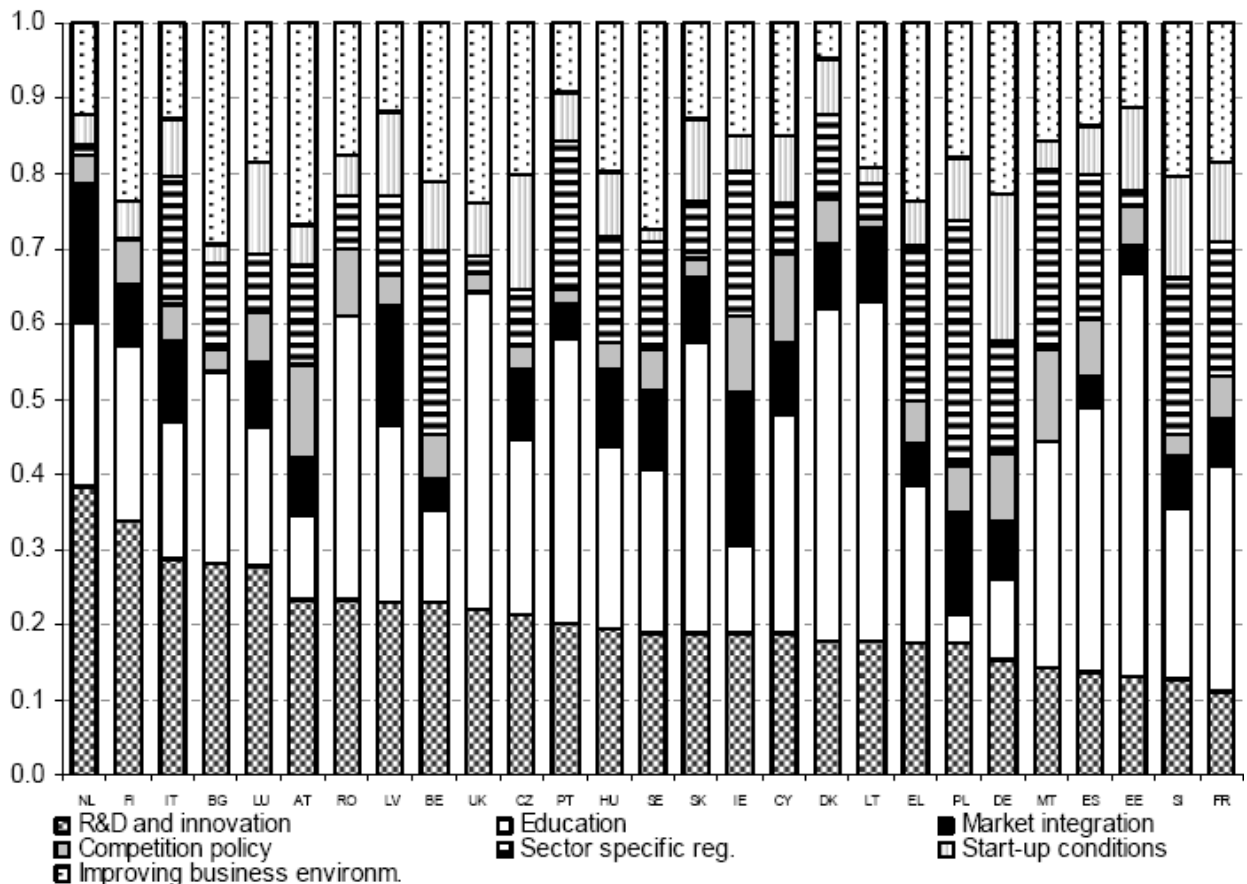
[177]   Reform patterns are defined as the shares of reforms in each policy field (over the total number of reforms) of a particular Member State within the given period.

Table 17 provides a further disaggregation of the domain "Knowledge-Based Economy" by policy field by indicating the number of countries which have been adopting a reform area in each year. In the domain of R&D policies, Member States have been most active in the fields "Allocation of Public Resources" and "Fiscal Incentives for Private R&D" and least active in the areas of "Innovation Enhancing Public Procurement" and "Technology transfer". According to MICREF data, 2006 witnessed a peak in policy activity by Member States.

The existence of different institutional settings may influence innovative dynamics across countries as well as the effectiveness of policy measures carried out by governments. The governance of a country's research system represents a potential source of variation in innovation performance across countries. Although governance covers several dimensions, three important factors differ across EU Member States: whether funding decisions are centralised or not, whether there are ad-hoc mechanisms for funding research, and whether evaluation of public research institutes exists (see Table 18).

Table 17: Number of Member States active in each reform area - "Knowledge-Based Economy" (2004 - 2008)

Year - Adoption Date	2004	2005	2006	2007	2008
Public R&D in general (Public)	2	4	3	6	6
Allocation of Public Resources (Public)	8	14	20	9	10
Systematic Monitoring (Public)	0	3	9	2	3
Modernisation of the Management (Public)	5	5	10	6	2
Creating Centers of Excellence (Public)	0	4	7	3	1
Mobility of Researchers/Internalization of Research (Public)	1	6	9	2	7
Private R&D and Innovation in general (Private)	2	5	4	9	7
Intellectual Property Rights (Private)	2	3	10	3	4
Fiscal Incentives for Private R&D (Private)	9	6	8	7	9
Innovation Enhancing Public Procurement (Private)	1	1	3	2	2
Sectoral Measures to Promote Innovation (Private)	0	4	6	2	2
Regional Measures to Promote Innovation (Private)	1	5	5	4	1
ICT Infrastructure (Private)	4	5	7	5	9
Use of ICT (Private)	5	11	10	7	5
Public Private Partnership in general (PPP)	1	5	1	3	6
Strengthening Applied Research (PPP)	2	4	4	4	2
Technology transfer (PPP)	2	2	3	2	4
Projects btw Public Research Institutions and Private Enterprises (PPP)	5	1	3	4	3
Tertiary education/Supply of researchers	7	12	15	17	10
Post Graduate Education	1	2	6	3	0

Table 18: Governance of National Research System - European Member States (2006)[178]

	GOVERNANCE OF RESEARCH (latest data: 2006)		
	Centralized Funding	Ad-hoc Funding	Evaluation of Public
at	0	0	0
be	0	1	1
bg	1	0	0
cy	0	0	0
cz	0	0	
de	0	1	
dk	.	.	.
ee	.	.	.
es	0	1	
fi	0	0	
fr	1	.	
gr	1	0	
hu	0	0	
ie	0	0	.
it	0	0	
lt	1	1	
lu	0	1	0
lv	1	0	
mt	1	0	0
nl	0	1	
pl	0	1	
pt	0	1	
ro	.	.	.
se	0	0	
si	0	0	0
sk	1	0	
uk	1	1	

3.5. Determinants of Policy Reforms in the field of R&D, Education and Innovation

This Section provides an empirical analysis of the determinants of selected policy measures in the broad policy domain "Knowledge-based economy" as defined by the MICREF database.

The analysis on the determinants of policy reforms is restricted only to EU countries due to the coverage of MICREF data. In turn, this implies that it is not possible to investigate whether different factors explain the propensity for engaging in reforms within and outside Europe.

In particular, we focus on the determinants of the following six reform measures by means of a similar probit econometric specification (described in Annex 3.6-2):

(1) Allocation of Public Resources

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[178] The table is based on the study by Conte *et al.* (2009).

(2) Governance of R&D

(3) Support of Private R&D

(4) Tertiary Education / Supply of researchers

(5) Intellectual Property Rights

(6) Technology Transfer[179].

The main results of the econometric analysis are summarised below (see Table 19):

- In every policy area - except governance of R&D - the occurrence of a reform in a given year reduces the probability that there will be a new policy initiative the following year. In other words, governments avoid overlapping different reforms in the same policy area in a given time. In turn, this behaviour is explained by the desire for legal certainty and the need to evaluate the effects/extent of a given reform.

- Governments react to an actual (or perceived) under-performance of their economy in the specific policy area under which the reform is defined. This result applies to all policy areas identified in the analysis reported in Table 19. For instance, the lower the government-funded R&D intensity, the higher the probability that reforms will be targeted at the allocation of public resources. The same applies to policies in favour of private R&D. Indeed, the lower the share of business R&D, the higher the probability that reforms will be enacted targeting business R&D. A lower intensity of both total and tertiary education spending raises the probability of reforms in this policy field. The econometric analysis presented here is able to disentangle the descriptive evidence presented in Table 17 by showing that the relative "catching-up" effect is stronger than other factors in affecting the propensity by a Member State to introduce reforms.

- Reforms in the area of R&D governance are more likely for countries which still have to enhance a centralised system for funding R&D.

- Reforms of the Intellectual Property Rights (IPR) regime are more likely the higher is (1) patent intensity and (2) the composite effect of technology balance of payments flows and intangible assets such as trademarks and designs (proxied by EIS "Throughputs"). Policy initiatives are driven by the relative economic importance of these knowledge assets. Moreover, reforms of the IPR regime are more likely the lower the number of patents per R&D investment - which is a proxy for the "efficiency" of a national R&D system in transforming investments into (knowledge) outputs.

- Reforms in the area of technology transfer are more likely the higher the relative share of higher education R&D funded by business. The sign in the regression may suggest that reforms in this area are driven more by the need to manage an on-going phenomenon - technology transfer -rather than enhancing it. No specific effect is found when looking at the other forms of cross-funding in R&D, namely between the government and the business sector.

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[179]   Governance of R&D is defined by the aggregation of the reform areas "systematic monitoring" and "modernization of the management" in the MICREF database.

- A number of additional factors are common to each regression. The share of human resources in S&T allows the effect of human capital on the occurrence of different policies[180] to be controlled for. Introducing the business cycle - proxied by the first and second difference of GDP - allows the choice of policies in different business conditions to be investigated. Indeed, a different timing emerges with respect to the selected menu of instruments. For instance, more generous support for public R&D is more likely in an expansionary context while support for private R&D is mostly counter-cyclical and offset over time, thus indicating its temporary nature, designed to sustain business investment in contractionary periods.

- Public finance-related variables seem to have the expected effect on the probability of policies being introduced in the area of the knowledge triangle. Indeed, a higher level of consolidated gross debt reduces the room for manoeuvre of public policies and, therefore, the possibility of sustaining public R&D investments at higher levels. On the contrary, countries with a higher current tax burden seem to find it easier to spend resources on supporting public R&D, private R&D and programmes of technology transfers.

- Further heterogeneous (institutional) country-specific factors (proxied by country dummies) affect the probability of policy measures across countries in each specific vertex of the knowledge triangle. This may need further investigation.

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[180]   Mixed evidence emerges on the effect of this variable on the different reform measures. Overall, it seems to indicate that countries with a larger share of human resources in S&T – which in turn implies a R&D-prone sector composition of their economies and an overall higher than the average R&D expenditure - focus their policies (almost exclusively) towards the support of private R&D.

Table 19. Determinants of Reforms. Estimation Method: Probit Model.

VARIABLES	Allocation of Public Resources	Governance of R&D	Support of Private R&D	Tertiary educ./ Researchers	Intellectual Property Rights	Technology Transfer
Lag Dep. Variable	-2.62*** [0.80]	0.35 [0.28]	-1.41*** [0.45]	-1.51* [0.85]	-3.82*** [1.29]	-3.36*** [1.23]
GOVERD as a % of GDP	-72.1** [28.3]					
Central. Funding Decision		-0.64** [0.31]				
BERD as a % of GDP			-7.97*** [2.88]			
Public exp. on educ. as % of GDP				-20.6* [11.5]		
Public exp. on tert. educ. as % of GDP				-15.9** [7.17]		
Patents per Hab.					0.22** [0.096]	
Patents per BERD					0.020 [0.012]	
Patents per Total R&D					-0.089* [0.053]	
EIS "Throughputs"					55.6** [23.1]	
GOVERD funded by Business						-0.069 [0.46]
BERD funded by GOV						0.018 [0.027]
HERD funded by Business						0.025* [0.013]
HRs in S&T -% of TOT Empl	-2.12*** [0.62]		0.51*** [0.16]	-0.84 [0.62]	-1.63** [0.75]	0.18 [0.20]
First Diff. Log(GDPpc)	-20.9 [32.1]	12.9** [5.48]	39.2** [16.6]	78.8 [110]	84.5 [88.6]	-59.9** [29.0]
Second Diff. Log(GDPpc)	77.4* [44.2]	-1.21 [6.63]	-42.0*** [15.7]	-113 [78.2]	28.8 [51.0]	69.1** [29.9]
GVT Consolidated Gross Debt	-20.4** [9.83]		-1.33 [2.60]	-19.1 [17.5]	0.60 [12.8]	-1.79 [3.08]
Current tax burden	14.9*** [5.54]		3.70* [2.05]	4.38 [6.69]	-1.21 [8.99]	5 96** [2.51]
Constant	46.0** [19.8]	-.99*** [0.20]	-22.8*** [8.09]	155 [1646]	3.98 [1280]	-40.1 [1232]
Country Dummies	V	.	V	V	V	V
Observations	94	144	141	70	94	123

Standard errors in brackets;   *** $p<0.01$, ** $p<0.05$, * $p<0.1$

3.6. Concluding Remarks

This chapter provides an empirical analysis across the Member States of the determinants of selected policies intended to enhance their R&D, education and innovation performances.

The main policy implications from this chapter may be summarised as follows:

- A country's performance in each specific policy area (i.e. public R&D investments, education performance, public / private partnership) explains its propensity to engage in policy initiatives. Monitoring Member States' performance seems, therefore, to deliver results in that policy initiatives appear responsive to a country's relative performance in each specific policy area with respect to other Member States.

- General business cycle conditions explain the propensity to engage in policy initiatives and the policy mix adopted by EU Member States. In particular, the business cycle affects the type of reforms adopted by Member States. Countercyclical policy initiatives aim at avoiding the negative effect of downturn on (especially private) knowledge investment while expansionary phases allow upgrading of a country's knowledge infrastructure.

- Partial evidence seems to suggest that structural country-specific factors (i.e. institutional and regulatory features of a country's research system) play a role in explaining the propensity to engage in policy initiatives and the policy mix adopted by EU Member States. However, further effort is required to better measure these factors. In turn, this would contribute to efforts aimed at supporting the diffusion of best practices/institutions of the research system across Member States.

- There is increasing attention paid over time and across EU Member States towards policy initiatives aimed at supporting the knowledge triangle. Member States increasingly view a stronger knowledge triangle as a fundamental step for European competitiveness, growth and wellbeing.

Annex 3.6-1. MICREF - Database on microeconomic reforms

As part of the Lisbon strategy, the so-called database on MICroeconomic REForms (MICREF) was developed by the European Commission to help profile the reform process. It aims to contribute to "the establishment of selected catalogues of structural reforms, indicators and best practice comparisons to strengthen the systematic recording of reform measures". The database covers the 27 Member States and records reforms undertaken since 2000 for EU-15 and since 2004 for EU12. It is split into three broad policy domains: (1) Open and competitive markets, (2) Business environment and entrepreneurship, and (3) Knowledge-based economy and tracks changes made by the EU Member States in these three fields. Figure 54 below gives more detail on how reforms are recorded and allocated within the basic structure[181].

Figure 54: Design of the MICREF database
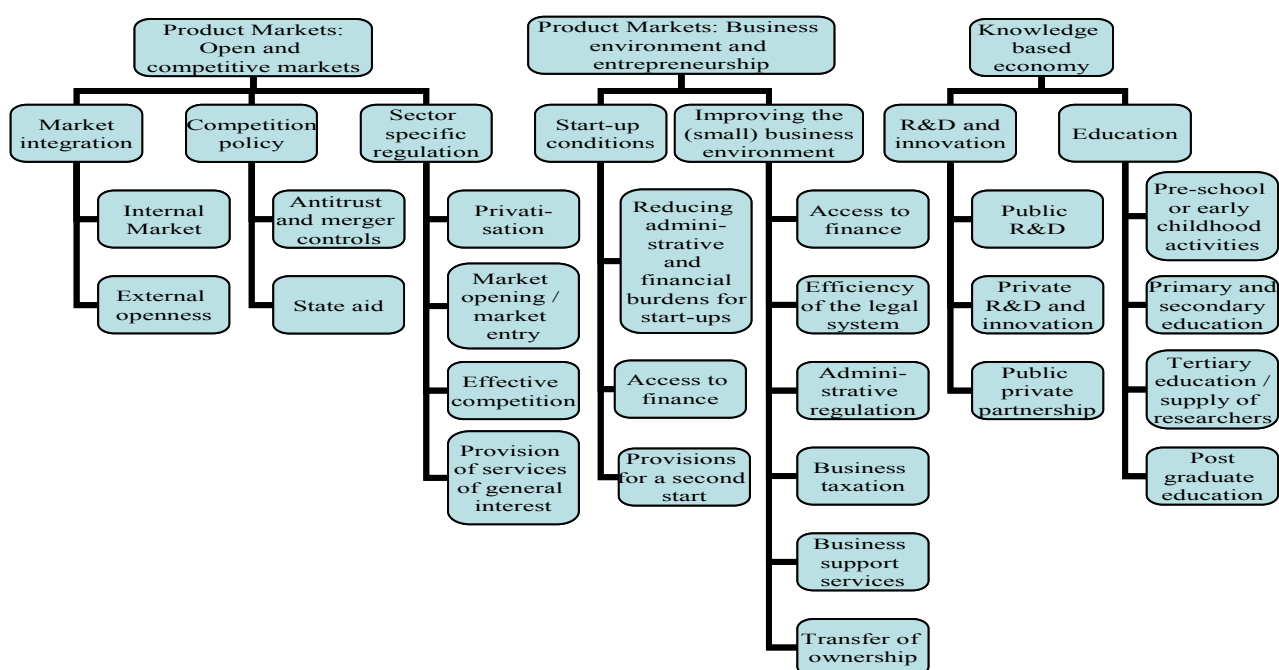
The comprehensive structure of the MICREF database allows the reform initiatives recorded by all 27 EU Member States over recent years to be investigated. The latest release of the MICREF database (October 2009) includes 2387 reform measures adopted over the period 2000-2008. However, the time frame for analysis at the EU-27 level is only possible for the period 2004-2008 (1727 reform measures) as data for the previous period (2000-2003) are only consistently available for EU-15 countries (i.e., pre-enlargement eastwards over the last decade)..

The analysis has a number of drawbacks owing to the information available in the MICREF database, the aggregation of policy reforms and their use in empirical analysis. First, MICREF records only significant new reform measures or important changes in the implementation framework as the purpose is to gauge the "change" (whether positive or

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[181]   The structure of the database is presented in the MICREF user guide available at the following web page: http://ec.europa.eu/economy_finance/publications/publication13022_en.pdf.

negative) in the reform process. Second, MICREF registers measures only once, according to their perceived main reform area or their main characteristic; hence, the occurrence of policy measures in a specific area has been taken into account rather than the number of reforms and/or their scope as these might differ within/across policy areas or similar measures might be replicated at lower administrative levels (i.e. Member States with federal institutions). Finally, the year a reform measure is adopted rather than the year it is implemented is used as the reference point[182].

Annex 3.6-2. Data and Indicators

For the purpose of this study, a panel dataset at the country level has been constructed. The final dataset contains annual information on all 27 EU countries over the 2000s.

Data on R&D spending, Human Resources in S&T, Education and other innovation-specific data are drawn from the "Eurostat - Science and Technology Indicators".

Monetary indicators (GDP and R&D expenditure data) have been rescaled in real terms using the GDP Deflator Index available from DG ECFIN's Annual Macro Economic Database AMECO. Data on consolidated gross debt and current tax burden are also obtained from AMECO.

Annual composite indicators on innovation performance are obtained from the European Innovation Scoreboard 2009.

Annual data on reform measures are drawn from MICREF database over the period 2004-2008.

The general econometric approach to the determinants of policy reforms is based on the following specification:

$$RM_{ct} = \alpha + L.RM_{ct-1} + \sum_{i=1}^{s} \beta_i L.\ln(R\&DInt.)_{ct} + \gamma L.\ln(HRST)_{ct} +$$

$$+\zeta D(1/2).\ln(GDPpc)_{ct} + \delta \ln(DEBT)_{ct} + \theta \ln(TAX)_{ct} + \sum_{j=1}^{s} \beta_j CD + \varepsilon_{ct}$$

where RM_{ct} represent the occurrence of a reform measure in each country (c) and year (i); $R\&DInt$ indicates the type of R&D expenditure by sector of performance *(s)* related to the specific policy measure (i.e. government R&D spending, private R&D) - generally expressed in terms of intensity on GDP. *HRST* indicates the share of Human Resources in Science and technology as a % of total population. *DEBT* refers to "government consolidated gross debt" while *TAX* indicates "current tax burden". The equation also includes GDP per capita as well as a set of country dummies (CD). L stands for lags while D refers to the effect of the variable-in-difference. We used a dynamic specification with lags (L) since we represent the effect of (exogenous) past performance on the political decision

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[182] The adoption year is a mandatory feature of the MICREF database, the implementation date is optional and it is therefore missing for a large share of measures in the database. The focus on the adoption year stresses more the timing of the political decision rather than the effects of the reform.

to introduce policy measures. Moreover, we test the hypothesis of persistence of policy initiatives in a specific area through the introduction in the model of the lagged dependent variable. We capture the effect of business cycle on policies by means of a percentual change in GDP (log D) for two periods. Finally, the inclusion of country-specific fixed effects helps to wipe out time-invariant components such as institutional or structural country features[183]. This set of variables is used for all the estimations of the reform measures in section 3.5. In addition to this group of indicators, a number of reform-specific variables are added and tested in the econometric exercise of Table 19.

Finally, given the binary nature of the dependent variables (reform measures – see Annex 3.6-1), all the models are estimated through means of a probit specification for panel data.

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[183] Indeed, standard variables adopted in the political economy literature - mostly drawn from the World Bank's Database of Political Institution - have been used in the analysis - i.e. the political orientation of the government, the extent of majority seats in the Parliament - but given the specific focus of this study on the determinants of R&D-related policy measures they did not turn statistically significant.

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Explanatory notes on indicators

1. INTRODUCTION

The name of the indicators to be found below (e.g. "*open*", "*rtb*", "*share*") is the same name as the variable in the Commission services' sectoral database. The indicators at industry/product level are grouped in three different chapters, which correspond to the different statistical classifications used.

The formula describing the indicators include sub-indices for "countries" and "time" only when these are required; e.g. the country index is included when the calculation of the indicator includes also a geographical area of reference (World, EU27 or partner) and the time index when the indicator measures growth.

2. COUNTRY-LEVEL INDICATORS

2.1. Trade openness

open = [(X + M)/(2×GDP)]*100

X: exports of goods and services (Ameco variable: UXGS)
M: imports of goods and services (Ameco variable: UMGS)
GDP: Gross Domestic Product (Ameco variable: UVGD)

2.2. Relative Trade balance

rtb = (X - M)/(X + M)

X: exports of goods and services (Ameco variable: UXGS)
M: imports of goods and services (Ameco variable: UMGS)
Source: Ameco

2.3. Share of world exports market

share = Total exports of goods of a country divided by total World exports
Source: Ameco (variable: AXGT)

2.4. Nominal unit labour costs growth (%): t/t-1

$ulcgr_t = [(ULC_t / ULC_{t-1})-1] \times 100$
where:
ULC = (Compensation of employees/Employees)/(GDP at constant prices/Employment)

Source: Ameco (variable: PLCD)

Note: **real** unit labour cost in Ameco (QLCD) is defined as:
ULC = (Compensation of employees/Employees)/(GDP at current prices/Employment)

2.5. Nominal unit labour costs growth (%): t/t-5

$ulcgr5_t = \{[(ULC_t / ULC_{t-5})\,^\wedge\,(1/5)]- 1\} \times 100$

ULC = (Compensation of employees/Employees)/(GDP at constant prices/Employment)

Source: Ameco (variable PLCD)

Note: real unit labour cost in Ameco (QLCD) is defined as:
ULC = (Compensation of employees/Employees)/(GDP at current prices/Employment)

2.6. Goods and services real export growth (%): t/t-1

$xgr = [(X_t / X_{t-1}) – 1] \times 100$

X: exports of goods and services at constant prices
Source: Ameco (variable: OXGS)

2.7. Goods and services real export growth (%): t/t-5

$xgr5_t = \{[(X_t / X_{t-5})\,^\wedge\,(1/5)]- 1\} \times 100$

Annual growth in exports of goods and services at constant prices: t/t-5
Source: Ameco (variable: OXGS)

2.8. Real effective exchange rates (2000=100)

xunrq = "Real effective exchange rates, based on unit labour costs (total economy) - Performance relative to the rest of 35 industrial countries; double export weights"

Source: Ameco (variable: XUNRQ)

2.9. Exports of high technology products

xtech3 = "Exports of high technology products as a share of total exports (%)" (SITC Rev.3)
xtech4 = "Exports of high technology products as a share of total exports (%)"(SITC Rev.4)

Notes:
- The change in the underlying nomenclature of products (from SITC Rev.3 to SITC Rev.4) creates a break in the series in 2007.
- Calculated on the basis of products allocated by tech categories.
- Definition of high-tech products: see Table A 7.
Source: Eurostat
Variables:
- **htec_si_exp-High-tech exports**: Exports of high technology products as a share of total exports (1995-2006, SITC Rev. 3)
- **htec_si_exp4-High-tech exports**: Exports of high technology products as a share of total exports (from 2007, SITC Rev. 4)

2.10. Total public expenditure on education

expeduc = "Total public expenditure on education as % of GDP, for all levels of education combined"
Source: Eurostat

2.11. Human Resources in S&T

human_st = "Number of S&T people employed as % of total employment"

HRST is defined according to the Canberra Manual as a person fulfilling at least one of the following conditions:
- Successfully completed a tertiary level education (HRSTE) or
- Not formally qualified as above, but employed in a S&T occupation where the above qualifications are normally required (HRSTO).

Source: Eurostat

2.12. Revealed Comparative Advantage index: technology taxonomy

$RCA_{i,j} = (X_{i,j} / X_{i,T}) / (X_{w,j} / X_{w,T})$

X: exports to World
i: country
j: technology group (high, medium-high, medium-low, low).
T: total manufacturing
w: World

In calculating this indicator an industry-approach (rather than a product approach) is followed. Products are grouped in CPA (Classification of products by Economic Activities) 2-digit aggregates. Then these aggregates are grouped in the four technology categories defined in Table A 7. This indicator covers only manufacturing products.

2.13. FDI flows

$$fdifin_{i,j} = (FDIFIN_{i,j} / GDP_i) \times 100$$

$FDIFIN_{i,j}$: FDI flow in the reporting economy ("i") from partner ("j")
i: reporting economy (EU countries)
j: partner (EU27, ex_EU27, World)

$$fdifout_{i,j} = (FDIFOUT_{i,j} / GDP_i) \times 100$$

$FDIFOUT_{i,j}$: FDI flow abroad ("j") from reporting economy ("i")
i: reporting economy
j: partner (EU27, ex_EU27, World)

2.14.   Shares in GDP of technology taxonomy groups

$$sh\_tech_j = (VA_j / VA_T) \times 100$$

VA: value added at current prices
j: technology group (manufacturing high, manufacturing medium-high, manufacturing medium-low, manufacturing low, knowledge-intensive services, less knowledge-intensive services). For detail on the constituents of each technology group, see Table A 7 and Table A 8.
T: total economy

In calculating this indicator industries (defined in terms of NACE Rev.1) are grouped in the six technology categories mentioned above.

Source: Eurostat National Accounts and Structural Business Statistics

2.15.   Specialisation index by technology taxonomy groups

$$sp\_tech_{i,j} = (VA_{i,j} / VA_{i,T}) / (VA_{eu,j} / VA_{eu,T})$$

VA: value added at current prices
i: country
j: technology group (manufacturing high, manufacturing medium-high, manufacturing medium-low, manufacturing low, knowledge-intensive services, less knowledge-intensive services)
eu: EU-25: 2000-2003; EU27 (2004-2007)
T: total economy

In calculating this indicator industries (defined in terms of NACE Rev.1) are grouped in the six technology categories mentioned above.

Source: Eurostat National Accounts and Structural Business Statistics

2.16.   Shares in GDP of labour skills taxonomy groups

$\text{sh\_skills}_j = (VA_j / VA_T) \times 100$

VA: value added at current prices
j: labour skills group (high, high-intermediate, low-intermediate, low)
T: total economy

In calculating this indicator industries (defined in terms of NACE Rev.1) are grouped in the four labour skills categories mentioned above.

Source: Eurostat National Accounts and Structural Business Statistics

2.17. Specialisation index by labour skills taxonomy groups

$\text{sp\_skills}_{i,j} = (VA_{i,j} / VA_{i,T}) / (VA_{eu,j} / VA_{eu,T})$

VA: value added at current prices
i: country
j: labour skills group (high, high-intermediate, low-intermediate, low)
eu: EU-25: 2000-2003; EU27 (2004-2007)
T: total economy
In calculating this indicator industries (defined in terms of NACE Rev.1) are grouped in the four labour skills categories mentioned above.
Source: Eurostat National Accounts and Structural Business Statistics

3. SECTORAL INDICATORS

3.1. Nace Rev.1 indicators

3.1.1. Value added share in GDP:

$vash_j = (VA_j / VA_T) \times 100$

VA: value added at current prices
j: industry
T: total economy

Source: Eurostat National Accounts

3.1.2. Value added growth (t/t-1)

$vakgr_t = [(VAK_t / VAK_{t-1}) -1] \times 100$

VAK_t: value added at prices of 2000 in "t"
t: year
Source: Eurostat

3.1.3. Value added growth (t/t-5)

$vakgr5_t = \{[(VAK_t / VAK_{t-5}) \wedge (1/5)] - 1\} \times 100$

VAK_t: value added at prices of 2000 in "t"
t: year
Source: Eurostat

3.1.4. Value added share in total business economy (%)

$sh\_vasbs_j = (VA_j / VA_B) \times 100$

va: value added at current prices
j: industry
B: total business economy (from mining to market services)

Source: Eurostat Structure Business Statistics

3.1.5. Employment growth (t/t-1)

$emplgr_t = [(L_t / L_{t-1}) -1] \times 100$

L: number of persons employed
t: year
Source: Eurostat National Accounts

3.1.6. Employment growth (t/t-5)

$$emplgr5_t = \{[(L_t / L_{t-5})\ \widehat{}\ (1/5)] - 1\} \times 100$$

L: value added at prices of 2000
t: year
Source: Eurostat National Accounts

3.1.7. Mark-up

Data on mark-ups are from:

Rebekka Christopoulou and Philip Vermeulen, *Markups in the Euro area and the US over the period 1981-2004 – a comparison of 50 sectors*, ECB WP n° 856, January 2008.

1993_2004: tables A4a and A4b
1981_1992: tables A3a and A3b

3.1.8. Gross operating rate

$$surpl_j = (GOS_j / TURN_j) \times 100$$

GOS: gross operating surplus
TURN: turnover
j: industry

Source: Eurostat Structural Business Statistics

3.1.9. Business churn

$$churn_j = birth\ rate_j + death\ rate_j$$

birth rate: births as a percentage of the population of active enterprises
death rate: deaths as a percentage of the population of active enterprises
j: industry

Source: Eurostat Structural Business Statistics

3.1.10. Openness ratio

$$open_j = (X_j + M_j) / 2 \times P$$

X: exports at current prices
M: imports at current prices:
j: industry

P: output at current prices

Source: Eurostat, COMEXT and National Accounts

3.1.11. R&D intensity

$$rd\_intens_j = (BERD_j / VA_j) \times 100$$

BERD: business enterprise R&D expenditure at current prices
VA: value added at current prices
j: industry

3.1.12. Patent intensity

$$pat\_intens_j = (PAT_j / VA_j) \times 100$$

PAT: number of patent applications to the European Patent Office (EPO)
VA: value added at current prices
j: industry

3.1.13. Labour productivity per person growth (t/t-1)

$$lpgr_t = \{[(VAK_t / L_t) / (VAK_{t-1} / L_{t-1})] -1\} \times 100$$

VAK: value added at prices of 2000
L: number of persons employed
t: year

Source: Eurostat National Accounts

3.1.14. Labour productivity per person growth (t/t-5)

$$lpgr5_t = \{[(VAK_t / L_t) / (VAK_{t-5} / L_{t-5})]^{\wedge} (1/5)\} -1 \times 100$$

VAK_t: value added at prices of 2000 in "t"
t: year

Source: Eurostat National Accounts

3.1.15. Unit Labour Cost growth (t/t-1)

$$ulcgr_t = \{[(COMP_t / VAK_t) / (COMP_{t-1} / VAK_{t-1})] -1\} \times 100$$

COMP: compensation of employees
VAK: value added at prices of 2000
t: year

Source: Eurostat National Accounts

3.1.16. Unit Labour Cost growth (t/t-5)

$$ulcgr5_t = \{[(COMP_t / VAK_t) / (COM_{t-5} / VAK_{t-5})]^{\wedge} (1/5)\} -1 \times 100$$

COMP: compensation of employees
VAK: value added at prices of 2000
t: year

Source: Eurostat National Accounts

3.1.17. Relative trade balance

$$Rbal_j = (X_j - M_j) / (X_j + M_j)$$

X: exports at current prices
M: imports at current prices:
j: industry

Source: Eurostat

3.1.18. Symmetric Revealed Comparative Advantage index (SRCA)

$$SRCA_{i,j} = (RCA_{i,j}-1) / (RCA_{i,j}+1)$$

Where

$$RCA_{i,j} = (X_{i,j} / X_{i,T}) / (X_{w,j} / X_{w,T})$$

X: exports to World
i: country
j: industry
T: total manufacturing
w: World

The 71 countries included in the World aggregate are detailed on pp 227 - 228.

Source: COMTRADE

3.1.19. Share in World exports

Share in total World exports for country "i" in sector "j" is calculated as:

$$share_{i,j} = (X_{i,j} / X_{w,j}) \times 100$$

X: exports to World
i: country
j: industry
w: World

The 71 countries included in the World aggregate are detailed on pp 227 - 228.

Source: COMTRADE

3.2.   Nace Rev.2 indicators

The indicators in this report are derived from Eurostat's short-term statistics. They refer mostly to manufacturing sectors. The coverage of services sectors is limited to a few indicators and sectors.

3.2.1. Production growth (t/t-1)

$$\text{Prodgr}_t = [(P_t / P_{t-1})-1] \times 100$$

P_t: value of production index year "t"
Source: Eurostat

3.2.2. Production growth (t/t-5)

$$\text{prodgr5}_t = \{[(P_t / P_{t-5}) \wedge (1/5)]- 1\} \times 100$$

P_t: value of production index in year "t"
Source: Eurostat

3.2.3. Employment growth (t/t-1)

$$\text{Emplgr}_t = [(L_t / L_{t-1})-1] \times 100$$

L_t: value of number of persons employed index in year "t"
Source: Eurostat

3.2.4. Employment growth (t/t-5)

$$\text{emplgr5}_t = \{[(L_t / L_{t-5}) \wedge (1/5)]- 1\} \times 100$$

L_t: value of number of persons employed index in year "t"
Source: Eurostat

3.2.5. Number of hours worked growth (t/t-1)

$$\text{Hoursgr}_t = [(H_t / H_{t-1})-1] \times 100$$

H_t: value of number of hours worked index in year "t"
Source: Eurostat

3.2.6. Number of hours worked growth (t/t-5)

$$\text{hoursgr5}_t = \{[(H_t / H_{t-5}) \wedge (1/5)]- 1\} \times 100$$

H_t: value of number of hours worked index in year "t"
Source: Eurostat

3.2.7. Labour productivity per person employed growth (t/t-1)

$$\text{Lpgr}_t = [(LP_t / LP_{t-1})-1] \times 100$$

LP_t: value of labour productivity index in year "t"
Labour productivity index calculated from production and employment indices
Source: Eurostat

3.2.8. Labour productivity per person employed growth (t/t-5)

$lpgr5_t = \{[(LP_t / LP_{t-5}) ^\wedge (1/5)] - 1\} \times 100$

LP_t: value of labour productivity index in year "t"
Labour productivity index calculated from production and employment indices
Source: Eurostat

3.2.9. Labour productivity per hour worked growth (t/t-1)

$Lphgr_t = [(LPH_t / LPH_{t-1}) - 1] \times 100$

LPH_t: value of labour productivity per hour worked index in year "t"
Labour productivity per hour calculated from production and number of hours worked indices
Source: Eurostat

3.2.10. Labour productivity per hour worked growth (t/t-5)

$lphgr5_t = \{[(LPHD_t / LPH_{t-5}) ^\wedge (1/5)] - 1\} \times 100$

LPH_t: value of labour productivity per hour worked index in year "t"
Labour productivity per hour calculated from production and number of hours worked indices
Source: Eurostat

3.2.11. Unit Labour Cost growth (t/t-1)

$Ulcgr_t = [(ULC_t / ULC_{t-1}) - 1] \times 100$

ULC_t: value of ULC index in year "t"
ULC index calculated from production and wages and salaries indices
Source: Eurostat

3.2.12. Unit Labour Cost growth (t/t-5)

$ulcgr5_t = \{[(ULC_t / ULC_{t-5}) ^\wedge (1/5)] - 1\} \times 100$

ULC_t: value of ULC index in country and year "t"
ULC index calculated from production and wages and salaries indices
Source: Eurostat

3.3. Trade in services

3.3.1. World exports share

Share in total World exports for country "i" in sector "j" is calculated as:

$share_{i,j} = (X_{i,j} / X_{w,j}) \times 100$

X: exports to World

i: country
j: sector
w: World

The countries included in the World aggregate are detailed in notes 3.9 and 3.10.

Source: United Nations

3.3.2. *Revealed Comparative Advantage (RCA)*

RCA for country "i" in sector "j" is calculated as:

$$RCA_{i,j} = (X_{i,j} / X_{i,T}) / (X_{w,j} / X_{w,T})$$

X: exports to World
i: country
j: sector
T: total exports of services
w: World

The countries included in the World aggregate are detailed in notes 3.9 and 3.10.

Source: United Nations

3.4. Statistical nomenclatures

3.4.1. Statistical Classification of economic activities at 2 digits - NACE Rev. 1.1

Nace	Industry
C	Mining and quarrying
D	Manufacturing
DA15	Manufacture of food products and beverages
DA16	Manufacture of tobacco products
DB17	Manufacture of textiles
DB18	Manufacture of wearing apparel; dressing; dyeing of fur
DC19	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear
DD20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
DE21	Manufacture of pulp, paper and paper products
DE22	Publishing, printing and reproduction of recorded media
DF23	Manufacture of coke, refined petroleum products and nuclear fuel
DG24	Manufacture of chemicals and chemical products
DH25	Manufacture of rubber and plastic products
DI26	Manufacture of other non-metallic mineral products
DJ27	Manufacture of basic metals
DJ28	Manufacture of fabricated metal products, except machinery and equipment
DK29	Manufacture of machinery and equipment n.e.c.
DL30	Manufacture of office machinery and computers
DL31	Manufacture of electrical machinery and apparatus n.e.c.
DL32	Manufacture of radio, television and communication equipment and apparatus
DL33	Manufacture of medical, precision and optical instruments, watches and clocks
DM34	Manufacture of motor vehicles, trailers and semi-trailers
DM35	Manufacture of other transport equipment
DN36	Manufacture of furniture; manufacturing n.e.c.
DN37	Recycling
E	Electricity, gas and water supply
F	Construction
G50	Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel
G51	Wholesale trade and commission trade, except of motor vehicles and motorcycles
G52	Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods
H	Hotels and restaurants
I60	Land transport; transport via pipelines
I61	Water transport
I62	Air transport
I63	Supporting and auxiliary transport activities; activities of travel agencies
I64	Post and telecommunications
J	Financial intermediation
K70	Real estate activities
K71	Renting of machinery and equipment without operator and of personal and household goods
K72	Computer and related activities
K73	Research and development
K74	Other business activities

3.4.2. Statistical Classification of economic activities at 2 digits - NACE Rev. 2 from 2008 onwards

Nace	Industry
B-D_F	Mining and quarrying; manufacturing; electricity, gas, steam and air conditioning supply; construction
C	Manufacturing
C10	Manufacture of food products
C11	Manufacture of beverages
C12	Manufacture of tobacco products
C13	Manufacture of textiles
C14	Manufacture of wearing apparel
C15	Manufacture of leather and related products
C16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
C17	Manufacture of paper and paper products
C18	Printing and reproduction of recorded media
C19	Manufacture of coke and refined petroleum products
C20	Manufacture of chemicals and chemical products
C21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
C22	Manufacture of rubber and plastic products
C23	Manufacture of other non metallic mineral products
C24	Manufacture of basic metals
C25	Manufacture of fabricated metal products, except machinery and equipment
C26	Manufacture of computer, electronic and optical products
C27	Manufacture of electrical equipment
C28	Manufacture of machinery and equipment n.e.c.
C29	Manufacture of motor vehicles, trailers and semi trailers
C30	Manufacture of other transport equipment
C31	Manufacture of furniture
C32	Other manufacturing
C33	Repair and installation of machinery and equipment

3.4.3. Correspondence table between sections of NACE Rev 1.1 and NACE Rev. 2

NACE Rev. 1.1		NACE Rev. 2	
Section	Description	Section	Description
A B	Agriculture, Hunting and Forestry Fishing	A	Agriculture, Forestry and Fishing
C	Mining and quarrying	B	Mining and quarrying
D	Manufacturing	C	Manufacturing
E	Electricity, gas and water supply	D E	Electricity, gas, steam and air conditioning supply Water supply, sewerage, waste management and remediation activities
F	Construction	F	Construction
G	Wholesale and retail trade: repair of motor vehicles, motorcycles and personal and household goods	G	Wholesale and retail trade; repair of motor vehicles and motorcycles
H	Hotels and restaurants	I	Accommodation and food service activities
I	Transport, storage and communications	H J	Transportation and storage Information and communication
J	Financial intermediation	K	Financial and insurance activities
K	Real estate, renting and business activities	L M N	Real estate activities Professional, scientific and technical activities Administrative and support service activities
L	Public Administration and defence; compulsory social security	O	Public administration and defence; compulsory social security
M	Education	P	Education
N	Health and social work	Q	Human health and social work activities
O	Other community, social and personal services activities	R S	Arts, entertainment and recreation Other service activities
P	Activities of private households as employers and undifferentiated production activities of private households	T	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
Q	Extraterritorial organizations and bodies	U	Activities of extraterritorial organizations and bodies

3.5. Technology taxonomy

Table A 7: Manufacturing

Technology group	Code	Manufacturing industries NACE Rev 1.1 codes
High-technology	24.4	Manufacture of pharmaceuticals, medicinal chemicals and botanical products;
	30	Manufacture of office machinery and computers;
	32	Manufacture of radio, television and communication equipment and apparatus;
	33	Manufacture of medical, precision and optical instruments, watches and clocks;
	35.3	Manufacture of aircraft and spacecraft
Medium-high-technology	24	Manufacture of chemicals and chemical product, excluding 24.4 Manufacture of pharmaceuticals, medicinal chemicals and botanical products;
	29	Manufacture of machinery and equipment n.e.c.;
	31	Manufacture of electrical machinery and apparatus n.e.c.;
	34	Manufacture of motor vehicles, trailers and semi-trailers;
	35	Manufacture of other transport equipment, excluding 35.1 Building and repairing of ships and boats and excluding 35.3 Manufacture of aircraft and spacecraft.
Medium-low	23	Manufacture of coke, refined petroleum products and nuclear fuel;
	25	Manufacture of rubber and plastic products; basic metals and fabricated metal products; other non-metallic mineral products;
	35.1	Building and repairing of ships and boats.
Low-technology	15 to 22	Manufacture of food products, beverages and tobacco; textiles and textile products; leather and leather products; wood and wood products; pulp, paper and paper products, publishing and printing;
	36 to 37	Manufacturing n.e.c.

Table A 8: Services

Technology group	Code		Knowledge based services NACE Rev 1.1 codes
Knowledge-intensive services (KIS)			
	61		Water transport;
	62		Air transport;
	64		Post and telecommunications;
	65		Financial intermediation;
	70	to	
	74		Real estate, renting and business activities;
	80		Education;
	85		Health and social work;
	92		Recreational, cultural and sporting activities
Less Knowledge-intensive Services (LKIS)			
	50		Motor trade;
	55		Hotels and restaurants;
	60		Land transport; transport via pipelines;
	63		Supporting and auxiliary transport activities; activities of travel agencies;
	75		Public administration and defence; compulsory social security;
	90		Sewage and refuse disposal, sanitation and similar activities;
	91		Activities of membership organization n.e.c.;
	93		Other service activities;
	95		Activities of households;
	99		Extra-territorial organizations and bodies

3.6.   Labour skills taxonomy

Skills group	Nace Rev.1
high	DF - Manufacture of coke, refined petroleum products and nuclear fuel DG - Manufacture of chemicals, chemical products and man-made fibres DL30 - Manufacture of office machinery and computers DL32 - Manufacture of radio, television and communication equipment and apparatus J65 - Financial intermediation, except insurance and pension funding J66 - Insurance and pension funding, except compulsory social security J67 - Activities auxiliary to financial intermediation K70 - Real estate activities K72 - Computer and related activities K73 - Research and development K74 - Other business activities L - Public administration and defence; compulsory social security M - Education
high-intermediate	DL33 - Manufacture of medical, precision and optical instruments, watches and clocks DM35 - Manufacture of other transport equipment E - Electricity, gas and water supply I62 - Air transport I63 - Supporting and auxiliary transport activities; activities of travel agencies I64 - Post and telecommunications K71 - Renting of machinery and equipment without operator and of personal and household goods N - Health and social work
Low-intermediate	DD - Manufacture of wood and wood products DE21 - Manufacture of pulp, paper and paper products DE22 - Publishing, printing, reproduction of recorded media DJ28 - Manufacture of fabricated metal products, except machinery and equipment DK - Manufacture of machinery and equipment n.e.c. DL31 - Manufacture of electrical machinery and apparatus n.e.c. F - Construction G50 - Sale, maintenance and repair of motor vehicles G51 - Wholesale trade and commission trade, except of motor vehicles and motorcycles G52 - Retail trade, except of motor vehicles, motorcycles; repair of personal and household goods I60 - Land transport; transport via pipelines I61 - Water transport
Low	A - Agriculture, hunting and forestry B - Fishing C - Mining and quarrying DA15 - Manufacture of food products and beverages DA16 - Manufacture of tobacco products DB17 - Manufacture of textiles DB18 - Manufacture of wearing apparel; dressing; dyeing of fur DC - Manufacture of leather and leather products DH - Manufacture of rubber and plastic products DI - Manufacture of other non-metallic mineral products DJ27 - Manufacture of basic metals DM34 - Manufacture of motor vehicles, trailers and semi-trailers DN36 - Manufacture of furniture; manufacturing n.e.c. DN37 - Recycling H - Hotels and restaurants O90 - Sewage and refuse disposal, sanitation and similar activities O91 - Activities of membership organization n.e.c. O92 - Recreational, cultural and sporting activities O93 - Other service activities

3.7.   High-tech products in external trade: SITC Rev.3

Sector	SITC Rev.3	Product
Aerospace	792	Aircraft and associated equipment, excluding 7928, 79295, 79297
	714	Aeroplane motors, excluding 71489, 71499
	87411	Other navigational instruments
Computers – Office machines	75113	Word-processing machines
	7513	Photo-copying apparatus excluding 75133, 75135
	752	Computers: excluding 7529
	75997	Parts and accessories of group 752
Electronics – Telecommunications	76381	Video apparatus
	76383	Other sound reproducing equipment
	764	Telecommunications equipment excluding 76493, 76499
	7722	Printed circuits
	77261	Electrical boards and consoles 1000V
	77318	Optical fibre cables
	77625	Microwave tubes
	77627	Other valves and tubes
	7763	Semi-conductor devices
	7764	Electronic integrated circuits and micro-assemblies
	7768	Piezo-electric crystals
	89879	Numeric recording stays
Pharmacy	5413	Antibiotics
	5415	Hormones and their derivatives
	5416	Glycosides, glands, antisera, vaccines
	5421	Medicaments containing antibiotics or derivatives thereof
	5422	Medicaments containing hormones or other products of heading 5415
Scientific instruments	774	Electro-diagnostic apparatuses for medicine or surgery and radiological apparatuses
	871	Optical instruments and apparatuses
	87211	Dental drill engines
	874	Measuring instruments and apparatuses excluding 87411, 8742
	88111	Photographic cameras
	88121	Cinematographic cameras
	88411	Contact lenses
	88419	Optical fibres other than those of heading 7731
	8996	Orthopaedic appliances excluding 89965, 89969
Electrical machinery	7786	Electrical capacitors, fixed, variable or adjustable excluding 77861, 77866, 77869
	7787	Electrical machines having individual functions
	77884	Electric sound or visual signalling apparatus
Non-electrical machinery	71489	Other gas turbines
	71499	Part of gas turbines
	7187	Nuclear reactors and parts thereof, fuel elements etc..
	72847	Machinery and apparatus for isotopic separation
	7311	Machine-tools working by laser or other light or photon beam, ultrasonic electro- discharge or electro-chemical process
	7313	Lathes for removing metal excluding 73137, 73139
	73142	Otherdrilling machines, numerically controlled
	73144	Other boring-milling machines, numerically controlled

	73151	Milling machines, knee-type, numerically controlled
	73153	Other milling machines, numerically controlled
	7316	Machine-tools for deburring, sharpening, grinding, lapping etc; excluding 73162, 73166, 73167, 73169
	73312	Bending, folding, straightening or flattening machines, numerically controlled
	73314	Shearing machines, numerically controlled
	73316	Punching machines, numerically controlled
	7359	Parts and accessories of 731- and 733-
	73733	Machines and apparatuses for resistance welding of metal fully or partly automatic
	73735	Machines and apparatuses for arc, including plasma arc welding of metal; fully or partly automatic
Chemistry	52222	Selenium, tellurium, phosphorus, arsenic and boron
	52223	Silicon
	52229	Calcium, Strontium and barium
	52269	Other inorganic bases
	525	Radio active materials
	531	Synthetic organic colouring matter and colour lakes
	57433	Polyethelene terephthasase
	591	Insecticides, disinfectants
Armament	891	Arms and ammunition

3.8. High-tech products in external trade: SITC Rev.4

Sector	SITC Rev.3	Product
Aerospace	(714-714.89-714.99)+	Aeroplane motors, excluding 714.89 and 714.99
	792.1+	Helicopters
	792.2+792.3+792.4+	Aeroplanes and other aircraft, mechanically-propelled (other than helicopters)
	792.5+	Spacecraft (including satellites) and spacecraft launch vehicles
	792.91+	Propellers and rotors and parts thereof
	792.93+	Undercarriages and parts thereof
	874.11	Direction finding compasses; other navigational instruments and appliances
Computers - office machines	751.94+	Multifunction office machines, capable of connecting to a computer or a network
machines	751.95+	Other office machines, capable of connecting to computer or a network
	752+	Computers
	759.97	Parts and accessories of group 752
Electronics - telecommunications	763.31+	Sound recording or reproducing apparatus operated by coins, bank cards, etc
	763.8+	Video apparatus
	(764-764.93-764.99)+	Telecommunications equipment, excluding 764.93 and 764.99
	772.2+	Printed circuits
	772.61+	Electrical boards and consoles < 1000V
	773.18+	Optical fibre cables
	776.25+	Microwave tubes
	776.27+	Other valves and tubes
	776.3+	Semiconductor devices
	776.4+	Electronic integrated circuits
	776.8+	Piezoelectric crystals
	898.44+	Optical media
	898.46	Semiconductor media
Pharmacy	541.3+	Antibiotics
	541.5+	Hormones and their derivatives
	541.6+	Glycosides, glands, antisera, vaccines
	542.1+	Medicaments containing antibiotics or derivatives thereof
	542.2	Medicaments containing hormones or other products of subgroup 541.5
Scientific instruments	774+	Electrodiagnostic apparatus for medicine or surgery and radiological apparatus
	871+	Optical instruments and apparatus
	872.11+	Dental drill engines
	(874-874.11-874.2)+	Measuring instruments and apparatus, excluding 874.11, 874.2
	881.11+	Photographic cameras
	881.21+	Cinematographic cameras
	884.11+	Contact lenses
	884.19+	Optical fibres other than those of heading 773.1
	(899.6-899.65-899.69)	Orthopaedic appliances, excluding 899.65, 899.69

Electrical machinery	(778.6-778.61-778.66-778.69)+	Electrical capacitors, fixed, variable or adjustable, excluding 778.61, 778.66, 778.69
	778.7+	Electrical machines, having individual functions
	778.84	Electric sound or visual signalling apparatus
Chemistry		Selenium, tellurium, phosphorus, arsenic and boron
	522.22+	
	522.23+	Silicon
	522.29+	Calcium, strontium and barium
	522.69+	Other inorganic bases
	525+	Radioactive materials
		Synthetic organic colouring matter and colour lakes
	531+	
	574.33+	Polyethylene terephthalate
	591	Insecticides, disinfectants
Non-electrical machinery	714.89+	Other gas turbines
	714.99+	Part of gas turbines
		Nuclear reactors and parts thereof, fuel elements, etc
	718.7+	
	728.47+	Machinery and apparatus for isotopic separation
		Machine-tools working by laser or other light or photon beam, etc
	731.1+	
	731.31+	Horizontal lathes, numerically controlled
	731.35+	Other lathes, numerically controlled
	731.42+	Other drilling machines, numerically controlled
		Other boring-milling machines, numerically controlled
	731.44+	
		Milling machines, knee-type, numerically controlled
	731.51+	
	731.53+	Other milling machines, numerically controlled
		Flat-surface grinding machines, numerically controlled
	731.61+	
	731.63+	Other grinding machines, numerically controlled
	731.65+	Sharpening machines, numerically controlled
		Bending, folding, straightening or flattening machines, numerically controlled
	733.12+	
	733.14+	Shearing machines, numerically controlled
	733.16+	Punching machines, numerically controlled
	735.9+	Parts and accessories of 731 and 733
		Machines and apparatus for resistance welding of metal, fully or partly automatic
	737.33+	
		Machines and apparatus for arc welding of metal, fully or partly automatic
	737.35	
Armament	891	Arms and ammunition

3.9. RCA and share in World exports in manufacturing: countries in "World"

ALGERIA
ARGENTINA
AUSTRALIA
AUSTRIA
BAHRAIN
BANGLADESH
BELARUS
BELGIUM
BRAZIL
BULGARIA
CANADA
CHILE
CHINA
COLOMBIA
COSTA RICA
CROATIA
CYPRUS
CZECH REP.
DENMARK
EGYPT
ESTONIA
FINLAND
FRANCE
GERMANY
GREECE
HONG KONG
HUNGARY
INDIA
INDONESIA
IRELAND
ISRAEL
ITALY
JAPAN
KOREA RP
KUWAIT
LATVIA

LITHUANIA
LUXEMBURG
MALAYSIA
MALTA
MEXICO
MOROCCO
NETHERLANDS
NEW ZEALAND
NORWAY
OMAN
OTH.ASIA NES
PAKISTAN
PERU
POLAND
PORTUGAL
QATAR
ROMANIA
RUSSIAN FEDER.
SAUD.ARABIA
SINGAPORE
SLOVAKIA
SLOVENIA
SOUTH AFRICA
SPAIN
SRI LANKA
SWEDEN
SWITZ.
THAILAND
TUNISIA
TURKEY
UKRAIN
UNITED KINGDOM
UNTD ARAB EM
USA PUERTO RICO AND US VIRGIN ISLANDS
VENEZUELA

3.10. RCA and share in World exports in services: countries in "World"

Argentina	Korea, Republic of
Australia	Kuwait
Áustria	Lebanon
Bahamas	Lithuania
Belarus	Luxembourg
Belgium	Malaysia
Brazil	Mexico
Bulgaria	Morocco
Canada	Netherlands
Chile	New Zealand
China	Nigeria
China, Hong Kong SAR	Norway
China, Macao SAR	Panama
China, Taiwan Province of	Peru
Colombia	Philippines
Costa Rica	Poland
Croatia	Portugal
Cyprus	Qatar
Czech Republic	Romania
Denmark	Russian Federation
Dominican Republic	Saudi Arabia
Egypt	Singapore
Finland	Slovakia
France	Slovenia
Germany	South Africa
Greece	Spain
Hungary	Sweden
India	Switzerland
Indonesia	Syrian Arab Republic
Iran (Islamic Republic of)	Thailand
Ireland	Tunisia
Israel	Turkey
Italy	Ukraine
Jamaica	United Kingdom
Japan	United States
Jordan	

Country tables

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Aggregate level

	2005	2006	2007	2008	2009	2010
Indicators						
Trade openness (% of GDP)	36.84	39.40	39.87	41.15	36.13	40.13
Relative trade balance	0.01	0.01	0.01	.	0.01	0.01
Share of world exports market (%)	39.18	38.30	38.49	36.88	37.17	34.68
Nominal unit labour costs growth: t/t-1 (%)	.	.	.	.	.	.
Nominal unit labour costs growth: t/t-5 (%)	.	.	.	.	.	.
Total goods and services real export growth: t/t-1 (%)	5.74	9.46	5.46	1.47	-12.39	10.54
Total goods and services real export growth: t/t-5 (%)	4.20	5.29	5.98	5.93	1.65	2.55
Real effective exchange rates (2000=100)	.	.	.	.	.	.
Total public expenditure on education (% of GDP)	5.04	5.04	4.96	.	.	.
Human Resources in S and T as % of total employment **	39.80	40.50	40.80	41.20	42.10	.
RCA index: high tech	0.84	0.84	0.81	0.84	0.88	.
RCA index: medium-high tech	1.12	1.13	1.14	1.14	1.15	.
RCA index: medium-low tech	0.95	0.95	0.93	0.90	0.87	.
RCA index: low tech	1.02	1.03	1.03	1.03	1.02	.
Exports of high technology products (% of total exports)	18.74	16.64	15.96	15.36	.	.
High skills sectors: share in GDP (%)	40.93	40.97	41.12	.	.	.
Specialisation index* (hs)	1.00	1.00	1.00	.	.	.
High-intermediate skills sectors: share in GDP (%)	15.29	15.28	15.03	.	.	.
Specialisation index* (his)	1.00	1.00	1.00	.	.	.
Low-intermediate skills sectors: share in GDP (%)	26.87	26.95	27.09	.	.	.
Specialisation index* (lis)	1.00	1.00	1.00	.	.	.
Low skills sectors: share in GDP (%)	16.91	16.80	16.76	.	.	.
Specialisation index* (ls)	1.00	1.00	1.00	.	.	.
High technology manufacturing sectors: share in GDP (%)	2.25	2.25	2.24	.	.	.
specialisation index* (ht)	1.00	1.00	1.00	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	6.09	6.19	6.17	.	.	.
specialisation index* (mht)	1.00	1.00	1.00	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	5.70	5.77	5.82	.	.	.
specialisation index* (mlt)	1.00	1.00	1.00	.	.	.
Low technology manufacturing sectors: share in GDP (%)	5.32	5.16	5.08	.	.	.
specialisation index* (lt)	1.00	1.00	1.00	.	.	.
Knowledge-intensive services: share in GDP (%)	48.00	48.19	48.36	.	.	.
specialisation index* (kis)	1.00	1.00	1.00	.	.	.
Less knowledge-intensive services: share in GDP (%)	32.64	32.44	32.32	.	.	.
specialisation index* (lkis)	1.00	1.00	1.00	.	.	.
Foreign Direct investment flows (% of GDP)	5.33	6.21	8.31	4.51	3.20	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2006	2007	2000	2006	2007
sector						
1 - Transport	0.96	0.97	0.97	43.92	47.18	47.85
2 - Travel	0.99	0.95	0.94	45.21	46.28	46.29
3 - Other services	1.02	1.03	1.04	46.72	49.97	51.03
3a - Communications	1.06	1.15	1.12	48.26	55.64	55.19
3b - Construction	1.21	1.14	1.09	55.03	55.12	53.60
3c - Insurance	1.04	1.10	1.14	47.67	53.46	56.16
3d - Financial services	1.32	1.14	1.17	60.06	55.27	57.58
3e - Computer and information	1.17	1.12	1.11	53.49	54.14	54.58
3f - Royalties and licence fees	0.57	0.61	0.61	26.04	29.57	30.20
3g - Other business services	1.06	1.08	1.07	48.22	52.35	52.53
3h - Personal, cultural and recreational services	0.85	0.85	0.82	38.71	41.11	40.53
3i - Government services n.i.e.	0.63	0.76	0.77	28.77	36.69	37.87
Total services	1.00	1.00	1.00	45.64	48.51	49.18

Nace - Revision 2

nace	Production growth (%)		Employment growth (%)		Labour productivity per person growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
B-D F	4.5	-0.9	.	.	.	.	.	.
C	7.6	-0.3	-3.7	-2.3	11.7	2.0	-6.8	1.1
C10	2.4	0.8	-0.4	-0.5	2.8	1.4	-0.5	1.5
C11	-1.2	-0.0	-1.7	-2.2	0.5	2.2	0.7	0.6
C12	-5.9	-5.9	-5.0	-5.6	-1.0	-0.3	0.7	4.7
C13	8.5	-4.5	-5.2	-7.2	14.5	2.9	-9.3	0.5
C14	0.7	-1.9	-9.1	-7.9	10.8	6.5	-5.4	-0.8
C15	2.9	-4.4	-3.9	-5.5	7.1	1.2	-1.2	4.6
C16	3.8	-2.9	-3.8	-3.7	7.9	0.8	-4.8	3.1
C17	6.1	-0.2	-2.8	-3.1	9.1	2.9	-5.2	-0.4
C18	1.3	-1.6	-5.1	-3.2	6.7	1.6	-6.2	0.0
C19	0.2	-0.7	-3.9	-1.9	4.3	1.2	0.9	3.7
C20	9.9	0.2	-2.6	-2.2	12.8	2.5	-9.7	0.0
C21	6.9	3.8	-0.7	-0.8	7.7	4.6	-6.7	-1.7
C22	7.8	-0.7	-1.2	-1.4	9.2	0.7	-5.4	1.3
C23	2.6	-3.7	-5.6	-3.5	8.7	-0.2	-3.6	3.6
C24	18.9	-2.0	-6.1	-3.3	26.6	1.2	-14.8	2.4
C25	7.4	-1.9	-4.4	-1.2	12.4	-0.7	-6.8	3.4
C26	11.2	3.5	-4.4	-3.0	16.4	6.6	-11.1	-3.8
C27	11.1	-0.0	-3.2	-1.4	14.8	1.4	-8.9	0.9
C28	10.4	-0.5	-5.7	-1.2	17.0	0.7	-9.4	2.6
C29	21.0	-1.2	-2.5	-2.4	24.1	1.2	-15.0	0.4
C30	-3.0	1.6	-6.2	-0.9	3.4	2.4	1.4	1.8
C31	-0.9	-3.3	-6.2	-3.6	5.6	0.3	-2.4	3.0
C32	8.0	1.5	-1.1	-0.8	9.2	2.3	-6.1	0.3
C33	3.5	2.4	-3.3	-0.3	7.1	2.6	-4.1	0.5

nace	Value Added share in GDP (%) 2008	Value-added growth (%) 2007-2008	Value-added growth (%) 2003-2008	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Gross operating rate 2007	Patent intensity 2008	Labour productivity per person growth (%) 2007-2008	Labour productivity per person growth (%) 2003-2008	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.93	1.88	-1.32	1.81	-0.53	29.62		4.95	0.43	.	.	.
D	16.52	-2.26	2.08	-5.53	-1.22	9.55	1.71	-2.20	2.37	.	.	.
DA15	1.90	-2.73	1.00	-4.51	-0.95	9.07	0.30	-3.09	1.13	0.03	0.12	42.01
DA16	0.07	-1.92	-5.28	1.24	-4.01	9.60	0.57	-0.09	1.28	0.07	0.20	49.75
DB17	0.28	-4.17	-2.36	-6.03	-4.07	9.00	0.39	-0.40	1.93	-0.08	-0.12	26.02
DB18	0.25	1.38	-0.82	-6.65	-5.64	9.47	0.10	6.27	4.21	-0.20	-0.04	30.84
DC19	0.13	-4.41	-2.56	-5.38	-3.70	9.27	0.38	-4.25	0.64	-0.07	0.10	40.11
DD20	0.36	-5.46	-0.49	-7.04	-2.59	11.30	0.12	-1.65	0.75	0.04	0.12	42.38
DE21	0.42	-1.67	0.88	-4.69	-0.83	9.04	0.67	-1.39	1.25	0.07	0.14	43.56
DE22	0.88	-0.56	1.16	-5.56	-2.91	13.30	0.07	5.65	3.30	0.10	0.12	42.20
DF23	0.32	-10.41	-1.11	-6.67	-4.05	3.83	1.40	-17.31	0.82	-0.01	-0.10	27.32
DG24	1.69	-0.77	2.18	-4.99	-1.41	12.81		-1.19	3.14	0.07	0.10	40.23
DH25	0.74	-0.63	2.28	-5.76	-0.60	9.71	0.93	-1.92	1.54	0.04	0.04	35.65
DI26	0.74	-3.65	1.20	-7.33	-1.09	14.46	0.74	-4.39	1.49	0.08	0.08	38.85
DJ27	0.78	-6.56	-0.76	-6.06	-1.67	10.03	0.82	-6.23	0.19	.	-0.11	26.49
DJ28	1.67	-2.52	2.61	-6.03	0.07	11.75	0.61	-2.73	1.45	0.08	0.04	35.84
DK29	2.00	-0.20	3.93	-4.54	0.22	9.73		-2.89	3.15	0.20	.	33.43
DL30	0.07	4.78	7.86	0.84	-0.11	.	35.68	2.79	9.71	-0.19	-0.26	19.61
DL31	0.88	1.05	4.00	-5.95	-0.38	8.56		-2.23	3.10	0.08	-0.05	30.06
DL32	0.41	0.74	10.66	-7.65	-1.57	9.00		3.25	10.53	-0.15	-0.31	17.31
DL33	0.53	-2.03	3.88	-4.21	0.27	.		-2.65	2.81	0.06	-0.13	25.73
DM34	1.27	-8.51	1.85	-6.20	-0.70	5.84	2.47	-9.30	0.97	0.12	0.03	35.44
DM35	0.43	3.25	4.46	-3.57	1.29	8.30	2.50	1.96	2.07	0.05	-0.01	32.35
DN36	0.57	-0.84	1.22	-5.82	-1.84	10.19	0.94	-0.13	1.21	-0.05	-0.09	27.48
DN37	0.11	9.71	1.66	-4.09	2.75	10.40		2.32	-3.36	.	.	.
E	2.33	0.87	0.62	-2.20	-0.83	15.00		1.07	1.49	.	.	.
F	6.43	-0.75	1.80	-5.14	1.38	12.55		-1.06	-1.02	.	.	.
G-K X K7415				.		.		.		.	.	.
G50	1.72	-2.10	1.11	-2.50	0.20	5.33		-3.26	0.04	.	.	.
G51	5.40	1.14	3.44	-2.36	1.53	5.47		-1.43	1.05	.	.	.
G52	4.24	0.44	1.48	-1.60	0.39	7.06		-0.39	0.54	.	.	.
H	2.92	0.76	2.20	-1.08	1.59	14.70		-0.41	-0.22	.	.	.
I60	2.63	0.55	2.46	-1.58	0.40	14.03		-1.07	1.94	.	.	.
I61	0.38	10.90	14.00	-1.42	1.38	15.79		7.86	12.17	.	.	.
I62	0.20	-18.21	-0.70	-2.63	0.18	4.80		-18.19	-0.70	.	.	.
I63	1.41	1.62	4.16	-2.58	2.32	14.00		-1.06	0.34	.	.	.
I64	2.27	2.94	3.26	-0.72	-0.32	26.00		4.17	4.00	.	.	.
J	5.36	1.03	4.36	-0.50	0.74	.		0.69	3.60	.	.	.
K70	11.47	1.93	2.38	2.52	3.51	37.00		-0.98	-1.33	.	.	.
K71	0.99	3.57	3.50	-3.44	0.50	4.		-4.15	0.24	.	.	.
K72	1.85	4.26	5.06	-0.75	3.25	16.41		0.03	1.29	.	.	.
K73	0.69	0.82	2.75	0.22	2.44	.		-1.88	0.38	.	.	.
K74	7.88	1.86	3.69	-2.58	2.85	19.05		-1.06	-0.51	.	.	.

Belgium

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	78.22	80.41	81.47	85.26	71.59	79.78
Relative trade balance	0.03	0.02	0.02	0.01	0.02	0.02
Share of world exports market (%)	3.22	3.06	3.10	2.94	2.99	2.77
Nominal unit labour costs growth: t/t-1 (%)	1.46	1.81	2.12	4.39	4.34	-0.40
Nominal unit labour costs growth: t/t-5 (%)	1.68	1.20	1.17	1.83	2.82	2.44
Total goods and services real export growth: t/t-1 (%)	4.60	5.06	4.40	1.67	-11.59	10.53
Total goods and services real export growth: t/t-5 (%)	3.12	3.93	4.26	4.45	0.62	1.73
Real effective exchange rates (2000=100)	106.92	107.88	109.43	112.39	114.06	111.17
Total public expenditure on education (% of GDP)	5.93	6.00	6.02	6.46	.	.
Human Resources in S and T as % of total employment **	48.40	48.80	48.60	48.70	5.	.
RCA index: high tech	0.76	0.72	0.80	0.83	0.94	.
RCA index: medium-high tech	1.14	1.15	1.10	1.08	1.08	.
RCA index: medium-low tech	0.98	1.01	0.98	0.99	0.91	.
RCA index: low tech	1.07	1.09	1.06	1.06	1.04	.
Exports of high technology products (% of total exports)	7.05	6.66	6.63	6.80	.	.
High skills sectors: share in GDP (%)	46.19	46.28	46.19	.	.	.
Specialisation index* (hs)	1.13	1.13	1.12	.	.	.
High-intermediate skills sectors: share in GDP (%)	16.15	16.24	16.18	.	.	.
Specialisation index* (his)	1.06	1.06	1.08	.	.	.
Low-intermediate skills sectors: share in GDP (%)	25.06	25.06	25.40	.	.	.
Specialisation index* (lis)	0.93	0.93	0.94	.	.	.
Low skills sectors: share in GDP (%)	12.59	12.42	12.23	.	.	.
Specialisation index* (ls)	0.74	0.74	0.73	.	.	.
High technology manufacturing sectors: share in GDP (%)	2.24	2.22	2.22	.	.	.
specialisation index* (ht)	0.99	0.99	0.99	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	5.38	5.31	4.83	.	.	.
specialisation index* (mht)	0.88	0.86	0.78	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	5.98	5.84	6.05	.	.	.
specialisation index* (mlt)	1.05	1.01	1.04	.	.	.
Low technology manufacturing sectors: share in GDP (%)	5.00	4.79	4.71	.	.	.
specialisation index* (lt)	0.94	0.93	0.93	.	.	.
Knowledge-intensive services: share in GDP (%)	48.90	49.45	49.66	.	.	.
specialisation index* (kis)	1.02	1.03	1.03	.	.	.
Less knowledge-intensive services: share in GDP (%)	32.51	32.39	32.53	.	.	.
specialisation index* (lkis)	1.00	1.00	1.01	.	.	.
Foreign Direct investment flows (% of GDP)	9.13	14.76	25.82	20.36	7.17	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

sector	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000*	2008	2009	2000*	2008	2009
1 - Transport	0.95	1.36	1.25	3.21	3.22	3.14
2 - Travel	0.50	0.57	0.50	1.68	1.35	1.27
3 - Other services	1.34	1.03	1.12	4.51	2.46	2.82
3a - Communications	1.80	1.90	2.08	6.06	4.52	5.24
3b - Construction	0.95	0.57	0.65	3.19	1.36	1.64
3c - Insurance	1.25	0.67	0.71	4.22	1.60	1.79
3d - Financial services	3.83	0.58	0.50	12.91	1.38	1.26
3e - Computer and information	1.16	0.77	0.84	3.91	1.84	2.12
3f - Royalties and licence fees	0.28	0.25	0.54	0.95	0.60	1.35
3g - Other business services	0.91	1.37	1.50	3.08	3.26	3.77
3h - Personal, cultural and recreational services	0.90	0.60	0.61	3.03	1.43	1.53
3i - Government services n.i.e.	0.97	1.51	1.32	3.27	3.59	3.33
Total services	1.00	1.00	1.00	3.37	2.38	2.51

* 2000: Belgium + Luxembourg

Nace - Revision 2

	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
nace												
B-D_F	8.4	1.9	.	.	.	.	.	.	.	.	.	.
C	11.9	2.7	-3.0	-1.6	0.9	-2.4	15.3	4.4	10.9	5.3	-10.2	-1.7
C10	4.0	3.1	-0.9	-0.5	1.6	-0.8	4.9	3.6	2.3	3.9	-3.8	-0.5
C11	0.7	-0.2	-1.2	-2.0	-0.7	-2.0	1.9	1.8	1.4	1.8	-2.4	0.8
C12	7.3	6.1	-4.1	-2.8	-2.0	-3.3	11.9	9.2	9.5	9.7	-7.3	-6.9
C13	9.5	-2.4	-6.9	-6.7	-0.1	-8.1	17.7	4.6	9.7	6.2	-10.8	-2.7
C14	-6.9	-9.1	-5.7	-5.3	-2.1	-7.4	-1.2	-3.9	-4.9	-1.8	3.4	6.0
C15	-4.8	-5.8	-13.3	-6.7	-4.7	-7.0	9.7	0.9	-0.2	1.2	-1.3	3.3
C16			-2.0	-2.1	0.7	-3.0			.	.	.	.
C17	6.1	1.6	-2.9	-2.8	0.2	-3.1	9.3	4.5	5.9	4.9	-4.7	-1.9
C18	.	.	-3.8	-1.8	-4.0	-3.4			.	.	.	.
C19	3.0	-1.6	0.5	1.1	2.8	0.9	2.5	-2.7	0.2	-2.6	-1.3	5.8
C20	12.0	0.1	-1.5	-1.9	0.3	-2.1	13.7	2.0	11.7	2.3	-9.9	0.6
C21	17.9	4.4	0.8	5.5	0.8	5.6	17.0	-1.1	16.9	-1.1	-11.5	5.8
C22	4.8	-0.1	-2.2	-0.6	1.2	-1.2	7.1	0.5	3.5	1.2	-3.1	1.9
C23	0.8	-1.5	-2.7	-0.1	-0.7	-1.8	3.5	-1.4	1.5	0.3	-2.0	2.8
C24	26.1	-0.6	-5.3	-3.5	1.7	-4.7	33.2	2.9	24.0	4.2	-20.2	-1.2
C25	-0.4	0.1	-2.8	-0.7	1.9	-1.8	2.5	0.8	-2.2	1.9	1.8	1.5
C26	39.1	29.4	-1.4	-3.5	4.2	-4.5	41.1	34.1	33.6	35.6	-28.0	-23.3
C27	5.9	-0.7	-6.2	-0.5	-2.5	-0.9	12.9	-0.2	8.6	0.2	-7.8	3.0
C28	10.1	7.6	-4.3	-0.3	-0.1	-1.3	15.1	7.9	10.2	9.0	-9.8	-5.4
C29	16.9	-3.9	-5.8	-5.1	4.0	-6.6	24.2	1.3	12.5	2.9	-11.2	0.2
C30	-4.0	-0.2	-0.3	-0.8	-1.4	-1.5	-3.7	0.5	-2.7	1.3	3.8	2.1
C31	-1.4	4.1	-3.2	-2.2	-1.1	-2.7	1.8	6.4	-0.3	7.0	-0.8	-3.9
C32	7.9	-1.3	-1.0	0.1	4.7	-0.8	9.0	-1.4	3.1	-0.6	-4.0	7.6
C33	-10.9	-3.1	-3.7	-0.5	1.1	-2.1	-7.5	-2.7	-11.9	-1.0	12.2	4.6

Belgium
Nace - Revision 1

nace	Value Added share in GDP (%) 2008	Value-added growth (%) 2007-2008	Value-added growth (%) 2003-2008	Employment growth (%) 2007-2008	Employment growth (%) 2003-2008	Mark-up 1993-2004	Mark-up 1981-1992	Gross operating rate 2007	Business churn 2006	Openness ratio 2007	R&D intensity 2007	Patent intensity 2008	Labour productivity per person growth (%) 2007-2008	Labour productivity per person growth (%) 2003-2008	ULC growth (%) 2007-2008	ULC growth (%) 2003-2008	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C				-3.23	-1.28			16.60			0.61								
D	15.37			-0.17	-1.08			8.30	8.27		6.18	1.90							
DA15	2.03	6.15	3.70	-0.43	-0.42	1.07	1.11	7.50		0.58	1.53	0.42	6.60	4.14	-2.55	-1.17	0.15	0.10	4.57
DA16	0.07	-4.10	-3.97		-3.04	1.04	1.27	1		0.63	0.07	0.46	-4.10	-0.97	5.30	2.46	0.03	-0.03	3.53
DB17	0.41	-1.03	2.67	-5.67	-4.91	1.07	1.09	7.10		0.80	2.79	0.36	4.91	7.97	-2.79	-4.51	0.20	-0.08	3.15
DB18	0.11	-11.50	-8.13	-3.90	-5.07	1.10	1.09	8.30		3.54	1.15	0.23	-7.91	-3.22	13.43	7.55	0.02	-0.08	3.19
DC19	0.03	-8.18	-1.15		-4.36			8.70		10.54	6.25	0.91	-8.18	3.36	11.00	-0.23	0.21	0.05	4.12
DD20	0.29	-9.14	0.17	-2.08	-0.14			14.80	9.26	0.30	0.59	0.16	-7.21	0.31	7.84	2.14	-0.01	-0.08	3.19
DE21	0.35	5.24	3.23	-0.73	-2.46	1.10	1.14	9.10		0.86	0.73	1.09	6.01	5.83	-3.12	-2.72	-0.01	-0.04	3.43
DE22	0.79	-0.03	2.89	0.32	-0.68	1.13	1.19	12.10		0.17	0.26	0.11	-0.34	3.59	2.84	-1.49	0.01	0.09	4.43
DF23	0.61	4.13	9.57		-0.70			3.30		0.43	0.83	1.02	4.13	10.34	1.39	-6.76	0.12	-0.01	3.66
DG24	2.99	-1.00	0.15	0.72	-0.26			14.40	6.38	2.04	15.17		-1.71	0.40	7.01	3.22	0.12	0.38	8.33
DH25	0.63	3.69	7.84	0.79	0.08			9.30		1.13	5.54	1.35	2.88	7.75	-0.84	-4.35	0.06	0.01	3.78
DI26	0.83	2.16	0.12		-1.44			11.20	6.63	0.45	1.93	0.96	2.16	1.59	1.08	1.75	0.11	0.03	3.97
DJ27	1.08	-17.84	-2.85	0.28	-0.71	1.19	1.11	8.00		0.81	2.37	0.69	-18.07	-2.15	25.52	4.90	0.12	-0.04	3.46
DJ28	1.36	4.47	2.92	1.60	0.91	1.11	1.15	9.90		0.37	1.59	0.56	2.82	1.99	0.20	0.61	-0.05	-0.18	2.58
DK29	1.18	-5.04	3.15	3.80	1.28			10.60	6.84	1.23	7.13		-8.51	1.85	15.02	1.47	0.03	-0.22	2.39
DL30	0.05	3.32	10.01	18.18	13.18	1.38	1.96	8.10		3.76	22.20	59.46	-12.57	-2.80	12.99	8.12	-0.11	-0.71	0.64
DL31	0.58	8.81	0.22	6.47	-0.64	1.11	1.13	9.30		0.86	11.22		2.20	0.86	1.96	1.67	0.01	-0.37	1.71
DL32	0.28	-20.44	-6.44	-11.61	-7.35	1.04	1.10	12.30		0.45	33.46		-9.99	0.99	11.44	-0.87	-0.16	-0.68	0.72
DL33	0.18	-3.83	2.55	4.82	1.95	1.17	1.17	11.70		3.12	19.01		-8.25	0.59	16.51	3.20	0.01	-0.26	2.19
DM34	0.88	0.90	-4.16	-6.21	-4.47	1.06	1.07	1.30		1.62	3.18	2.29	7.58	0.32	-19.94	2.54	-0.07	0.04	4.01
DM35	0.19	-0.97	1.75	3.37	-0.43	1.07	1.04	9.10		0.94	14.31	4.03	-4.20	2.19	6.95	0.69	0.06	-0.55	1.08
DN36	0.36	0.38	-0.48	-1.31	-3.06	1.03	1.08	8.40		2.58	1.32	1.20	1.72	2.66	1.32	0.40	-0.02	-0.10	3.03
DN37	0.11	-7.73	0.22	2.94	1.18	1.13	1.09	8.10			0.66		-10.37	-0.95	15.95	5.30			
E	2.24	0.52	0.79	3.50	0.69	1.44	1.68	10.40			0.11		-2.88	0.10	6.34	2.98			
F	5.49	-0.14	3.59	2.45	2.13	1.15	1.18	10.30	10.67		0.36		-2.53	1.43	6.79	1.34			
G-K_X_K7415									12.53										
G50	1.60	-11.41	-0.89	1.28	0.85	1.21	1.33	2.70	8.21				-12.53	-1.72	19.45	6.48			
G51	6.92	0.83	2.72	1.40	1.53	1.14	1.35	4.40	10.70				-0.57	1.17	4.78	2.25			
G52	4.23	2.20	0.77	0.27	0.27	1.20	1.22	6.90	9.88				1.93	0.49	3.90	4.09			
H	1.65	0.63	0.93	0.34	0.52	1.22	1.25	14.80	14.46		0.03		0.29	0.41	5.89	4.32			
I60	2.16	0.25	-2.26	3.05	-2.44	1.25	1.27	9.10	8.97				-2.72	0.19	6.29	1.81			
I61	0.35	46.84	9.19	2.44	1.49	1.07	1.08	9.60	13.76				43.34	7.59	-19.70	3.89			
I62	0.18	10.73	3.16	3.92	0.38	1.00	1.08	17.10	11.02				6.55	2.76	2.24	2.55			
I63	3.21	1.84	4.94	2.09	5.99	1.33	1.27	9.30	10.44				-0.24	-0.99	4.20	4.53			
I64	2.45	0.69	0.40	-3.08	-1.44	1.46	1.85	22.70	23.18				3.89	1.87	1.43	-0.52			
J	5.21	-1.32	3.38	-2.74	-0.87				19.71		0.51		1.46	4.28	2.49	-1.04			
K70	9.92	2.99	1.12	3.75	0.82	3.65	4.00	32.70	18.62				-0.73	0.29	4.71	4.78			
K71	0.90	9.09	4.85	2.08	1.49	1.54	1.71	36.90	11.50				6.87	3.31	-3.49	-0.04			
K72	1.72	7.52	6.16	7.31	4.49	1.20	1.12	12.30	15.20		4.51		0.20	1.60	1.82	0.04			
K73	0.28	7.49	4.39	3.49	3.48	0.95	0.93	6.00	11.68		54.64		3.87	0.88	1.99	2.56			
K74	11.47	3.81	6.37	5.80	5.26	1.27	1.35	13.00			0.91		-1.88	1.06	4.56	1.88			

Bulgaria

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	48.08	7.	69.32	68.47	51.92	58.75
Relative trade balance	-0.16	-0.13	-0.14	-0.15	-0.09	-0.02
Share of world exports market (%)	0.11	0.12	0.13	0.14	0.13	0.14
Nominal unit labour costs growth: t/t-1 (%)	5.58	3.14	9.25	12.46	12.75	0.78
Nominal unit labour costs growth: t/t-5 (%)	3.72	2.76	4.29	6.42	8.57	7.57
Total goods and services real export growth: t/t-1 (%)	-17.51	50.65	6.11	3.04	-11.22	16.25
Total goods and services real export growth: t/t-5 (%)	3.51	11.04	10.29	8.74	3.82	11.20
Real effective exchange rates (2000=100)	114.89	117.23	124.98	135.90	150.48	148.36
Total public expenditure on education (% of GDP)	4.51	4.24	4.13	4.61	.	.
Human Resources in S and T as % of total employment **	33.60	32.10	32.20	32.10	33.40	.
RCA index: high tech	0.17	0.19	0.25	0.29	0.37	.
RCA index: medium-high tech	0.53	0.49	0.54	0.57	0.60	.
RCA index: medium-low tech	2.13	2.31	2.05	1.94	1.81	.
RCA index: low tech	1.85	1.61	1.57	1.45	1.57	.
Exports of high technology products (% of total exports)	2.91	3.34	3.49	3.57	.	.
High skills sectors: share in GDP (%)	34.75	33.27	.	.	.	.
Specialisation index* (hs)	0.85	0.81	.	.	.	.
High-intermediate skills sectors: share in GDP (%)	17.32	16.18	.	.	.	.
Specialisation index* (his)	1.13	1.06	.	.	.	.
Low-intermediate skills sectors: share in GDP (%)	22.40	23.47	.	.	.	.
Specialisation index* (lis)	0.83	0.87	.	.	.	.
Low skills sectors: share in GDP (%)	25.52	27.09	.	.	.	.
Specialisation index* (ls)	1.51	1.61	.	.	.	.
High technology manufacturing sectors: share in GDP (%)	1.47	1.17	.	.	.	.
specialisation index* (ht)	0.65	0.52	.	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	3.96	3.94	.	.	.	.
specialisation index* (mht)	0.65	0.64	.	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	7.97	9.44	.	.	.	.
specialisation index* (mlt)	1.40	1.64	.	.	.	.
Low technology manufacturing sectors: share in GDP (%)	9.12	9.10	.	.	.	.
specialisation index* (lt)	1.71	1.76	.	.	.	.
Knowledge-intensive services: share in GDP (%)	44.40	42.61	.	.	.	.
specialisation index* (kis)	0.93	0.88	.	.	.	.
Less knowledge-intensive services: share in GDP (%)	33.08	33.74	.	.	.	.
specialisation index* (lkis)	1.01	1.04	.	.	.	.
Foreign Direct investment flows (% of GDP)	13.55	23.50	27.93	18.48	9.17	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	1.29	0.98	1.01	0.19	0.21	0.21
2 - Travel	1.65	2.28	2.29	0.24	0.49	0.49
3 - Other services	0.45	0.44	0.43	0.07	0.09	0.09
3a - Communications	0.98	1.39	1.40	0.14	0.30	0.30
3b - Construction	1.18	1.21	2.02	0.17	0.26	0.43
3c - Insurance	0.47	0.34	0.85	0.07	0.07	0.18
3d - Financial services	0.09	0.08	0.07	0.01	0.02	0.01
3e - Computer and information	0.08	0.43	0.41	0.01	0.09	0.09
3f - Royalties and licence fees	0.03	0.03	0.02		0.01	
3g - Other business services	0.54	0.49	0.37	0.08	0.10	0.08
3h - Personal, cultural and recreational services	0.73	0.86	0.69	0.11	0.19	0.15
3i - Government services n.i.e.	0.84	0.02	0.03	0.12	.	0.01
Total services	1.00	1.00	1.00	0.15	0.22	0.21

Bulgaria
Nace - Revision 2

	Indicators											
	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
nace												
B-D_F	-2.1	0.3	.	.	.	.	.	.	.	.	.	.
C	4.1	-0.7	-7.1	-3.6	-7.7	-4.4	12.1	3.0	12.8	3.9	-4.1	10.4
C10	4.4	3.1	-4.4	-0.4	-7.5	-1.4	9.2	3.5	12.8	4.5	-2.4	12.6
C11	-10.1	-2.7	-5.9	-5.1	-6.0	-5.8	-4.5	2.5	-4.4	3.4	11.5	13.5
C12	-8.5	-0.6	-0.0	-8.7	0.8	-8.6	-8.4	8.9	-9.1	8.7	23.9	4.0
C13	-4.9	-7.8	-8.6	-8.9	-8.0	-9.8	4.0	1.1	3.4	2.2	1.1	12.1
C14	-7.0	-7.3	-14.8	-7.9	-14.3	-8.7	9.1	0.7	8.5	1.5	-1.9	11.8
C15	-0.8	-4.9	-9.2	-5.3	-8.1	-6.0	9.3	0.4	8.0	1.2	-4.7	12.3
C16	17.9	-3.8	11.1	-1.9	7.6	-3.8	6.1	-1.9	9.6	-0.0	-6.4	11.8
C17	62.3	4.3	-8.5	-5.4	-10.4	-6.2	77.5	10.2	81.2	11.1	-39.4	0.8
C18	-3.3	2.1	6.8	8.3	6.6	7.7	-9.4	-5.7	-9.2	-5.1	12.8	19.4
C19											.	
C20	21.9	-1.1	-2.0	-3.4	-4.3	-4.3	24.3	2.3	27.4	3.3	-13.3	10.2
C21	12.7	-2.9	2.7	-2.6	3.2	-2.5	9.8	-0.3	9.2	-0.3	-2.6	11.1
C22	4.0	2.1	-7.0	1.0	-9.6	0.0	11.9	1.1	15.1	2.0	-0.1	12.4
C23	-9.2	-4.4	-19.1	-4.4	-20.2	-5.9	12.1	-0.0	13.7	1.5	-2.2	15.1
C24	1.5	-0.6	-21.6	-10.4	-17.8	-10.4	29.5	10.9	23.6	11.0	-19.0	-0.1
C25	14.0	-0.6	-3.6	-0.4	-5.6	-1.4	18.3	-0.2	20.8	0.9	-5.5	14.9
C26	7.0	1.0	-5.6	-5.1	-4.8	-5.6	13.3	6.3	12.3	7.0	-7.3	8.9
C27	10.8	7.4	-2.2	-0.9	1.0	-1.3	13.3	8.5	9.7	8.9	-1.2	7.6
C28	6.8	1.4	-13.0	-6.2	-8.9	-7.1	22.7	8.2	17.3	9.2	-9.2	4.8
C29	45.5	9.0	6.0	18.1	6.7	17.7	37.3	-7.7	36.4	-7.4	-17.1	27.7
C30	-20.9	-4.0	-11.9	1.9	-14.5	0.4	-10.2	-5.8	-7.6	-4.4	-3.5	13.5
C31	6.8	-0.4	5.3	1.0	-1.7	-1.2	1.4	-1.4	8.6	0.9	-9.9	11.9
C32	-6.9	6.3	-5.8	-5.6	-3.7	-5.2	-1.2	12.6	-3.4	12.2	6.7	3.5
C33	23.0	2.4	6.0	0.5	4.7	-0.8	16.1	2.0	17.5	3.2	-0.1	15.1

Bulgaria
Nace - Revision 1

nace	Value Added share in total business economy (%) 2006	Employment growth (%) 2009-2010	Employment growth (%) 2005-2010	Operating surplus 2007	Business churn 2006	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	5.04	-4.73	-1.94	34.60	16.12	.	.	.
D	28.28	-7.16	-1.67	11.50	15.76	.	.	.
DA15	4.17	.	.	10.60	.	-0.08	0.15	0.21
DA16	0.59	.	.	8.50	.	0.42	0.49	0.46
DB17	1.21	.	.	11.50	.	-0.31	0.26	0.26
DB18	2.57	.	.	15.00	.	0.52	0.60	0.63
DC19	.	-15.69	-3.16	.	16.05	0.01	0.16	0.22
DD20	0.65	-10.73	-1.21	12.50	18.37	0.20	0.20	0.23
DE21	0.47	.	.	10.80	.	-0.37	-0.49	0.05
DE22	0.95	.	.	18.90	.	-0.54	-0.57	0.04
DF23	.	-2.78	-14.59	.	.	0.25	0.35	0.32
DG24	2.06	-3.51	-2.52	16.10	.	-0.28	-0.27	0.09
DH25	0.98	-16.73	0.90	11.10	17.43	-0.26	-0.12	0.12
DI26	2.80	-15.18	-2.39	23.70	16.22	0.13	0.34	0.32
DJ27	2.99	.	.	9.40	.	0.38	0.45	0.41
DJ28	1.52	.	.	12.70	.	-0.31	-0.21	0.10
DK29	2.78	-6.12	-2.48	12.30	12.24	-0.20	-0.16	0.11
DL30	0.11	.	.	18.10	.	-0.53	-0.73	0.02
DL31	1.06	.	.	9.80	.	0.01	0.05	0.17
DL32	0.29	.	.	16.30	.	-0.45	-0.54	0.05
DL33	0.29	.	.	23.30	.	-0.02	-0.43	0.06
DM34	0.11	.	.	12.10	.	-0.48	-0.79	0.02
DM35	0.61	.	.	11.30	.	0.01	-0.45	0.06
DN36	0.91	.	.	14.50	.	-.	-0.21	0.10
DN37	0.21	.	.	24.30	.	.	.	.
E	8.63	-2.93	-2.02	12.30	15.21	.	.	.
F	8.34	-18.61	5.29	15.30	25.19	.	.	.
G-K_X_K7415	.	.	.	.	21.62	.	.	.
G50	3.10	.	.	7.10	16.27	.	.	.
G51	10.51	.	.	4.70	16.82	.	.	.
G52	4.46	.	.	6.20	20.48	.	.	.
H	2.59	-9.44	0.51	.	23.75	.	.	.
I60	3.99	.	.	.	20.43	.	.	.
I61	0.62	.	.	.	.	.	.	.
I62	0.20	.	.	.	.	.	.	.
I63	2.84	.	.	.	.	.	.	.
I64	7.25	.	.	.	18.67	.	.	.
J	6.67	-6.63	6.55	.	24.48	.	.	.
K70	1.82	.	.	.	47.66	.	.	.
K71	0.28	.	.	.	28.55	.	.	.
K72	1.25	.	.	.	25.08	.	.	.
K73	0.01	.	.	.	5.66	.	.	.
K74	4.12	.	.	.	.	.	.	.

Czech Republic

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	70.62	74.71	77.57	74.82	66.36	76.88
Relative trade balance	0.02	0.02	0.03	0.03	0.04	0.03
Share of world exports market (%)	0.75	0.79	0.88	0.91	0.91	0.89
Nominal unit labour costs growth: t/t-1 (%)	-0.27	1.10	2.87	5.05	3.53	-0.21
Nominal unit labour costs growth: t/t-5 (%)	3.30	2.36	1.76	2.04	2.44	2.45
Total goods and services real export growth: t/t-1 (%)	11.58	15.76	15.02	5.99	-10.75	18.01
Total goods and services real export growth: t/t-5 (%)	10.39	11.29	13.97	13.71	7.04	8.25
Real effective exchange rates (2000=100)	135.63	143.26	148.08	167.98	160.79	165.17
Total public expenditure on education (% of GDP)	4.26	4.60	4.20	4.08	.	.
Human Resources in S and T as % of total employment **	36.80	36.70	37.60	38.30	39.90	.
RCA index: high tech	0.61	0.68	0.81	0.85	0.82	.
RCA index: medium-high tech	1.24	1.27	1.20	1.26	1.32	.
RCA index: medium-low tech	1.17	1.05	0.99	0.90	0.89	.
RCA index: low tech	0.87	0.84	0.82	0.78	0.76	.
Exports of high technology products (% of total exports)	11.66	12.73	14.13	14.14	.	.
High skills sectors: share in GDP (%)	28.99	28.28	28.98	.	.	.
Specialisation index* (hs)	0.71	0.69	0.70	.	.	.
High-intermediate skills sectors: share in GDP (%)	15.28	15.57	15.25	.	.	.
Specialisation index* (his)	1.00	1.02	1.01	.	.	.
Low-intermediate skills sectors: share in GDP (%)	32.38	33.69	33.67	.	.	.
Specialisation index* (lis)	1.21	1.25	1.24	.	.	.
Low skills sectors: share in GDP (%)	23.35	22.47	22.10	.	.	.
Specialisation index* (ls)	1.38	1.34	1.32	.	.	.
High technology manufacturing sectors: share in GDP (%)	2.13	2.09	2.11	.	.	.
specialisation index* (ht)	0.95	0.93	0.94	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	10.47	10.89	11.23	.	.	.
specialisation index* (mht)	1.72	1.76	1.82	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	10.80	10.86	11.02	.	.	.
specialisation index* (mlt)	1.89	1.88	1.89	.	.	.
Low technology manufacturing sectors: share in GDP (%)	7.44	6.94	6.64	.	.	.
specialisation index* (lt)	1.40	1.35	1.31	.	.	.
Knowledge-intensive services: share in GDP (%)	33.10	32.48	33.28	.	.	.
specialisation index* (kis)	0.69	0.67	0.69	.	.	.
Less knowledge-intensive services: share in GDP (%)	36.07	36.74	35.72	.	.	.
specialisation index* (lkis)	1.11	1.13	1.11	.	.	.
Foreign Direct investment flows (% of GDP)	9.36	3.83	5.99	4.96	1.41	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

sector	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
1 - Transport	0.90	1.24	1.29	0.42	0.73	0.82
2 - Travel	1.45	1.40	1.32	0.67	0.83	0.83
3 - Other services	0.76	0.72	0.75	0.35	0.42	0.47
3a - Communications	0.84	1.16	1.14	0.39	0.68	0.72
3b - Construction	1.24	0.83	0.86	0.58	0.49	0.54
3c - Insurance	0.02	0.23	0.34	0.01	0.14	0.21
3d - Financial services	0.80	0.11	0.04	0.37	0.06	0.03
3e - Computer and information	0.45	1.12	1.08	0.21	0.66	0.68
3f - Royalties and licence fees	0.12	0.05	0.08	0.05	0.03	0.05
3g - Other business services	0.91	1.00	1.08	0.42	0.59	0.68
3h - Personal, cultural and recreational services	1.97	0.50	0.55	0.91	0.30	0.35
3i - Government services n.i.e.	0.51	0.13	0.09	0.23	0.07	0.06
Total services	1.00	1.00	1.00	0.46	0.59	0.63

Czech Republic
Nace - Revision 1

	Value Added share in GDP (%) 2009	Value-added growth (%) 2008-2009	Value-added growth (%) 2004-2009	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Gross operating rate 2007	Business churn 2006	Openness ratio 2008	R&D intensity 2008	Patent intensity 2008	Labour productivity per person growth (%) 2008-2009	Labour productivity per person growth (%) 2004-2009	ULC growth (%) 2008-2009	ULC growth (%) 2004-2009	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
nace																	
C	1.11	-27.91	-9.77	-3.80	0.34	26.30	9.55		0.16		-25.07	-10.07	17.87	17.09			
D	23.55	-11.86	5.89	-5.82	0.05	11.10	16.23		2.55	0.40	-6.42	5.84	-3.93	1.66			
DA15	2.67	-0.43	1.77	-1.64	-0.12			0.23	0.40	0.07	1.23	1.90	-7.19	4.05	-0.16	-0.34	0.57
DA16	0.20	34.14	10.02		-7.79			0.48		0.06	34.14	19.31	-21.37	-11.90	0.39	0.20	1.74
DB17	0.41	-17.56	-2.19	-3.90	-5.09	10.70		0.69	1.17	0.12	-14.22	3.05	-4.45	1.42	0.04	-0.10	0.95
DB18	0.22	-9.49	-6.89	-9.46	-9.92	9.60		0.64	0.50	0.05	-0.03	3.37	-12.64	1.44	-0.16	-0.38	0.52
DC19	0.07	43.45	4.84	-7.14	-8.10		17.68	0.94	0.50	0.19	54.49	14.08	-31.52	-2.92	-0.21	-0.36	0.55
DD20	0.83	-3.44	1.97	-3.05	-0.47	13.90	16.28	0.14	0.04	0.01	-0.40	2.45	-12.27	4.57	0.33	0.29	2.09
DE21	0.41	-3.42	5.77	-3.98	0.10	13.40		0.51	0.01	0.18	0.58	5.66	-4.97	2.67	-0.04	-0.02	1.12
DE22	0.88	-1	4.95	-3.98	-15.00	11.80		0.21	0.03	0.02	-6.27	23.47	0.96	5.10	0.20	0.44	2.97
DF23	0.05	114.50	30.50	-2.78	2.46		8.00	0.32	0.18	0.87	120.62	27.37	-56.77	-17.17	-0.21	-0.77	0.15
DG24	1.11	-17.64	2.43	-1.65	-0.10	13.40	9.36	0.96	4.58		-16.26	2.53	9.13	4.78	-0.22	-0.38	0.53
DH25	1.67	-15.42	11.19	-4.98	3.86	11.90	13.66	0.35	1.14	0.12	-10.99	7.06	-2.29	-1.47	0.02	0.25	1.93
DI26	1.33	-21.59	-0.69	-10.20	-3.42	20.10	17.65	0.27	0.94	0.13	-12.68	2.82	1.77	4.85	0.24	0.28	2.04
DJ27	0.82	1.49	-5.29	-12.54	-3.37			0.47	0.78	0.16	16.05	-1.98	-25.17	7.77	-0.13	-0.18	0.80
DJ28	2.53	-16.76	1.57	-6.15	0.71			0.30	0.56	0.12	-11.30	0.85	-1.53	5.88	0.17	0.31	2.21
DK29	2.76	-24.55	11.30	-7.13	1.76	1.	11.58	0.40	2.64		-18.76	9.37	9.80	-1.99	0.18	0.06	1.31
DL30	0.27	87.35		-4.72	2.33			0.10	1.49	6.48	96.62		-55.27		0.04	0.29	2.11
DL31	1.65	-21.90	4.17	-6.98	0.09	10.60		0.42	2.09		-16.03	4.07	3.10	4.78	0.13	0.23	1.83
DL32	0.53	-34.73	5.35	-11.62	2.26	4.20		0.18	5.61		-26.15	3.03	30.08	5.67	-0.12	-0.07	1.01
DL33	0.55	-15.27	1.49	-1.17				0.65	10.25		-14.27	1.49	11.12	9.29	-0.12	-0.35	0.56
DM34	3.02	-16.72	13.66	-6.86	4.64	11.60		0.42	8.06	0.51	-10.59	8.62	0.44	-0.86	0.36	0.34	2.37
DM35	0.53	-10.99	3.44	0.91	1.51	11.50		0.28	9.64	0.96	-11.79	1.90	11.32	7.92	0.15	-0.38	0.52
DN36	0.93	-8.52	6.12	-4.06	-1.82	11.10		0.49	0.34	0.13	-4.65	8.08	-3.20	1.38	0.27	-0.08	0.99
DN37	0.10	107.10	12.90	-10.81	4.10	6.20			0.16		132.20	8.46	-63.34	0.64			
E	5.68	-8.22	2.56	-1.54	-2.02	16.90	7.78		0.04		-6.78	4.68	9.69	7.08			
F	7.36	3.26	2.72	1.91	2.21	10.10	19.97		0.16		1.33	0.50	-8.36	7.43			
G-K_X_K7415							23.02										
G50	1.79	6.72	9.56	3.91	1.04	3.90	15.52				2.70	8.43	-14.58	1.90			
G51	5.47	-15.84	6.00	-2.56	2.27	5.50	29.29				-13.63	3.65	7.44	4.57			
G52	4.50	1.30	7.30	0.59	-0.22	6.30	23.66				0.71	7.54	-1.07	4.68			
H	1.88	1.22	-8.14	2.35	1.35	10.20	23.29				-1.10	-9.36	-6.84	22.88			
I60	4.33	-0.83	5.84	-1.69	-1.31	15.50	14.59				0.88	7.24	-11.89	-0.68			
I61	0.01	-34.47	11.38		-2.64	9.30	13.59				-34.47	14.40	41.44	-3.87			
I62	0.18	-31.53	10.10	-1.45	5.51		17.65				-30.52	4.34	35.84	9.01			
I63	3.21	0.95	1.85	0.87	5.97		20.69				0.08	-3.89	-0.48	15.44			
I64	2.77	-1.33	1.90	4.82	0.38		20.46				-5.87	1.51	-4.01	5.44			
J	3.89	1.51	5.90	-0.98	1.67		20.52			0.75	2.51	4.16	-5.94	3.74			
K70	5.44	-4.87	1.69	-0.86	6.11	23.80	37.50				-4.04	-4.16	3.43	17.91			
K71	0.29	-5.37	7.31	11.46	9.17		26.92				-15.10	-1.71	7.68	14.34			
K72	2.08	-2.24	15.72	6.66	8.88	17.00	22.56		5.13		-8.34	6.29	0.21	3.26			
K73	0.39	16.56	5.61	4.08	1.97		30.17		42.78		11.98	3.56	-10.35	7.45			
K74	6.24	-2.22	2.07	1.00	3.88	16.70			0.63		-3.19	-1.74	-4.16	11.28			

Denmark

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	46.54	50.48	51.08	53.50	45.97	47.68
Relative trade balance	0.05	0.03	0.02	0.03	0.04	0.06
Share of world exports market (%)	0.82	0.77	0.74	0.73	0.76	0.66
Nominal unit labour costs growth: t/t-1 (%)	2.21	2.21	4.77	6.77	4.67	-1.47
Nominal unit labour costs growth: t/t-5 (%)	2.51	2.07	2.35	3.25	4.11	3.35
Total goods and services real export growth: t/t-1 (%)	8.11	8.96	2.77	2.76	-9.74	3.65
Total goods and services real export growth: t/t-5 (%)	3.40	4.54	4.27	5.04	2.35	1.49
Real effective exchange rates (2000=100)	113.83	115.16	119.58	125.68	129.48	123.18
Total public expenditure on education (% of GDP)	8.30	7.97	7.83	.	.	.
Human Resources in S and T as % of total employment **	49.90	50.90	49.30	52.80	53.00	.
RCA index: high tech	0.89	0.82	0.85	0.81	0.83	.
RCA index: medium-high tech	0.78	0.79	0.82	0.86	0.86	.
RCA index: medium-low tech	0.78	0.82	0.77	0.81	0.78	.
RCA index: low tech	1.81	1.90	1.85	1.80	1.73	.
Exports of high technology products (% of total exports)	14.86	12.75	11.69	10.75	.	.
High skills sectors: share in GDP (%)	37.94	39.38	39.55	.	.	.
Specialisation index* (hs)	0.93	0.96	0.96	.	.	.
High-intermediate skills sectors: share in GDP (%)	18.15	19.06	18.74	.	.	.
Specialisation index* (his)	1.19	1.25	1.25	.	.	.
Low-intermediate skills sectors: share in GDP (%)	27.72	29.14	29.45	.	.	.
Specialisation index* (lis)	1.03	1.08	1.09	.	.	.
Low skills sectors: share in GDP (%)	16.19	12.42	12.26	.	.	.
Specialisation index* (ls)	0.96	0.74	0.73	.	.	.
High technology manufacturing sectors: share in GDP (%)	2.95	2.77	2.79	.	.	.
specialisation index* (ht)	1.31	1.23	1.24	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	3.92	4.30	4.35	.	.	.
specialisation index* (mht)	0.64	0.69	0.70	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	4.25	4.53	4.61	.	.	.
specialisation index* (mlt)	0.74	0.79	0.79	.	.	.
Low technology manufacturing sectors: share in GDP (%)	5.14	4.74	4.56	.	.	.
specialisation index* (lt)	0.97	0.92	0.90	.	.	.
Knowledge-intensive services: share in GDP (%)	51.80	50.94	51.01	.	.	.
specialisation index* (kis)	1.08	1.06	1.05	.	.	.
Less knowledge-intensive services: share in GDP (%)	31.95	32.73	32.69	.	.	.
specialisation index* (lkis)	0.98	1.01	1.01	.	.	.
Foreign Direct investment flows (% of GDP)	5.00	0.98	3.79	0.80	2.56	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	2.02	2.80	3.11	3.25	5.49	5.31
2 - Travel	0.52	0.39	0.42	0.83	0.77	0.71
3 - Other services	0.82	0.47	0.45	1.32	0.92	0.76
3a - Communications	.	0.52	0.68	.	1.02	1.16
3b - Construction	.	0.17	0.18	.	0.33	0.30
3c - Insurance	.	0.31	0.25	.	0.60	0.43
3d - Financial services	.	0.04	0.04	.	0.07	0.08
3e - Computer and information	.	.	0.37	.	.	0.63
3f - Royalties and licence fees	.	0.68	0.56	.	1.34	0.96
3g - Other business services	1.74	0.62	0.57	2.79	1.22	0.98
3h - Personal, cultural and recreational services	.	0.67	0.66	.	1.31	1.12
3i - Government services n.i.e.	.	0.78	0.57	.	1.54	0.98
Total services	1.00	1.00	1.00	1.60	1.96	1.71

Denmark
Nace - Revision 2

	Indicators											
	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
nace												
B-D_F	-0.7	-3.4					.	.	.	.	.	.
C	2.5	-2.1	-7.3	-3.0	-6.4	-3.4	10.5	0.9	9.4	1.3	-6.3	2.4
C10	3.4	-0.8	-4.5	-3.3	-4.7	-3.9	8.2	2.6	8.4	3.2	-6.1	0.6
C11	-13.7	-3.6	-5.2	-4.1	-4.1	-4.5	-8.9	0.5	-10.0	1.0	17.5	3.4
C12	0.8	-4.9	-11.7	-2.2	-12.0	-2.5	14.1	-2.8	14.6	-2.5	-5.7	8.5
C13	-5.0	-9.2	-7.3	-6.0	-7.0	-6.1	2.4	-3.4	2.1	-3.3	1.8	5.4
C14	-14.5	-9.9	-5.1	-5.0	-3.2	-6.0	-9.9	-5.2	-11.7	-4.2	14.4	6.4
C15	21.0	19.9	-1.0	-0.9	-0.4	-0.4	22.2	21.0	21.4	20.3	-17.8	-18.6
C16	4.1	-6.7	-9.1	-6.7	-8.9	-7.1	14.5	0.0	14.3	0.4	-10.4	2.2
C17	-13.5	-6.3	-5.8	-5.7	-6.5	-6.0	-8.1	-0.6	-7.5	-0.3	11.2	3.9
C18	3.0	-9.5	-7.5	-1.5	-8.8	-2.6	11.4	-8.0	13.0	-7.1	-9.4	10.3
C19											.	.
C20	7.5	0.7	-2.6	1.7	-1.3	1.4	10.3	-1.0	8.9	-0.7	-5.8	4.5
C21	10.0	-1.5	-0.6	0.1	-0.4	-0.3	10.6	-1.6	10.4	-1.1	-4.8	6.4
C22	0.5	-5.7	-8.6	-4.7	-7.6	-4.6	10.0	-1.0	8.8	-1.2	-5.5	4.7
C23	-1.3	-5.9	-9.8	-3.4	-9.3	-4.3	9.4	-2.6	8.8	-1.7	-6.9	4.8
C24	10.9	-4.6	-3.5	-2.8	-0.9	-3.7	15.0	-1.8	11.9	-1.0	-9.7	2.7
C25	-7.4	-4.5	-9.9	-3.0	-8.3	-3.1	2.7	-1.5	1.0	-1.4	0.9	4.0
C26	18.3	0.9	-4.6	-1.5	-4.2	-1.3	24.0	2.4	23.4	2.3	-16.2	1.2
C27	12.4	-3.0	-10.6	-2.6	-12.0	-3.5	25.8	-0.4	27.8	0.5	-18.6	3.8
C28	-1.3	0.9	-9.7	-1.8	-6.9	-2.1	9.3	2.8	6.0	3.1	-4.3	0.6
C29	12.7	-10.2	-10.3	-4.9	-9.7	-6.4	25.6	-5.5	24.7	-4.0	-18.8	8.6
C30	-29.3	-14.2	-13.2	-4.5	-11.8	-5.3	-18.5	-10.2	-19.9	-9.4	23.3	14.5
C31	-3.9	-9.1	-14.3	-9.5	-12.7	-10.2	12.1	0.5	10.1	1.2	-7.2	2.2
C32	9.2	8.1	-0.4	-1.5	-0.2	-1.9	9.6	9.7	9.4	10.2	-7.4	-5.1
C33	3.5	3.6	-7.8	-1.8	-6.7	-2.6	12.3	5.5	11.0	6.3	-9.9	-3.4

Denmark
Nace - Revision 1

nace	Value Added share in GDP (%) 2008	Value-added growth (%) 2007-2008	Value-added growth (%) 2003-2008	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Gross operating rate 2007	Business churn 2006	Openness ratio 2008	R&D intensity 2007	Patent intensity 2008	Labour productivity per person growth (%) 2007-2008	Labour productivity per person growth (%) 2003-2008	ULC growth (%) 2007-2008	ULC growth (%) 2003-2008	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C						81.70	13.04										
D						9.90	16.22										
DA15	1.91	-3.64	-2.14					0.45	3.78	0.52	-3.64	0.96	6.13	2.44	0.24	0.47	2.41
DA16	0.16	6.35	-3.61					0.23	0.06	0.23	6.35	-3.61	1.77	7.16	0.54	0.25	1.46
DB17	0.16	1.13	-0.17			7.70		1.26	0.56	0.90	1.13	2.96	-4.34	-1.88	-0.02	-0.07	0.75
DB18	0.05	-12.17	-7.60			9.80		6.69	0.33	0.79	-12.17	6.14	18.77	2.80	-0.03	0.22	1.36
DC19	0.01	13.79	-14.99				14.55	13.93		86.67			-3.75	8.79	-0.20	-0.10	0.72
DD20	0.35	-19.70	-0.04	-21.43	-4.71	9.10	14.64	0.37	0.91	0.15	-13.97	-0.04	19.26	3.20	-0.38	0.06	0.97
DE21	0.20	3.27	-0.68			6.30		0.74	0.19	1.96	3.27	2.01	-5.05	0.82	-0.29	-0.17	0.62
DE22	0.89	-7.60	1.36			7.50		0.08	0.08	0.08	-4.62	5.01	10.73	0.01	-0.31	-0.08	0.74
DF23	0.13	50.59	14.95				2.	0.61		2.97	50.59	14.95	-30.01	-6.34	-0.19	-0.28	0.49
DG24	1.84	16.53	5.09		1.34	16.00	12.64	0.85	30.18		12.77	3.70	-9.65	0.84	0.06	0.04	0.94
DH25	0.66	-13.63	1.55	-14.29	-3.04	15.10	7.74	0.45		1.14	-13.63	1.55	18.90	1.32	-0.10	-0.02	0.83
DI26	0.61	-8.13	2.45	-12.50	-1.37	15.30	16.14	0.43	0.68	1.04	-8.13	2.45	12.68	2.43	-0.07	0.19	1.28
DJ27	0.27	10.75	2.79			11.30		1.44	0.44	2.69	10.75	2.79	-9.51	0.66	-0.15	-0.46	0.32
DJ28	1.44	11.00	2.02			11.40		0.34	0.66	0.78	6.47	-0.15	-4.49	3.63	0.06	0.19	1.28
DK29	2.40	7.77	4.75	-12.50	-2.02	9.30	12.57	0.47	4.58		4.41	4.75	-1.90	-0.80	0.19	0.10	1.06
DL30	0.04	24.33	7.77			8.70		1.57	7.89	39.73	24.33	7.77	-2.39	-5.86	-0.35	-0.45	0.33
DL31	0.89	15.79	10.51			7.60		0.32	3.98		6.89	6.88	-3.81	-2.13	0.19	0.17	1.23
DL32	0.29	24.79	9.49			11.60		0.24	21.02		45.59	15.97	-21.97	-9.50	-0.31	-0.63	0.20
DL33	0.86	22.18	8.07			18.20		0.55	16.07		22.18	8.07	-13.15	-3.27	0.23	0.08	1.01
DM34	0.17	-42.53	-2.96			5.70		2.90	0.48	12.58	-42.53	-5.91	72.81	10.18	-0.38	-0.54	0.26
DM35	0.27	-27.57	-18.99			-4.40		0.90	0.09	3.79	-37.92	-16.79	49.44	25.78	-0.40	-0.32	0.45
DN36	0.68	-2.46	1.55			12.30		0.62	1.33	1.31	6.40	6.56	-0.84	-1.86	0.02	0.09	1.04
DN37	0.02	-75.27	-11.10			6.20							367.06	20.76			
E	1.95	9.18	0.01	6.67	4.24	10.10	9.14		0.20		1.90	-2.81	-0.02	5.89			
F	5.44	-6.00	0.15	-9.23	1.79	9.90	23.50		0.01		-6.97	-3.49	11.28	7.25			
G-K_X_K7415							24.56										
G50	1.40	-4.09	0.45			2.30	15.81				-4.09	-0.22	7.82	4.96			
G51	7.39	-2.48	2.72			4.50	18.16				-5.59	0.56	7.53	3.47			
G52	3.44	-4.22	2.93			5.70	21.33				-9.09	-0.33	12.96	3.65			
H	1.54	-2.79	1.00	-2.97	2.18	13.30	24.38		0.07		-5.68	-2.66	10.24	6.33			
I60	2.33	-0.37	-2.75			13.40	17.59				-0.37	-3.77	4.61	7.85			
I61	1.22	-68.55	-16.77			9.40	25.46				-71.69	-22.50	270.75	32.16			
I62	0.29	-2.35	13.41			3.30	41.18				-2.35	24.14	10.91	-15.16			
I63	1.77	7.14	4.09			12.10	21.55				1.50	-0.06	1.92	3.49			
I64	1.96	-7.73	2.31			22.20	38.53				-1.84	3.99	9.07	-0.63			
J	6.00	2.38	9.16	-4.21	2.87		35.85		3.83		-0.85	6.00	1.64	-2.03			
K70	10.02	1.27	0.81			81.80	23.95				-5.64	-2.62	7.85	8.14			
K71	0.46	22.74	7.14			29.80	29.62				22.74	4.65	-14.42	-0.07			
K72	2.21	18.11	9.67			11.30	34.79		19.61		8.10	2.94	-6.51	-			
K73	0.14	-53.37	-20.64			-25.50	34.72		115.13		-39.38	-17.70	93.96	27.56			
K74	6.30	-0.98	2.48			1.			2.01		-4.03	-2.37	8.59	6.00			

Germany

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	38.46	42.51	43.37	44.26	38.36	43.27
Relative trade balance	0.07	0.07	0.08	0.07	0.06	0.06
Share of world exports market (%)	9.36	9.24	9.51	9.01	9.06	8.54
Nominal unit labour costs growth: t/t-1 (%)	-0.96	-1.61	-0.08	2.37	5.17	-0.87
Nominal unit labour costs growth: t/t-5 (%)	0.20	-0.28	-0.45	-0.15	0.95	0.97
Total goods and services real export growth: t/t-1 (%)	7.71	13.07	7.65	2.54	-14.28	14.10
Total goods and services real export growth: t/t-5 (%)	6.20	7.49	8.17	8.19	2.88	4.07
Real effective exchange rates (2000=100)	99.83	96.84	96.07	96.21	99.11	95.11
Total public expenditure on education (% of GDP)	4.53	4.40	4.50	.	.	.
Human Resources in S and T as % of total employment **	47.00	46.90	46.80	46.70	47.50	.
RCA index: high tech	0.79	0.78	0.79	0.81	0.82	.
RCA index: medium-high tech	1.40	1.40	1.39	1.40	1.43	.
RCA index: medium-low tech	0.83	0.83	0.80	0.76	0.75	.
RCA index: low tech	0.69	0.70	0.69	0.72	0.72	.
Exports of high technology products (% of total exports)	14.79	14.06	12.99	12.44	.	.
High skills sectors: share in GDP (%)	41.45	41.15	41.21	.	.	.
Specialisation index* (hs)	1.01	1.00	1.00	.	.	.
High-intermediate skills sectors: share in GDP (%)	17.11	17.09	16.64	.	.	.
Specialisation index* (his)	1.12	1.12	1.11	.	.	.
Low-intermediate skills sectors: share in GDP (%)	25.11	25.24	25.37	.	.	.
Specialisation index* (lis)	0.93	0.94	0.94	.	.	.
Low skills sectors: share in GDP (%)	16.33	16.51	16.79	.	.	.
Specialisation index* (ls)	0.97	0.98	1.00	.	.	.
High technology manufacturing sectors: share in GDP (%)	3.04	3.07	3.29	.	.	.
specialisation index* (ht)	1.35	1.37	1.47	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	10.76	11.29	11.53	.	.	.
specialisation index* (mht)	1.77	1.82	1.87	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	6.15	6.51	6.43	.	.	.
specialisation index* (mlt)	1.08	1.13	1.10	.	.	.
Low technology manufacturing sectors: share in GDP (%)	4.51	4.40	4.30	.	.	.
specialisation index* (lt)	0.85	0.85	0.85	.	.	.
Knowledge-intensive services: share in GDP (%)	47.24	46.82	46.67	.	.	.
specialisation index* (kis)	0.98	0.97	0.97	.	.	.
Less knowledge-intensive services: share in GDP (%)	28.30	27.91	27.77	.	.	.
specialisation index* (lkis)	0.87	0.86	0.86	.	.	.
Foreign Direct investment flows (% of GDP)	1.70	1.96	1.69	0.59	1.07	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	1.07	1.06	1.08	6.00	7.51	7.77
2 - Travel	0.75	0.65	0.62	4.20	4.59	4.48
3 - Other services	1.13	1.13	1.13	6.35	7.98	8.14
3a - Communications	0.83	0.87	0.92	4.65	6.13	6.59
3b - Construction	2.61	2.34	2.18	14.68	16.57	15.63
3c - Insurance	0.39	0.82	0.93	2.19	5.79	6.69
3d - Financial services	0.62	0.65	0.66	3.48	4.62	4.77
3e - Computer and information	1.48	1.07	1.08	8.31	7.54	7.74
3f - Royalties and licence fees	0.63	0.72	1.02	3.54	5.09	7.35
3g - Other business services	1.29	1.33	1.27	7.28	9.40	9.15
3h - Personal, cultural and recreational services	0.34	0.37	0.45	1.90	2.59	3.21
3i - Government services n.i.e.	1.65	1.08	0.98	9.28	7.62	7.03
Total services	1.00	1.00	1.00	5.63	7.07	7.18

Germany
Nace - Revision 2

nace	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
B-D_F	10.1	0.8										
C	11.7	1.0	-2.5	-0.4	2.9	-0.4	14.5	1.4	8.5	1.4	-8.6	0.2
C10	1.5	1.2	1.8	0.9	2.3	0.9	-0.3	0.3	-0.8	0.4	1.6	0.6
C11	0.6	-1.5	-2.1	-1.5	-1.7	-1.5	2.8	-0.0	2.4	-0.0	-1.6	1.2
C12	-15.0	-11.3	-2.3	-1.7	-1.7	-1.3	-12.9	-9.7	-13.5	-10.2	17.5	12.2
C13	11.6	-2.9	-7.4	-5.3	-1.0	-5.3	20.5	2.5	12.7	2.5	-12.1	-1.2
C14	0.0	-9.9	-6.8	-5.9	-5.2	-5.9	7.3	-4.2	5.4	-4.2	-4.3	5.8
C15	7.7	1.5	0.8	0.6	4.6	1.8	6.8	0.9	3.0	-0.3	-2.3	0.3
C16	6.4	-0.6	-2.2	-1.5	0.9	-1.1	8.8	0.9	5.4	0.5	-5.7	-0.1
C17	7.8	1.9	-1.1	-0.9	1.8	-0.7	9.0	2.8	5.9	2.5	-5.9	-1.7
C18	0.5	-0.3	-5.5	-2.1	-3.8	-1.6	6.4	1.8	4.5	1.3	-5.1	-2.1
C19	-1.5	-2.4	-1.8	-1.6	0.3	-1.1	0.3	-0.8	-1.8	-1.3	3.2	4.3
C20	17.3	0.5	-1.2	-1.1	2.3	-1.1	18.7	1.5	14.6	1.6	-13.0	0.4
C21	0.6	3.6	-0.8	-0.4	-0.1	-0.1	1.4	4.0	0.7	3.6	-1.0	-1.9
C22	12.3	1.3	-1.4	-0.2	3.8	-0.0	13.9	1.5	8.2	1.3	-7.3	-0.0
C23	7.5	-0.3	-2.2	-1.2	1.0	-1.2	9.9	0.9	6.3	0.9	-5.6	0.6
C24	20.8	-0.5	-4.2	-0.5	7.7	-0.9	26.2	0.0	12.2	0.4	-13.8	1.5
C25	14.1	0.9	-4.5	0.4	3.5	0.5	19.6	0.6	10.3	0.4	-10.1	0.6
C26	15.7	5.5	-3.0	-2.7	1.4	-2.7	19.2	8.4	14.1	8.4	-11.4	-6.1
C27	17.1	1.4	-2.6	-0.8	3.9	-0.8	20.2	2.2	12.7	2.2	-13.2	-0.8
C28	10.5	0.4	-3.9	1.1	2.7	0.5	14.9	-0.7	7.6	-0.1	-8.0	2.3
C29	24.6	0.5	-2.7	-2.0	7.0	-2.1	28.1	2.6	16.5	2.7	-17.6	-0.7
C30	-5.5	2.8	-3.7	0.0	-4.1	0.2	-1.8	2.8	-1.4	2.6	4.7	0.3
C31	1.6	-1.4	-3.7	-0.3	-1.3	-0.3	5.5	-1.0	2.9	-1.1	-2.7	2.3
C32	7.1	2.2	1.2	2.2	2.9	2.4	5.8	0.1	4.0	-0.1	-1.3	1.2
C33	2.5	2.6	1.4	3.4	3.0	4.4	1.1	-0.8	-0.4	-1.7	0.4	3.1

Germany
Nace - Revision 1

nace	Value Added share in GDP (%) 2008	Value-added growth (%) 2007-2008	Value-added growth (%) 2003-2008	Employment growth (%) 2007-2008	Employment growth (%) 2003-2008	Mark-up 1993-2004	Mark-up 1981-1992	Gross operating rate 2007	Business churn 2007	Openness ratio 2007	R&D intensity 2007	Patent intensity 2008	Labour productivity per person growth (%) 2007-2008	Labour productivity per person growth (%) 2003-2008	ULC growth (%) 2007-2008	ULC growth (%) 2003-2008	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.29	9.73	0.13	-1.22	-3.93	.	.	15.40	10.63	.	0.57	.	11.08	4.23	-10.33	-2.91	.	.	.
D	22.66	-4.05	2.44	1.60	-0.22	.	.	8.00	11.25	.	7.36	2.81	-5.57	2.67	7.68	-0.93	.	.	.
DA15	1.57	-11.30	-2.68	3.93	-0.31	1.10	1.12	7.60	.	0.24	0.81	0.70	-14.65	-2.37	18.57	2.59	0.04	-0.16	8.43
DA16	0.06	-11.27	-14.81	.	-1.73	1.21	1.41	3.10	.	0.55	2.29	1.50	-11.27	-13.31	15.88	17.38	0.59	0.27	20.39
DB17	0.20	-4.62	-1.39	-0.95	-4.07	1.15	1.15	7.70	.	0.79	3.51	1.26	-3.70	2.79	2.22	-2.09	-0.06	-0.28	6.53
DB18	0.12	-2.15	0.49	-1.75	-4.09	1.06	1.03	9.50	.	1.47	0.89	0.45	-0.40	4.77	7.63	-1.36	-0.28	-0.30	6.29
DC19	0.04	8.25	1.20	4.17	-2.24	.	.	6.90	12.05	1.60	0.67	2.32	3.92	3.52	2.64	-0.61	-0.29	-0.42	4.70
DD20	0.30	-5.55	-2.06	-2.52	-2.17	.	.	9.00	11.18	0.14	0.34	0.34	-3.11	0.12	-1.44	-0.21	0.10	-0.08	9.94
DE21	0.45	-3.77	2.34	-0.67	-1.29	1.18	1.31	9.30	.	0.31	0.65	1.44	-3.12	3.68	5.24	-2.44	0.13	0.05	12.87
DE22	0.99	.	1.14	-17.00	-4.69	1.23	1.15	11.70	.	0.07	0.55	0.14	20.48	6.12	-14.92	-5.87	0.37	0.11	14.58
DF23	0.12	-68.19	-24.41	5.00	-0.93	.	.	2.30	19.55	0.27	2.13	8.31	-69.70	-23.71	233.26	33.22	-0.35	-0.55	3.41
DG24	2.40	0.02	3.57	1.31	-1.33	.	.	11.30	13.69	0.61	12.26	.	-1.28	4.97	4.57	-2.27	0.15	0.09	13.99
DH25	1.05	2.97	4.92	3.25	0.49	.	.	8.90	8.59	0.31	3.81	1.50	-0.27	4.40	0.88	-3.19	0.22	0.09	14.06
DI26	0.67	-2.32	1.23	0.40	-1.23	.	.	11.40	11.43	0.22	1.68	1.81	-2.71	2.49	5.71	-1.66	0.19	-0.01	11.33
DJ27	1.11	-5.48	-2.29	3.38	0.59	1.19	.	9.30	.	0.48	1.57	1.38	-8.57	-2.87	7.21	5.26	0.02	-0.15	8.62
DJ28	2.16	-3.68	3.15	4.06	1.30	1.08	.	11.00	.	0.18	1.21	1.18	-7.44	1.83	9.26	-0.59	0.24	0.08	13.80
DK29	3.89	1.26	3.66	6.76	1.48	.	.	9.20	9.13	0.26	5.77	.	-5.16	2.14	6.66	-0.44	0.42	0.18	16.61
DL30	0.17	9.45	18.47	-4.55	-0.93	1.07	1.22	7.90	.	0.50	15.41	32.99	14.66	19.58	-12.30	-14.17	-0.19	-0.39	5.11
DL31	1.66	2.73	2.76	7.35	0.24	1.06	1.29	6.20	.	0.24	3.86	.	-4.31	2.52	10.07	-1.32	0.21	0.06	13.19
DL32	0.54	-6.59	22.91	9.68	1.73	1.17	1.07	5.90	.	0.19	20.15	.	-14.83	20.82	18.87	-14.15	-0.21	-0.49	3.94
DL33	1.04	-7.05	2.33	1.71	0.98	1.11	1.08	13.40	.	0.44	13.11	.	-8.61	1.34	8.83	-0.33	0.28	0.02	12.14
DM34	2.97	-13.74	1.03	-1.54	-1.01	1.16	1.11	5.10	.	0.35	17.37	2.68	-12.38	2.06	12.01	0.22	0.42	0.26	19.80
DM35	0.51	4.20	5.43	0.70	1.15	1.38	1.01	5.70	.	0.27	19.13	4.74	3.48	4.23	0.54	-1.39	-0.01	0.03	12.36
DN36	0.53	-1.04	1.11	-5.60	-1.37	1.17	.	9.30	.	0.48	1.74	1.99	4.82	2.51	1.05	-0.90	-0.05	-0.24	7.14
DN37	0.11	38.78	-0.54	3.85	8.45	1.16	.	10.90	.	.	0.28	.	33.64	-8.28	-27.02	6.95	.	.	.
E	2.66	1.61	2.17	-1.75	-0.70	1.40	1.44	9.90	29.50	.	0.24	.	3.42	2.89	1.75	-0.40	.	.	.
F	4.04	-0.97	-2.06	-0.72	-1.14	1.20	1.20	.	17.26	.	0.07	.	-0.24	-0.93	1.53	0.95	.	.	.
G-K_X_K7415	.	.	.	.	.	.	.	.	19.21	.	.	.	.	.	.	.	.	.	.
G50	1.67	1.02	0.27	0.21	0.83	1.55	1.38	10.30	15.67	.	.	.	0.81	-0.55	2.20	1.51	.	.	.
G51	4.89	8.71	5.91	0.89	-0.21	1.39	1.37	6.00	16.64	.	.	.	7.75	6.13	-4.56	-4.83	.	.	.
G52	3.87	1.40	-0.27	1.00	0.21	1.11	1.14	7.20	18.51	.	.	.	0.40	-0.47	2.82	1.39	.	.	.
H	1.64	1.37	2.40	1.04	1.88	1.10	1.11	20.10	20.74	.	.	.	0.32	0.51	2.11	-0.15	.	.	.
I60	1.51	1.95	1.88	1.39	0.51	1.16	.	16.70	17.00	.	.	.	0.55	1.35	2.00	-0.58	.	.	.
I61	0.36	49.03	27.81	4.00	4.36	1.71	.	2	22.75	.	.	.	43.30	22.47	-26.74	-17.28	.	.	.
I62	0.25	-42.70	-3.28	4.69	4.41	1.14	.	-32.00	18.81	.	.	.	-45.26	-7.36	93.29	8.61	.	.	.
I63	1.84	0.85	4.31	2.01	1.99	1.12	.	21.10	17.55	.	.	.	-1.13	2.28	5.51	-0.67	.	.	.
I64	1.80	11.92	3.23	-1.32	0.08	1.39	1.69	25.70	32.35	.	.	.	13.42	3.15	-10.54	-2.25	.	.	.
J	3.58	0.82	1.64	-1.67	-1.35	.	.	.	22.79	.	0.24	.	2.53	3.03	-0.54	-2.00	.	.	.
K70	12.39	2.91	1.98	-0.87	0.67	3.32	3.25	54.70	16.92	.	.	.	3.81	1.30	-0.96	-1.94	.	.	.
K71	1.93	6.65	3.20	0.98	1.63	2.76	3.09	54.70	20.32	.	.	.	5.62	1.55	-0.94	-0.80	.	.	.
K72	1.75	6.10	4.03	4.61	3.78	1.70	1.95	16.90	22.81	.	4.54	.	1.43	0.24	1.30	0.50	.	.	.
K73	0.40	2.16	2.35	4.58	1.71	0.98	1.19	18.20	23.61	.	14.00	.	-2.31	0.63	1.08	-0.36	.	.	.
K74	9.44	1.85	2.73	4.12	4.14	1.86	1.80	22.20	.	.	0.56	.	-2.19	-1.36	5.90	3.34	.	.	.

Estonia

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	80.97	77.82	72.85	73.56	61.61	74.93
Relative trade balance	-0.04	-0.07	-0.07	-0.03	0.05	0.04
Share of world exports market (%)	0.07	0.08	0.08	0.08	0.07	0.08
Nominal unit labour costs growth: t/t-1 (%)	3.26	8.74	17.41	16.20	1.17	-7.91
Nominal unit labour costs growth: t/t-5 (%)	3.68	4.85	7.75	9.90	9.16	6.69
Total goods and services real export growth: t/t-1 (%)	18.55	6.72	1.47	0.38	-18.66	21.67
Total goods and services real export growth: t/t-5 (%)	7.74	9.05	9.60	8.12	0.95	1.47
Real effective exchange rates (2000=100)	116.31	124.26	142.34	158.81	158.72	144.07
Total public expenditure on education (% of GDP)	4.88	4.75	4.85	5.67	.	.
Human Resources in S and T as % of total employment **	46.70	45.30	45.40	45.40	49.20	.
RCA index: high tech	0.83	0.63	0.39	0.38	0.32	.
RCA index: medium-high tech	0.63	0.64	0.77	0.83	0.86	.
RCA index: medium-low tech	1.13	1.46	1.31	1.28	1.44	.
RCA index: low tech	1.83	1.71	1.85	1.72	1.60	.
Exports of high technology products (% of total exports)	10.28	7.99	7.81	7.49	.	.
High skills sectors: share in GDP (%)	34.59	34.07	34.43	.	.	.
Specialisation index* (hs)	0.84	0.83	0.84	.	.	.
High-intermediate skills sectors: share in GDP (%)	15.25	14.37	13.97	.	.	.
Specialisation index* (his)	1.00	0.94	0.93	.	.	.
Low-intermediate skills sectors: share in GDP (%)	33.06	34.87	34.98	.	.	.
Specialisation index* (lis)	1.23	1.29	1.29	.	.	.
Low skills sectors: share in GDP (%)	17.11	16.69	16.62	.	.	.
Specialisation index* (ls)	1.01	0.99	0.99	.	.	.
High technology manufacturing sectors: share in GDP (%)	1.23	1.22	1.11	.	.	.
specialisation index* (ht)	0.55	0.54	0.49	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	3.54	3.07	3.41	.	.	.
specialisation index* (mht)	0.58	0.50	0.55	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	6.45	7.03	7.26	.	.	.
specialisation index* (mlt)	1.13	1.22	1.25	.	.	.
Low technology manufacturing sectors: share in GDP (%)	8.98	8.80	8.50	.	.	.
specialisation index* (lt)	1.69	1.71	1.67	.	.	.
Knowledge-intensive services: share in GDP (%)	41.57	40.96	41.06	.	.	.
specialisation index* (kis)	0.87	0.85	0.85	.	.	.
Less knowledge-intensive services: share in GDP (%)	38.23	38.93	38.66	.	.	.
specialisation index* (lkis)	1.17	1.20	1.20	.	.	.
Foreign Direct investment flows (% of GDP)	20.63	10.69	12.62	8.18	8.69	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	2.13	1.69	1.78	0.21	0.23	0.24
2 - Travel	1.14	0.98	1.03	0.11	0.14	0.14
3 - Other services	0.38	0.71	0.70	0.04	0.10	0.09
3a - Communications	0.66	1.63	1.92	0.07	0.23	0.26
3b - Construction	1.31	2.71	1.85	0.13	0.38	0.25
3c - Insurance	0.24	0.14	0.11	0.02	0.02	0.01
3d - Financial services	0.10	0.22	0.21	0.01	0.03	0.03
3e - Computer and information	0.46	0.62	0.71	0.05	0.09	0.10
3f - Royalties and licence fees	0.02	0.10	0.09		0.01	0.01
3g - Other business services	0.42	0.80	0.83	0.04	0.11	0.11
3h - Personal, cultural and recreational services	0.04	0.29	0.27		0.04	0.04
3i - Government services n.i.e.	0.72	0.54	0.50	0.07	0.08	0.07
Total services	1.00	1.00	1.00	0.10	0.14	0.14

Estonia
Nace - Revision 2

	Indicators											
	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
nace												
B-D_F	11.7	-0.9					.	.	.	.	.	.
C	19.3	0.0	-6.3	-5.5	-3.3	-5.4	27.3	5.9	23.5	5.8	-17.1	3.8
C10	0.2	-1.1	-5.3	-3.4	-4.1	-3.6	5.8	2.4	4.5	2.6	-6.2	6.1
C11	-9.0	-3.6	-16.2	-6.9	-17.7	-7.8	8.6	3.6	10.7	4.6	-7.2	5.1
C12												
C13	9.6	-2.5	-8.9	-14.8	-6.8	-14.5	20.4	14.4	17.7	14.1	-13.1	-3.3
C14	2.7	-8.9	-17.0	-13.0	-14.7	-12.9	23.7	4.7	20.4	4.6	-19.5	3.4
C15	-4.6	-9.4	-3.1	-10.1	-2.9	-10.0	-1.6	0.7	-1.7	0.7	10.2	9.9
C16	26.9	-4.5	-2.3	-6.1	-0.0	-6.1	29.9	1.7	26.9	1.7	-15.2	8.1
C17	12.8	2.3	-0.8	-5.5	3.1	-5.6	13.7	8.3	9.4	8.4	-11.9	1.0
C18	10.4	5.0	-5.8	0.8	-2.6	0.7	17.2	4.2	13.3	4.3	-7.5	0.9
C19	10.3	4.0	8.2	7.1	11.3	7.4	1.9	-2.9	-0.9	-3.2	7.3	17.8
C20	14.3	-3.8	-7.1	-4.8	-5.1	-5.6	22.9	1.0	20.4	2.0	-16.1	8.2
C21	22.4	6.1	3.8	-1.8	5.9	-1.6	17.9	8.0	15.6	7.8	-7.5	6.1
C22	24.2	-0.5	-2.8	-3.3	1.5	-3.4	27.8	2.9	22.4	3.0	-17.8	3.9
C23	12.3	-6.6	-13.1	-6.3	-12.8	-6.9	29.3	-0.2	28.8	0.3	-16.9	5.9
C24	48.0	2.2	6.3	1.7	6.4	1.6	39.2	0.5	39.1	0.5	-25.9	16.4
C25	-1.1	-1.5	-13.6	-3.0	-10.2	-3.0	14.5	1.5	10.1	1.6	-10.3	9.0
C26	154.6	27.2	-2.3	-8.2	5.1	-7.2	160.5	38.6	142.3	37.0	-58.4	-18.7
C27	11.9	5.8	0.2	15.8	5.0	15.6	11.7	-8.6	6.5	-8.5	3.2	21.2
C28	28.2	-0.5	-9.6	-1.3	-4.0	-1.0	41.9	0.8	33.5	0.5	-20.7	9.8
C29	107.2	13.8	2.4	-2.2	14.1	-0.9	102.4	16.3	81.6	14.8	-46.5	-7.2
C30	7.3	-1.0	-11.8	6.3	-9.1	7.2	21.6	-6.9	18.0	-7.7	-19.5	16.3
C31	10.3	-4.5	3.2	-6.7	7.3	-6.9	6.9	2.4	2.8	2.5	0.3	5.2
C32	7.1	0.2	-4.0	-6.8	-3.1	-6.7	11.5	7.5	10.5	7.4	-5.2	1.4
C33	-15.0	-5.8	-11.9	-6.6	-12.5	-7.3	-3.6	0.8	-2.9	1.6	6.4	7.3

Estonia
Nace - Revision 1

nace	Value Added share in GDP (%) 2009	Value-added growth (%) 2008-2009	Value-added growth (%) 2004-2009	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Gross operating rate 2007	Business churn 2006	Openness ratio 2008	R&D intensity 2008	Patent intensity 2008	Labour productivity per person growth (%) 2008-2009	Labour productivity per person growth (%) 2004-2009	ULC growth (%) 2008-2009	ULC growth (%) 2004-2009	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	1.30	-10.02	1.72	6.56	-4.31	21.10	10.34				-15.56	6.30	0.37	5.57			
D	14.32	-25.31	-1.36	-15.64	-3.75	10.40	13.62		0.88	0.17	-11.46	2.48	7.40	7.36			
DA15	2.21	-8.06	-0.66	-22.71	-6.08	8.80		0.55	0.68	0.01	18.95	5.77	-2.38	6.71	-0.08	0.10	0.13
DA16															-0.39	-0.37	0.05
DB17	0.53	-16.90	-7.65	-32.95	-11.39	7.80		0.84	0.49	0.02	23.94	4.22	-4.96	2.85	-0.02	0.15	0.14
DB18	0.46	-29.98	-12.15	-25.64	-6.07	5.40		1.08	0.34	0.01	-5.84	-6.48	-0.31	7.81	-	0.14	0.14
DC19	0.08	-23.61	-10.35		-13.48		8.45	1.74		0.02	-23.61	3.61	3.17	8.26	-0.24	-0.29	0.06
DD20	1.77	-19.76	-5.52	-10.91	-9.19	10.60	13.86	0.26	0.15		-9.94	4.04	-3.75	9.33	0.55	0.81	1.01
DE21	0.25	-16.67	9.84	-28.00	8.45	12.80		0.67	0.12	0.08	15.74	1.28	6.87	3.86	-0.02	0.01	0.11
DE22	0.94	-16.77	-0.09	-19.18		12.90		0.15		0.01	2.98	-0.09	1.17	6.01	0.55	0.38	0.23
DF23	0.50	-31.12	11.31					4.97	7.64	0.06			36.17	9.55	-0.12	0.45	0.28
DG24	0.74	-37.83	-2.72	-2.63	10.96	13.40	14.78	1.47	2.18		-36.15	-12.32	37.50	10.97	-0.35	-0.41	0.04
DH25	0.43	-27.83	-1.11	-34.48	0.53	8.10	7.00	0.75	0.46	0.09	10.15	-1.64	6.26	8.01	-0.20	0.23	0.17
DI26	0.80	-38.84	-7.41	-26.32	-0.47	20.60	13.95	0.38	0.12	0.05	-17.00	-6.97	6.94	10.93	0.04	0.18	0.15
DJ27	0.06	-52.83	1.68			20.80		7.58		0.78			47.32	15.95	-0.03	-0.31	0.06
DJ28	1.46	-30.01	4.37	-19.62	-2.21	8.80		0.28	0.05	0.08	-12.92	6.72	19.03	9.72	0.01	0.20	0.16
DK29	0.73	-30.57	1.37	18.00	11.01	8.60	10.51	1.49	1.82		-41.16	-8.68	18.65	11.46	-0.13	-0.23	0.07
DL30	0.02	-48.48	-16.94			2.40		1.62	5.51	11.33			47.06	15.32	-0.63	-0.86	0.01
DL31	0.96	-28.96	7.24			9.50		0.67	0.22				22.04	6.62	0.13	0.21	0.16
DL32	0.70	-4.01	16.97	7.35	4.35	8.70		0.29	0.81		-10.59	12.10	-9.00	-4.64	-0.08	-0.30	0.06
DL33	0.23	-33.98	-4.59			7.10		0.60	4.77				27.02	12.20	-0.01	-0.45	0.04
DM34	0.25	-41.11	-1.84			11.50		4.00	2.55	0.49			12.87	7.97	-0.14	-0.03	0.10
DM35	0.26	-47.83	-7.68			6.10		0.31	0.12	0.14			9.66	7.00	0.16	-0.58	0.03
DN36	0.89	-25.56	-4.49	5.41	-3.80	7.70		0.51	0.24	0.01	-29.38	-0.72	0.15	4.63	0.36	0.12	0.13
DN37	0.04	-28.10	2.57			-1.20			3.71				10.16	7.98			
E	3.88	-5.37	-0.69	-1.11	-6.11	18.50	5.58		0.62		-4.30	5.77	2.62	8.96			
F	6.95	-29.72	1.50	-29.90	1.98	8.90	27.21				0.26	-0.46	4.16	15.49			
G-K_X_K7415							23.83										
G50	1.87	-21.46	1.01	-17.87	5.51	4.40	14.11				-4.36	-4.26	5.01	8.24			
G51	6.47	-19.33	0.13	-25.21	2.86	4.80	37.19				7.87	-2.66	10.62	10.12			
G52	4.55	-17.68	-1.31	-1.12	-1.02	5.50	11.23				-16.75	-0.30	-0.29	13.04			
H	1.45	-23.28	-0.72	-16.93	3.69	9.50	17.00				-7.65	-4.25	4.68	12.67			
I60	3.78	-18.19	-3.22	0.71	1.24	10.60	13.55				-18.76	-4.41	-3.36	9.90			
I61	0.47	4.00	-0.75	2.17	4.90	-11.90	5.26				1.79	-5.39	-6.99	11.40			
I62	0.07	-14.00	1.56			-4.10							-10.61	0.85			
I63	4.01	-14.32	-0.05	-31.30	-7.23	8.20	16.85				24.71	7.74	3.78	7.63			
I64	2.72	-15.45	3.36	4.11		28.90	18.75				-18.79	3.36	8.19	4.01			
J	3.45	-31.36	5.08	7.89	7.93		35.02		1.26		-36.38	-2.64	37.62	6.44			
K70	10.83	2.06	0.47	-8.85	-2.68	27.50	23.39				11.97	3.24	-9.40	9.96			
K71	1.21	-20.53	3.88			29.50	15.93						7.18	10.72			
K72	1.63	-9.79	7.72	2.63	18.07	11.90	24.22		14.89		-12.10	-8.76	17.78	15.88			
K73	0.57	2.39	3.64	-30.77	-2.09	-9.20	26.76		15.48		47.90	5.85	3.26	13.95			
K74	7.13	-18.83	4.42	6.13	7.70	16.30			0.37		-23.52	-3.05	0.28	8.26			

Ireland

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	75.77	74.51	75.97	78.91	83.05	93.44
Relative trade balance	0.08	0.06	0.06	0.06	0.09	0.10
Share of world exports market (%)	1.06	0.91	0.87	0.78	0.94	0.78
Nominal unit labour costs growth: t/t-1 (%)	5.10	3.70	3.42	5.95	-0.61	-4.92
Nominal unit labour costs growth: t/t-5 (%)	3.48	3.25	3.92	4.42	3.49	1.44
Total goods and services real export growth: t/t-1 (%)	4.76	4.84	8.16	-0.80	-4.13	9.45
Total goods and services real export growth: t/t-5 (%)	5.29	4.55	5.14	4.85	2.47	3.37
Real effective exchange rates (2000=100)	122.94	126.05	131.01	139.84	135.41	124.42
Total public expenditure on education (% of GDP)	4.75	4.76	4.90	.	.	.
Human Resources in S and T as % of total employment **	39.90	40.10	42.00	43.20	47.00	.
RCA index: high tech	2.09	1.97	2.04	2.25	2.17	.
RCA index: medium-high tech	0.89	0.96	1.04	1.00	1.01	.
RCA index: medium-low tech	0.16	0.16	0.16	0.16	0.13	.
RCA index: low tech	0.62	0.72	0.68	0.66	0.54	.
Exports of high technology products (% of total exports)	29.54	29.01	25.73	24.28	.	.
High skills sectors: share in GDP (%)	43.81	43.94	.	.	.	.
Specialisation index* (hs)	1.07	1.07	.	.	.	.
High-intermediate skills sectors: share in GDP (%)	16.45	16.43	.	.	.	.
Specialisation index* (his)	1.08	1.08	.	.	.	.
Low-intermediate skills sectors: share in GDP (%)	26.09	26.45	.	.	.	.
Specialisation index* (lis)	0.97	0.98	.	.	.	.
Low skills sectors: share in GDP (%)	13.64	13.18	.	.	.	.
Specialisation index* (ls)	0.81	0.78	.	.	.	.
High technology manufacturing sectors: share in GDP (%)	7.00	6.41	.	.	.	.
specialisation index* (ht)	3.11	2.85	.	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	7.94	7.83	.	.	.	.
specialisation index* (mht)	1.30	1.26	.	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	2.60	2.75	.	.	.	.
specialisation index* (mlt)	0.46	0.48	.	.	.	.
Low technology manufacturing sectors: share in GDP (%)	9.19	8.51	.	.	.	.
specialisation index* (lt)	1.73	1.65	.	.	.	.
Knowledge-intensive services: share in GDP (%)	47.92	49.00	.	.	.	.
specialisation index* (kis)	1.00	1.02	.	.	.	.
Less knowledge-intensive services: share in GDP (%)	25.34	25.50	.	.	.	.
specialisation index* (lkis)	0.78	0.79	.	.	.	.
Foreign Direct investment flows (% of GDP)	-15.70	-2.49	9.53	-7.60	11.26	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
sector	2000	2008	2009	2000	2008	2009
1 - Transport	0.33	0.19	0.20	0.41	0.52	0.61
2 - Travel	0.47	0.26	0.21	0.59	0.73	0.63
3 - Other services	1.65	1.67	1.63	2.07	4.59	4.91
3a - Communications	2.40	0.32	0.29	3.01	0.89	0.86
3b - Construction	.	.	.	.	.	.
3c - Insurance	3.54	5.77	4.40	4.43	15.86	13.22
3d - Financial services	1.62	1.27	1.15	2.03	3.50	3.44
3e - Computer and information	13.06	6.12	5.85	16.38	16.84	17.56
3f - Royalties and licence fees	0.62	0.24	0.30	0.78	0.67	0.90
3g - Other business services	0.46	1.24	1.34	0.57	3.41	4.04
3h - Personal, cultural and recreational services	0.63	0.23	0.22	0.78	0.65	0.67
3i - Government services n.i.e.	0.45	0.03	0.02	0.56	0.08	0.08
Total services	1.00	1.00	1.00	1.25	2.75	3.00

Ireland

Nace - Revision 2

	Indicators											
	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
nace												
B-D_F	1.3	-3.8	.	.	.	.	.	.	.	.	.	.
C	8.2	2.0	-6.1	-4.1	-4.2	-3.2	15.2	6.3	13.0	5.3	-9.3	1.0
C10	2.2	-0.6	2.2	-3.1	1.0	-2.3	0.0	2.7	1.2	1.8	-2.8	2.1
C11	8.6	3.2	2.2	-3.1	1.0	-2.3	6.2	6.5	7.5	5.6	-8.5	-1.5
C12			2.2	-3.1	1.0	-2.3	.	.	.	.	.	.
C13	-5.0	-8.2	.	.	.	.	.	.	.	.	.	.
C14	-9.5	-22.1	.	.	.	.	.	.	.	.	.	.
C15	-7.8	2.3	.	.	.	.	.	.	.	.	.	.
C16	-2.7	-13.8	.	.	.	.	.	.	.	.	.	.
C17	-6.0	-7.8	.	.	.	.	.	.	.	.	.	.
C18	-6.0	-3.7	-9.8	-6.9	-8.3	-6.0	4.3	3.4	2.5	2.4	2.0	4.4
C19			.	.	.	.	.	.	.	.	.	.
C20	17.5	4.4	.	.	.	.	.	.	.	.	.	.
C21	18.5	8.6	2.8	3.1	5.1	4.5	15.3	5.4	12.8	4.0	-15.7	-3.6
C22	4.3	-4.9	-7.9	-5.9	-2.4	-5.4	13.2	1.1	6.8	0.5	-5.1	8.0
C23	-14.9	-14.9	-7.9	-6.9	-5.0	-5.7	-7.6	-8.6	-10.4	-9.8	20.4	19.0
C24	18.1	-2.8	.	.	.	.	.	.	.	.	.	.
C25	3.8	-7.3	.	.	.	.	.	.	.	.	.	.
C26	-26.4	-9.4	-16.1	-7.1	-13.7	-6.1	-12.4	-2.5	-14.8	-3.6	31.7	16.5
C27	-14.3	-12.5	-6.7	-5.5	-0.5	-3.8	-8.2	-7.4	-13.9	-9.0	34.0	23.8
C28	13.7	-1.1	0.2	-2.3	7.3	-1.0	13.4	1.2	6.0	-0.1	-16.4	3.5
C29			-3.3	-5.8	-2.2	-5.3	.	.	.	.	.	.
C30			.	.	.	.	.	.	.	.	.	.
C31			.	.	.	.	.	.	.	.	.	.
C32	20.4	6.2	.	.	.	.	.	.	.	.	.	.
C33	-7.9	2.1	-20.9	2.5	-21.3	4.5	16.5	-0.3	17.1	-2.3	-9.6	-0.3

Ireland
Nace - Revision 1

nace	Value Added share in GDP (%) 2009	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Gross operating rate 2007	Business churn 2007	R&D intensity 2008	Patent intensity 2008	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.50	-12.94	1.41	30.60	10.51	.	.	.	.	.
D	24.19	-10.45	-3.39	21.30	11.32	2.63	0.38	.	.	.
DA15	.	.	.	.	.	.	.	0.25	0.11	1.54
DA16	.	.	.	.	.	.	.	0.02	-0.44	0.48
DB17	.	.	.	11.10	.	.	.	-0.45	-0.85	0.10
DB18	.	.	.	9.60	.	.	.	-0.62	-0.86	0.09
DC19	0.03	.	-15.59	24.60	.	.	0.30	-0.65	-0.88	0.08
DD20	0.19	-11.96	0.76	12.60	.	.	0.02	-0.01	-0.46	0.45
DE21	.	.	.	7.70	.	.	.	-0.57	-0.79	0.15
DE22	.	.	.	17.50	.	.	.	-0.01	-0.55	0.35
DF23	0.02	.	-17.40	.	.	.	4.53	-0.56	-0.79	0.14
DG24	9.74	-10.87	-6.81	34.80	.	2.61	.	0.72	0.60	4.92
DH25	0.39	-12.61	1.97	10.10	.	4.51	0.38	-0.25	-0.63	0.28
DI26	0.46	-7.75	-3.20	20.30	.	0.34	0.21	-0.28	-0.66	0.25
DJ27	.	.	.	4.00	.	.	.	-0.13	-0.87	0.08
DJ28	.	.	.	11.60	.	.	.	-0.15	-0.67	0.24
DK29	0.49	-9.49	2.24	19.30	.	5.05	.	-0.05	-0.59	0.32
DL30	.	.	.	5.40	.	.	.	0.25	0.31	2.31
DL31	.	.	.	14.50	.	.	.	-0.09	-0.62	0.29
DL32	.	.	.	42.10	.	.	.	0.10	-0.40	0.53
DL33	.	.	.	31.30	.	.	.	0.67	0.31	2.33
DM34	.	.	.	11.90	.	.	.	-0.80	-0.93	0.04
DM35	.	.	.	11.20	.	.	.	-0.81	-0.48	0.43
DN36	.	.	.	.	.	.	.	-0.35	-0.83	0.12
DN37	.	.	.	17.40	.	.	.	.	.	.
E	1.59	-8.80	-3.32	.	17.59	.	.	.	.	.
F	5.60	-32.28	-4.61	22.80	16.83	.	.	.	.	.
G-K_X_K7415	.	.	.	.	.	.	.	.	.	.
G50	.	.	.	3.60	.	.	.	.	.	.
G51	.	.	.	7.80	.	.	.	.	.	.
G52	.	.	.	7.10	.	.	.	.	.	.
H	2.25	-4.93	1.14	10.20	14.90	.	.	.	.	.
I60	.	.	.	12.70	.	.	.	.	.	.
I61	.	.	.	.	.	.	.	.	.	.
I62	.	.	.	.	.	.	.	.	.	.
I63	.	.	.	14.40	.	.	.	.	.	.
I64	.	.	.	17.40	.	.	.	.	.	.
J	9.83	3.37	3.50	.	.	.	.	.	.	.
K70	.	.	.	34.80	.	.	.	.	.	.
K71	.	.	.	37.40	.	.	.	.	.	.
K72	.	.	.	7.90	.	.	.	.	.	.
K73	.	.	.	3.20	.	.	.	.	.	.
K74	.	.	.	19.00	.	.	.	.	.	.

Greece

Country level

	2005	2006	2007	2008	2009	2010
Indicators						
Trade openness (% of GDP)	26.96	27.77	28.63	29.86	24.21	25.19
Relative trade balance	-0.17	-0.19	-0.21	-0.22	-0.22	-0.17
Share of world exports market (%)	0.17	0.17	0.17	0.16	0.17	0.14
Nominal unit labour costs growth: t/t-1 (%)	3.69	1.78	3.56	6.15	5.00	-1.11
Nominal unit labour costs growth: t/t-5 (%)	3.37	3.81	2.54	3.46	4.03	3.04
Total goods and services real export growth: t/t-1 (%)	2.50	5.34	5.75	4.01	-20.07	3.84
Total goods and services real export growth: t/t-5 (%)	2.54	3.62	6.64	6.86	-1.03	-0.78
Real effective exchange rates (2000=100)	113.23	113.93	115.67	119.56	122.71	118.76
Total public expenditure on education (% of GDP)	4.04	.	.	.	.	.
Human Resources in S and T as % of total employment **	30.20	31.50	31.90	32.30	32.80	.
RCA index: high tech	0.52	0.47	0.47	0.55	0.62	.
RCA index: medium-high tech	0.46	0.49	0.53	0.51	0.51	.
RCA index: medium-low tech	1.77	1.84	1.75	1.64	1.56	.
RCA index: low tech	1.89	1.77	1.68	1.69	1.72	.
Exports of high technology products (% of total exports)	5.95	5.71	4.74	5.88	.	.
High skills sectors: share in GDP (%)	34.64	34.22	35.13	.	.	.
Specialisation index* (hs)	0.85	0.84	0.85	.	.	.
High-intermediate skills sectors: share in GDP (%)	12.27	12.30	12.63	.	.	.
Specialisation index* (his)	0.80	0.80	0.84	.	.	.
Low-intermediate skills sectors: share in GDP (%)	30.43	31.92	31.14	.	.	.
Specialisation index* (lis)	1.13	1.18	1.15	.	.	.
Low skills sectors: share in GDP (%)	22.66	21.56	21.09	.	.	.
Specialisation index* (ls)	1.34	1.28	1.26	.	.	.
High technology manufacturing sectors: share in GDP (%)	0.61	0.60	0.55	.	.	.
specialisation index* (ht)	0.27	0.26	0.25	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	1.56	1.42	1.39	.	.	.
specialisation index* (mht)	0.26	0.23	0.22	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	4.17	4.39	4.57	.	.	.
specialisation index* (mlt)	0.73	0.76	0.78	.	.	.
Low technology manufacturing sectors: share in GDP (%)	5.72	5.42	5.46	.	.	.
specialisation index* (lt)	1.08	1.05	1.07	.	.	.
Knowledge-intensive services: share in GDP (%)	42.12	41.96	42.56	.	.	.
specialisation index* (kis)	0.88	0.87	0.88	.	.	.
Less knowledge-intensive services: share in GDP (%)	45.82	46.21	45.47	.	.	.
specialisation index* (lkis)	1.40	1.42	1.41	.	.	.
Foreign Direct investment flows (% of GDP)	0.26	2.03	0.69	1.30	1.04	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	1.83	2.42	2.41	2.38	3.30	2.82
2 - Travel	1.60	1.46	1.61	2.08	2.00	1.89
3 - Other services	0.23	0.18	0.20	0.30	0.24	0.24
3a - Communications	0.63	0.42	0.48	0.82	0.57	0.57
3b - Construction	0.62	0.30	0.40	0.81	0.41	0.47
3c - Insurance	0.51	0.41	0.51	0.67	0.56	0.59
3d - Financial services	0.08	0.04	0.06	0.11	0.05	0.07
3e - Computer and information	0.15	0.13	0.18	0.19	0.17	0.21
3f - Royalties and licence fees		0.02	0.02	0.01	0.02	0.03
3g - Other business services	0.21	0.20	0.21	0.28	0.28	0.25
3h - Personal, cultural and recreational services	0.91	0.40	0.48	1.19	0.54	0.56
3i - Government services n.i.e.	0.12	0.10	0.13	0.15	0.14	0.15
Total services	1.00	1.00	1.00	1.30	1.36	1.17

Greece
Nace - Revision 2

	Indicators											
	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
nace												
B-D_F	-13.7	-4.2	.	.	.	.	.	.	.	.	.	.
C	-5.7	-3.5	-7.6	-2.8	-8.6	-3.7	2.1	-0.7	3.1	0.2	0.2	2.7
C10	-4.1	-0.6	-4.3	0.5	-7.4	-0.8	0.3	-1.1	3.6	0.2	-8.7	-0.1
C11	-6.9	-0.6	-4.9	-1.5	-9.7	-2.1	-2.1	0.9	3.1	1.5	7.8	0.6
C12	-17.5	-5.7	-3.9	-3.7	-11.4	-5.6	-14.2	-2.1	-6.9	-0.2	23.5	7.1
C13	-23.4	-16.0	-14.3	-6.6	-14.1	-8.0	-10.6	-10.1	-10.8	-8.7	16.3	15.9
C14	-23.1	-13.5	-12.9	-6.8	-12.3	-8.4	-11.7	-7.2	-12.2	-5.5	14.2	7.3
C15	-36.7	-13.1	-8.3	-3.7	-6.1	-4.2	-31.0	-9.8	-32.6	-9.3	60.3	17.2
C16	4.9	-9.7	-9.9	-6.1	-8.8	-5.8	16.4	-3.8	15.0	-4.1	-5.4	9.1
C17	-5.6	-1.5	-4.6	-1.6	-3.3	-1.6	-1.0	0.1	-2.4	0.1	7.5	3.1
C18	-13.2	-5.2	-7.9	-3.2	-8.5	-3.6	-5.7	-2.1	-5.1	-1.7	23.3	7.4
C19	5.8	2.1	-3.9	-0.7	-4.5	-1.3	10.1	2.8	10.8	3.4	-7.8	-1.6
C20	-1.0	-3.2	-3.5	-1.2	-2.3	-1.6	2.6	-2.0	1.3	-1.6	1.0	6.1
C21	5.0	9.0	-1.1	2.3	-1.6	1.2	6.2	6.5	6.8	7.7	-4.9	-1.9
C22	-7.2	-2.9	-5.8	-3.0	-6.7	-3.3	-1.5	0.1	-0.6	0.4	5.1	4.0
C23	-14.7	-9.9	-9.8	-4.8	-10.6	-6.3	-5.4	-5.3	-4.6	-3.9	8.7	7.7
C24	10.6	-1.8	-10.4	-3.9	-8.5	-3.7	23.4	2.2	20.8	2.0	-16.0	0.7
C25	-4.4	-4.6	-6.6	-2.9	-6.8	-4.1	2.4	-1.8	2.6	-0.5	0.3	3.8
C26	2.7	-19.6	-6.5	4.0	-14.4	-1.5	9.8	-22.7	19.9	-18.4	-10.8	29.5
C27	-1.6	-3.8	-6.6	1.3	-7.1	0.6	5.3	-5.1	6.0	-4.4	-3.2	6.2
C28	-5.4	-7.1	-2.8	-2.0	-4.3	-3.8	-2.7	-5.3	-1.1	-3.5	1.5	2.3
C29	-4.1	-7.5	-19.3	-11.0	-25.9	-14.2	18.8	3.9	29.3	7.7	-18.0	-6.5
C30	-48.6	-15.1	-10.8	-7.1	-10.4	-6.2	-42.3	-8.6	-42.6	-9.4	88.2	7.4
C31	-20.3	-8.9	-10.5	-3.6	-15.1	-5.5	-11.0	-5.5	-6.2	-3.6	17.1	9.1
C32	-7.8	-8.2	-7.5	-2.8	-13.3	-3.9	-0.3	-5.5	6.3	-4.5	7.0	12.3
C33	-31.6	-10.0	-16.9	-7.7	-5.1	-6.7	-17.7	-2.5	-27.9	-3.6	51.6	9.0

Greece
Nace - Revision 1

nace	Value Added share in GDP (%) 2009	Value-added growth (%) 2008-2009	Value-added growth (%) 2004-2009	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Gross operating rate 2007	Openness ratio 2008	Patent intensity 2008	Labour productivity per person growth (%) 2008-2009	Labour productivity per person growth (%) 2004-2009	ULC growth (%) 2008-2009	ULC growth (%) 2004-2009	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.39	-13.65	-1.55	-4.58	-2.10	24.50			-9.51	0.56	10.24	5.70			
D	10.31	4.56	2.98	-1.58	-0.09	13.90		0.25	6.23	3.08	-5.46	3.35			
DA15	3.36	14.55	1.67	6.84	1.82	12.20	0.18	0.03	7.22	-0.15	-11.33	7.72	-0.34	0.42	0.45
DA16	0.15	2.09	2.53	18.18	4.36	18.60	0.33	0.02	-13.61	-1.76	-0.40	7.87	-0.11	0.69	1.00
DB17	0.18	-23.22	-9.55		-3.11	7.90	0.69	0.04	-23.22	-6.65	26.09	8.20	-0.22	0.26	0.31
DB18	0.72	12.26	5.37	-4.59	-2.74	10.90	0.87		17.66	8.34	-11.49	1.98	-0.35	0.43	0.47
DC19	0.08	13.08	6.35	-13.89	-3.21	11.90	1.12	0.04	31.32	9.88	-21.29	-2.66	-0.75	-0.21	0.12
DD20	0.15	-12.41	0.44	5.10	-3.95	12.30	0.19	0.02	-16.66	4.58	17.91	1.70	-0.66	-0.29	0.10
DE21	0.17	7.13	2.08	1.89	2.17	8.80	0.39	0.18	5.15	-0.09	-6.94	1.39	-0.69	-0.23	0.12
DE22	0.61	-3.45	4.71	-6.78	1.14	37.50	0.07	0.01	3.57	3.52	3.40	6.58	-0.36	0.30	0.35
DF23	0.76	55.06	6.08	26.19	-0.74	7.40	0.18	0.05	22.88	6.87	-14.93	1.57	-0.08	0.29	0.34
DG24	0.59	31.40	9.78	-6.25	1.61	13.90	1.12		40.16	8.04	-24.00	-2.34	-0.54	0.02	0.19
DH25	0.34	-7.87	-0.32	-3.77	-4.34	13.90	0.42	0.23	-4.25	4.20	7.97	4.15	-0.31	0.10	0.23
DI26	0.53	-19.52	-6.38	-6.69	-0.58	16.80	0.17	0.15	-13.76	-5.84	15.87	9.36	-0.21	0.42	0.45
DJ27	0.52	7.62	11.76	-6.74	2.38	9.00	0.45	0.14	15.40	9.16	-6.58	-4.25	-0.06	0.26	0.31
DJ28	0.67	-10.63	4.61	-3.52	-0.91	22.90	0.16	0.19	-7.38	5.57	11.13	2.67	-0.36	-0.02	0.18
DK29	0.32	10.48	9.88	-5.84	-2.67	12.70	0.94		17.33	12.88	-17.23	-10.49	-0.59	-0.38	0.08
DL30		-40.54	-17.04	-2.	2.71	42.10	33.54	147.53	-25.68	-19.23	16.43	-5.87	-0.83	-0.73	0.03
DL31	0.18	-47.06	-26.60	-11.34	-5.65	9.90	0.24		-40.29	-22.21	66.89	39.04	-0.41	-0.21	0.12
DL32	0.07	-38.00	-3.84	-21.43	5.71	14.30	0.20		-21.09	-9.03	2.51	4.93	-0.68	-0.67	0.04
DL33	0.05	-43.25	-5.27	-8.16	7.06	31.00	2.37		-38.20	-11.52	57.15	17.03	-0.75	-0.56	0.05
DM34	0.07	-2.83	-4.44	15.15	1.66	14.30	5.88	3.64	-15.61	-6.00	2.49	7.96	-0.84	-0.75	0.03
DM35	0.30	-23.11	5.44	-6.47	0.25	19.20	0.87	0.20	-17.79	5.17	22.51	-1.16	-0.82		0.19
DN36	0.46	-15.27	2.73	0.72	2.30		0.33	0.13	-15.88	0.42	17.11	7.41	-0.68	-0.55	0.05
DN37	0.02	5.	9.99	-22.22	28.47				92.86	-14.39	-41.98	18.49			
E	2.63	-13.10	-4.91	-2.69	1.07	25.80			-10.70	-5.92	15.91	13.00			
F	4.45	-13.15	-1.81	-4.31	0.80	16.70			-9.24	-2.58	-8.60	1.19			
G-K_X_K7415															
G50	2.51	5.00	1.44	-1.89	2.18	6.00			7.02	-0.73	-1.65	9.22			
G51	8.16	0.71	1.17	-2.67	1.02	8.00			3.46	0.14	2.59	4.84			
G52	5.70	6.98	0.60	-0.13	1.32	8.30			7.12	-0.71	-3.40	8.68			
H	7.19	-5.11	1.97	-0.35	2.22	14.90			-4.78	-0.24	2.39	5.17			
I60	1.33	-19.24	0.73	2.85	-0.78	19.10			-21.48	1.52	40.43	0.33			
I61	4.13	-25.42	9.26	-1.21	2.94	19.00			-24.51	6.14	52.87	-2.62			
I62	0.48	-33.83	-5.88		-2.69	-3.50			-33.83	-3.27	46.07	4.26			
I63	0.78	11.18	6.42	-8.79	-3.63	11.70			21.89	10.43	-2.28	2.82			
I64	2.77	-3.57	3.09	1.00	-2.34	30.20			-4.52	5.56	4.19	-3.27			
J	5.40	7.16	7.87	-1.32	0.54				8.59	7.29	-3.03	-0.43			
K70	10.88	-1.64	-0.83	-9.09	12.20	36.10			8.19	-11.61	-6.56	33.31			
K71	0.23	4.07	2.12	-26.42	1.61	47.60			41.43	0.50	-27.53	3.24			
K72	0.59	15.79	4.40	11.82	4.76	19.40			3.55	-0.34	-14.25	2.33			
K73	0.19	7.85	5.36	-1.61	20.01	14.00			9.62	-12.21	-10.03	7.33			
K74	2.46	-1.29	-0.53	0.29	5.64	24.10			-1.58	-5.84	2.93	6.95			

Spain

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	28.32	29.52	30.25	29.35	24.45	27.34
Relative trade balance	-0.09	-0.11	-0.11	-0.10	-0.04	-0.04
Share of world exports market (%)	1.86	1.78	1.82	1.75	1.84	1.65
Nominal unit labour costs growth: t/t-1 (%)	3.30	3.30	4.03	4.90	0.98	-1.53
Nominal unit labour costs growth: t/t-5 (%)	2.95	2.98	3.20	3.59	3.30	2.31
Total goods and services real export growth: t/t-1 (%)	2.54	6.69	6.72	-1.11	-11.58	10.28
Total goods and services real export growth: t/t-5 (%)	3.30	3.80	4.75	3.76	0.42	1.89
Real effective exchange rates (2000=100)	112.31	114.78	118.56	122.32	120.31	115.77
Total public expenditure on education (% of GDP)	4.23	4.27	4.35	4.62	.	.
Human Resources in S and T as % of total employment **	39.70	40.80	41.00	41.70	42.80	.
RCA index: high tech	0.45	0.42	0.46	0.47	0.48	.
RCA index: medium-high tech	1.23	1.23	1.20	1.18	1.22	.
RCA index: medium-low tech	1.14	1.15	1.07	1.03	1.01	.
RCA index: low tech	1.16	1.18	1.16	1.22	1.23	.
Exports of high technology products (% of total exports)	5.65	4.92	4.24	4.16	.	.
High skills sectors: share in GDP (%)	33.33	33.74	34.47	.	.	.
Specialisation index* (hs)	0.81	0.82	0.84	.	.	.
High-intermediate skills sectors: share in GDP (%)	13.60	13.47	13.70	.	.	.
Specialisation index* (his)	0.89	0.88	0.91	.	.	.
Low-intermediate skills sectors: share in GDP (%)	30.31	30.74	30.31	.	.	.
Specialisation index* (lis)	1.13	1.14	1.12	.	.	.
Low skills sectors: share in GDP (%)	22.75	22.04	21.52	.	.	.
Specialisation index* (ls)	1.35	1.31	1.28	.	.	.
High technology manufacturing sectors: share in GDP (%)	1.10	1.12	1.09	.	.	.
specialisation index* (ht)	0.49	0.50	0.49	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	4.95	4.97	4.81	.	.	.
specialisation index* (mht)	0.81	0.80	0.78	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	7.22	7.11	6.83	.	.	.
specialisation index* (mlt)	1.27	1.23	1.17	.	.	.
Low technology manufacturing sectors: share in GDP (%)	5.81	5.50	5.29	.	.	.
specialisation index* (lt)	1.09	1.07	1.04	.	.	.
Knowledge-intensive services: share in GDP (%)	41.34	41.83	42.87	.	.	.
specialisation index* (kis)	0.86	0.87	0.89	.	.	.
Less knowledge-intensive services: share in GDP (%)	39.58	39.48	39.10	.	.	.
specialisation index* (lkis)	1.21	1.22	1.21	.	.	.
Foreign Direct investment flows (% of GDP)	2.21	2.49	4.77	4.39	1.03	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	0.71	0.73	0.70	2.54	2.83	2.69
2 - Travel	1.89	1.83	1.80	6.72	7.11	6.87
3 - Other services	0.57	0.75	0.76	2.02	2.91	2.91
3a - Communications	0.60	0.65	0.74	2.14	2.54	2.81
3b - Construction	0.57	1.46	1.32	2.03	5.66	5.04
3c - Insurance	0.24	0.45	0.66	0.84	1.76	2.50
3d - Financial services	0.39	0.51	0.48	1.37	1.99	1.85
3e - Computer and information	1.26	0.78	0.84	4.47	3.02	3.21
3f - Royalties and licence fees	0.14	0.10	0.14	0.51	0.41	0.55
3g - Other business services	0.68	0.92	0.93	2.41	3.57	3.54
3h - Personal, cultural and recreational services	0.73	1.10	1.18	2.58	4.27	4.51
3i - Government services n.i.e.	0.25	0.38	0.32	0.90	1.46	1.23
Total services	1.00	1.00	1.00	3.55	3.88	3.81

Spain
Nace - Revision 2

	Indicators											
	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
nace												
B-D_F	-7.4	-6.2					.	.	.	.	.	.
C	0.6	-3.9	-5.9	-4.6	-4.0	-3.3	6.9	0.8	4.8	-0.6	-3.3	4.3
C10	2.0	0.6	-5.6	-1.7	0.8	1.0	8.1	2.3	1.2	-0.4	-0.3	4.2
C11	-5.9	-1.7	19.7	-0.3	-2.4	-4.0	-21.3	-1.4	-3.5	2.4	4.8	-1.2
C12	-4.8	-6.4	-22.9	-17.2	-8.1	-10.7	23.6	13.1	3.6	4.7	-0.0	0.8
C13	7.1	-8.3	-5.6	-12.4	5.2	-9.5	13.4	4.8	1.9	1.4	-1.2	2.5
C14	-9.9	-8.8	-5.0	-12.5	-18.3	-10.3	-5.2	4.2	10.3	1.7	-2.6	5.8
C15	2.3	-8.3	10.2	-8.8	0.8	-7.2	-7.2	0.6	1.5	-1.2	-2.6	4.7
C16	-7.1	-11.5	-15.5	-11.9	-10.3	-7.6	9.9	0.4	3.6	-4.2	-1.7	9.7
C17	5.0	-0.7	-2.7	-1.6	-7.2	-2.5	7.9	0.8	13.2	1.8	-9.1	2.4
C18	0.7	-3.7	-1.9	-3.3	-6.6	-1.9	2.6	-0.5	7.8	-1.9	-8.8	4.5
C19	0.9	-1.3	-2.9	-0.2	5.9	2.4	4.0	-1.0	-4.7	-3.6	8.4	7.5
C20	4.8	0.2	-3.3	-1.0	-2.6	-2.1	8.4	1.2	7.6	2.4	-8.1	-0.4
C21	9.7	7.0	10.2	2.9	0.4	1.8	-0.5	3.9	9.2	5.1	-9.2	-2.7
C22	8.1	-3.5	-4.1	-3.3	-1.9	-2.1	12.6	-0.2	10.1	-1.4	-8.2	4.1
C23	-5.3	-11.4	-18.1	-8.8	-9.5	-6.9	15.6	-2.8	4.7	-4.8	0.6	10.3
C24	11.5	-3.4	-1.5	-6.2	-11.0	-0.2	13.2	3.0	25.3	-3.3	-18.4	4.8
C25	-6.4	-6.6	-8.9	-6.4	-4.6	-2.8	2.7	-0.3	-1.9	-3.9	2.8	8.8
C26	2.8	-2.9	-6.3	-5.0	-6.2	-7.8	9.8	2.2	9.7	5.4	-11.5	-3.4
C27	-2.8	-5.3	-5.4	-3.1	12.8	-7.0	2.7	-2.3	-13.9	1.8	14.2	1.0
C28	-4.4	-4.2	-6.5	-3.3	-8.8	-0.2	2.3	-0.9	4.8	-4.0	-5.2	8.1
C29	12.1	-5.5	-3.6	-2.4	6.9	-3.8	16.3	-3.2	4.9	-1.8	-3.7	4.8
C30	-11.6	-2.5	7.0	1.8	1.2	3.5	-17.4	-4.2	-12.6	-5.8	17.8	12.6
C31	-8.9	-10.3	-23.1	-9.8	-11.3	-8.1	18.4	-0.6	2.8	-2.4	0.0	6.7
C32	5.4	-3.2	4.3	0.7	11.2	-6.4	1.1	-3.9	-5.2	3.3	2.8	-0.4
C33	-18.8	1.3	-9.4	-0.4	-20.1	-4.1	-10.3	1.7	1.7	5.6	-1.6	-3.3

Spain
Nace - Revision 1

nace	Value Added share in GDP (%) 2009	Value-added growth (%) 2008-2009	Value-added growth (%) 2004-2009	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Mark-up 1993-2004	Mark-up 1981-1992	Gross operating rate 2007	Business churn 2007	R&D intensity 2008	Patent intensity 2008	Labour productivity per person growth (%) 2008-2009	Labour productivity per person growth (%) 2004-2009	ULC growth (%) 2008-2009	ULC growth (%) 2004-2009	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.18	-25.38	-8.16	-15.48	-5.74	.	.	21.20	9.63	0.84	.	-11.72	-2.57	23.41	6.90	.	.	.
D	12.67	-13.46	-2.67	-14.45	-3.42	.	.	10.20	12.08	2.40	0.54	1.15	0.77	2.49	3.72	.	.	.
DA15	.	-1.38	1.13	.	.	1.09	1.11	10.30	.	.	.	.	.	.	.	0.05	0.24	3.60
DA16	.	32.14	-2.01	.	.	1.26	1.21	19.90	.	.	.	.	.	.	.	-0.76	-0.42	0.90
DB17	.	-18.26	-8.31	.	.	1.12	1.17	7.10	.	.	.	.	.	.	.	-0.14	-0.05	1.98
DB18	.	-19.92	-6.61	.	.	1.27	1.35	7.80	.	.	.	.	.	.	.	-0.30	0.14	2.94
DC19	0.12	-18.61	-5.68	-22.76	-10.46	.	.	6.60	14.88	1.05	0.12	5.37	5.34	1.46	-0.49	-0.13	0.18	3.18
DD20	0.24	-23.77	-5.31	-25.14	-6.96	.	.	10.30	9.57	0.41	0.05	1.82	1.77	0.85	4.27	-0.12	-0.07	1.92
DE21	.	-0.03	-0.30	.	.	1.22	1.26	12.50	.	.	.	.	.	.	.	.	0.08	2.60
DE22	.	-10.03	-1.95	.	.	1.10	1.14	15.20	.	.	.	.	.	.	.	0.04	0.07	2.53
DF23	0.23	-5.43	-1.42	3.12	4.10	.	.	10.50	.	2.29	0.34	-8.30	-5.30	10.48	7.91	-0.18	-0.12	1.75
DG24	1.41	0.06	0.54	-12.89	-2.62	.	.	10.40	.	6.72	.	14.86	3.25	-7.39	1.55	-0.11	-0.02	2.11
DH25	0.56	-12.38	-2.70	-5.88	-1.31	.	.	8.80	9.09	1.84	0.32	-6.90	-1.41	9.42	5.59	-0.02	0.07	2.54
DI26	0.89	-24.30	-5.65	-24.40	-5.23	.	.	15.00	9.21	0.81	0.15	0.13	-0.45	0.86	5.21	0.32	0.35	4.63
DJ27	.	-15.68	-4.27	.	.	1.43	1.35	11.00	.	.	.	.	.	.	.	0.05	-0.05	1.99
DJ28	.	-22.74	-3.73	.	.	1.33	1.19	11.50	.	.	.	.	.	.	.	0.07	0.05	2.45
DK29	0.96	-14.59	-2.17	-8.93	-1.06	.	.	10.40	14.13	2.97	.	-6.22	-1.13	10.20	4.07	-0.13	-0.21	1.46
DL30	.	-9.88	-6.08	.	.	1.30	1.43	3.20	.	.	.	.	.	.	.	-0.72	-0.78	0.28
DL31	.	-21.62	-5.95	.	.	1.13	1.09	10.20	.	.	.	.	.	.	.	-	-0.02	2.15
DL32	.	-19.50	1.08	.	.	1.22	1.15	7.60	.	.	.	.	.	.	.	-0.52	-0.68	0.43
DL33	.	-14.95	2.88	.	.	1.17	1.14	14.80	.	.	.	.	.	.	.	-0.47	-0.56	0.63
DM34	.	-29.03	-9.12	.	.	1.16	1.16	5.70	.	.	.	.	.	.	.	0.16	0.37	4.86
DM35	.	-4.83	6.88	.	.	1.06	1.02	6.30	.	.	.	.	.	.	.	0.01	-0.03	2.07
DN36	.	-18.28	-6.05	.	.	1.15	1.16	8.30	.	.	.	.	.	.	.	-0.33	-0.37	1.01
DN37	.	0.68	7.39	.	.	1.04	.	10.70	.	.	.	.	.	.	.	.	.	.
E	2.47	-4.55	1.86	4.91	2.85	1.35	1.29	23.00	18.29	0.41	.	-9.02	-0.96	13.49	5.32	.	.	.
F	10.77	-6.21	0.83	-22.46	-3.45	1.13	1.13	10.80	20.44	0.21	.	20.95	4.44	-10.77	2.46	.	.	.
G-K_X_K7415	.	.	.	.	.	.	.	.	16.73	.	.	.	.	.	.	.	.	.
G50	.	3.53	2.12	.	.	1.24	1.24	5.00	12.78	.	.	.	.	.	.	.	.	.
G51	.	-8.20	-0.06	.	.	1.44	1.42	5.30	15.34	.	.	.	.	.	.	.	.	.
G52	.	-0.58	3.95	.	.	1.58	1.52	8.60	16.88	.	.	.	.	.	.	.	.	.
H	7.51	-0.49	1.13	-1.57	3.33	1.35	1.24	13.60	19.94	0.02	.	1.10	-2.12	-0.44	1.94	.	.	.
I60	.	-3.50	0.52	.	.	1.58	1.50	21.40	11.98	.	.	.	.	.	.	.	.	.
I61	.	-9.71	-0.71	.	.	1.09	1.04	19.10	16.74	.	.	.	.	.	.	.	.	.
I62	.	-5.80	-5.91	.	.	1.20	1.14	6.00	23.84	.	.	.	.	.	.	.	.	.
I63	.	-5.15	1.26	.	.	1.21	1.31	11.80	15.07	.	.	.	.	.	.	.	.	.
I64	.	-0.32	4.02	.	.	1.54	1.63	34.70	24.13	.	.	.	.	.	.	.	.	.
J	6.58	-4.61	6.57	-1.70	1.83	.	.	.	19.33	0.21	.	-2.96	4.66	4.39	-1.13	.	.	.
K70	.	-2.64	1.42	.	.	3.40	3.59	26.00	17.46	.	.	.	.	.	.	.	.	.
K71	.	-7.44	1.92	.	.	1.72	1.81	34.40	18.81	.	.	.	.	.	.	.	.	.
K72	.	-1.89	2.85	.	.	1.39	1.37	11.30	23.42	.	.	.	.	.	.	.	.	.
K73	.	-22.34	1.64	.	.	2.53	1.84	17.30	23.62	.	.	.	.	.	.	.	.	.
K74	.	-1.06	5.41	.	.	1.24	1.24	18.80	.	.	.	.	.	.	.	.	.	.

France

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	26.68	27.55	27.63	28.00	24.25	26.64
Relative trade balance	-0.01	-0.02	-0.03	-0.04	-0.04	-0.04
Share of world exports market (%)	4.47	4.14	4.03	3.84	3.92	3.50
Nominal unit labour costs growth: t/t-1 (%)	1.84	1.79	1.62	3.17	3.20	0.68
Nominal unit labour costs growth: t/t-5 (%)	2.01	1.91	1.64	1.88	2.32	2.09
Total goods and services real export growth: t/t-1 (%)	2.85	5.18	2.33	-0.31	-12.42	9.74
Total goods and services real export growth: t/t-5 (%)	2.07	2.59	2.73	2.95	-0.68	0.62
Real effective exchange rates (2000=100)	109.88	110.85	112.12	113.83	114.18	112.13
Total public expenditure on education (% of GDP)	5.65	5.58	5.59	5.58	.	.
Human Resources in S and T as % of total employment **	41.80	42.80	43.20	44.20	45.10	.
RCA index: high tech	0.93	0.96	0.99	1.07	1.12	.
RCA index: medium-high tech	1.12	1.10	1.09	1.05	1.04	.
RCA index: medium-low tech	0.86	0.85	0.83	0.81	0.76	.
RCA index: low tech	1.02	1.04	1.05	1.06	1.05	.
Exports of high technology products (% of total exports)	19.07	17.88	15.57	16.36	.	.
High skills sectors: share in GDP (%)	46.81	47.32	47.28	.	.	.
Specialisation index* (hs)	1.14	1.16	1.15	.	.	.
High-intermediate skills sectors: share in GDP (%)	16.11	16.21	16.10	.	.	.
Specialisation index* (his)	1.05	1.06	1.07	.	.	.
Low-intermediate skills sectors: share in GDP (%)	23.05	22.95	23.02	.	.	.
Specialisation index* (lis)	0.86	0.85	0.85	.	.	.
Low skills sectors: share in GDP (%)	14.04	13.51	13.60	.	.	.
Specialisation index* (ls)	0.83	0.80	0.81	.	.	.
High technology manufacturing sectors: share in GDP (%)	2.14	2.17	2.06	.	.	.
specialisation index* (ht)	0.95	0.97	0.92	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	3.83	3.55	3.53	.	.	.
specialisation index* (mht)	0.63	0.57	0.57	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	4.64	4.46	4.58	.	.	.
specialisation index* (mlt)	0.81	0.77	0.79	.	.	.
Low technology manufacturing sectors: share in GDP (%)	4.06	3.81	3.71	.	.	.
specialisation index* (lt)	0.76	0.74	0.73	.	.	.
Knowledge-intensive services: share in GDP (%)	53.97	54.97	55.29	.	.	.
specialisation index* (kis)	1.12	1.14	1.14	.	.	.
Less knowledge-intensive services: share in GDP (%)	31.36	31.02	30.82	.	.	.
specialisation index* (lkis)	0.96	0.96	0.95	.	.	.
Foreign Direct investment flows (% of GDP)	3.96	3.17	4.00	3.40	2.32	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	0.99	1.06	1.08	5.55	4.79	4.79
2 - Travel	1.32	1.45	1.43	7.41	6.56	6.37
3 - Other services	0.80	0.78	0.78	4.47	3.52	3.49
3a - Communications	0.76	1.16	1.41	4.25	5.26	6.28
3b - Construction	1.77	1.53	1.90	9.93	6.93	8.45
3c - Insurance	0.94	0.20	0.23	5.24	0.93	1.04
3d - Financial services	0.22	0.15	0.19	1.24	0.68	0.87
3e - Computer and information	0.31	0.20	0.19	1.75	0.91	0.86
3f - Royalties and licence fees	0.50	1.24	1.13	2.82	5.61	5.01
3g - Other business services	1.04	0.94	0.91	5.81	4.25	4.05
3h - Personal, cultural and recreational services	1.37	1.20	1.12	7.67	5.45	5.00
3i - Government services n.i.e.	0.28	0.40	0.34	1.56	1.80	1.50
Total services	1.00	1.00	1.00	5.59	4.53	4.45

France
Nace - Revision 2

	Production growth (%)		Employment growth (%)		Labour productivity per person growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
nace								
B-D_F	3.5	-1.5	.	.	.	.	.	.
C	5.7	-1.8	-3.5	-2.7	9.6	0.9	-6.3	1.7
C10	-0.5	0.4	-0.4	-0.8	-0.2	1.2	2.0	1.5
C11	8.6	0.4	-0.5	-2.3	9.2	2.7	-7.2	0.2
C12	-1.1	-3.6	-1.0	-6.2	-0.1	2.7	-24.8	-6.8
C13	5.6	-8.4	-6.3	-7.7	12.8	-0.8	-9.8	3.9
C14	-12.8	-17.5	-6.3	-7.7	-6.9	-10.6	10.5	14.5
C15	10.5	-2.5	-6.5	-5.1	18.2	2.7	-8.6	2.0
C16	-1.6	-3.8	-3.9	-2.5	2.4	-1.3	0.7	4.6
C17	1.8	-3.2	-3.9	-4.7	5.9	1.6	-2.5	1.4
C18	-3.8	-4.8	-3.9	-4.5	0.1	-0.3	-1.1	1.4
C19	-9.7	-5.2	-3.3	-2.9	-6.5	-2.3	8.0	8.2
C20	10.9	1.6	-3.2	-3.4	14.6	5.2	-11.5	-2.1
C21	13.9	5.0	-0.7	-0.6	14.7	5.6	-12.1	-3.8
C22	7.8	-3.6	-3.9	-3.1	12.2	-0.6	-7.6	3.2
C23	1.5	-3.2	-3.9	-2.6	5.7	-0.6	-3.1	2.9
C24	15.6	-4.6	-5.1	-4.0	21.8	-0.6	-14.8	3.6
C25	5.3	-4.2	-5.2	-2.6	11.1	-1.7	-6.6	3.8
C26	-2.2	-2.4	-3.3	-2.7	1.1	0.3	1.0	1.7
C27	8.6	-0.5	-4.6	-2.3	13.8	1.8	-8.8	1.5
C28	8.1	-4.2	-5.8	-2.4	14.8	-1.9	-10.0	4.3
C29	13.2	-7.0	-4.9	-4.1	19.1	-3.0	-12.9	5.1
C30	6.5	3.8	-4.9	-1.2	12.1	5.0	-4.2	-0.4
C31	-1.3	-5.7	-3.1	-3.8	1.8	-1.9	-2.8	3.4
C32	2.9	0.4	-3.1	-3.3	6.1	3.8	-2.4	-0.2
C33	6.5	2.6	-3.1	-1.8	10.0	4.5	-6.6	-0.3

France
Nace - Revision 1

nace	Value Added share in GDP (%) 2009	Value-added growth (%) 2008-2009	Value-added growth (%) 2004-2009	Employment growth (%) 2007-2008	Employment growth (%) 2003-2008	Mark-up 1993-2004	Mark-up 1981-1992	Gross operating rate 2007	Business churn 2007	Openness ratio 2008	R&D intensity 2007	Patent intensity 2008	Labour productivity per person growth (%) 2007-2008	Labour productivity per person growth (%) 2003-2008	ULC growth (%) 2007-2008	ULC growth (%) 2003-2008	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.15	-18.40	-3.87	-0.99	-0.13			27.40	6.51		0.16		-1.27	-1.70	4.12	3.09			
D	10.60	-11.04	-1.99	-1.33	-1.90			6.40	12.77		6.92	2.26	-1.20	2.45	4.17	1.03			
DA15	1.46	-7.09	-1.85	-0.73	-0.64	1.14	1.13			0.23		0.30	-2.89	0.47	5.68	2.16	0.10	0.20	7.06
DA16	0.03	8.73	9.38	-1	-14.33	2.11	1.12			1.05		0.73	33.10	16.50	-14.74	-5.90	-0.58	-0.26	2.75
DB17	0.15	-17.87	-5.18	-6.13	-7.46	1.12	1.08	4.70		0.57	3.38	0.52	1.04	4.95	2.28	-1.38	-0.25	-0.24	2.87
DB18	0.16	-5.92	-4.23	-4.84	-8.05	1.13	1.12	6.60		1.06	0.91	0.14	2.44	6.67	0.26	-1.79	-0.33	-0.09	3.96
DC19	0.08	-11.58	-2.58	-2.44	-5.22			10.50	13.29	1.57	0.52	0.57	0.41	-0.31	-0.87	3.58	-0.13	0.08	5.56
DD20	0.18	-13.81	-5.13	-0.36	-1.29			8.00	14.26	0.15	0.43	0.13	-4.90	-2.71	5.61	5.57	-0.35	-0.21	3.05
DE21	0.22	-4.28	-3.22	-2.83	-3.48	1.07	1.07	4.90		0.26	0.64	0.86	1.88	1.83	1.08	1.01	-0.17	-0.01	4.61
DE22	0.63	-3.92	-0.25	-2.16	-2.42	1.13	1.17	5.50		0.06	0.14	0.10	2.35	3.19	-1.30	-0.72	-0.06	0.10	5.73
DF23	0.15	-0.77	2.89		-1.01			-0.50	4.67	0.29	1.87	1.82	-16.49	3.60	28.80	0.11	-0.28	-0.25	2.83
DG24	1.17	-9.60	1.11	-0.73	-1.42			9.80	7.99	0.54	11.00		-2.50	4.10	4.54	-1.55	0.04	0.11	5.85
DH25	0.52	0.52	2.20	-1.44	-1.41			6.20	8.28	0.30	6.68	1.06	2.94	4.15	-1.31	-0.69	-0.11	0.02	4.94
DI26	0.49	-13.46	-2.68	-1.08	-1.40			11.20	13.04	0.20	1.73	0.87	-3.44	1.43	6.16	2.33	-0.17	-0.06	4.18
DJ27	0.46	-23.74	-9.00	-1.83	-2.75	1.04	1.05	8.70		0.44	1.56	0.93	-4.85	-3.13	8.04	7.36	-0.01	-0.16	3.42
DJ28	1.14	-14.91	-3.08	0.02	-0.95	1.15	1.17	7.20		0.14	1.06	0.59	-3.60	1.59	5.90	1.97	-0.14	-0.07	4.13
DK29	1.07	-9.32	-0.24	0.59	-0.78			7.80	9.82	0.36	5.18		0.27	4.19	3.14	-0.43	-0.03	-0.08	4.04
DL30	0.02	22.58	-0.80	-2.70	-21.00	1.12	1.10	4.30		1.34	21.91	105.41	-3.85	19.32	12.74	-4.93	-0.47	-0.58	1.27
DL31	0.38	-23.34	-7.39	-0.37	-2.67	1.12	1.18	6.50		0.36	10.72		-2.43	1.88	5.62	2.70	0.01	-0.01	4.62
DL32	0.18	0.18	2.97	-2.50	-3.64	1.11	1.16	1.60		0.14	45.43		5.33	9.95	-0.51	-7.81	-0.26	-0.50	1.57
DL33	0.36	-12.74	0.06	-1.16	-0.26	1.11	1.16	8.20		0.45	17.42		3.01	5.52	-0.17	-2.45	-0.04	-0.04	4.35
DM34	0.65	-21.37	-9.12	-5.38	-3.37	1.12	1.06	3.70		0.43	12.61	4.66	-1.47	-0.63	7.28	4.78	-0.05	0.07	5.41
DM35	0.67	-6.41	5.78	-0.25	0.64	0.92	1.04	7.50		0.08	28.13	1.77	3.50	3.49	1.84	2.20	0.26	0.46	12.68
DN36	0.30	-13.79	-4.66	-3.75	-3.74	1.17	1.31	4.60		0.48	3.12	1.52	-1.03	1.61	4.38	1.99	-0.34	-0.32	2.46
DN37	0.14	-30.38	-8.09	3.87	3.78	1.44	1.15	8.20			0.20		2.07	-18.29	-4.84	25.32			
E	1.64	-4.20	-1.31	-0.84	-0.37	1.40	1.41	14.00	23.10		1.37		3.15	0.69	3.25	2.07			
F	6.44	-4.46	0.95	3.13	3.34	1.24	1.27	7.20	20.61		0.13		-2.95	-1.10	5.16	4.28			
G-K_X_K7415									17.04										
G50	1.61	-8.99	-1.69	-0.06	0.15	1.53	1.44	2.30	14.19				-1.83	-0.27	3.66	2.96			
G51	4.34	-3.13	1.36	0.49	0.08	1.19	1.09	3.30	18.99				1.12	1.78	1.53	1.28			
G52	4.06	-0.74	0.87	0.71	0.03	1.27	1.22	5.00	19.34				0.14	1.58	2.38	1.06			
H	2.41	-4.85	0.10	1.79	1.94	1.25	1.24	1	14.87				-2.49	-1.02	3.86	3.98			
I60	2.32	-1.42	2.07	1.74	1.03	1.16	1.29	8.80	14.30				-0.63	2.13	2.54	0.24			
I61	0.15	-4.82	-5.99	5.82	1.57	1.09	1.06	9.30	11.14				-6.32	-6.50	4.54	10.21			
I62						0.95	1.13	6.90	9.19										
I63						1.29	1.37	11.80	13.10										
I64	2.01	-1.08	2.20	-2.14	-1.15	1.41	1.64	24.60	28.18				2.92	4.81	-0.93	-3.10			
J	5.07	2.08	2.66	0.75	0.64				15.25			0.04	-0.04	1.99	-1.32	0.85			
K70	14.63	1.18	2.02	1.27	3.05	4.40	3.39	26.10	13.28				-0.53	-0.53	2.40	4.99			
K71	0.79	-5.95	1.68	3.48	2.62	2.03	2.13	33.10	13.19				-1.26	0.04	0.02	2.29			
K72	2.51	-1.52	3.59	3.18	2.65	1.29	1.11	7.20	23.89		2.97		0.94	2.89	3.09	0.25			
K73	0.93	-2.46	-0.32	-0.16	1.20	1.14	1.09	4.60	16.19		21.81		0.75	-1.08	2.43	4.11			
K74	9.80	-6.64	1.03	0.09	2.35	1.22	1.11	11.10			2.01		0.45	0.58	4.67	2.72			

Italy

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	25.98	28.14	29.11	29.08	24.06	27.66
Relative trade balance	-.	-0.01	-.	-0.01	-0.01	-0.03
Share of world exports market (%)	3.60	3.48	3.60	3.38	3.29	3.01
Nominal unit labour costs growth: t/t-1 (%)	2.66	2.19	1.85	4.79	4.27	-0.03
Nominal unit labour costs growth: t/t-5 (%)	3.16	2.97	2.63	2.71	3.15	2.60
Total goods and services real export growth: t/t-1 (%)	1.09	6.22	4.56	-4.30	-18.40	9.12
Total goods and services real export growth: t/t-5 (%)	0.70	1.40	2.90	2.42	-2.59	-1.09
Real effective exchange rates (2000=100)	117.24	118.71	120.16	123.52	125.53	122.08
Total public expenditure on education (% of GDP)	4.43	4.70	4.29	4.58	.	.
Human Resources in S and T as % of total employment **	34.00	35.80	36.70	36.60	35.70	.
RCA index: high tech	0.43	0.40	0.41	0.43	0.45	.
RCA index: medium-high tech	1.09	1.13	1.11	1.12	1.13	.
RCA index: medium-low tech	1.12	1.10	1.07	1.02	1.04	.
RCA index: low tech	1.47	1.48	1.41	1.41	1.38	.
Exports of high technology products (% of total exports)	6.94	6.35	6.00	5.95	.	.
High skills sectors: share in GDP (%)	40.57	40.59	40.84	.	.	.
Specialisation index* (hs)	0.99	0.99	0.99	.	.	.
High-intermediate skills sectors: share in GDP (%)	12.91	13.01	12.63	.	.	.
Specialisation index* (his)	0.84	0.85	0.84	.	.	.
Low-intermediate skills sectors: share in GDP (%)	29.20	29.20	29.33	.	.	.
Specialisation index* (lis)	1.09	1.08	1.08	.	.	.
Low skills sectors: share in GDP (%)	17.32	17.20	17.20	.	.	.
Specialisation index* (ls)	1.02	1.02	1.03	.	.	.
High technology manufacturing sectors: share in GDP (%)	1.88	1.95	1.86	.	.	.
specialisation index* (ht)	0.83	0.87	0.83	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	5.46	5.62	5.68	.	.	.
specialisation index* (mht)	0.90	0.91	0.92	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	7.17	7.30	7.72	.	.	.
specialisation index* (mlt)	1.26	1.27	1.32	.	.	.
Low technology manufacturing sectors: share in GDP (%)	6.16	6.01	5.99	.	.	.
specialisation index* (lt)	1.16	1.16	1.18	.	.	.
Knowledge-intensive services: share in GDP (%)	44.83	44.88	44.79	.	.	.
specialisation index* (kis)	0.93	0.93	0.93	.	.	.
Less knowledge-intensive services: share in GDP (%)	34.50	34.24	33.96	.	.	.
specialisation index* (lkis)	1.06	1.06	1.05	.	.	.
Foreign Direct investment flows (% of GDP)	1.12	2.11	1.90	0.74	1.37	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	0.73	0.66	0.64	2.80	2.14	2.03
2 - Travel	1.62	1.63	1.63	6.20	5.30	5.19
3 - Other services	0.74	0.87	0.86	2.81	2.83	2.74
3a - Communications	1.07	0.87	0.73	4.08	2.83	2.33
3b - Construction	1.22	1.02	1.10	4.65	3.32	3.50
3c - Insurance	0.85	0.67	0.56	3.24	2.16	1.79
3d - Financial services	0.11	0.47	0.95	0.42	1.54	3.02
3e - Computer and information	0.26	0.17	0.13	0.98	0.56	0.42
3f - Royalties and licence fees	0.18	0.13	0.19	0.68	0.44	0.59
3g - Other business services	1.08	1.30	1.17	4.15	4.23	3.72
3h - Personal, cultural and recreational services	0.69	0.92	1.00	2.63	2.98	3.17
3i - Government services n.i.e.	0.39	0.81	0.67	1.48	2.65	2.13
Total services	1.00	1.00	1.00	3.83	3.25	3.18

Italy
Nace - Revision 2

	Production growth (%) Hours worked growth (%)				Labour productivity per hour growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010
nace						
B-D_F	4.0	-2.3	.	.	.	.
C	6.8	-2.6	1.7	-0.1	5.0	-2.5
C10	2.2	0.5	1.0	0.3	1.2	0.2
C11	0.1	0.9	0.7	-0.7	-0.5	1.6
C12	.	.	.	.	.	.
C13	11.7	-5.6	3.5	0.7	8.0	-6.3
C14	4.1	5.6	-4.3	-0.8	8.8	6.5
C15	0.8	-5.5	1.1	-0.7	-0.3	-4.8
C16	-1.4	-8.1			.	.
C17	4.4	-1.4	3.2	0.0	1.1	-1.4
C18	-0.3	-3.3	5.1	-0.2	-5.1	-3.1
C19	3.4	-2.3	0.6	-0.1	2.7	-2.1
C20	7.4	-1.3	0.2	0.3	7.2	-1.6
C21	1.2	0.6	-0.4	-0.2	1.6	0.8
C22	3.3	-3.1	3.6	0.3	-0.3	-3.5
C23	0.6	-6.5	2.4	-0.5	-1.7	-6.1
C24	19.5	-3.4	5.4	-0.4	13.3	-3.1
C25	6.6	-5.1	1.7	-0.2	4.8	-4.9
C26	6.7	-2.2	0.9	0.2	5.8	-2.5
C27	12.9	-5.5	2.0	0.0	10.6	-5.5
C28	16.3	-3.8	2.5	0.3	13.4	-4.1
C29	18.9	-2.7	2.2	-0.2	16.3	-2.5
C30	-13.3	-0.9	-0.1	-0.4	-13.3	-0.5
C31	0.2	-2.7	10.1	1.3	-9.0	-4.0
C32	17.4	-3.0	.	.	.	.
C33	11.2	2.6	0.2	-0.3	11.0	3.0

Italy
Nace - Revision 1

nace	Value Added share in GDP (%) 2008	Value-added growth (%) 2007-2008	Value-added growth (%) 2003-2008	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Mark-up 1993-2004	Mark-up 1981-1992	Gross operating rate 2007	Business churn 2007	Openness ratio 2007	Patent intensity 2008	Labour productivity per person growth (%) 2007-2008	Labour productivity per person growth (%) 2003-2008	ULC growth (%) 2007-2008	ULC growth (%) 2003-2008	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.38	-2.22	-0.38	-1.29	-1.30			10.30	8.39			0.55	1.49	4.36	2.50			
D	18.13	-4.93	0.16	-4.68	-0.94			9.60	11.59		1.21	-4.17	0.33	7.80	3.08			
DA15	1.72	-2.65	1.41	-4.06	-0.14	1.18				0.18	0.31	-3.97	0.07	6.58	2.82	-0.02	0.02	4.42
DA16	0.06	2.36	-5.14	-4.55	-8.08	1.33				1.19	0.61	16.32	3.48	-8.01	1.08	-0.98	-0.94	0.12
DB17	0.72	-4.87	-3.74	-6.27	-4.30	1.20		1.		0.26	0.13	-3.98	0.26	5.16	2.00	0.20	0.21	6.52
DB18	0.70	3.52	-0.01	-8.73	-3.52	1.18		9.50		0.34	0.04	2.27	2.19	0.39	1.19	0.11	0.26	7.18
DC19	0.55	-7.87	-2.08	-8.71	-3.14			1.	13.18	0.37	0.12	-10.28	0.51	13.28	2.81	0.27	0.55	14.45
DD20	0.41	-9.57	-2.59	-5.16	-2.84			12.80	10.32	0.10	0.09	-9.08	-0.34	17.59	4.10	-0.44	-0.27	2.43
DE21	0.34	-0.70	1.39	-5.08	-1.99	1.34		8.00		0.20	0.72	-1.05	2.26	3.26	0.59	-0.08	-0.05	3.87
DE22	0.72	-3.01	-0.27	-3.69	-0.68	1.34		13.30		0.04	0.06	-3.06	-0.15	6.53	2.30	0.31	0.05	4.73
DF23	0.40	-20.86	-13.20	-6.49	-0.32			3.70	8.83	0.19	0.84	-19.65	-14.64	30.21	20.96	0.28	-0.27	2.44
DG24	1.18	-3.76	-0.21	-0.58	0.03			8.00	7.98	0.49		-2.69	-0.06	5.58	2.87	-0.17	-0.19	2.91
DH25	0.70	-8.17	-2.35	-6.50	-3.02			9.80	8.71	0.20	0.91	-6.57	-0.13	10.83	3.38	0.22	0.10	5.17
DI26	0.93	-7.66	-1.14	-6.76	-0.72			12.90	10.12	0.14	0.55	-8.43	-1.25	13.66	4.96	0.43	0.32	8.22
DJ27	0.72	-5.15	-1.17	-4.53	-0.75	1.29		9.20		0.45	0.73	-2.56	-1.24	5.76	4.34	-0.15	-0.08	3.63
DJ28	2.61	-3.26	1.89	-4.81	0.53	1.28		13.80		0.08	0.39	-1.39	0.77	6.39	2.73	0.40	0.24	6.97
DK29	2.63	-4.61	2.10	-2.00	0.28			10.10	10.50	0.26		-3.30	1.15	7.72	2.58	0.48	0.32	8.30
DL30	0.06	-13.07	-1.26	-2.05	0.32	1.29		7.10		0.36	22.89	-10.84	-2.40	14.32	4.29	-0.63	-0.81	0.44
DL31	0.83	-7.10	1.20	-4.38	-0.47	1.28		10.70		0.17		-5.42	0.66	9.40	2.71	0.12	-0.06	3.73
DL32	0.46	-6.53	-1.17	-3.21	-2.55	1.33		8.80		0.10		-1.04	1.53	4.27	0.84	-0.56	-0.71	0.73
DL33	0.47	-5.35	4.66	-4.73	1.87	1.41		14.40		0.35		-1.98	1.71	6.52	2.65	-0.05	-0.25	2.56
DM34	0.59	-8.84	0.78	-3.70	-0.89	1.15		5.40		0.56	4.19	-8.62	0.75	7.59	3.17	-0.14	-0.16	3.09
DM35	0.39	-1.35	3.26	-5.86	1.10	1.19		4.20		0.24	2.21	-1.60	0.37	6.25	2.63	0.25	-	4.21
DN36	0.85	-4.61	-0.17	-4.14	-1.51	1.17	1.22	10.70		0.25	0.75	-2.43	0.42	9.02	2.60	0.38	0.19	6.21
DN37	0.11	1.89	4.05	-1.85	2.73	1.17	1.22	9.80				-6.28	1.77	12.14	2.68			
E	2.26	8.54	2.77	-0.92	0.02	1.42	1.10	12.00	15.69			8.79	3.15	-5.96	-1.00			
F	6.16	-2.35	0.70	-1.13	1.49	1.41	1.32	15.90	19.77			-2.11	-1.43	5.83	4.77			
G-K_X_K7415									15.83									
G50	1.77	-3.19	1.27	-0.46	0.63	1.57	1.45	3.90	10.62			-4.03	0.05	8.63	3.69			
G51	5.19	-2.93	0.70	-3.60	-0.16	1.47	1.51	7.70	16.43			-0.99	-0.11	5.34	3.91			
G52	4.13	-0.62	0.40	-0.89	0.09	1.62	1.99	7.60	14.92			-0.97	0.57	7.32	4.74			
H	3.86	0.82	1.70	-2.10	2.09	1.46	1.40	14.90	13.95			-0.25	-1.27	3.29	2.51			
I60	3.67	-1.04	1.45	-2.09	-0.05	1.54		11.00	12.07			-3.76	0.88	4.60	2.85			
I61	0.16	-3.47	-0.63	-0.96	1.49	1.81	1.86	16.70	12.95			-2.54	-2.28	6.36	6.11			
I62	0.10	-24.28	-6.46	-4.88	-2.47	1.82	1.84	11.80	13.24			-22.43	-3.39	26.26	4.53			
I63	1.39	-1.01	0.49	-5.86	0.72	1.65	1.67	11.50	18.69			-0.81	-1.29	3.77	3.79			
I64	2.02	1.90	3.28	0.68		1.73	1.31	30.20	37.26			2.87	3.88	0.40	-0.99			
J	5.26	0.69	5.09	-0.37	1.14				19.27			-0.16	3.69	2.81	-0.30			
K70	13.34	0.57	0.23	2.34	2.37	8.62	9.28	30.80	16.61			1.57	-1.24	-1.50	2.30			
K71	0.31	-6.11	2.41	1.52	3.29	2.06	2.49	32.60	25.40			-11.81	0.30	11.10	3.75			
K72	1.66	0.04	1.67	2.62	2.21	1.83	2.25	18.30	17.67			-1.87	0.66	4.66	1.71			
K73	0.60	0.90	0.02	-2.15	0.98	2.07	2.47	18.70	19.86			-0.92	-1.70	2.84	5.92			
K74	6.57	-2.25	0.29	-3.55	1.62	1.55		27.80				-5.03	-2.72	9.79	7.08			

Cyprus

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	49.60	49.88	51.07	50.81	42.92	43.34
Relative trade balance	-0.03	-0.04	-0.06	-0.11	-0.06	-0.07
Share of world exports market (%)	0.01	0.01	0.01	0.01	0.01	0.01
Nominal unit labour costs growth: t/t-1 (%)	1.44	0.61	1.11	1.53	4.28	1.48
Nominal unit labour costs growth: t/t-5 (%)	3.81	3.54	2.80	1.24	1.79	1.80
Total goods and services real export growth: t/t-1 (%)	4.87	3.53	6.09	-0.35	-11.35	0.60
Total goods and services real export growth: t/t-5 (%)	2.13	1.63	3.87	3.90	0.35	-0.48
Real effective exchange rates (2000=100)	117.89	117.23	115.38	114.59	116.79	116.12
Total public expenditure on education (% of GDP)	6.92	7.02	6.93	7.41	.	.
Human Resources in S and T as % of total employment **	39.30	40.60	42.90	44.20	43.60	.
RCA index: high tech	1.66	1.35	1.31	1.58	1.71	.
RCA index: medium-high tech	0.50	0.54	0.64	0.41	0.36	.
RCA index: medium-low tech	1.11	1.31	1.19	1.33	1.11	.
RCA index: low tech	0.98	1.06	1.11	1.08	1.17	.
Exports of high technology products (% of total exports)	31.56	21.35	14.64	19.09	.	.
High skills sectors: share in GDP (%)	41.85	43.17	43.16	.	.	.
Specialisation index* (hs)	1.02	1.05	1.05	.	.	.
High-intermediate skills sectors: share in GDP (%)	12.78	12.28	12.53	.	.	.
Specialisation index* (his)	0.84	0.80	0.83	.	.	.
Low-intermediate skills sectors: share in GDP (%)	25.06	25.67	26.21	.	.	.
Specialisation index* (lis)	0.93	0.95	0.97	.	.	.
Low skills sectors: share in GDP (%)	20.30	18.88	18.10	.	.	.
Specialisation index* (ls)	1.20	1.12	1.08	.	.	.
High technology manufacturing sectors: share in GDP (%)	0.42	0.44	0.39	.	.	.
specialisation index* (ht)	0.19	0.20	0.17	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	0.62	0.62	0.62	.	.	.
specialisation index* (mht)	0.10	0.10	0.10	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	3.36	3.37	3.24	.	.	.
specialisation index* (mlt)	0.59	0.58	0.56	.	.	.
Low technology manufacturing sectors: share in GDP (%)	5.79	4.75	4.34	.	.	.
specialisation index* (lt)	1.09	0.92	0.85	.	.	.
Knowledge-intensive services: share in GDP (%)	46.09	46.98	47.38	.	.	.
specialisation index* (kis)	0.96	0.97	0.98	.	.	.
Less knowledge-intensive services: share in GDP (%)	43.72	43.85	44.02	.	.	.
specialisation index* (lkis)	1.34	1.35	1.36	.	.	.
Foreign Direct investment flows (% of GDP)	6.98	9.96	10.19	15.89	24.62	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	0.77	1.26	1.10	0.21	0.41	0.34
2 - Travel	1.59	0.98	0.92	0.44	0.32	0.28
3 - Other services	0.73	0.90	1.00	0.20	0.29	0.31
3a - Communications	0.32	0.47	0.43	0.09	0.15	0.13
3b - Construction	0.77	0.55	0.49	0.21	0.18	0.15
3c - Insurance	0.39	0.71	0.43	0.11	0.23	0.13
3d - Financial services	0.69	2.90	3.36	0.19	0.94	1.03
3e - Computer and information	0.46	0.36	0.32	0.13	0.12	0.10
3f - Royalties and licence fees	0.07	0.02	0.02	0.02	0.01	0.01
3g - Other business services	0.83	0.66	0.83	0.23	0.22	0.25
3h - Personal, cultural and recreational services	0.10	0.41	0.46	0.03	0.13	0.14
3i - Government services n.i.e.	2.61	1.16	1.03	0.72	0.38	0.31
Total services	1.00	1.00	1.00	0.27	0.32	0.31

Cyprus
Nace - Revision 1

nace	Value Added share in GDP (%) 2009	Value-added growth (%) 2007-2008	Value-added growth (%) 2003-2008	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Gross operating rate 2007	Business churn 2006	Openness ratio 2008	R&D intensity 2008	Patent intensity 2008	Labour productivity per person growth (%) 2007-2008	Labour productivity per person growth (%) 2003-2008	ULC growth (%) 2007-2008	ULC growth (%) 2003-2008	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.34	7.65	3.95		3.13	32.50					7.65	0.80	3.04	2.58			
D	6.85	3.26	0.04	-1.31	0.49	13.20	1.92		0.54	0.66	1.91	-1.20	1.98	4.70			
DA15	2.02			0.85	1.40	8.90		0.28	0.29	0.03					-0.73	0.22	0.02
DA16	0.03				-19.73					0.11					-0.61	0.93	0.37
DB17	0.08			-9.09		14.40		1.24		0.18					-0.91	-0.76	
DB18	0.09			-18.18	-12.94	6.70		2.37		0.05					-0.93	-0.33	0.01
DC19	0.03	-23.73	-8.97		-12.94	10.70	3.08	4.83		0.08	-23.73	9.34			-0.91	-0.40	0.01
DD20	0.51	-54.23	-12.48		1.92	14.10	1.31	0.12		0.01	-52.84	-14.72			-0.97	-0.62	
DE21	0.15				-2.64	11.70		0.71		0.32					-0.84	-0.39	0.01
DE22	0.52				0.85	16.70		0.14		0.01					-0.77	0.14	0.02
DF23			-10.		-10.		5.			26.33					-1.00	0.45	0.04
DG24	0.43	12.18	7.52	-4.76	3.30	15.70	3.03	1.83	4.57		6.84	1.83			-0.39	0.17	0.02
DH25	0.26	13.49	7.20		2.90	13.00		0.73	0.79	0.87	5.93	4.18			-0.91	-0.53	
DI26	1.04	15.87	12.12		2.38	18.20	0.89	0.17	0.08	0.06	12.65	8.11			-0.98	-0.56	
DJ27	0.16				8.45	28.30		2.15	0.69	0.63					-0.48	-0.18	0.01
DJ28	0.69			2.17	3.28	14.60		0.25	0.37	0.40					-0.90	-0.72	
DK29	0.20	9.40	-0.74	-9.09	-1.89	14.80	1.75	2.22	1.05		9.40	-2.61			-0.82	-0.38	0.01
DL30															-0.90	-0.55	
DL31	0.11					16.30		1.45	0.74						-0.88	-0.59	
DL32	0.01					5.40		1.25	3.19						-0.32	-0.02	0.01
DL33	0.04					20.50		9.99	3.13						-0.32	0.38	0.03
DM34	0.05					14.20		20.45		8.10					-0.94	-0.56	
DM35	0.04					16.20		2.20		3.20					-0.81	-.	0.01
DN36	0.34			-3.85	-2.92	11.70		0.88	0.10	0.07					-0.85	-0.44	0.01
DN37	0.06				8.45	18.90											
E	2.00	-3.19	2.62	5.56	3.50	35.20			0.04		-8.57	-1.06	15.89	6.03			
F	8.20	2.64	5.34	-5.32	2.41	19.90	10.98				-0.47	0.55	6.02	1.51			
G-K_X_K7415							4.52										
G50	1.59	-0.35	11.64	-1.05	-0.21	4.80	3.24				2.80	10.44					
G51	5.07	7.73	6.86	-1.81	2.59	6.30	3.25				2.36	3.12					
G52	5.62	5.27	5.70	-4.03	2.79	6.80	6.28				-0.22	0.93					
H	6.00	-3.43	0.34	-5.46	0.48	21.40	4.77				-4.15	-1.63	5.34	1.91			
I60	0.83	14.38	-1.16	-5.66	-2.24	18.30	1.71				18.70	-0.42					
I61	0.58	-35.84	1.76	-9.80	2.33	16.40	1.75				-37.10	-4.57					
I62	0.50	-30.65	-1.20	-5.26	-4.78	10.70	2.				-30.65	2.65					
I63	3.16	20.59	9.66	-4.55	0.24	32.80	1.86				21.96	7.59					
I64	2.35	4.93	8.21	4.17	4.05	46.70	10.90				2.75	3.80					
J	8.18	6.00	10.41	1.63	2.91			0.66		0.01	2.54	7.36	-0.83	-2.33			
K70	14.33	2.75	4.93	-10.26	2.46	76.30	5.70				2.75	-1.11					
K71	0.42	26.58	11.77		1.61	39.80	4.72				36.31	9.99					
K72	0.94	13.18	7.58	3.85	7.28	28.20	5.15		4.85		13.18	-2.37					
K73	0.04	-15.52	-2.64		8.45						-43.68	-10.22					
K74	5.10	9.63	5.79	-1.72	4.08	27.60			0.27		5.22	0.25					

Latvia

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	55.04	55.62	52.36	49.64	44.63	53.79
Relative trade balance	-0.13	-0.19	-0.19	-0.14	-0.02	-0.01
Share of world exports market (%)	0.05	0.05	0.06	0.06	0.06	0.06
Nominal unit labour costs growth: t/t-1 (%)	14.85	15.24	27.24	21.96	-7.02	-10.62
Nominal unit labour costs growth: t/t-5 (%)	4.66	8.17	13.65	16.97	13.81	8.25
Total goods and services real export growth: t/t-1 (%)	20.24	6.53	9.99	2.02	-14.08	10.35
Total goods and services real export growth: t/t-5 (%)	9.42	9.23	10.16	9.48	4.31	2.54
Real effective exchange rates (2000=100)	97.40	110.16	135.89	158.84	145.98	128.33
Total public expenditure on education (% of GDP)	5.06	5.07	5.00	5.71	.	.
Human Resources in S and T as % of total employment **	34.60	36.10	38.40	41.70	43.30	.
RCA index: high tech	0.26	0.31	0.39	0.51	0.56	.
RCA index: medium-high tech	0.41	0.48	0.53	0.59	0.63	.
RCA index: medium-low tech	1.48	1.26	1.17	1.17	1.10	.
RCA index: low tech	2.67	2.72	2.54	2.22	2.11	.
Exports of high technology products (% of total exports)	3.21	4.20	4.62	4.63	.	.
High skills sectors: share in GDP (%)	32.35	33.58	34.39	.	.	.
Specialisation index* (hs)	0.79	0.82	0.84	.	.	.
High-intermediate skills sectors: share in GDP (%)	15.98	13.31	11.64	.	.	.
Specialisation index* (his)	1.05	0.87	0.77	.	.	.
Low-intermediate skills sectors: share in GDP (%)	35.56	37.41	38.74	.	.	.
Specialisation index* (lis)	1.32	1.39	1.43	.	.	.
Low skills sectors: share in GDP (%)	16.11	15.70	15.23	.	.	.
Specialisation index* (ls)	0.95	0.93	0.91	.	.	.
High technology manufacturing sectors: share in GDP (%)	0.82	0.69	0.63	.	.	.
specialisation index* (ht)	0.36	0.31	0.28	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	1.35	1.42	1.61	.	.	.
specialisation index* (mht)	0.22	0.23	0.26	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	3.51	4.14	3.89	.	.	.
specialisation index* (mlt)	0.62	0.72	0.67	.	.	.
Low technology manufacturing sectors: share in GDP (%)	8.77	7.40	7.33	.	.	.
specialisation index* (lt)	1.65	1.44	1.44	.	.	.
Knowledge-intensive services: share in GDP (%)	36.57	37.50	38.65	.	.	.
specialisation index* (kis)	0.76	0.78	0.80	.	.	.
Less knowledge-intensive services: share in GDP (%)	48.98	48.85	47.89	.	.	.
specialisation index* (lkis)	1.50	1.51	1.48	.	.	.
Foreign Direct investment flows (% of GDP)	4.40	8.34	8.07	3.74	0.29	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

sector	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
1 - Transport	2.98	2.19	2.43	0.23	0.27	0.29
2 - Travel	0.38	0.75	0.79	0.03	0.09	0.09
3 - Other services	0.45	0.59	0.55	0.03	0.07	0.07
3a - Communications	0.81	0.93	1.06	0.06	0.11	0.13
3b - Construction	0.61	0.74	0.38	0.05	0.09	0.04
3c - Insurance	0.40	0.16	0.30	0.03	0.02	0.04
3d - Financial services	0.44	0.81	0.85	0.03	0.10	0.10
3e - Computer and information	0.57	0.56	0.56	0.04	0.07	0.07
3f - Royalties and licence fees	0.04	0.05	0.03		0.01	
3g - Other business services	0.50	0.65	0.60	0.04	0.08	0.07
3h - Personal, cultural and recreational services	0.05	0.23	0.20		0.03	0.02
3i - Government services n.i.e.	0.66	0.52	0.41	0.05	0.06	0.05
Total services	1.00	1.00	1.00	0.08	0.12	0.12

Latvia
Nace - Revision 2

	Indicators											
	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
nace												
B-D_F	4.4	-2.5	.	.	.	.	.	.	.	.	.	.
C	15.8	-0.9	-4.2	-7.9	-1.1	-9.4	20.9	7.6	17.1	9.4	-17.1	4.3
C10	-1.1	-2.2	-2.7	-6.6	-3.5	-7.7	1.6	4.7	2.5	6.0	-5.6	6.5
C11	3.0	-0.7	-8.3	-7.9	-14.1	-10.9	12.4	7.9	19.9	11.6	-22.7	0.6
C12			-93.7	-44.4			.	.	.	.	.	.
C13	23.3	-6.5	-7.4	-14.0	-5.6	-15.5	33.2	8.8	30.6	10.7	-25.7	3.0
C14	16.1	-8.4	0.1	-9.0	5.8	-11.3	15.9	0.7	9.7	3.3	-13.1	8.5
C15			-10.6	-13.1	-2.7	-13.7	.	.	.	.	.	.
C16	32.3	1.7	5.5	-8.8	11.1	-10.2	25.4	11.4	19.1	13.2	-16.5	1.5
C17	13.3	3.3	-4.1	-3.0	-0.4	-3.9	18.1	6.6	13.7	7.5	-11.2	5.5
C18	20.8	-1.1	-16.6	-7.3	-17.0	-9.9	44.8	6.6	45.5	9.7	-30.2	3.1
C19			-13.1	13.8			.	.	.	.	.	.
C20	6.1	7.8	1.0	-5.0	5.9	-6.4	5.1	13.5	0.2	15.1	-0.9	-0.5
C21	-3.4	0.0	-4.1	-6.7	-0.8	-6.6	0.7	7.2	-2.6	7.0	-7.8	3.9
C22	10.2	-3.1	-9.6	-11.4	-7.8	-14.2	21.9	9.3	19.6	12.9	-16.5	0.5
C23	16.6	-11.3	-10.1	-7.2	-3.6	-9.2	29.6	-4.4	20.9	-2.3	-22.4	18.1
C24	18.4	1.2	-5.5	-3.9	-2.6	-3.9	25.3	5.3	21.6	5.3	-22.3	4.9
C25	26.5	3.3	-5.4	-3.8	-0.8	-6.5	33.7	7.4	27.5	10.5	-20.7	4.2
C26	26.1	7.3	-8.1	-7.6	-8.4	-9.4	37.2	16.1	37.6	18.4	-27.0	-2.9
C27	37.2	-1.6	-14.3	-6.8	-8.8	-7.4	60.1	5.6	50.5	6.2	-33.8	6.6
C28	17.9	0.4	0.0	-13.0	13.5	-13.8	17.9	15.4	3.9	16.5	-1.6	0.0
C29	68.8	10.9	2.8	2.4	11.9	2.4	64.1	8.4	50.8	8.4	-26.1	13.4
C30	52.2	-2.4	-7.9	-11.7	2.9	-13.0	65.2	10.6	47.9	12.2	-34.2	1.4
C31	-2.5	-10.9	-16.3	-13.3	-15.1	-15.6	16.5	2.8	14.8	5.5	-15.0	5.5
C32	6.7	4.4	1.3	-8.6	0.9	-9.9	5.4	14.2	5.7	15.8	-7.6	-2.3
C33	-9.5	-1.2	-12.2	0.7	-10.0	-0.1	3.0	-1.9	0.5	-1.1	-0.3	18.3

Latvia
Nace - Revision 1

nace	Value Added share in GDP (%) 2009	Value-added growth (%) 2008-2009	Value-added growth (%) 2004-2009	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Gross operating rate 2007	Business churn 2006	Openness ratio 2008	R&D intensity 2008	Patent intensity 2008	Labour productivity per person growth (%) 2008-2009	Labour productivity per person growth (%) 2004-2009	ULC growth (%) 2008-2009	ULC growth (%) 2004-2009	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.48	-0.94	13.64		5.33	25.20	13.67				-0.94	7.89	-5.01	4.42			
D	9.94	-19.23	-3.11	-18.13	-3.93	14.40	11.20		0.40	0.71	-1.34	0.86	-11.11	10.65			
DA15	2.34			-7.49	-1.26	12.40		0.43	0.06	0.18					-0.09	0.31	0.12
DA16															-0.35	0.53	0.21
DB17	0.23			-20.59	-10.30	14.10		0.97		0.10					-0.09	0.08	0.08
DB18	0.28			-23.58	-9.98	13.50		0.89		0.01					0.02	0.15	0.09
DC19	0.02			-2.	-10.59		11.84	8.76		0.15					-0.47	-0.42	0.03
DD20	1.89			-19.86	-7.73	14.40	10.45	0.24							0.78	0.89	1.13
DE21	0.16			-11.11	-2.33	15.70		0.96		0.19					-0.41	-0.18	0.05
DE22	0.74			-18.18	-0.72	16.00		0.09		0.05					0.27	0.23	0.10
DF23								2852.13		311.00					-0.59	-0.26	0.04
DG24	0.64			-8.16	-0.44	19.60	2.27	2.48	5.18						-0.31	-0.19	0.04
DH25	0.29			-31.37	-3.58	13.80	8.72	0.87		0.26					-0.25	-0.04	0.06
DI26	0.47			-30.26	4.27	18.90	14.88	0.39		0.30					-	0.21	0.10
DJ27	0.27			-2.44	0.51	13.10		1.00		0.51					0.10	0.19	0.10
DJ28	0.72			-33.08	0.23	18.40		0.41		0.08						0.13	0.08
DK29	0.28			-23.33	-10.02	19.70	4.75	2.51							-0.16	-0.25	0.04
DL30						30.10									-0.12	-0.30	0.03
DL31	0.25			-21.43	0.62	11.30		1.01							-0.17	-0.29	0.04
DL32	0.06			-27.27	-7.79	13.70		0.61							-0.18	-0.35	0.03
DL33						24.80									-0.20	-0.63	0.01
DM34	0.07			-33.33	2.13	12.50		5.79		2.53					-0.10	-0.18	0.05
DM35	0.30			-9.88	2.04	11.00		0.22		0.40					-0.40	-0.40	0.03
DN36	0.51			-18.64	-5.14	11.30		0.79		0.03					0.05	0.03	0.07
DN37						5.90											
E	3.61	-7.17	-0.13	-7.75	-3.68	22.70	2.33				0.63	3.69	-1.08	9.04			
F	6.62	-33.57	0.98	-38.59	-1.85	14.30	18.25				8.18	2.89	-24.70	20.81			
G-K_X_K7415							14.38										
G50	1.81			-15.79	1.39	6.40	8.00										
G51	6.94			-17.21	1.78	6.70	10.03										
G52	6.46			-11.11	1.32	7.80	7.84										
H	1.38	-33.94	-2.49	-18.46	-0.66	18.00	6.38				-18.98	-1.84	-2.23	23.65			
I60	4.62			-1.90	-1.88	26.80	14.64										
I61						11.70	8.82										
I62						15.40											
I63	3.37			-3.14	11.47	14.30	9.95										
I64	2.65			-0.69	0.86	35.20	11.44										
J	6.12	-12.57	3.60	-9.39	1.98		28.02				-3.51	1.59	-2.72	12.50			
K70	11.22			-2.54	4.53	43.00	19.92										
K71	0.65			-32.26	2.02	42.40	34.48										
K72	1.38				13.51	17.40	22.09			1.62							
K73	0.19			2.63	4.04	27.30	14.13			21.73							
K74	6.52			-6.88	7.56	21.60				0.58							

Lithuania

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	61.09	64.17	60.76	65.78	55.34	69.27
Relative trade balance	-0.06	-0.08	-0.11	-0.09	-0.01	-0.01
Share of world exports market (%)	0.11	0.12	0.12	0.15	0.13	0.14
Nominal unit labour costs growth: t/t-1 (%)	6.02	10.15	6.54	10.35	-2.84	-7.59
Nominal unit labour costs growth: t/t-5 (%)	1.67	4.39	5.35	7.24	5.93	3.06
Total goods and services real export growth: t/t-1 (%)	17.73	12.02	2.97	11.56	-12.75	17.40
Total goods and services real export growth: t/t-5 (%)	13.72	11.94	8.67	9.60	5.74	5.68
Real effective exchange rates (2000=100)	113.14	121.99	125.70	132.22	127.96	116.90
Total public expenditure on education (% of GDP)	4.90	4.84	4.67	4.91	.	.
Human Resources in S and T as % of total employment **	39.30	39.70	41.60	43.90	45.30	.
RCA index: high tech	0.33	0.29	0.41	0.34	0.28	.
RCA index: medium-high tech	0.58	0.69	0.93	0.78	0.75	.
RCA index: medium-low tech	1.95	1.70	1.08	1.54	1.54	.
RCA index: low tech	1.71	1.80	1.79	1.51	1.72	.
Exports of high technology products (% of total exports)	3.20	4.65	7.34	6.52	.	.
High skills sectors: share in GDP (%)	27.72	28.49	29.12	.	.	.
Specialisation index* (hs)	0.68	0.70	0.71	.	.	.
High-intermediate skills sectors: share in GDP (%)	14.58	14.25	13.93	.	.	.
Specialisation index* (his)	0.95	0.93	0.93	.	.	.
Low-intermediate skills sectors: share in GDP (%)	37.61	38.06	38.96	.	.	.
Specialisation index* (lis)	1.40	1.41	1.44	.	.	.
Low skills sectors: share in GDP (%)	20.08	19.19	17.99	.	.	.
Specialisation index* (ls)	1.19	1.14	1.07	.	.	.
High technology manufacturing sectors: share in GDP (%)	1.32	1.12	0.97	.	.	.
specialisation index* (ht)	0.59	0.50	0.43	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	3.22	3.44	3.76	.	.	.
specialisation index* (mht)	0.53	0.56	0.61	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	6.58	7.14	6.86	.	.	.
specialisation index* (mlt)	1.15	1.24	1.18	.	.	.
Low technology manufacturing sectors: share in GDP (%)	11.28	10.37	9.99	.	.	.
specialisation index* (lt)	2.12	2.01	1.97	.	.	.
Knowledge-intensive services: share in GDP (%)	30.79	31.93	33.17	.	.	.
specialisation index* (kis)	0.64	0.66	0.69	.	.	.
Less knowledge-intensive services: share in GDP (%)	46.81	45.99	45.25	.	.	.
specialisation index* (lkis)	1.43	1.42	1.40	.	.	.
Foreign Direct investment flows (% of GDP)	3.96	6.04	5.15	3.86	0.94	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	2.06	2.54	2.66	0.15	0.33	0.31
2 - Travel	1.23	1.18	1.20	0.09	0.15	0.14
3 - Other services	0.35	0.25	0.29	0.02	0.03	0.03
3a - Communications	1.58	0.95	1.21	0.11	0.12	0.14
3b - Construction	0.67	0.77	0.68	0.05	0.10	0.08
3c - Insurance	0.15	0.05	.	0.01	0.01	.
3d - Financial services	0.04	0.14	0.14	.	0.02	0.02
3e - Computer and information	0.47	0.15	0.18	0.03	0.02	0.02
3f - Royalties and licence fees						
3g - Other business services	0.37	0.22	0.29	0.03	0.03	0.03
3h - Personal, cultural and recreational services	0.76	0.33	0.36	0.05	0.04	0.04
3i - Government services n.i.e.	0.25	0.67	0.66	0.02	0.09	0.08
Total services	1.00	1.00	1.00	0.07	0.13	0.12

Lithuania
Nace - Revision 2

	Indicators											
	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
nace												
B-D_F	3.7	-0.6					.	.	.	.	.	.
C	8.1	1.4	-6.7	-6.7	-3.0	-7.3	15.9	8.7	11.4	9.3	-13.4	0.4
C10	-0.8	2.1	-5.6	-3.8	-4.7	-4.0	5.1	6.1	4.1	6.4	-5.8	3.7
C11	1.2	1.6	-8.3	-5.1	-3.5	-5.8	10.3	7.1	4.8	7.9	-4.6	2.0
C12												
C13	14.9	-3.5	-3.9	-12.4	2.7	-12.8	19.5	10.1	11.8	10.7	-12.8	-2.0
C14	22.3	-5.8	-5.5	-12.8	3.7	-12.5	29.4	8.0	17.9	7.7	-18.3	-0.5
C15	50.1	-1.0	-10.6	-13.4	-3.8	-14.1	68.0	14.4	56.1	15.3	-36.2	-7.6
C16	11.5	-2.0	-9.5	-8.8	-5.2	-9.5	23.3	7.5	17.6	8.4	-19.6	1.9
C17	40.9	12.9	17.6	7.8	17.8	7.8	19.8	4.7	19.7	4.7	-13.2	4.2
C18	9.9	-0.2	-10.3	-0.6	-9.0	-1.9	22.5	0.4	20.8	1.7	-19.4	7.3
C19												.
C20	10.1	14.8	-7.4	1.9	-7.3	0.8	18.9	12.7	18.7	13.8	-21.0	-4.7
C21	59.6	14.3	-0.1	-4.7	1.3	-5.0	59.8	19.9	57.6	20.2	-35.4	-6.2
C22	21.4	1.0	2.9	-3.6	9.5	-4.8	17.9	4.7	10.8	6.1	-16.0	2.7
C23	14.3	-7.5	-12.4	-7.2	-4.9	-8.6	30.5	-0.3	20.2	1.2	-26.2	5.7
C24	4.0	17.0	-10.8	-3.1	-4.6	-3.8	16.5	20.7	9.0	21.7	-8.5	-8.4
C25	15.4	-4.4	-6.4	-6.0	-1.5	-8.2	23.3	1.7	17.2	4.1	-17.9	5.3
C26	8.8	-0.6	-0.5	-19.6	6.6	-19.2	9.4	23.6	2.1	23.0	-0.2	-9.9
C27	36.6	-1.3	-1.6	-9.1	7.5	-8.6	38.9	8.5	27.1	7.9	-24.1	0.3
C28	14.0	12.7	-6.5	0.6	2.6	-0.3	22.0	12.0	11.2	13.0	-9.8	-2.0
C29	72.1	-11.8	-23.6	-20.4	-11.7	-21.2	125.3	10.8	94.9	11.9	-56.3	1.1
C30	-0.7	0.0	-29.3	-7.5	-27.2	-9.0	40.5	8.2	36.4	9.8	-28.6	0.0
C31	9.1	7.3	-9.0	-3.8	-6.6	-4.9	19.9	11.6	16.8	12.8	-9.8	-2.3
C32	-5.8	11.2	-6.8	2.1	-3.7	1.6	1.1	8.9	-2.2	9.4	-5.2	0.4
C33	8.4	7.4	-3.5	-0.5	-7.6	-2.9	12.3	8.0	17.3	10.6	-18.5	-0.9

Lithuania
Nace - Revision 1

	Value Added share in GDP (%) 2009	Value-added growth (%) 2007-2008	Value-added growth (%) 2003-2008	Employment growth (%) 2007-2008	Employment growth (%) 2003-2008	Gross operating rate 2007	Business churn 2006	Openness ratio 2007	R&D intensity 2008	Patent intensity 2008	Labour productivity per person growth (%) 2007-2008	Labour productivity per person growth (%) 2003-2008	ULC growth (%) 2007-2008	ULC growth (%) 2003-2008	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
nace																	
C	0.31	-8.10	-5.01	-24.53	-4.74	32.90	23.17				21.76	-0.28	21.98	21.43			
D	16.37	1.46	7.18	-0.26	0.29	9.30	41.28		0.48	0.20	1.73	6.87	7.27	4.84			
DA15		-2.22	6.25	-9.06	0.08	11.90		0.38		0.05	7.52	6.17	14.85	5.10	0.10	0.31	0.31
DA16															0.57	0.69	0.91
DB17		-15.56	-0.52	-32.26	-11.49	6.60		0.87		0.02	24.64	12.40	8.47	2.84	-0.01	0.19	0.24
DB18		-12.76	-6.99	-18.77	-9.51	9.10		0.71			7.40	2.79	7.37	7.12	0.32	0.18	0.24
DC19	0.04	-19.17	-9.52	-38.89	-21.54	2.10	36.68	2.54		0.05	32.27	15.32	21.05	7.61	-0.40	-0.52	0.05
DD20	1.19	-11.40	2.90	-16.97	-4.78	7.90	59.00	0.23			6.71	8.07	11.89	10.56	0.37	0.58	0.63
DE21		13.23	9.68	25.00	8.45	7.30		0.95		0.13	-9.42	1.14	17.12	8.79	-0.24	-0.18	0.11
DE22		2.23	4.77	8.33	10.54	11.50		0.09		0.01	-5.63	-5.22	10.29	7.26	0.36	0.02	0.17
DF23							16.67								0.79	0.58	0.62
DG24	1.71	-10.45	12.84	53.62	2.87	13.10	14.81	1.12	0.80		-41.71	9.69	37.83	7.57	-0.09	-0.05	0.15
DH25	0.80	-5.17	7.91	-30.39	3.42	9.20	14.94	0.62	0.26	0.05	36.23	4.33	14.63	12.87	-	0.13	0.21
DI26	0.54	-11.71	11.45	44.66	10.12	20.70	29.89	0.35	0.35	0.05	-38.97	1.20	19.17	6.37	-0.11	-0.15	0.12
DJ27		10.	16.89	-43.75	-11.94	4.30		14.31		1.00	255.56	32.74	-36.57	-4.49	-0.13	-0.51	0.05
DJ28		-13.23	17.44	12.70	10.55	9.30		0.46	2.27	0.17	-23.00	6.23	21.41	6.80	-0.03	-0.07	0.14
DK29	0.51	7.14	10.96	41.18	2.51	9.40	23.42	2.16	0.93		-24.11	8.25	-1.06	0.43	-0.09	-0.31	0.09
DL30		20.	66.63		51.57	12.40		3.94	3.59	2.74	20.	9.94	-32.79	-12.81	-0.32	-0.73	0.03
DL31		-10.69	-6.10	6.	11.92	6.90		1.09	1.96		-44.18	-16.10	22.95	12.85	-0.08	-0.35	0.08
DL32		1.84	-2.25	-51.43	-26.07	1.60		0.26	2.52		109.66	32.22	9.21	-8.55	-0.25	-0.64	0.04
DL33		6.01	17.00	-26.92	-18.24	19.40		1.25	2.32		45.06	43.10	8.49	-1.82	0.09	-0.41	0.07
DM34		15.90	53.72	10.	58.49	1.		10.38	0.24	1.05	-42.05	-3.01	13.96	1.25	-0.09	-0.23	0.10
DM35		24.85	19.91	2.08	9.24	9.50		0.54	0.40	0.13	22.30	9.77	-1.15	-2.37	0.21	-0.33	0.08
DN36		12.03	18.39	33.11	15.92	9.90		0.48	0.03	0.01	-15.84	2.13	3.12	1.94	0.62	0.33	0.33
DN37		-11.95	1.81	-9.09	7.39	7.30					-3.14	-5.20	20.70	25.35			
E	3.87	-0.44	1.70	4.94	-0.14	18.80	12.69		0.01		-5.13	1.85	10.91	6.45			
F	6.41	0.83	12.08	-2.42	9.64	12.40	81.77		0.09		3.33	2.22	9.85	13.57			
G-K_X_K7415							38.61										
G50		1.54	6.20	-9.55	7.36	4.80	38.13				12.27	-1.07	19.54	15.52			
G51		7.29	9.38	38.57	9.56	6.40	19.16				-22.57	-0.17	15.04	11.49			
G52		4.67	9.06	-0.59	3.05	7.10	40.84				5.29	5.83	8.86	9.73			
H	1.40	2.19	4.20	20.75	7.70	9.20	21.49				-15.38	-3.25	11.03	16.23			
I60		-0.13	10.95	-0.87	2.57	17.50	19.98				0.75	8.17	24.61	8.71			
I61		-10.01	7.82	-7.	-12.94	29.40	16.67				199.96	23.85	18.60	-1.00			
I62		-44.88	-2.99	-82.14	-29.15	-9.80	6.25				208.67	36.92	87.06	13.49			
I63		9.68	7.57	14.77	6.47	11.50	33.38				-4.43	1.03	11.39	12.08			
I64		9.39	7.73	-10.47	5.00	29.60	12.30				22.18	2.60	4.97	2.49			
J	2.25	3.89	4.94	-8.97	3.86		27.56		1.44		14.13	1.05	6.78	9.63			
K70		3.98	8.60	27.21	8.32	32.50	65.48				-18.26	0.25	20.01	12.15			
K71		13.27	36.18	19.23	31.12	29.10	40.88				-5.00	3.86	12.74	4.42			
K72		4.73	12.60	75.00	20.79	17.00	32.88	0.91			-40.16	-6.78	24.85	11.33			
K73		3.97	16.52	-1.72		18.00	17.65	37.36			5.79	16.52	17.78	5.88			
K74		5.22	12.63	35.71	15.50	18.50		0.04			-22.47	-2.48	21.20	14.06			

Luxembourg

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	143.04	154.47	159.78	162.17	151.11	159.14
Relative trade balance	0.09	0.10	0.10	0.10	0.11	0.11
Share of world exports market (%)	0.18	0.19	0.16	0.16	0.17	0.13
Nominal unit labour costs growth: t/t-1 (%)	2.08	1.23	1.58	5.43	6.68	-0.29
Nominal unit labour costs growth: t/t-5 (%)	2.66	1.61	1.49	2.28	3.38	2.89
Total goods and services real export growth: t/t-1 (%)	4.48	12.98	9.10	6.61	-8.15	6.30
Total goods and services real export growth: t/t-5 (%)	5.73	7.40	8.84	8.81	4.75	5.11
Real effective exchange rates (2000=100)	.	.	.	.	.	.
Total public expenditure on education (% of GDP)	3.78	3.38	3.15		.	.
Human Resources in S and T as % of total employment **	44.10	43.90	43.80	46.70	56.20	.
RCA index: high tech	0.41	0.41	0.39	0.32	0.44	.
RCA index: medium-high tech	0.70	0.65	0.31	0.61	0.66	.
RCA index: medium-low tech	2.26	2.30	2.64	2.20	2.07	.
RCA index: low tech	1.04	0.98	1.10	0.97	1.07	.
Exports of high technology products (% of total exports)	37.99	40.66	32.40	35.21		.
Foreign Direct investment flows (% of GDP)	308.50	301.95	370.75	205.18	315.91	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	0.29	0.25	0.25	0.40	0.49	0.47
2 - Travel	0.28	0.27	0.28	0.38	0.51	0.53
3 - Other services	1.79	1.65	1.60	2.46	3.18	3.03
3a - Communications	1.59	1.74	2.16	2.18	3.37	4.09
3b - Construction	0.08	0.33	0.31	0.11	0.64	0.58
3c - Insurance	2.75	2.05	2.26	3.77	3.95	4.29
3d - Financial services	9.45	8.01	7.94	12.98	15.45	15.06
3e - Computer and information	0.27	0.33	0.30	0.38	0.64	0.57
3f - Royalties and licence fees	0.12	0.09	0.08	0.16	0.17	0.16
3g - Other business services	0.33	0.48	0.46	0.46	0.92	0.88
3h - Personal, cultural and recreational services	1.32	1.14	1.51	1.81	2.19	2.86
3i - Government services n.i.e.	0.41	0.30	0.29	0.56	0.57	0.55
Total services	1.00	1.00	1.00	1.37	1.93	1.90

Luxembourg
Nace - Revision 1

nace	Value Added share in GDP (%) 2009	Value-added growth (%) 2008-2009	Value-added growth (%) 2004-2009	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Gross operating rate 2007	Business churn 2007	Openness ratio 2008	R&D intensity 2007	Patent intensity 2008	Labour productivity per person growth (%) 2008-2009	Labour productivity per person growth (%) 2004-2009	ULC growth (%) 2008-2009	ULC growth (%) 2004-2009	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.09	-8.38	0.13			26.60	8.33				-8.38	0.13	10.54	2.74			
D	6.45	-20.99	-1.77	-2.80	-0.45	6.20	12.22		6.74	2.09	-18.72	-1.32	21.97	3.21			
DA15	0.57	1.50	2.23	4.65	1.39					0.60	-3.01	0.83	7.62	2.49	-0.36	-0.06	0.12
DA16	0.11	2.10	-5.24		-4.36					0.21	2.10	-0.91	5.48	5.52	-0.08	0.72	0.81
DB17	0.30	-21.24	-12.70	-7.14	1.61			0.41		0.20	-15.18	-14.08	19.39	14.93	0.46	0.26	0.23
DB18		-18.18	-3.93					85.59		12.55			52.78	0.37	-0.45	-0.39	0.06
DC19															-0.21	-0.35	0.06
DD20	0.10	-9.23	-5.59			9.60	10.53	0.40		0.17	-9.23	-5.59	9.30	8.96	0.10	0.43	0.33
DE21	0.11	6.89	5.63							2.75	6.89	5.63	-7.89	-2.16	-0.03	0.38	0.29
DE22	0.37	-12.79	-6.74	-4.35	-4.01					0.11	-8.82	-2.84	12.67	5.55	-0.54	-0.09	0.11
DF23															-0.99	-0.96	
DG24	0.26	-11.48	-8.06	-11.11	-11.81	10.30	17.65	2.84			-0.42	4.26	11.43	-2.36	-0.43	-0.39	0.06
DH25	0.72	-17.28	-2.28	-2.33	-0.93	8.10	3.70	0.81		1.63	-15.31	-1.36	13.05	1.94	0.31	0.58	0.50
DI26	0.51	-19.85	-5.16		-2.73	25.60	2.50	0.49	2.14	0.71	-19.85	-2.51	20.86	5.01		0.48	0.38
DJ27	1.57	-34.14	3.46	-5.36	-0.74	3.80		0.84	0.89	0.24	-30.42	4.22	45.80	-1.03	0.18	0.55	0.46
DJ28	0.76	-19.14	-1.85	-7.27	0.40	11.20		0.31		0.60	-12.80	-2.24	9.98	3.66	-0.27	0.05	0.15
DK29	0.51	-17.59	0.11	-3.23	1.39	1.	7.89	0.95			-14.84	-1.26	21.48	4.73		-0.16	0.10
DL30		8.33	-6.30							260.83					0.01	-0.75	0.02
DL31	0.09	-11.01	3.30	16.67	6.96			2.11			-23.73	-3.42	15.21	4.44	-0.20	-0.32	0.07
DL32	0.01	-31.82	18.20										73.61	17.97	0.29	-0.46	0.05
DL33	0.27	-28.96	-2.98	-4.76	-1.89	10.40		0.20			-25.41	-1.11	21.42	0.54	-0.03	-0.47	0.05
DM34	0.07	-35.62	4.92		4.56					18.37	-35.62	0.34	26.77	-1.26	-0.51	-0.19	0.09
DM35	0.02	-9.33	33.56							24.60	-9.33		111.40	6.23	-0.51	0.03	0.14
DN36	0.03	-9.76	0.74			10.30		7.18		8.38	-9.76	0.74	9.52	5.40	-0.71	-0.78	0.02
DN37	0.06	-4.25	11.09		5.92	17.20					-4.25	4.88	3.73	-3.71			
E	1.22	-1.75	5.02		2.38	8.90	6.00				-1.75	2.58	7.90	0.57			
F	5.33	-3.58	3.50	-0.26	3.39	8.00	14.86				-3.33	0.10	6.61	3.06			
G-K_X_K7415							18.72										
G50	1.23	-8.76	-0.76	1.16	2.74	2.40	15.04				-9.81	-3.41	15.78	7.21			
G51	6.65	-13.23	16.54	1.91	1.99	3.90	17.72				-14.85	14.26	22.65	-8.73			
G52	3.47	4.04	6.76	0.98	1.52	5.20	16.70				3.04	5.16	1.26	-0.62			
H	1.49	-5.20	0.24	2.52	2.09	14.00	17.94				-7.53	-1.81	7.39	4.77			
I60	2.72	-9.87	3.62	-0.63	3.50	12.60	13.37				-9.30	0.11	12.24	0.61			
I61	0.02	1.92	-8.36	10.	14.87	3.10	27.27				-49.04	-20.22	8.26	22.43			
I62	0.79	-32.54	-8.08	-2.38	3.82	10.10	13.33				-30.89	-11.46	54.28	15.56			
I63	0.67	-11.87	7.84		5.73	3.10	13.25				-11.87	1.99	13.14	0.60			
I64	4.48	13.55	8.52	4.26	3.13	36.10	16.67				8.92	5.23	-3.67	-1.49			
J	26.03	-6.26	9.96	0.73	4.34		13.22		1.55		-6.94	5.39	6.92	-2.59			
K70	9.80	-0.48	6.38		7.39		23.75				-0.48	-0.95	4.72	6.95			
K71	1.38	19.26	18.07	11.11	7.39	44.20	22.96				7.33	9.94	-10.94	-6.06			
K72	2.20	19.18	20.75	1.23	11.30	2.40	22.89				17.72	8.49	-14.86	-5.29			
K73	0.56	-11.11	4.26	10.71	6.15		23.53				-19.71	-1.78	16.84	3.71			
K74	8.43	-4.81	11.19	-1.12	6.26	32.80					-3.73	4.64	5.76	-0.58			

Hungary

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	67.19	77.84	80.23	81.36	74.83	82.80
Relative trade balance	-0.02	-0.01	0.01		0.03	0.04
Share of world exports market (%)	0.61	0.63	0.69	0.68	0.67	0.64
Nominal unit labour costs growth: t/t-1 (%)	3.56	2.26	5.61	4.75	1.87	-1.12
Nominal unit labour costs growth: t/t-5 (%)	6.73	5.01	4.35	4.15	3.60	2.65
Total goods and services real export growth: t/t-1 (%)	11.32	18.63	16.18	5.73	-9.56	14.10
Total goods and services real export growth: t/t-5 (%)	8.81	10.86	13.38	13.29	7.97	8.50
Real effective exchange rates (2000=100)	140.05	133.33	145.34	147.08	131.84	130.55
Total public expenditure on education (% of GDP)	5.47	5.42	5.20	5.10	.	.
Human Resources in S and T as % of total employment **	33.30	33.80	33.50	35.10	35.60	.
RCA index: high tech	1.29	1.26	1.11	1.53	1.57	.
RCA index: medium-high tech	1.14	1.23	1.29	1.17	1.11	.
RCA index: medium-low tech	0.64	0.60	0.64	0.56	0.53	.
RCA index: low tech	0.71	0.65	0.70	0.62	0.63	.
Exports of high technology products (% of total exports)	19.69	20.32	21.36	20.24	.	.
High skills sectors: share in GDP (%)	42.37	42.59	40.81	.	.	.
Specialisation index* (hs)	1.04	1.04	0.99	.	.	.
High-intermediate skills sectors: share in GDP (%)	13.48	12.78	13.00	.	.	.
Specialisation index* (his)	0.88	0.84	0.86	.	.	.
Low-intermediate skills sectors: share in GDP (%)	25.14	25.31	26.53	.	.	.
Specialisation index* (lis)	0.94	0.94	0.98	.	.	.
Low skills sectors: share in GDP (%)	19.01	19.32	19.67	.	.	.
Specialisation index* (ls)	1.12	1.15	1.17	.	.	.
High technology manufacturing sectors: share in GDP (%)	4.86	4.73	3.74	.	.	.
specialisation index* (ht)	2.16	2.10	1.67	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	8.34	8.67	9.35	.	.	.
specialisation index* (mht)	1.37	1.40	1.52	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	6.84	7.21	7.16	.	.	.
specialisation index* (mlt)	1.20	1.25	1.23	.	.	.
Low technology manufacturing sectors: share in GDP (%)	5.33	5.14	4.87	.	.	.
specialisation index* (lt)	1.00	1.00	0.96	.	.	.
Knowledge-intensive services: share in GDP (%)	40.90	40.36	39.58	.	.	.
specialisation index* (kis)	0.85	0.84	0.82	.	.	.
Less knowledge-intensive services: share in GDP (%)	33.73	33.89	35.31	.	.	.
specialisation index* (lkis)	1.03	1.04	1.09	.	.	.
Foreign Direct investment flows (% of GDP)	7.00	6.53	4.17	2.96	1.09	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	0.39	0.85	0.91	0.16	0.46	0.51
2 - Travel	2.11	1.26	1.30	0.84	0.69	0.74
3 - Other services	0.59	0.95	0.90	0.23	0.52	0.51
3a - Communications	0.55	1.15	1.14	0.22	0.63	0.65
3b - Construction	0.83	1.17	0.80	0.33	0.64	0.45
3c - Insurance	0.16	0.07	0.05	0.06	0.04	0.03
3d - Financial services	0.36	0.16	0.13	0.14	0.09	0.07
3e - Computer and information	0.66	1.02	1.04	0.26	0.56	0.59
3f - Royalties and licence fees	0.34	0.80	0.75	0.14	0.44	0.43
3g - Other business services	0.61	1.13	1.06	0.24	0.62	0.60
3h - Personal, cultural and recreational services	2.50	4.43	4.73	1.00	2.43	2.68
3i - Government services n.i.e.	0.43	0.39	0.36	0.17	0.21	0.20
Total services	1.00	1.00	1.00	0.40	0.55	0.57

Hungary
Nace - Revision 2

	Production growth (%)	
	2010	2005-2010
nace		
B-D_F	8.2	0.6
C	11.5	1.7
C10	-0.5	-2.5
C11	-2.4	-1.3
C12	24.7	-8.9
C13	16.6	-8.6
C14	-11.5	-13.6
C15	-3.8	7.4
C16	18.0	0.0
C17	26.3	5.1
C18	7.3	-0.2
C19	2.7	-1.6
C20	13.7	-1.1
C21	7.6	4.5
C22	18.6	4.5
C23	-9.0	-1.2
C24	19.8	-8.1
C25	5.6	-0.9
C26	20.4	6.2
C27	-12.4	-6.3
C28	41.5	13.2
C29	18.5	3.6
C30	3.3	0.9
C31	-10.3	0.2
C32	25.1	20.0
C33	-19.3	7.5

Hungary
Nace - Revision 1

nace	Value Added share in GDP (%) 2009	Value-added growth (%) 2008-2009	Value-added growth (%) 2004-2009	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Gross operating rate 2007	Business churn 2007	Openness ratio 2007	R&D intensity 2008	Patent intensity 2008	Labour productivity per person growth (%) 2008-2009	Labour productivity per person growth (%) 2004-2009	ULC growth (%) 2008-2009	ULC growth (%) 2004-2009	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.25	-5.53	7.50	-2.27	-9.42	-3.10	17.91				-3.33	18.68	-5.41	-4.98			
D	21.35	-14.30	0.30	-8.56	-2.18	10.50	13.17		2.07	0.48	-6.28	2.53	-5.44	0.34			
DA15	2.14	-4.33	-3.45	6.80	-0.51			0.27		0.19	-10.42	-2.96	-9.14	2.04	0.14	-0.10	0.66
DA16	0.06	-12.99	-10.78	11.11	-14.59			0.14		0.12	-21.69	4.46	-1.20	-7.13	-0.74	-0.96	0.01
DB17	0.15	-13.01	-8.12	-25.14	-14.07	7.60		1.29		0.23	16.20	6.93	-6.02	-2.84	-0.10	-0.45	0.31
DB18	0.21	-17.91	-13.82	-5.35	-11.08	9.90		0.67		0.04	-13.27	-3.09	-6.54	4.69	-0.01	-0.48	0.29
DC19	0.13	-8.19	1.65	-2.84	-5.42	3.10	12.99	0.74		0.30	-5.51	7.47	-13.38	-3.73	-0.05	-0.22	0.52
DD20	0.27	-21.87	-5.38	-24.86	-7.55	9.20	13.24	0.27	0.13	0.06	3.98	2.35	-7.23	0.45	0.10	-0.11	0.66
DE21	0.32	1.39	2.86	-5.92	1.31	10.30		0.57	0.10	0.26	7.77	1.53	-14.30	-4.75	-0.12	-0.12	0.64
DE22	0.70	-18.26	-2.87	17.54	4.09	12.00		0.07	0.32	0.02	-30.46	-6.68	3.70	4.24	-0.16	-0.37	0.37
DF23	1.89	5.59	0.21	-1.54	4.65	11.50	22.22	0.15	0.84	0.08	7.24	-4.24	-16.46	-1.18	-0.06	-0.56	0.23
DG24	2.04	-9.38	-0.99	-6.54	-3.19	19.10	10.11	0.79	12.03		-3.04	2.28	1.19	3.54	-0.04	-0.27	0.47
DH25	1.09	-1.61	2.81	-13.77	1.23	9.00	12.34	0.50	0.56	0.19	14.11	1.56	-15.57	0.75	0.03	0.08	0.96
DI26	0.77	-31.87	1.22	-14.86	-4.10	19.70	14.16	0.29	0.15	0.21	-19.98	5.54	12.44	0.78	0.14	0.07	0.95
DJ27	0.57	-43.53	-7.74	-12.36	-8.19	9.30		0.65	0.34	0.25	-35.57	0.49	30.71	10.28	-0.19	-0.51	0.26
DJ28	1.31	-28.49	-0.80	-2.98	1.13	11.50		0.37	0.18	0.15	-26.29	-1.91	14.15	4.69	-0.15	-0.14	0.61
DK29	1.64	-19.26	4.09	-3.08	2.95	10.30	10.85	0.53	1.97		-16.70	1.10	8.38	-1.17	0.02	-0.12	0.64
DL30	0.24	-21.67	-6.64	-15.87	6.06	2.30		0.32		4.06	-6.89	-11.97	-1.22	10.63	0.17	0.11	1.02
DL31	2.31	-6.62	-2.26	-12.44	0.79	16.20		0.40	0.95		6.65	-3.03	-36.10	-3.59	0.07	0.26	1.41
DL32	1.66	-13.10	8.24	-26.82	-8.32	3.50		0.13	2.49		18.74	18.06	-12.01	-8.82	0.12	0.46	2.19
DL33	0.51	-1.40	5.47	-17.00	-4.59	10.10		0.44	3.34		18.79	10.54	-3.10	-0.14	0.40	-0.17	0.58
DM34	2.57	-25.58	3.49	-7.80	5.43	12.60		0.67	2.38	0.35	-19.28	-1.83	0.23	2.01	0.34	0.27	1.44
DM35	0.33	-3.13	8.79	-30.83	-0.94	8.90		0.51		0.96	40.05	9.82	-0.72	3.27	0.21	-0.71	0.14
DN36	0.40	-6.13	2.45	-18.69	-7.32	6.90		0.74	0.26	0.64	15.45	10.55	0.79	1.48	0.24	-0.36	0.39
DN37	0.03	-4	-15.08	5.26	2.13	7.40					-43.00	-16.85	13.53	19.14			
E	3.39	-4.82	-2.85	8.13	-0.54	8.90	15.66		0.03		-11.98	-2.33	-3.16	3.87			
F	4.43	-6.31	-3.99	-1.63	-0.45	6.30	21.04		0.04		-4.75	-3.56	-7.87	5.92			
G-K_X_K7415							20.63										
G50	1.35	-15.83	0.98	-14.97	-3.88	3.40	14.94				-1.02	5.05	0.67	0.14			
G51	5.57	-10.53	1.26	2.63	6.77	5.20	19.32				-12.82	-5.16	-5.15	2.98			
G52	4.70	-10.81	0.20	-4.55	-0.38	3.50	19.87				-6.56	0.57	-2.25	4.37			
H	1.57	-6.74	-0.29	-1.81	0.84	6.70	20.81				-5.02	-1.12	-6.64	2.37			
I60	2.87	-9.74	-5.22	-3.26	-1.80	11.40	14.72				-6.70	-3.48	-0.56	3.98			
I61	0.03	25.20	6.69	144.44	17.08	7.40	12.37				-48.78	-8.87	-31.40	-5.16			
I62	0.03	0.93	-3.38	5.17	-7.28	-1.20	26.37				-4.03	4.20	-17.42	-5.39			
I63	1.89	-3.42	7.28	-27.96	-3.00	12.20	19.71				34.08	10.60	-10.87	6.95			
I64	3.04	-2.85	3.89	7.32	1.89	27.80	22.68				-9.47	1.96	-9.68	-2.80			
J	4.52	1.62	-2.74	6.34	4.32		49.50				-4.43	-6.77	-11.10	10.45			
K70	8.96	-3.21	1.27	-18.18	1.00	17.60	24.70				18.30	0.27	-10.75	6.71			
K71	0.54	-5.05	1.96	-37.74	1.26	34.10	20.27				52.50	0.69	-6.69	4.31			
K72	1.98	4.57	7.76	-28.27	-0.78	9.40	16.72		2.35		45.80	8.60	-9.78	2.41			
K73	0.47	-4.07	2.34	4.17	-2.65	7.90	15.03		0.45		-7.90	5.13	-6.34	2.69			
K74	7.04	-4.43	3.10	3.50	2.72	9.70			0.54		-7.67	0.36	-11.38	2.24			

Malta

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	79.41	89.71	91.51	86.75	77.94	83.73
Relative trade balance	-0.03	-0.03	-0.02	-0.02	-.	0.01
Share of world exports market (%)	0.02	0.02	0.02	0.02	0.02	0.02
Nominal unit labour costs growth: t/t-1 (%)	-1.95	2.83	0.25	2.26	6.13	-3.10
Nominal unit labour costs growth: t/t-5 (%)	3.25	2.05	1.90	1.17	1.87	1.63
Total goods and services real export growth: t/t-1 (%)	0.61	9.34	3.10	0.98	-8.36	17.19
Total goods and services real export growth: t/t-5 (%)	0.63	2.83	2.24	2.56	0.97	4.10
Real effective exchange rates (2000=100)	116.21	118.92	121.18	122.93	124.86	116.77
Total public expenditure on education (% of GDP)	6.79	.	6.31	6.01	.	.
Human Resources in S and T as % of total employment **	31.00	31.80	33.30	33.50	33.80	.
RCA index: high tech	2.18	2.44	2.71	2.86	2.56	.
RCA index: medium-high tech	0.44	0.39	0.42	0.44	0.46	.
RCA index: medium-low tech	0.37	0.32	0.37	0.39	0.37	.
RCA index: low tech	1.16	0.99	0.89	0.78	0.80	.
Exports of high technology products (% of total exports)	48.25	53.78	47.82	44.99	.	.
High skills sectors: share in GDP (%)	.	.	.	.	.	.
Specialisation index* (hs)	.	.	.	.	.	.
High-intermediate skills sectors: share in GDP (%)	.	.	.	.	.	.
Specialisation index* (his)	.	.	.	.	.	.
Low-intermediate skills sectors: share in GDP (%)	.	.	.	.	.	.
Specialisation index* (lis)	.	.	.	.	.	.
Low skills sectors: share in GDP (%)	.	.	.	.	.	.
Specialisation index* (ls)	.	.	.	.	.	.
High technology manufacturing sectors: share in GDP (%)	.	.	.	.	.	.
specialisation index* (ht)	.	.	.	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	.	.	.	.	.	.
specialisation index* (mht)	.	.	.	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	.	.	.	.	.	.
specialisation index* (mlt)	.	.	.	.	.	.
Low technology manufacturing sectors: share in GDP (%)	.	.	.	.	.	.
specialisation index* (lt)	.	.	.	.	.	.
Knowledge-intensive services: share in GDP (%)	.	.	.	.	.	.
specialisation index* (kis)	.	.	.	.	.	.
Less knowledge-intensive services: share in GDP (%)	.	.	.	.	.	.
specialisation index* (lkis)	.	.	.	.	.	.
Foreign Direct investment flows (% of GDP)	11.35	29.08	12.68	10.45	11.22	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

sector	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
1 - Transport	1.22	0.60	0.60	0.09	0.06	0.06
2 - Travel	1.78	1.09	1.02	0.13	0.11	0.11
3 - Other services	0.40	1.13	1.14	0.03	0.11	0.12
3a - Communications	1.02	0.79	0.77	0.08	0.08	0.08
3b - Construction		0.07	0.07		0.01	0.01
3c - Insurance	1.53	0.48	0.54	0.11	0.05	0.06
3d - Financial services		0.74	0.81		0.07	0.08
3e - Computer and information	0.10	0.23	0.22	0.01	0.02	0.02
3f - Royalties and licence fees	0.02	0.86	0.86		0.09	0.09
3g - Other business services	0.52	1.00	1.04	0.04	0.10	0.11
3h - Personal, cultural and recreational services	0.40	17.74	16.97	0.03	1.78	1.78
3i - Government services n.i.e.	0.64	0.50	0.43	0.05	0.05	0.04
Total services	1.00	1.00	1.00	0.07	0.10	0.10

Malta
Nace - Revision 1

nace	Value Added share in GDP (%) 2010	Openness ratio 2009	R&D intensity 2008	Patent intensity 2008	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.28	.	.	.	.	.	.
D	13.37	.	1.80	0.12			.
DA15	1.61	0.60	0.88	.	-0.66	-0.29	0.01
DA16		36.92	.	.		0.11	0.03
DB17	0.42	0.78	.	0.03	0.27	0.01	0.02
DB18	0.12	2.02	.		-0.68	-0.45	0.01
DC19	0.01	5.62			-0.74	-0.70	
DD20	0.06	0.44			-0.89	-0.92	
DE21	0.10	1.87	.	.	-0.93	-0.93	
DE22	1.03	0.32			0.66	0.86	0.33
DF23	.	385.68		1.00	-0.33	-0.56	0.01
DG24	1.96	1.10			-0.25	-0.09	0.02
DH25	0.72	0.51	1.85			0.10	0.03
DI26	0.44	0.38		0.05	-0.82	-0.64	0.01
DJ27	.	116.34		11.50	-0.67	-0.83	
DJ28	0.48	0.28		0.01	-0.60	-0.45	0.01
DK29	0.23	2.11	2.82		-0.55	-0.51	0.01
DL30	.	64.40	.	153.00	-0.70	-0.78	.
DL31	0.83	0.60	7.25			0.29	0.04
DL32	2.48	0.52	2.80		0.15	0.66	0.12
DL33	0.27	1.16	.		-0.30	-0.19	0.02
DM34	0.04	24.04		0.96	-0.82	-0.91	
DM35	0.50	0.17		0.02	-0.78	-0.21	0.02
DN36	2.01	0.27			0.14	-0.49	0.01
DN37	0.05	.	.	.	.	.	.
E	2.63	.	.	.	.	.	.
F	3.58	.	.	.	.	.	.
G-K_X_K7415							
G50	2.02	.	.	.	.	.	.
G51	4.51	.	.	.	.	.	.
G52	3.81	.	.	.	.	.	.
H	4.55	.	.	.	.	.	.
I60	1.31	.	.	.	.	.	.
I61	0.25	.	.	.	.	.	.
I62	0.42	.	.	.	.	.	.
I63	3.29	.	.	.	.	.	.
I64	2.57	.	.	.	.	.	.
J	7.46	.	.	.	.	.	.
K70	7.70	.	.	.	.	.	.
K71	0.70	.	.	.	.	.	.
K72	2.17	.	4.88				
K73	0.01						
K74	7.45	.	0.08	.	.	.	.

Netherlands

Country level

	2005	2006	2007	2008	2009	2010
Indicators						
Trade openness (% of GDP)	65.36	68.97	70.09	72.48	65.61	74.35
Relative trade balance	0.07	0.06	0.06	0.06	0.06	0.05
Share of world exports market (%)	3.92	3.87	3.96	3.97	4.03	3.86
Nominal unit labour costs growth: t/t-1 (%)	-0.36	0.69	1.73	2.95	5.11	-1.24
Nominal unit labour costs growth: t/t-5 (%)	2.46	1.60	1.00	1.04	2.01	1.82
Total goods and services real export growth: t/t-1 (%)	6.00	7.27	6.40	2.79	-7.91	10.88
Total goods and services real export growth: t/t-5 (%)	3.62	4.68	5.79	6.05	2.75	3.68
Real effective exchange rates (2000=100)	110.66	110.47	111.44	112.90	115.84	111.96
Total public expenditure on education (% of GDP)	5.48	5.46	5.32	5.46	.	.
Human Resources in S and T as % of total employment **	50.40	49.20	50.70	51.30	51.80	.
RCA index: high tech	1.26	1.20	1.15	0.99	1.01	.
RCA index: medium-high tech	0.78	0.80	0.84	0.91	0.91	.
RCA index: medium-low tech	0.99	1.03	1.04	1.04	0.97	.
RCA index: low tech	1.08	1.09	1.10	1.16	1.19	.
Exports of high technology products (% of total exports)	20.25	18.27	18.28	16.16	.	.
High skills sectors: share in GDP (%)	41.95	41.45	41.43	.	.	.
Specialisation index* (hs)	1.02	1.01	1.01	.	.	.
High-intermediate skills sectors: share in GDP (%)	16.93	16.83	16.76	.	.	.
Specialisation index* (his)	1.11	1.10	1.12	.	.	.
Low-intermediate skills sectors: share in GDP (%)	25.57	25.64	26.08	.	.	.
Specialisation index* (lis)	0.95	0.95	0.96	.	.	.
Low skills sectors: share in GDP (%)	15.55	16.08	15.73	.	.	.
Specialisation index* (ls)	0.92	0.96	0.94	.	.	.
High technology manufacturing sectors: share in GDP (%)	1.29	1.21	1.12	.	.	.
specialisation index* (ht)	0.57	0.54	0.50	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	4.42	4.59	4.70	.	.	.
specialisation index* (mht)	0.73	0.74	0.76	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	5.20	4.97	5.06	.	.	.
specialisation index* (mlt)	0.91	0.86	0.87	.	.	.
Low technology manufacturing sectors: share in GDP (%)	5.32	5.21	5.26	.	.	.
specialisation index* (lt)	1.00	1.01	1.04	.	.	.
Knowledge-intensive services: share in GDP (%)	50.63	50.86	50.65	.	.	.
specialisation index* (kis)	1.05	1.06	1.05	.	.	.
Less knowledge-intensive services: share in GDP (%)	33.14	33.16	33.20	.	.	.
specialisation index* (lkis)	1.02	1.02	1.03	.	.	.
Foreign Direct investment flows (% of GDP)	7.49	1.16	14.74	-0.87	3.39	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	1.51	1.26	1.31	5.05	3.61	3.79
2 - Travel	0.49	0.54	0.55	1.62	1.53	1.60
3 - Other services	1.08	1.09	1.08	3.61	3.11	3.13
3a - Communications	1.38	1.83	2.11	4.61	5.23	6.11
3b - Construction	2.68	1.19	1.17	8.93	3.40	3.38
3c - Insurance	0.24	0.31	0.26	0.81	0.89	0.75
3d - Financial services	0.22	0.18	0.18	0.72	0.52	0.52
3e - Computer and information	0.76	1.15	1.06	2.55	3.29	3.06
3f - Royalties and licence fees	0.79	0.87	0.98	2.64	2.48	2.83
3g - Other business services	1.40	1.38	1.34	4.67	3.93	3.87
3h - Personal, cultural and recreational services	0.80	0.63	0.73	2.66	1.81	2.11
3i - Government services n.i.e.	0.76	1.48	1.28	2.54	4.24	3.71
Total services	1.00	1.00	1.00	3.34	2.86	2.90

The Netherlands
Nace - Revision 2

	Production growth (%)	
	2010	2005-2010
nace		
B-D_F	1.7	0.3
C	6.4	0.4
C10	3.5	1.6
C11	-0.1	0.5
C12	-4.9	-3.8
C13	9.9	-1.0
C14	0.1	2.6
C15	33.8	1.0
C16	-4.3	-4.2
C17	6.0	-1.9
C18	2.9	1.0
C19	-2.7	3.5
C20	8.0	0.8
C21	2.1	0.0
C22	6.9	-1.7
C23	-9.3	-4.6
C24	24.3	-1.1
C25	8.2	-0.9
C26	16.1	1.9
C27	-0.4	-1.5
C28	17.2	1.8
C29	34.4	-4.9
C30	-1.3	1.7
C31	-1.8	-4.5
C32	2.9	1.7
C33	-1.8	3.3

The Netherlands
Nace - Revision 1

nace	Value Added share in GDP (%) 2009	Value-added growth (%) 2008-2009	Value-added growth (%) 2004-2009	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Mark-up 1993-2004	Mark-up 1981-1992	Gross operating rate 2007	Business churn 2006	Openness ratio 2009	R&D intensity 2007	Patent intensity 2008	Labour productivity per person growth (%) 2008-2009	Labour productivity per person growth (%) 2004-2009	ULC growth (%) 2008-2009	ULC growth (%) 2004-2009	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	2.98	-7.10	-4.38	2.63	-3.25			19.60	24.34				-9.48	-1.17	12.54	3.42			
D	12.58	-8.77	-0.04	-3.14	-0.84			7.60	11.91		5.60	2.19	-5.81	0.81	7.91	1.55			
DA15	2.53	0.36	2.06	-0.31	-1.11	1.07	1.07			0.52	2.28	0.43	0.67	3.21	0.10	-0.64	0.24	0.34	7.34
DA16	0.39	1.64	-1.15	-11.90	-6.58	1.63	1.34			0.45	0.12	0.08	15.38	5.81	-16.15	-3.97	0.70	0.68	19.15
DB17	0.15	-14.43	-3.07	-7.95	-3.02	1.07	1.30	8.30		1.06	1.49	0.74	-7.04	-0.05	9.68	1.64		-0.31	1.94
DB18	0.03	-0.51	4.67	-1.96	-1.89	1.07	1.24	8.00		6.13		0.58	1.48	6.69	3.38	-3.36	-0.17	-0.23	2.28
DC19	0.02	-13.11	-3.24	-9.09	-4.36			1.	11.72	8.27		1.49	-4.43	1.17	10.23	1.62	-0.07	-0.16	2.62
DD20	0.21	-13.38	-1.93	-5.09	0.30			5.40	9.61	0.25	0.16	0.15	-8.73	-2.21	12.67	3.41	-0.49	-0.45	1.39
DE21	0.25	-11.04	-2.91	-6.67	-3.89	1.11	1.17	6.60		0.71	1.05	0.96	-4.68	1.02	8.35	1.64	0.01	-0.03	3.41
DE22	1.13	-6.14	-0.57	-5.94	-1.58	1.20	1.12	10.20		0.06	0.60	0.06	-0.21	1.02	1.81	1.10	0.14	-0.02	3.48
DF23	0.28	2.59	3.21		0.31			4.20	17.50	0.76	0.22	0.66	2.59	2.89	-1.27	-0.68	0.22	0.28	6.49
DG24	1.76	-3.00	0.93	-2.87	-1.51			7.60	11.83	0.81	11.07		-0.14	2.48	-1.42	-0.40	0.19	0.10	4.46
DH25	0.42	-10.79	0.21	-6.96	-1.55			6.90	8.53	0.78	2.21	1.42	-4.12	1.78	6.80	1.21		-0.12	2.85
DI26	0.47	-16.58	-1.17	-3.92	-1.05			9.90	12.17	0.36	0.68	1.14	-13.17	-0.11	15.81	1.98	-0.14	-0.37	1.68
DJ27	0.33	-23.75	-4.80	-3.64	-0.83	1.34	1.43	11.60		2.07		1.18	-20.87	-4.00	17.77	6.43	0.06	-0.23	2.28
DJ28	1.14	-14.19	1.08	-5.93	-0.71	1.11	1.16	7.60		0.29	0.86	0.61	-8.78	1.80	12.38	0.87	0.04	-0.14	2.75
DK29	1.19	-15.07	-1.10	-2.28	1.14			7.00	10.44	0.50	7.91		-13.09	-2.22	19.37	5.41	0.21	-0.02	3.48
DL30	0.04	-25.00	-14.26	-5.77	-4.90	1.03	1.01			7.05		76.52	-20.41	-9.84	23.58	13.94	0.01	0.28	6.55
DL31	0.23	-17.74	0.42	-4.86	-0.99	1.09	1.14	4.20		0.97	5.63		-13.53	1.43	19.93	1.29	0.01	-0.29	2.01
DL32	0.12	-12.29	-2.12	-5.74	-3.25	1.11	1.03	-1.20		0.38	144.59		-6.95	1.17	17.03	2.72	0.02	-0.14	2.74
DL33	0.35	-8.08	1.84	-1.78	1.12	1.30	1.06			2.25	9.15		-6.41	0.71	11.84	2.22		0.07	4.18
DM34	0.18	-54.08	-12.67	-7.47	-2.02	1.08	1.07	14.60		1.91	6.72	5.07	-50.37	-10.87	109.08	14.99	-0.14	-0.46	1.34
DM35	0.33	-4.12	2.30	-0.36	-0.43	1.05	1.06	5.40		0.41		2.74	-3.77	2.74	7.82	0.70	0.02	-0.32	1.87
DN36	0.98	-6.01	0.25	0.73	0.24	1.11	1.12	6.10		0.87		0.62	-6.68	0.01	8.95	1.58	-0.15	-0.39	1.60
DN37	0.04	-18.28	-3.11		0.68	1.19	1.13	9.70					-18.28	-3.76	26.80	6.02			
E	2.30	0.26	2.95	6.27	1.80	1.07	1.18	14.30	16.46				-5.66	1.12	11.94	1.80			
F	6.02	-4.23	2.29	-1.83	0.65	1.11	1.09	9.40	13.79			0.08	-2.45	1.64	6.32	0.72			
G-K_X_K7415									18.58										
G50	1.52	-10.25	-1.58	-2.18	0.18	1.29	1.25	3.80	10.98				-8.25	-1.75	11.01	4.11			
G51	7.43	-7.19	3.73	-1.74	1.24	1.41	1.36	5.50	16.20				-5.55	2.46	7.92	0.02			
G52	3.31	-3.90	1.70	-0.08	0.55	1.43	1.39	8.40	15.30				-3.83	1.15	6.26	1.12			
H	1.75	-7.78	-1.28	-2.06	0.70	1.30	1.32	16.70	13.59				-5.84	-1.97	8.73	4.28			
I60	2.15	-5.20	1.10	-3.66	-0.34	1.31	1.15	11.20	12.34				-1.60	1.45	4.46	1.04			
I61	0.27	-9.31	3.77	-1.69	-1.00	1.44	1.29	26.70	14.95				-7.75	4.82	15.08	0.38			
I62	0.11	-11.32	-0.75	-2.44	0.25	1.26	1.26	12.30	14.49				-9.10	-1.00	10.57	2.72			
I63	1.59	-7.95	1.51	-3.18	0.61	1.24	1.27	12.60	17.10				-4.93	0.90	8.81	1.92			
I64	2.18	-3.01	1.70	-1.62	-1.49	1.26	1.31	28.10	21.74				-1.41	3.24	0.96	-1.66			
J	7.50	-1.71	3.57	-1.87	0.09				34.85				0.16	3.48	-1.31	-0.84			
K70	6.69	0.14	0.38	-2.18	1.47	3.08	2.76	35.20	24.04				2.38	-1.08	-1.38	2.85			
K71	0.94	-7.46	0.06	-1.44		2.01	2.23	42.00	18.01				-6.11	0.06	9.44	3.51			
K72	2.25	-3.93	4.88	0.06	6.07	1.22	1.25	13.30	21.98		2.46		-3.99	-1.12	5.87	2.55			
K73	0.46	1.89	1.90	4.41	2.14	1.03	1.28	8.20	24.15		15.86		-2.41	-0.23	5.25	2.47			
K74	10.32	-6.04	3.11	-5.87	2.91	1.16	1.04	12.70			0.40		-0.18	0.19	3.48	2.27			

Austria

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	52.20	54.27	56.45	56.30	48.26	52.89
Relative trade balance	0.04	0.05	0.05	0.05	0.05	0.05
Share of world exports market (%)	1.21	1.14	1.18	1.13	1.11	1.03
Nominal unit labour costs growth: t/t-1 (%)	1.23	0.84	0.82	2.69	4.76	0.59
Nominal unit labour costs growth: t/t-5 (%)	0.72	0.61	0.72	0.99	2.06	1.93
Total goods and services real export growth: t/t-1 (%)	7.37	7.73	8.64	0.96	-16.13	10.85
Total goods and services real export growth: t/t-5 (%)	5.76	6.07	7.02	6.91	1.25	1.90
Real effective exchange rates (2000=100)	100.03	100.26	100.11	99.80	101.79	100.32
Total public expenditure on education (% of GDP)	5.48	5.46	5.40	.	.	.
Human Resources in S and T as % of total employment **	39.10	39.40	38.60	38.60	40.20	.
RCA index: high tech	0.55	0.54	0.55	0.59	0.60	.
RCA index: medium-high tech	1.16	1.19	1.15	1.15	1.17	.
RCA index: medium-low tech	1.07	1.04	1.04	1.00	1.02	.
RCA index: low tech	1.22	1.22	1.20	1.17	1.16	.
Exports of high technology products (% of total exports)	12.81	11.17	11.11	10.84	.	.
High skills sectors: share in GDP (%)	36.83	36.73	36.28	.	.	.
Specialisation index* (hs)	0.90	0.90	0.88	.	.	.
High-intermediate skills sectors: share in GDP (%)	14.19	14.49	14.70	.	.	.
Specialisation index* (his)	0.93	0.95	0.98	.	.	.
Low-intermediate skills sectors: share in GDP (%)	30.09	29.86	30.30	.	.	.
Specialisation index* (lis)	1.12	1.11	1.12	.	.	.
Low skills sectors: share in GDP (%)	18.89	18.92	18.71	.	.	.
Specialisation index* (ls)	1.12	1.13	1.12	.	.	.
High technology manufacturing sectors: share in GDP (%)	2.47	2.48	2.41	.	.	.
specialisation index* (ht)	1.10	1.10	1.08	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	6.65	6.97	7.14	.	.	.
specialisation index* (mht)	1.09	1.13	1.16	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	7.23	7.60	7.81	.	.	.
specialisation index* (mlt)	1.27	1.32	1.34	.	.	.
Low technology manufacturing sectors: share in GDP (%)	5.67	5.73	5.58	.	.	.
specialisation index* (lt)	1.07	1.11	1.10	.	.	.
Knowledge-intensive services: share in GDP (%)	42.43	42.35	42.40	.	.	.
specialisation index* (kis)	0.88	0.88	0.88	.	.	.
Less knowledge-intensive services: share in GDP (%)	35.55	34.87	34.66	.	.	.
specialisation index* (lkis)	1.09	1.07	1.07	.	.	.
Foreign Direct investment flows (% of GDP)	3.69	2.46	8.37	3.35	1.93	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
sector	2000	2008	2009	2000	2008	2009
1 - Transport	0.81	0.93	0.96	1.27	1.57	1.58
2 - Travel	1.43	1.48	1.50	2.23	2.48	2.47
3 - Other services	0.82	0.82	0.80	1.28	1.37	1.32
3a - Communications	0.98	1.21	1.28	1.53	2.04	2.12
3b - Construction	1.30	1.06	1.03	2.02	1.79	1.69
3c - Insurance	1.69	0.97	0.96	2.65	1.63	1.58
3d - Financial services	0.66	0.32	0.26	1.04	0.54	0.43
3e - Computer and information	0.41	0.63	0.65	0.65	1.06	1.08
3f - Royalties and licence fees	0.13	0.27	0.24	0.20	0.46	0.40
3g - Other business services	1.04	1.08	1.07	1.62	1.81	1.76
3h - Personal, cultural and recreational services	0.40	0.44	0.43	0.62	0.73	0.72
3i - Government services n.i.e.	0.39	0.59	0.53	0.60	0.98	0.87
Total services	1.00	1.00	1.00	1.56	1.68	1.65

Austria
Nace - Revision 2

	Indicators											
	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
nace												
B-D F	4.3	1.5										
C	7.0	1.6	-2.2	-0.6	0.9	-0.9	9.4	2.2	6.0	2.4	-7.5	0.4
C10	0.4	0.9	1.6	-0.4	2.1	-0.3	-1.2	1.3	-1.6	1.2	2.1	1.1
C11	-2.7	0.5	0.5	-0.7	1.3	-0.6	-3.1	1.2	-3.9	1.1	4.3	2.1
C12												
C13	11.2	-2.4	-1.2	-4.9	1.6	-4.8	12.6	2.6	9.4	2.6	-8.9	-0.5
C14	-2.9	-3.3	-8.2	-5.2	-6.8	-6.5	5.7	2.0	4.2	3.4	-1.5	0.8
C15	-18.8	-16.2	-1.8	-6.2	-0.0	-6.6	-17.3	-10.7	-18.8	-10.4	23.8	16.2
C16	8.8	0.6	-0.9	-1.0	0.8	-1.3	9.8	1.6	8.0	1.9	-7.4	1.1
C17	8.1	1.1	-3.4	-2.6	-2.4	-2.7	12.0	3.7	10.8	3.9	-11.0	-1.0
C18	-3.0	0.2	-7.5	-3.1	-5.6	-3.5	4.9	3.5	2.8	3.8	-3.2	-1.7
C19	-4.6	6.9	-8.2	-2.3	-7.3	-2.6	3.9	9.4	3.0	9.7	1.1	-7.3
C20	5.3	2.9	0.2	-0.2	2.0	-0.4	5.1	3.1	3.3	3.3	-3.2	-0.5
C21	9.8	8.0	4.1	4.2	4.3	4.0	5.5	3.7	5.3	3.9	-1.3	-1.0
C22	3.8	1.7	-1.4	0.1	1.6	0.2	5.3	1.7	2.2	1.5	-4.8	0.6
C23	6.3	-1.6	-2.7	-2.0	-0.4	-2.3	9.2	0.4	6.7	0.7	-8.9	1.7
C24	23.5	1.3	-3.9	-0.8	5.0	-1.0	28.5	2.1	17.7	2.3	-20.2	0.2
C25	6.7	-0.0	-2.2	0.7	0.8	0.4	9.1	-0.7	5.9	-0.4	-6.4	3.1
C26	17.3	6.6	-1.0	1.0	1.1	0.5	18.5	5.5	16.0	6.0	-17.6	-2.1
C27	2.1	3.8	0.6	1.7	4.1	1.4	1.5	2.1	-1.9	2.4	-1.8	0.5
C28	6.6	2.4	-3.1	0.3	1.3	-0.1	10.1	2.1	5.3	2.5	-6.9	0.3
C29	26.9	-1.6	-4.6	-3.6	4.6	-3.8	33.1	2.1	21.3	2.3	-23.3	1.0
C30	-25.3	-0.9	-22.0	-3.3	-19.5	-4.1	-4.2	2.5	-7.1	3.4	7.6	-0.1
C31	-1.9	-0.7	-3.9	-1.7	-2.8	-1.9	2.0	1.1	0.9	1.3	-1.2	1.3
C32	-0.7	2.4	-7.3	-2.8	-4.6	-3.1	7.1	5.3	4.1	5.6	-3.0	-2.1
C33	8.7	5.2	1.2	1.3	3.3	1.1	7.4	3.8	5.2	4.0	-8.4	-1.4

Austria
Nace - Revision 1

nace	Value Added share in GDP (%) 2009	Value-added growth (%) 2008-2009	Value-added growth (%) 2004-2009	Mark-up 1993-2004	Mark-up 1981-1992	Gross operating rate 2007	Business churn 2007	Openness ratio 2007	R&D intensity 2007	Patent intensity 2007	ULC growth (%) 2008-2009	ULC growth (%) 2004-2009	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.40	-3.46	0.19	.	.	26.00	9.37	.	0.69	.	6.36	3.04	.	.	.
D	18.61	-14.27	1.81	.	.	13.00	8.57	.	6.85	3.29	13.36	1.37	.	.	.
DA15	2.26	-5.69	1.74	1.08	1.06			0.41	0.48	0.63	7.30	0.10	0.05	0.01	1.37
DA16	0.05	-32.62	0.51	1.61	1.87			0.72		2.46	56.46	1.70	-0.69	-0.11	1.08
DB17	0.24	-17.75	-4.70	1.35	1.07	9.30		0.86	3.53	0.90	5.69	0.52	-0.10	-0.17	0.94
DB18	0.12	-9.01	1.04	1.39	1.11	13.80		3.17	0.47	0.57	5.60	-3.82	-0.39	-0.25	0.80
DC19	0.07	-10.76	-3.47				9.92	1.79	1.93	2.10	0.02	-0.72	-0.20	-0.05	1.20
DD20	0.92	-15.64	-0.59			13.90	8.39	0.22	0.58	0.13	12.46	2.62	0.41	0.61	5.51
DE21	0.64	-8.09	2.72	1.51	1.17	12.60		0.38	0.76	1.04	7.35	-1.37	0.20	0.34	2.71
DE22	0.68	-1.35	4.73	1.31	1.16	14.70		0.13	0.91	0.21	-8.28	-4.17	-0.30	0.06	1.50
DF23	0.16	176.01	43.13				26.32	0.58		3.77	-64.96	-29.55	-0.59	-0.67	0.26
DG24	1.84	-0.97	10.25			18.30	11.91	1.07	11.36		2.92	-4.21	-0.11	-0.11	1.07
DH25	0.69	-10.97	-1.13			12.50	5.60	0.64	5.36	2.08	9.05	3.97	-0.04	0.14	1.76
DI26	1.12	-13.51	0.24			17.20	8.91	0.32	2.58	1.21	9.28	1.64	0.01	0.14	1.77
DJ27	0.98	-25.14	-3.67	1.52	1.17	14.40		0.48	3.04	1.02	30.46	8.56	0.05	0.10	1.65
DJ28	1.73	-22.35	0.39	1.33	1.05	13.10		0.34	1.93	1.21	25.58	4.49	0.10	0.31	2.52
DK29	2.29	-29.12	-0.16			14.30	7.26	0.51	7.76		39.38	5.52	0.12	0.16	1.85
DL30	0.03	-4.88	-4.86	1.42	0.90	8.00		2.39	25.95	189.26	28.05	12.88	-0.32	-0.61	0.32
DL31	1.29	-5.27	1	1.39	1.10	10.50		0.53	29.43		3.11	1.97	0.12	0.12	1.71
DL32	0.46	-22.92	-12.18	1.20	1.14	11.60		0.22	20.60		20.55	2.73	-0.10	-0.47	0.48
DL33	0.56	-5.55	3.83	1.29	1.12	20.60		0.84	12.95		8.37	4.84	-0.04	-0.24	0.82
DM34	0.90	-29.93	-5.36	1.12	1.23	1		0.88	13.09	4.75	31.09	7.95	-0.01	0.10	1.63
DM35	0.51	-5.42	23.99	1.21	1.07	8.60		0.60	13.60	7.07	-0.66	-9.43	0.21	-0.18	0.93
DN36	1.00	-11.23	4.83	1.24	1.07	15.90		0.62	3.73	2.49	10.32	-5.94	-0.10	-0.03	1.27
DN37	0.08	-20.56	5.13	1.76	1.58	20.10			0.16		26.06	10.40	.	.	.
E	2.80	5.81	-0.92	1.42	1.33	15.30	11.92		0.12		-2.32	3.64	.	.	.
F	7.34	-5.42	-0.44	1.51	1.10	12.70	13.54		0.11		5.80	4.44	.	.	.
G-K_X_K7415							14.37								
G50	1.73	-2.87	-1.97	1.55	1.72	3.00	12.36				2.89	4.46			
G51	6.49	-2.48	1.74	1.35	1.41	5.10	12.57				2.24	1.71			
G52	4.55	1.03	1.60	1.36	1.41	5.80	12.26				1.62	2.39			
H	4.88	-2.50	1.84	1.38	1.35	17.20	13.42				6.44	2.89			
I60	2.39	-8.58	-5.36	1.64	1.32	12.70	17.37				13.75	4.65			
I61	0.02	-9.60	-2.26	1.29	2.41	2.20	20.69				9.31	8.41			
I62	0.24	-34.65	-12.08	1.39	1.42	0.70	16.37				50.47	16.55			
I63	1.55	-9.85	5.88	1.70	1.24	11.80	11.39				13.56	8.03			
I64	1.67	-4.61	4.25	0.97	1.70	21.80	18.70				5.87	-3.91			
J	4.49	5.77	6.22				16.78		0.06		-2.87	-1.70			
K70	9.52	-0.84	1.55	2.05	4.22	40.40	13.21				-0.16	2.58			
K71	1.44	-3.76	5.47	3.11	2.24	39.30	14.87				5.35	0.92			
K72	1.40	-3.74	2.18	1.50	1.22	13.80	16.49		7.64		2.52	0.70			
K73	0.14	-0.04	-0.17	2.16	1.12	1.20	16.80		261.22		5.19	8.47			
K74	6.68	-4.42	2.92	1.19	1.24	15.90			2.68		1.93	2.46			

Poland

	2005	2006	2007	2008	2009	2010
Indicators						
Trade openness (% of GDP)	37.46	41.26	42.19	41.88	39.43	41.94
Relative trade balance	-0.01	-0.02	-0.03	-0.05		-0.01
Share of world exports market (%)	0.86	0.92	1.01	1.06	1.10	1.05
Nominal unit labour costs growth: t/t-1 (%)	0.33	-1.08	2.61	7.53	1.57	1.30
Nominal unit labour costs growth: t/t-5 (%)	-0.22	-1.69	-0.73	1.40	2.15	2.35
Total goods and services real export growth: t/t-1 (%)	7.96	14.64	9.12	7.05	-6.81	10.21
Total goods and services real export growth: t/t-5 (%)	8.72	11.05	11.94	10.51	6.14	6.58
Real effective exchange rates (2000=100)	93.80	94.91	98.49	111.10	89.18	96.51
Total public expenditure on education (% of GDP)	5.47	5.25	4.91			.
Human Resources in S and T as % of total employment **	33.60	34.30	34.50	34.70	36.40	.
RCA index: high tech	0.25	0.29	0.37	0.45	0.55	.
RCA index: medium-high tech	1.08	1.11	1.05	1.09	1.09	.
RCA index: medium-low tech	1.37	1.30	1.23	1.11	1.07	.
RCA index: low tech	1.47	1.42	1.39	1.33	1.31	.
Exports of high technology products (% of total exports)	3.20	3.11	3.04	4.27	.	.
High skills sectors: share in GDP (%)	27.73	25.89	27.52	.	.	.
Specialisation index* (hs)	0.68	0.63	0.67	.	.	.
High-intermediate skills sectors: share in GDP (%)	15.20	15.07	13.88	.	.	.
Specialisation index* (his)	0.99	0.99	0.92	.	.	.
Low-intermediate skills sectors: share in GDP (%)	29.57	32.84	33.05	.	.	.
Specialisation index* (lis)	1.10	1.22	1.22	.	.	.
Low skills sectors: share in GDP (%)	27.51	26.21	25.55	.	.	.
Specialisation index* (ls)	1.63	1.56	1.52	.	.	.
High technology manufacturing sectors: share in GDP (%)	1.95	1.94	1.72	.	.	.
specialisation index* (ht)	0.86	0.86	0.77	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	7.75	8.28	7.93	.	.	.
specialisation index* (mht)	1.27	1.34	1.28	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	13.02	11.29	11.42	.	.	.
specialisation index* (mlt)	2.29	1.96	1.96	.	.	.
Low technology manufacturing sectors: share in GDP (%)	12.66	9.94	9.49	.	.	.
specialisation index* (lt)	2.38	1.93	1.87	.	.	.
Knowledge-intensive services: share in GDP (%)	29.16	30.96	32.43	.	.	.
specialisation index* (kis)	0.61	0.64	0.67	.	.	.
Less knowledge-intensive services: share in GDP (%)	35.46	37.59	37.01	.	.	.
specialisation index* (lkis)	1.09	1.16	1.15	.	.	.
Foreign Direct investment flows (% of GDP)	3.38	5.73	5.54	2.74	2.66	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	1.05	1.33	1.44	0.74	1.28	1.29
2 - Travel	1.82	1.40	1.29	1.28	1.35	1.16
3 - Other services	0.46	0.68	0.71	0.32	0.65	0.63
3a - Communications	1.06	0.79	0.98	0.75	0.76	0.88
3b - Construction	1.45	2.07	2.00	1.02	1.99	1.80
3c - Insurance	1.17	0.20	0.04	0.82	0.19	0.04
3d - Financial services	0.14	0.20	0.20	0.10	0.20	0.18
3e - Computer and information	0.19	0.48	0.52	0.13	0.46	0.46
3f - Royalties and licence fees	0.06	0.11	0.06	0.04	0.10	0.05
3g - Other business services	0.55	0.91	1.00	0.39	0.88	0.90
3h - Personal, cultural and recreational services	0.34	0.52	0.42	0.24	0.50	0.37
3i - Government services n.i.e.	0.01	0.23	0.22	0.01	0.22	0.20
Total services	1.00	1.00	1.00	0.70	0.96	0.90

Poland
Nace - Revision 2

	Indicators											
	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
nace												
B-D_F	9.6	6.5	.	.	.	.	.	.	.	.	.	.
C	12.0	7.2	-0.4	0.4	0.7	0.3	12.5	6.7	11.3	6.9	-6.4	0.1
C10	7.1	5.5	2.5	0.6	3.0	0.5	4.5	4.9	4.0	4.9	-0.4	1.6
C11	-10.3	3.1	-9.3	-4.1	-8.1	-4.4	-1.1	7.5	-2.5	7.8	3.8	-1.5
C12	-6.9	-8.9	-8.7	-2.5	-6.5	-2.5	1.9	-6.6	-0.5	-6.6	-0.6	10.2
C13	9.9	2.4	-1.4	-5.0	-0.9	-5.1	11.4	7.8	10.9	7.9	-5.6	-0.8
C14	1.9	-1.9	-13.2	-7.9	-12.9	-8.2	17.4	6.6	17.0	6.9	-8.5	0.3
C15	8.5	2.0	-6.5	-5.5	-5.2	-5.8	16.0	8.0	14.4	8.2	-7.5	-0.7
C16	9.3	4.8	2.8	-0.2	6.9	0.2	6.4	5.0	2.3	4.7	-0.7	2.3
C17	16.5	6.2	3.4	2.3	4.4	2.0	12.6	3.8	11.7	4.1	-7.7	1.4
C18	10.7	7.3	5.7	2.7	7.1	3.5	4.8	4.4	3.4	3.7	0.1	2.1
C19	4.9	2.4	-2.5	-1.9	-16.2	-4.9	7.5	4.4	25.2	7.7	1.9	2.1
C20	22.3	5.2	1.6	0.9	2.9	1.0	20.3	4.3	18.9	4.2	-12.9	1.8
C21	7.8	10.0	-4.1	0.5	-5.6	0.1	12.4	9.5	14.3	9.9	-11.6	-5.0
C22	15.4	8.8	3.7	4.2	4.0	4.1	11.2	4.5	10.9	4.5	-5.1	1.9
C23	16.6	8.3	1.7	0.5	3.4	0.2	14.6	7.8	12.8	8.1	-8.4	-0.5
C24	15.6	0.6	-3.6	-2.0	4.7	-1.0	19.9	2.7	10.4	1.6	-12.6	3.5
C25	14.5	9.4	1.7	3.8	4.0	3.7	12.5	5.4	10.1	5.5	-5.7	1.9
C26	47.7	25.6	5.8	4.7	5.0	3.9	39.6	20.0	40.7	20.8	-25.0	-12.3
C27	19.6	17.9	0.6	4.0	0.7	3.6	18.8	13.4	18.8	13.8	-10.0	-6.2
C28	0.7	6.3	-8.8	-0.8	-7.4	-1.2	10.4	7.2	8.8	7.6	-3.7	-0.5
C29	13.8	8.2	2.4	3.1	4.1	3.2	11.1	4.9	9.3	4.9	-3.6	2.5
C30	-3.2	1.2	-12.7	-6.0	-15.5	-6.8	10.8	7.7	14.5	8.6	-9.9	-2.1
C31	-3.9	2.4	-0.4	0.0	-1.4	-0.2	-3.5	2.3	-2.5	2.6	7.0	4.6
C32	1.8	9.5	-1.9	1.3	-2.4	1.0	3.8	8.0	4.4	8.4	1.6	-0.7
C33	20.6	7.7	0.8	1.7	3.3	1.1	19.7	5.9	16.7	6.5	-11.2	0.6

Poland
Nace - Revision 1

nace	Value Added share in total business economy (%) 2007	Value-added growth (%) 2008-2009	Value-added growth (%) 2004-2009	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Gross operating rate 2007	R&D intensity 2008	Patent intensity 2008	Labour productivity per person growth (%) 2008-2009	Labour productivity per person growth (%) 2004-2009	ULC growth (%) 2008-2009	ULC growth (%) 2004-2009	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	3.96			-6.46	-0.52	30.70									
D	31.58	1.95	8.64	-4.92	2.66	13.10	0.65	0.25	7.23	5.83	-26.24	-1.36			
DA15	4.98					11.00							0.17	0.13	1.86
DA16	0.24					5.90							0.80	0.65	6.82
DB17	0.58					13.20							-0.26	-0.20	0.96
DB18	0.56					13.80							-0.08	-0.09	1.19
DC19	0.19			-22.64	-0.34	13.50							-0.34	-0.44	0.56
DD20	1.16			-4.13	1.85	16.40							0.42	0.39	3.23
DE21	0.76					18.40							-0.05	0.18	2.07
DE22	1.35					20.30							0.11	0.10	1.75
DF23	0.53			8.81	4.94	2.70							-0.03	-0.50	0.47
DG24	2.49			-0.47	1.74	18.10							-0.31	-0.34	0.71
DH25	1.94			-8.09	3.45	14.60							0.05	0.24	2.35
DI26	2.55			-5.38	3.04	24.80							0.13	0.20	2.14
DJ27	1.80					18.40							-0.03	-0.10	1.17
DJ28	3.01					15.40							0.09	0.28	2.53
DK29	2.51			-13.39	3.45	14.20							-0.09	-0.14	1.07
DL30	0.08					6.90							-0.17	-0.19	0.97
DL31	1.34					13.40							0.05	0.04	1.54
DL32	0.35					4.10							-0.02	-0.12	1.12
DL33	0.53					18.00							-0.56	-0.63	0.33
DM34	2.31					10.60							0.21	0.31	2.70
DM35	0.73					10.40							0.07	-0.01	1.41
DN36	1.46					12.90							0.50	0.31	2.71
DN37	0.16					11.20									
E	5.65	-1.81	-1.58	4.87	2.27	18.10			-6.37	-3.77	-13.60	8.94			
F	7.46	9.87	8.91	5.94	10.13	17.30	0.01		3.71	-1.11	-19.16	4.56			
G-K_X_K7415															
G50	2.24					7.10									
G51	10.97					7.30									
G52	6.37					8.90									
H	1.12	0.11	3.56	7.27	7.05	18.20			-6.68	-3.26	-11.91	6.95			
I60	4.45					19.40									
I61	0.08					17.70									
I62	0.22					13.70									
I63	1.19					12.30									
I64	4.12					35.30									
J	6.82	-28.53	3.98	9.64	6.35		0.06		-34.82	-2.22	16.12	5.26			
K70	5.89					68.60									
K71	0.46					41.70									
K72	1.27					18.40									
K73	0.09					25.20									
K74	6.05					21.90									

Portugal

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	32.48	35.38	36.19	37.48	31.71	34.57
Relative trade balance	-0.15	-0.12	-0.11	-0.13	-0.12	-0.10
Share of world exports market (%)	0.37	0.37	0.38	0.36	0.36	0.33
Nominal unit labour costs growth: t/t-1 (%)	3.58	0.88	1.16	3.50	3.27	-1.38
Nominal unit labour costs growth: t/t-5 (%)	3.10	2.50	2.08	2.01	2.47	1.47
Total goods and services real export growth: t/t-1 (%)	0.23	11.59	7.58	-0.09	-11.58	8.76
Total goods and services real export growth: t/t-5 (%)	2.50	4.40	5.35	4.59	1.23	2.89
Real effective exchange rates (2000=100)	111.67	110.96	110.88	112.33	113.11	109.93
Total public expenditure on education (% of GDP)	5.39	5.25	5.30	4.89	.	.
Human Resources in S and T as % of total employment **	22.30	22.80	22.80	23.90	24.90	.
RCA index: high tech	0.47	0.47	0.51	0.50	0.32	.
RCA index: medium-high tech	0.84	0.87	0.81	0.84	0.86	.
RCA index: medium-low tech	1.09	1.12	1.07	1.02	1.11	.
RCA index: low tech	1.93	1.87	1.93	1.90	1.98	.
Exports of high technology products (% of total exports)	6.85	6.99	6.52	6.13	.	.
High skills sectors: share in GDP (%)	34.65	34.81	.	.	.	.
Specialisation index* (hs)	0.85	0.85	.	.	.	.
High-intermediate skills sectors: share in GDP (%)	16.79	17.06	.	.	.	.
Specialisation index* (his)	1.10	1.12	.	.	.	.
Low-intermediate skills sectors: share in GDP (%)	30.95	30.40	.	.	.	.
Specialisation index* (lis)	1.15	1.13	.	.	.	.
Low skills sectors: share in GDP (%)	17.61	17.73	.	.	.	.
Specialisation index* (ls)	1.04	1.06	.	.	.	.
High technology manufacturing sectors: share in GDP (%)	1.33	1.20	.	.	.	.
specialisation index* (ht)	0.59	0.53	.	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	3.52	3.44	.	.	.	.
specialisation index* (mht)	0.58	0.56	.	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	7.16	7.34	.	.	.	.
specialisation index* (mlt)	1.26	1.27	.	.	.	.
Low technology manufacturing sectors: share in GDP (%)	8.81	8.54	.	.	.	.
specialisation index* (lt)	1.66	1.66	.	.	.	.
Knowledge-intensive services: share in GDP (%)	39.25	40.01	.	.	.	.
specialisation index* (kis)	0.82	0.83	.	.	.	.
Less knowledge-intensive services: share in GDP (%)	39.94	39.47	.	.	.	.
specialisation index* (lkis)	1.22	1.22	.	.	.	.
Foreign Direct investment flows (% of GDP)	2.06	5.43	1.33	1.40	1.23	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	0.72	1.14	1.22	0.44	0.81	0.86
2 - Travel	1.94	1.77	1.77	1.18	1.26	1.25
3 - Other services	0.54	0.60	0.58	0.33	0.42	0.41
3a - Communications	0.91	1.38	1.29	0.55	0.98	0.91
3b - Construction	0.85	1.42	1.21	0.52	1.01	0.86
3c - Insurance	0.38	0.27	0.28	0.23	0.19	0.20
3d - Financial services	0.39	0.16	0.12	0.24	0.11	0.09
3e - Computer and information	0.27	0.27	0.27	0.16	0.19	0.19
3f - Royalties and licence fees	0.06	0.05	0.11	0.04	0.03	0.08
3g - Other business services	0.66	0.77	0.77	0.40	0.55	0.54
3h - Personal, cultural and recreational services	1.08	1.02	1.18	0.66	0.73	0.83
3i - Government services n.i.e.	0.53	0.53	0.51	0.32	0.38	0.36
Total services	1.00	1.00	1.00	0.61	0.71	0.71

Portugal
Nace - Revision 2

nace	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
B-D_F	-1.1	-2.7					.	.	.	.	.	.
C	2.4	-1.7	-2.5	-3.0	-2.4	-3.2	5.0	1.4	4.9	1.6	-2.6	1.6
C10	2.3	3.0	0.8	-0.5	0.2	-0.9	1.5	3.6	2.1	3.9	1.3	-0.2
C11	-2.4	0.6	-2.8	-2.1	-2.9	-3.0	0.4	2.7	0.5	3.7	-15.1	-0.5
C12	-4.7	-2.6										
C13	2.4	-4.8	-4.2	-5.9	-4.0	-6.0	6.9	1.3	6.7	1.4	-3.8	1.5
C14	0.3	-3.3	-3.8	-3.5	-4.7	-3.5	4.3	0.2	5.3	0.2	-1.9	2.4
C15	2.6	-6.6	-0.0	-0.8	1.0	-0.6	2.6	-5.8	1.5	-6.0	5.5	12.3
C16	2.5	-2.6	-4.1	-3.8	-5.2	-4.6	7.0	1.3	8.2	2.1	-3.4	2.6
C17	3.3	2.2	-2.7	-4.6	-2.5	-4.7	6.2	7.1	5.9	7.3	-2.6	-0.5
C18	-4.6	-3.0	-3.5	-1.8	-4.5	-2.9	-1.2	-1.2	-0.1	-0.1	2.4	4.1
C19	9.5	-2.6	0.0	-0.6	0.8	-2.9	9.5	-2.0	8.6	0.3	-14.8	4.8
C20	18.5	-0.9	-1.9	-2.3	-0.5	-1.6	20.8	1.4	19.1	0.7	-15.4	0.0
C21	-6.2	0.8	1.5	-1.5	2.7	-1.9	-7.6	2.3	-8.7	2.7	9.0	0.4
C22	9.1	1.9	1.0	-2.0	-1.0	-2.7	8.0	4.1	10.2	4.8	-6.5	-1.7
C23	-1.8	-4.2	-5.0	-7.1	-4.6	-7.2	3.4	3.0	2.9	3.2	-1.8	-0.5
C24	14.6	7.8	0.8	-1.3	-0.2	-1.8	13.7	9.2	14.8	9.8	-7.6	-5.9
C25	0.5	0.9	-2.7	-0.6	-2.8	-0.8	3.2	1.5	3.4	1.7	-1.6	0.0
C26			-9.8	-8.3	-6.4	-8.9						
C27	-1.0	-3.6	0.5	1.2	1.0	2.1	-1.5	-4.7	-2.0	-5.5	4.5	8.5
C28	-2.0	-1.3	-2.5	-0.5	-1.8	-1.3	0.5	-0.8	-0.2	-0.1	-0.5	4.0
C29			-5.6	-6.0	2.9	-3.8						
C30			-7.1	-4.7	-9.8	-5.3						
C31	10.8	-5.5	-3.8	-5.7	-4.5	-6.1	15.2	0.3	16.0	0.6	-10.8	3.3
C32	7.8	-8.7	-1.3	-4.3	0.5	-4.5	9.2	-4.7	7.2	-4.4	-5.0	8.1
C33	.	.	-4.4	-4.0	-5.6	-3.9	.	.	.	.	.	.

Portugal
Nace - Revision 1

nace	Value Added share in GDP (%) 2007	Value-added growth (%) 2006-2007	Value-added growth (%) 2002-2007	Employment growth (%) 2006-2007	Employment growth (%) 2002-2007	Gross operating rate 2007	Business churn 2007	R&D intensity 2007	Patent intensity 2007	Labour productivity per person growth (%) 2006-2007	Labour productivity per person growth (%) 2002-2007	ULC growth (%) 2006-2007	ULC growth (%) 2002-2007	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.54	9.21	0.41	-2.36	3.30	33.70	17.46	0.10		11.84	-2.80	-4.82	1.32			
D	14.56	2.69	0.37	-1.70	-2.87	9.60	22.04	1.62	0.57	4.46	3.33	-0.58	1.23			
DA15						8.40								-0.25	0.17	0.60
DA16						31.40								0.59	0.67	2.17
DB17						6.70								0.01	0.34	0.87
DB18						6.20								0.13	0.41	1.01
DC19	0.50	0.73	-5.25	-3.26	-7.03		22.97	0.22	0.03	4.12	1.92	0.75	1.75	0.16	0.56	1.52
DD20	0.73	2.74	1.02	-2.45	-1.93	9.60	20.60	1.09	0.04	5.32	3.00	-0.62	2.35	0.38	0.64	1.93
DE21						20.80								0.14	0.41	1.02
DE22						11.30								-0.49	-0.28	0.24
DF23	0.41	-10.87	-2.99		16.00				0.43	-10.87	-16.37	5.71	31.17	0.15	-0.06	0.38
DG24	0.86	7.72	1.05	-0.45	-1.23	11.40	15.45	6.20		8.21	2.30	-3.42	1.73	-0.45	-0.37	0.20
DH25	0.59	1.96	4.08	-1.12	0.08	12.90	15.02	1.14	0.26	3.11	4.00	4.29	-0.19	0.07	0.26	0.73
DI26	1.21	1.74	-0.71	-2.25	-3.22	15.60	18.33	1.57	0.13	4.09	2.59	-0.76	0.66	0.34	0.54	1.42
DJ27														-0.30	-0.28	0.24
DJ28														0.04	0.21	0.66
DK29	0.91	6.30	1.34	2.88	0.09	11.50	21.89	2.15		3.32	1.25	1.63	2.81	-0.29	-0.23	0.27
DL30														-0.75	-0.73	0.07
DL31						7.80								-0.07	-0.02	0.41
DL32														-0.22	-0.41	0.18
DL33														-0.49	-0.60	0.11
DM34														-0.22	0.13	0.55
DM35						4.80								-0.62	-0.55	0.13
DN36						7.80								-0.06	0.02	0.45
DN37						10.70										
E	2.96	1.60	4.16	-0.41	-0.08	18.50	13.89	0.92		2.02	4.24	0.64	0.19			
F	6.79	1.97	-2.75	0.85	-1.95	9.90	28.49	0.19		1.11	-0.82	6.26	6.92			
G-K_X_K7415							30.50									
G50						2.70	20.53									
G51						5.20	31.85									
G52						5.10	26.76									
H	4.82	0.45	0.28	1.32	0.44	9.40	29.28			-0.86	-0.16	6.14	9.56			
I60						10.60	16.58									
I61							28.18									
I62							27.14									
I63						17.80	20.02									
I64						30.50	31.92									
J	7.68	8.93	6.11	1.75	2.84		21.63	1.50		7.06	3.18	-4.92	0.92			
K70						21.10	21.12									
K71						39.40	20.93									
K72						12.70	34.05									
K73						9.60	53.85									
K74						13.50										

Romania

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	38.17	38.29	36.25	36.95	33.83	38.49
Relative trade balance	-0.13	-0.16	-0.19	-0.18	-0.09	-0.07
Share of world exports market (%)	0.27	0.27	0.29	0.31	0.33	0.33
Nominal unit labour costs growth: t/t-1 (%)	22.03	4.94	15.19	22.90	-1.27	0.80
Nominal unit labour costs growth: t/t-5 (%)	17.13	9.78	12.98	13.33	12.35	8.13
Total goods and services real export growth: t/t-1 (%)	7.58	10.44	7.84	8.29	-5.29	13.14
Total goods and services real export growth: t/t-5 (%)	11.93	11.64	9.81	9.61	5.61	6.68
Real effective exchange rates (2000=100)	115.49	123.45	147.42	159.22	133.12	132.49
Total public expenditure on education (% of GDP)	3.48	.	4.25	.	.	.
Human Resources in S and T as % of total employment **	22.90	23.80	23.90	24.60	25.00	.
RCA index: high tech	0.14	0.16	0.17	0.31	0.45	.
RCA index: medium-high tech	0.75	0.86	0.95	0.98	1.08	.
RCA index: medium-low tech	1.62	1.50	1.38	1.31	1.15	.
RCA index: low tech	2.01	1.87	1.66	1.44	1.35	.
Exports of high technology products (% of total exports)	3.11	3.85	3.50	5.40		.
High skills sectors: share in GDP (%)	25.11	23.97	23.54	.	.	.
Specialisation index* (hs)	0.61	0.59	0.57	.	.	.
High-intermediate skills sectors: share in GDP (%)	13.73	13.59	13.83	.	.	.
Specialisation index* (his)	0.90	0.89	0.92	.	.	.
Low-intermediate skills sectors: share in GDP (%)	30.13	31.82	34.53	.	.	.
Specialisation index* (lis)	1.12	1.18	1.27	.	.	.
Low skills sectors: share in GDP (%)	31.03	30.61	28.10	.	.	.
Specialisation index* (ls)	1.84	1.82	1.68	.	.	.
High technology manufacturing sectors: share in GDP (%)	1.19	1.36	1.32	.	.	.
specialisation index* (ht)	0.53	0.60	0.59	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	6.26	6.66	6.73	.	.	.
specialisation index* (mht)	1.03	1.08	1.09	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	8.53	8.48	8.51	.	.	.
specialisation index* (mlt)	1.50	1.47	1.46	.	.	.
Low technology manufacturing sectors: share in GDP (%)	14.40	13.70	13.20	.	.	.
specialisation index* (lt)	2.71	2.66	2.60	.	.	.
Knowledge-intensive services: share in GDP (%)	32.10	31.52	31.59	.	.	.
specialisation index* (kis)	0.67	0.65	0.65	.	.	.
Less knowledge-intensive services: share in GDP (%)	37.52	38.27	38.65	.	.	.
specialisation index* (lkis)	1.15	1.18	1.20	.	.	.
Foreign Direct investment flows (% of GDP)	6.53	9.24	5.82	6.80	3.91	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

sector	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
1 - Transport	1.61	1.32	1.42	0.19	0.46	0.43
2 - Travel	0.68	0.66	0.52	0.08	0.23	0.16
3 - Other services	0.91	1.01	1.05	0.11	0.35	0.32
3a - Communications	3.92	3.85	3.95	0.46	1.34	1.20
3b - Construction	0.88	1.39	1.92	0.10	0.48	0.58
3c - Insurance	0.70	0.16	0.22	0.08	0.06	0.07
3d - Financial services	0.92	0.48	0.22	0.11	0.17	0.07
3e - Computer and information	0.81	1.25	1.74	0.10	0.43	0.53
3f - Royalties and licence fees	0.03	0.35	0.37		0.12	0.11
3g - Other business services	0.76	1.11	1.10	0.09	0.38	0.33
3h - Personal, cultural and recreational services	3.10	0.54	0.64	0.37	0.19	0.19
3i - Government services n.i.e.	0.61	0.16	0.21	0.07	0.06	0.06
Total services	1.00	1.00	1.00	0.12	0.35	0.30

Romania
Nace - Revision 2

	Indicators											
	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
nace												
B-D_F	2.0	4.7										
C	5.9	5.2	-10.5	-7.3	-7.7	-7.5	18.4	13.4	14.7	13.7	-6.8	1.8
C10	-7.1	4.7	-5.9	-0.4	-5.8	-1.0	-1.2	5.1	-1.3	5.8	1.2	7.8
C11	-6.2	3.6	-16.1	-4.1	-16.4	-4.7	11.8	8.0	12.1	8.8	1.8	8.4
C12	-19.6	2.4	14.9	-7.6	10.1	-9.4	-30.1	10.9	-27.0	13.0	64.8	2.2
C13	8.2	-4.9	-8.6	-11.5	-5.4	-11.7	18.3	7.5	14.3	7.7	-1.8	9.4
C14	-0.3	-11.9	-13.3	-13.1	-9.4	-13.1	14.9	1.4	10.0	1.3	-4.5	12.4
C15	3.9	-7.6	-11.0	-12.6	-7.6	-12.9	16.7	5.8	12.5	6.2	-5.9	9.1
C16	11.9	10.0	-14.7	-10.0	-13.2	-10.4	31.2	22.3	28.9	22.8	-15.2	-5.4
C17	0.8	0.4	-17.5	-8.9	-15.8	-9.1	22.2	10.2	19.7	10.4	-8.9	4.3
C18	-9.4	3.1	-24.7	-3.0	-23.8	-4.1	20.2	6.4	18.8	7.5	-10.8	8.3
C19	-11.7	-5.9	-15.4	-12.8	-10.9	-13.4	4.3	7.9	-0.9	8.6	1.3	7.3
C20	10.7	2.1	-6.4	-6.0	-5.9	-6.6	18.3	8.7	17.6	9.4	-7.5	4.6
C21	7.4	2.3	-7.6	-5.3	-5.9	-5.4	16.3	8.0	14.2	8.1	-9.7	6.4
C22	7.2	12.5	-9.0	-2.0	-5.8	-1.8	17.8	14.8	13.8	14.5	-2.2	2.1
C23	-4.9	1.7	-13.3	-11.8	-9.6	-11.8	9.7	15.3	5.2	15.3	0.6	0.6
C24	27.0	-6.6	-15.8	-11.4	-7.9	-11.4	50.9	5.4	37.9	5.5	-23.8	8.2
C25	-8.5	6.1	-14.0	-6.0	-11.4	-6.3	6.4	12.9	3.3	13.2	2.0	0.7
C26	0.4	0.6	-10.5	-1.8	-8.3	-1.5	12.2	2.4	9.5	2.2	1.5	10.6
C27	30.8	18.8	-3.3	-1.9	2.2	-1.9	35.3	21.1	28.0	21.1	-16.0	-3.8
C28	-6.1	0.1	-13.3	-10.0	-8.7	-10.2	8.3	11.2	2.8	11.5	0.2	3.3
C29	28.8	15.2	3.7	0.4	10.4	0.7	24.1	14.8	16.7	14.4	-5.3	1.5
C30	-34.5	-7.1	-21.4	-6.0	-23.9	-7.1	-16.6	-1.1	-13.9	0.1	25.7	14.2
C31	-1.9	-1.0	-13.6	-9.7	-12.0	-9.8	13.5	9.6	11.4	9.7	-2.3	5.3
C32	-11.1	-8.0	-4.7	-9.1	-1.6	-9.4	-6.7	1.2	-9.6	1.5	22.1	15.9
C33	8.2	-0.2	-21.6	-6.2	-20.6	-7.1	38.0	6.5	36.4	7.5	-17.6	10.0

Romania
Nace - Revision 1

nace	Value Added share in GDP (%) 2008	Value-added growth (%) 2007-2008	Value-added growth (%) 2003-2008	Employment growth (%) 2007-2008	Employment growth (%) 2003-2008	Gross operating rate 2007	Openness ratio 2007	R&D intensity 2008	Patent intensity 2008	Labour productivity per person growth (%) 2007-2008	Labour productivity per person growth (%) 2003-2008	ULC growth (%) 2007-2008	ULC growth (%) 2003-2008	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	1.13	-16.42	-2.46	-1.96	-5.29	28.10		0.40		-14.75	2.99	42.20	22.75			
D	22.43	2.37	5.86	-2.32	-1.06	9.90		0.38	0.08	4.81	7.00	17.50	16.33			
DA15	5.90	5.64	5.22	-0.48	2.24	10.90	0.07	0.03		6.15	2.92	17.17	17.92	-0.48	-0.53	0.13
DA16	0.08	3.61	1.35	9.52	2.50	2.70	0.28	0.49	0.01	-5.40	-1.12	17.97	22.09	0.70	0.71	2.43
DB17	0.53	-13.24	-2.27	-11.01	-4.05	7.00	0.82	0.21	0.01	-2.50	1.86	13.06	20.62	-0.37	0.14	0.55
DB18	0.98	-2.97	-2.13	-10.95	-5.81	6.20	0.63	0.01		8.95	3.91	7.25	19.33	0.53	0.48	1.19
DC19	0.37	2.54	-0.87	2.57	0.45	7.50	1.10	0.03		-0.03	-1.31	-3.15	16.76	0.09	0.54	1.40
DD20	0.86	-1.10	8.63	-17.75	-3.48	9.80	0.17			20.25	12.55	26.11	13.84	0.55	0.59	1.63
DE21	0.43	9.76	11.35	5.52	-2.98	5.90	0.25		0.01	4.02	14.78	12.72	12.87	-0.63	-0.61	0.10
DE22	0.63	16.92	8.81	-12.97	-8.84	14.50	0.05			34.34	19.36	7.95	12.47	-0.49	-0.56	0.12
DF23	1.03	9.83	-0.03	51.24	-10.49	0.30	0.38	0.07	0.01	-27.39	11.68	29.76	29.86	0.11	-	0.41
DG24	0.91	-0.72	2.96	-13.28	-6.90	8.30	0.77	1.75		14.49	10.59	17.55	19.07	-0.47	-0.48	0.15
DH25	0.90	0.47	8.04	8.50	9.93	10.40	0.49		0.03	-7.40	-1.72	23.08	14.95	-0.20	0.15	0.56
DI26	1.21	6.88	9.16	5.24	-0.54	22.20	0.16	0.05	0.01	1.56	9.75	14.42	13.54	-0.50	-0.34	0.21
DJ27	0.77	-14.64	0.98	6.09	-5.92	10.10	0.40	0.47	0.03	-19.55	7.33	33.10	20.27	0.06	0.02	0.43
DJ28	1.47	0.07	10.45	1.42	5.22	10.30	0.34	0.12	0.02	-1.32	4.97	33.89	18.97	-0.36	-0.04	0.38
DK29	1.07	-0.81	2.91	-7.37	-11.23	6.50	0.81	0.36		7.07	15.93	21.30	17.15	-0.21	-0.11	0.33
DL30	0.12	-7.96	13.24	4.80	37.15	6.30	0.36		3.01	-12.18	-17.43	38.88	24.71	-0.42	-0.67	0.08
DL31	0.92	-14.84	8.56	2.09	6.06	7.60	0.43	0.67		-16.58	2.35	53.58	15.98	0.05	0.36	0.88
DL32	0.33	7.09	8.54	-0.66	24.52	15.50	0.30			7.80	-12.83	17.91	17.11	-0.13	-0.14	0.31
DL33	0.17	2.17	2.09	12.45	9.98	16.90	0.69	4.37		-9.14	-7.17	22.53	21.93	-0.30	-0.57	0.11
DM34	2.28	18.05	20.50	17.13	8.49	17.00	0.81	1.00	0.08	0.78	11.07	9.38	3.89	0.17	0.16	0.58
DM35	0.49	0.69	4.15	-7.41	11.34	6.90	0.38	1.93	0.10	8.75	-6.45	14.09	18.47	0.55	0.14	0.55
DN36	0.98	-4.29	4.55	4.50	4.45	7.70	0.34	0.60	0.01	-8.41	0.10	27.07	18.05	0.35	0.15	0.57
DN37	0.01	-12.04	-3.41	-1.05	-3.36	4.10				-11.11	-0.05	43.46	16.01			
E	2.28	8.90	0.97	-8.51	-3.45	10.70		0.83		19.03	4.57	11.01	18.76			
F	11.91	26.19	20.44	10.64	11.45	14.00		0.05		14.06	8.06	8.87	7.84			
G-K_X_K7415																
G50	0.61	35.51	27.48	10.91	-19.44	6.40				22.18	58.25	6.27	-2.26			
G51	6.99	11.09	16.72	5.86	12.44	5.60				4.94	3.81	13.65	7.79			
G52	4.29	11.22	11.37	-1.57	4.02	5.00				12.99	7.06	7.72	10.68			
H	1.90	5.03	8.56	6.65	2.51	12.10				-1.52	5.90	12.50	13.11			
I60	6.27	4.04	8.15	6.76	-0.92	14.90				-2.55	9.16	15.61	11.42			
I61	0.07	-3.52	5.06	-2.13	-3.16	11.70				-1.42	8.48	30.72	17.92			
I62	0.22	4.79	7.02	3.77	-12.62	6.70				0.98	22.48	18.20	15.84			
I63	1.69	4.90	4.57	-2.96	68.84	8.70				8.10	-38.07	23.24	21.49			
I64	2.99	7.83	7.55	0.91	0.48	31.90				6.85	7.04	15.90	12.07			
J	2.49	12.94	11.76		3.28					12.94	8.21	-2.68	14.15			
K70	7.26	2.44	7.50	22.62	17.49	31.90				-16.45	-8.50	42.33	22.56			
K71	2.86	1.14	7.97	26.79	5.82	31.60				-20.23	2.03	19.86	22.83			
K72	1.08	-0.19	9.64	6.00	4.43	14.90				-5.84	4.99	23.86	15.12			
K73	0.34	14.79	7.15	15.74	1.98	9.00		10.91		-0.82	5.07	11.19	27.78			
K74	0.93	15.64	14.63	20.49	4.79	16.70		1.08		-4.02	9.39	7.48	7.60			

Slovenia

Country level

	2005	2006	2007	2008	2009	2010
Indicators						
Trade openness (% of GDP)	62.32	66.79	70.41	68.89	57.49	63.15
Relative trade balance	-	-	-0.01	-0.02	0.01	.
Share of world exports market (%)	0.19	0.19	0.22	0.21	0.21	0.20
Nominal unit labour costs growth: t/t-1 (%)	0.91	0.99	2.56	5.94	8.53	0.62
Nominal unit labour costs growth: t/t-5 (%)	4.88	3.25	2.51	2.80	3.74	3.68
Total goods and services real export growth: t/t-1 (%)	10.57	12.53	13.73	3.32	-17.70	7.76
Total goods and services real export growth: t/t-5 (%)	7.80	9.02	10.41	10.46	3.77	3.24
Real effective exchange rates (2000=100)	103.94	104.05	104.92	107.17	113.96	112.94
Total public expenditure on education (% of GDP)	5.67	5.67	5.19	5.22		.
Human Resources in S and T as % of total employment **	38.80	40.30	39.90	40.90	41.90	.
RCA index: high tech	0.43	0.46	0.52	0.61	0.64	.
RCA index: medium-high tech	1.23	1.22	1.22	1.20	1.28	.
RCA index: medium-low tech	1.11	1.13	1.05	1.00	0.95	.
RCA index: low tech	1.20	1.16	1.08	1.04	0.98	.
Exports of high technology products (% of total exports)	4.26	4.66	4.62	5.19	.	.
High skills sectors: share in GDP (%)	36.66	37.31	36.36	.	.	.
Specialisation index* (hs)	0.90	0.91	0.88	.	.	.
High-intermediate skills sectors: share in GDP (%)	13.44	13.30	12.82	.	.	.
Specialisation index* (his)	0.88	0.87	0.85	.	.	.
Low-intermediate skills sectors: share in GDP (%)	31.22	31.50	32.98	.	.	.
Specialisation index* (lis)	1.16	1.17	1.22	.	.	.
Low skills sectors: share in GDP (%)	18.68	17.88	17.83	.	.	.
Specialisation index* (ls)	1.10	1.06	1.06	.	.	.
High technology manufacturing sectors: share in GDP (%)	3.81	4.09	3.84	.	.	.
specialisation index* (ht)	1.69	1.82	1.71	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	7.28	7.34	7.51	.	.	.
specialisation index* (mht)	1.19	1.18	1.22	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	9.38	9.36	9.55	.	.	.
specialisation index* (mlt)	1.65	1.62	1.64	.	.	.
Low technology manufacturing sectors: share in GDP (%)	6.94	6.48	6.25	.	.	.
specialisation index* (lt)	1.31	1.26	1.23	.	.	.
Knowledge-intensive services: share in GDP (%)	40.22	40.55	40.22	.	.	.
specialisation index* (kis)	0.84	0.84	0.83	.	.	.
Less knowledge-intensive services: share in GDP (%)	32.37	32.19	32.63	.	.	.
specialisation index* (lkis)	0.99	0.99	1.01	.	.	.
Foreign Direct investment flows (% of GDP)	2.30	1.62	3.79	3.52	-0.14	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	1.16	1.23	1.19	0.15	0.25	0.22
2 - Travel	1.70	1.63	1.73	0.22	0.33	0.32
3 - Other services	0.48	0.62	0.61	0.06	0.13	0.11
3a - Communications	0.62	1.75	2.04	0.08	0.35	0.38
3b - Construction	1.78	2.29	1.73	0.23	0.46	0.32
3c - Insurance	0.22	0.74	0.64	0.03	0.15	0.12
3d - Financial services	0.06	0.06	0.08	0.01	0.01	0.01
3e - Computer and information	0.92	0.48	0.45	0.12	0.10	0.08
3f - Royalties and licence fees	0.11	0.10	0.10	0.01	0.02	0.02
3g - Other business services	0.57	0.69	0.71	0.07	0.14	0.13
3h - Personal, cultural and recreational services	0.51	0.33	0.53	0.07	0.07	0.10
3i - Government services n.i.e.	0.11	0.05	0.06	0.01	0.01	0.01
Total services	1.00	1.00	1.00	0.13	0.20	0.19

Slovenia
Nace - Revision 1

nace	Value Added share in GDP (%) 2009	Value-added growth (%) 2008-2009	Value-added growth (%) 2004-2009	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Gross operating rate 2007	Business churn 2007	Openness ratio 2009	R&D intensity 2008	Patent intensity 2008	Labour productivity per person growth (%) 2008-2009	Labour productivity per person growth (%) 2004-2009	ULC growth (%) 2008-2009	ULC growth (%) 2004-2009	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.45	-3.31	0.62	-5.71	-5.16	9.40	4.13	.	2.51	.	2.55	6.10	-1.29	0.02	.	.	.
D	19.59	-16.73	0.12	-9.38	-2.59	10.60	9.79	.	4.60	0.83	-8.11	2.79	9.30	2.29	.	.	.
DA15						8.90									-0.23	-0.30	0.13
DA16															-1.00	-1.00	.
DB17	0.46	-26.47	-5.77	-17.58	-10.69	9.10	.	0.57	1.89	0.08	-10.78	5.51	15.16	-0.31	0.01	-0.17	0.17
DB18	0.22	-27.45	-6.13	-19.10	-11.01	3.10	.	0.68	0.17	0.04	-10.31	5.48	16.13	-0.94	-0.32	-0.39	0.11
DC19	0.22	-11.99	-8.59	-19.23	-9.97	.	4.46	0.72	0.96	0.43	8.96	1.53	-5.99	2.58	-0.23	-0.12	0.19
DD20	0.64	-24.54	-1.20	-12.07	-3.99	9.70	8.39	0.46	0.35	0.02	-14.19	2.90	12.70	2.13	0.21	0.59	0.92
DE21	0.61	-1.87	-0.13	-2.04	-4.04	9.00	.	0.57	1.21	0.35	0.18	4.07	9.88	2.60	0.13	0.24	0.39
DE22	0.84	-9.18	1.18	-6.12	-1.46	10.20	.	0.12	0.70	0.10	-3.26	2.67	1.43	1.65	0.20	0.27	0.42
DF23	0.01	-25.00				.	.	113.50	.	39.60	-25.00		27.27	4.32	-0.66	-0.54	0.07
DG24	2.99	-9.45	3.37	-3.68	-1.32	18.00	7.91	0.98	15.13	.	-5.99	4.75	8.42	0.64	0.07	0.05	0.26
DH25	1.33	-19.36	-1.77	-6.25	-0.15	10.20	7.39	0.46	1.54	0.23	-13.98	-1.63	16.86	8.12	0.13	0.26	0.41
DI26	0.77	-33.15	-4.72	-11.46	-3.39	14.30	6.75	0.44	1.46	0.26	-24.49	-1.38	28.30	6.74	0.02	0.18	0.34
DJ27	0.59	-19.00	0.05	-11.46	0.48	10.60	.	1.16	1.97	0.20	-8.52	-0.42	-0.20	2.99	-0.15	-0.09	0.20
DJ28	2.68	-14.89	1.79	-8.58	0.84	11.00	.	0.23	1.19	0.17	-6.90	0.94	4.00	4.16	0.14	0.25	0.40
DK29	2.27	-20.92	1.10	-8.83	.	9.60	8.98	0.62	3.85	.	-13.26	1.10	15.99	4.09	0.25	0.15	0.33
DL30	0.08	-18.73	13.03	14.29	-2.33	7.40	.	1.33	6.42	9.88	-28.89	15.73	27.15	-7.43	-0.36	-0.61	0.06
DL31	1.19	-19.01	1.87	-9.43	-0.41	11.60	.	0.41	8.16	.	-10.57	2.29	11.18	1.51	0.14	0.11	0.30
DL32	0.29	-32.83	-6.91	-12.00	-6.63	3.00	.	0.32	20.89	.	-23.67	-0.30	28.63	3.15	-0.17	-0.71	0.04
DL33	0.54	-10.06	0.24	-7.46	-4.73	12.20	.	0.66	9.09	.	-2.81	5.22	4.86	0.17	-	-0.31	0.13
DM34	1.16	-9.35	7.78	-9.71	3.85	7.40	.	1.25	3.91	0.75	0.39	3.79	3.43	0.46	0.09	0.26	0.41
DM35	0.14	-16.86	0.09	-21.43	-6.01	8.30	.	0.95	4.29	1.45	5.82	6.50	-8.82	-0.40	-0.08	-0.49	0.08
DN36	0.77	-30.49	-5.78	-10.64	-4.30	8.10	.	1.22	0.72	1.31	-22.22	-1.54	26.58	6.28	0.15	0.16	0.33
DN37	0.14	-20.61	-1.14	.	8.45	7.80	.	.	.	.	-20.61	-8.84	15.85	12.22	.	.	.
E	3.19	-7.84	1.33	3.33	1.17	16.20	11.65	.	0.01	.	-10.81	0.16	14.45	6.21	.	.	.
F	7.87	-15.47	4.76	-1.78	6.29	9.70	19.32	.	.	.	-13.94	-1.44	12.21	5.86	.	.	.
G-K_X_K7415							17.01										
G50	1.98	-7.71	3.01	1.12	2.38	5.30	11.41	.	.	.	-8.74	0.61	7.93	4.49	.	.	.
G51	5.86	-11.96	3.35	.	1.91	7.50	16.35	.	.	.	-11.96	1.42	10.55	5.79	.	.	.
G52	4.65	-6.39	1.85	-0.18	1.77	6.70	14.52	.	.	.	-6.23	0.08	6.14	3.59	.	.	.
H	2.34	-11.87	-1.20	1.75	3.01	12.90	18.83	.	.	.	-13.39	-4.09	16.59	7.86	.	.	.
I60	2.58	-14.18	1.06	-2.74	2.42	8.10	11.31	.	.	.	-11.76	-1.32	13.55	7.77	.	.	.
I61	0.27	-30.67	-0.92	.	-3.04	.	18.92	.	.	.	-30.67	2.19	36.37	-4.25	.	.	.
I62	0.17	-2.69	15.78	12.50	8.45	.	20.59	.	.	.	-13.50	6.76	-1.70	-5.28	.	.	.
I63	1.82	-7.23	6.00	-2.73	3.75	10.50	23.09	.	.	.	-4.63	2.17	6.07	1.21	.	.	.
I64	2.34	-4.76	6.17	1.53	2.95	26.10	19.49	.	.	.	-6.19	3.12	8.15	1.05	.	.	.
J	5.05	2.88	9.56	2.10	2.86	.	22.18	.	.	0.01	0.76	6.51	0.50	-1.46	.	.	.
K70	7.92	-2.53	3.35	6.67	12.83	26.10	23.97	.	.	.	-8.62	-8.40	3.30	20.35	.	.	.
K71	0.08	-12.16	16.98	-12.50	6.96	25.10	23.24	.	.	.	0.39	9.37	-3.37	-1.21	.	.	.
K72	1.51	1.18	6.52	6.84	10.46	11.30	21.78	.	2.96	.	-5.30	-3.57	3.88	4.55	.	.	.
K73	0.59	6.95	6.39	6.12	6.47	8.10	23.83	.	12.22	.	0.78	-0.08	-1.20	3.33	.	.	.
K74	8.13	-9.97	1.67	0.43	2.71	11.60	.	.	0.84	.	-10.36	-1.01	7.55	4.99	.	.	.

Slovakia

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	78.58	86.38	87.26	84.45	70.81	81.37
Relative trade balance	-0.03	-0.02	-0.01	-0.01	-.	-0.01
Share of world exports market (%)	0.31	0.35	0.42	0.44	0.45	0.44
Nominal unit labour costs growth: t/t-1 (%)	4.19	1.55	0.16	3.99	7.48	-2.67
Nominal unit labour costs growth: t/t-5 (%)	3.68	3.41	2.63	2.56	3.44	2.04
Total goods and services real export growth: t/t-1 (%)	9.96	20.95	14.30	3.14	-15.95	16.40
Total goods and services real export growth: t/t-5 (%)	9.02	11.75	13.61	10.98	5.68	6.89
Real effective exchange rates (2000=100)	123.95	129.52	140.37	152.34	167.66	160.26
Total public expenditure on education (% of GDP)	3.85	3.80	3.62	3.59	.	.
Human Resources in S and T as % of total employment **	35.00	35.20	34.70	34.40	35.10	.
RCA index: high tech	0.45	0.59	0.71	0.86	0.94	.
RCA index: medium-high tech	1.13	1.19	1.20	1.17	1.13	.
RCA index: medium-low tech	1.50	1.30	1.14	1.04	1.06	.
RCA index: low tech	0.95	0.85	0.77	0.74	0.77	.
Exports of high technology products (% of total exports)	6.40	5.82	5.00	4.83	.	.
High skills sectors: share in GDP (%)	30.58	30.43	28.65	.	.	.
Specialisation index* (hs)	0.75	0.74	0.70	.	.	.
High-intermediate skills sectors: share in GDP (%)	13.17	14.25	14.09	.	.	.
Specialisation index* (his)	0.86	0.93	0.94	.	.	.
Low-intermediate skills sectors: share in GDP (%)	35.75	35.32	36.51	.	.	.
Specialisation index* (lis)	1.33	1.31	1.35	.	.	.
Low skills sectors: share in GDP (%)	20.50	19.99	20.74	.	.	.
Specialisation index* (ls)	1.21	1.19	1.24	.	.	.
High technology manufacturing sectors: share in GDP (%)	1.50	2.05	1.72	.	.	.
specialisation index* (ht)	0.66	0.91	0.77	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	7.65	7.90	8.38	.	.	.
specialisation index* (mht)	1.26	1.28	1.36	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	12.24	12.06	12.05	.	.	.
specialisation index* (mlt)	2.15	2.09	2.07	.	.	.
Low technology manufacturing sectors: share in GDP (%)	7.34	7.57	7.38	.	.	.
specialisation index* (lt)	1.38	1.47	1.45	.	.	.
Knowledge-intensive services: share in GDP (%)	32.46	32.07	31.35	.	.	.
specialisation index* (kis)	0.68	0.67	0.65	.	.	.
Less knowledge-intensive services: share in GDP (%)	38.81	38.35	39.12	.	.	.
specialisation index* (lkis)	1.19	1.18	1.21	.	.	.
Foreign Direct investment flows (% of GDP)	5.07	8.37	4.77	3.61	-0.06	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	1.97	1.48	1.44	0.30	0.34	0.28
2 - Travel	0.64	1.29	1.55	0.10	0.30	0.30
3 - Other services	0.76	0.66	0.60	0.12	0.15	0.12
3a - Communications	1.09	1.58	1.51	0.16	0.36	0.29
3b - Construction	1.54	0.83	0.78	0.23	0.19	0.15
3c - Insurance	0.31	0.24	0.50	0.05	0.05	0.10
3d - Financial services	0.24	0.31	0.65	0.04	0.07	0.13
3e - Computer and information	0.75	0.65	0.78	0.11	0.15	0.15
3f - Royalties and licence fees	0.13	0.36	0.25	0.02	0.08	0.05
3g - Other business services	0.99	0.77	0.55	0.15	0.18	0.11
3h - Personal, cultural and recreational services	1.72	1.05	0.73	0.26	0.24	0.14
3i - Government services n.i.e.	0.39	0.38	0.15	0.06	0.09	0.03
Total services	1.00	1.00	1.00	0.15	0.23	0.19

Slovakia
Nace - Revision 1

nace	Value Added share in GDP (%) 2009	Value-added growth (%) 2008-2009	Value-added growth (%) 2004-2009	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Gross operating rate 2007	Business churn 2007	Openness ratio 2008	R&D intensity 2009	Patent intensity 2008	Labour productivity per person growth (%) 2008-2009	Labour productivity per person growth (%) 2004-2009	ULC growth (%) 2008-2009	ULC growth (%) 2004-2009	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.57	-19.76	3.40	-10.34	-4.27	32.50	25.18				-10.50	8.01		8.49			
D	19.56	-21.29	5.46	-9.66	-0.81	8.60	32.56		0.75	0.16	-12.87	6.33	18.73	6.39			
DA15	1.78	-10.49	3.38	-7.11	-3.07			0.39	0.09	0.03	-3.63	6.65	11.43	5.91	-0.23	-0.34	0.29
DA16		-10.	-10.		-10.			27.01		1.17					-1.00		
DB17	0.21	-30.93	-5.95	-15.38	-9.92	6.70		1.13		0.04	-18.37	4.41	21.40	5.95	-0.22	-0.32	0.30
DB18	0.44	-9.73	0.01	3.14	-8.27	7.90		0.81			-12.47	9.03	-5.78	-0.02	-0.03	-0.31	0.31
DC19	0.21	13.51	-5.58	10.37	-3.49		32.23	1.16		0.02	2.84	-2.16	-20.05	10.96	0.16	0.18	0.85
DD20	1.25	-13.29	8.58	-12.84	0.19	7.30	36.86	0.20		0.01	-0.52	8.38	5.72	2.13	0.15	0.30	1.09
DE21	0.51	-2.97	4.96	-7.23	-1.49	13.60		0.47		0.03	4.59	6.55	-1.38	8.66	0.14	0.13	0.78
DE22	0.71	-12.98	4.18	-6.84	1.66	16.20		0.18		0.01	-6.59	2.48	9.54	4.97	0.03	0.03	0.63
DF23	0.31	-43.92	-12.73		-9.99		25.00	0.43		0.24	-43.92	-3.04	84.82	19.45	0.20	-0.16	0.43
DG24	0.75	-28.86	2.67	-1.53	-1.05	7.00	33.95	1.08	2.34		-27.76	3.76	41.80	9.58	-0.29	-0.53	0.18
DH25	1.10	0.83	9.70	-10.33	4.39	10.50	29.13	0.59		0.06	12.45	5.08	0.34	7.17	-0.01	0.10	0.73
DI26	1.11	-22.84	3.55	-8.16	-2.85	18.10	35.33	0.33	0.12	0.05	-15.98	6.59	32.35	8.57	-0.02	0.08	0.70
DJ27	1.14	-50.47	-14.99	-12.50	-3.74	17.40		0.50		0.06	-43.40	-11.69	64.40	27.38	0.16	0.04	0.64
DJ28	2.75	-21.22	9.28	-14.67	1.07	8.80		0.38	0.21	0.05	-7.68	8.13	28.42	6.75	0.02	0.26	1.01
DK29	1.34	-28.11	3.44	-17.15	-1.62	5.60	23.25	0.60	0.81		-13.23	5.14	14.38	6.24	0.02	-0.16	0.43
DL30	0.07	175.86	-9.53	16.00	-3.69	4.00		1.88		17.19	137.81	-6.06	-66.88	9.19	-0.12	-0.74	0.09
DL31	1.24	-38.39	2.42	-19.61	-0.81	7.80		0.41	1.07		-23.36	3.26	44.84	10.30	-0.01	0.08	0.70
DL32	0.99	-7.74	73.82	-1.08	10.12	7.10		0.09		1.15	-6.73	57.84	15.20	-27.37	0.12	0.36	1.26
DL33	0.41	276.76	3.04	0.96	1.18	15.10		1.44	0.73		273.17	1.84	-74.44	8.50	-0.52	-0.63	0.13
DM34	2.08	-29.54	16.00	-7.83	9.04	7.50		0.60		0.17	-23.55	6.38	28.88	5.08	0.22	0.38	1.31
DM35	0.30	6.43	8.21	-7.41	-2.01	-4.10		0.50	6.34	1.30	14.94	10.43	-7.42	4.58	0.20	-0.60	0.15
DN36	0.74	-0.76	14.66	-1.57	1.16	2.20		0.64		0.03	0.83	13.35	0.81	-0.44	0.08	-0.09	0.50
DN37	0.13	-21.02	7.99		6.19	22.90					-21.02	1.70	20.17	8.17			
E	5.53	-4.58	-4.18	-3.65	-4.26	25.20	22.96				-0.97	0.08	16.20	15.63			
F	9.49	-5.57	10.38	4.40	5.26	9.20	28.38				-9.55	4.87	10.62	3.74			
G-K_X_K7415							29.88										
G50	1.31	-10.92	0.25	-4.17	5.82	3.80	24.41				-7.05	-5.27	7.70	13.86			
G51	8.15	-7.40	7.20	-5.38	4.03	6.90	39.60				-2.13	3.04	18.01	7.25			
G52	6.44	-2.32	7.65	5.97	3.10	6.90	26.03				-7.82	4.41	15.27	11.78			
H	1.38	-8.38	-2.95	-1.93	3.22	12.30	29.09				-6.58	-5.98	10.25	15.97			
I60	3.33	-8.11	1.52	5.50	1.98	7.50	22.96				-12.90	-0.45	15.78	8.67			
I61	0.02	-7.89	-11.09	-14.29	-5.59		41.07				7.46	-5.83	-3.25	12.98			
I62	0.03	266.67	40.63	-33.33	-3.04		23.53				45.	45.03	-96.14	-39.06			
I63	1.29	-8.72	2.31	-0.46	5.03	10.50	32.82				-8.30	-2.59	23.39	16.88			
I64	2.42	-1.31	0.72	-2.87	-1.62	33.20	23.10				1.60	2.37	4.62	10.88			
J	4.07	14.56	1.54	-2.79	2.11		30.49				17.85	-0.56	-11.00	10.91			
K70	6.46	7.39	3.68	-8.37	0.77	29.20	32.26				17.21	2.89	5.83	10.42			
K71	0.53	10.81	21.30	-13.46	1.88	36.00	32.92				28.05	19.07	1.60	-7.60			
K72	1.64	3.69	13.66	5.62	11.31	18.00	29.62		0.20		-1.83	2.10	7.25	12.23			
K73	0.26	-0.14	-5.08	-4.44	-6.45	6.90	26.78		20.95		4.50	1.45	4.03	4.78			
K74	6.18	4.07	12.67	-2.17	6.26	16.80			0.10		6.38	6.04	6.55	7.10			

Finland

Country level

	2005	2006	2007	2008	2009	2010
Indicators						
Trade openness (% of GDP)	39.75	43.17	43.28	44.95	36.32	37.55
Relative trade balance	0.05	0.05	0.06	0.04	0.03	0.04
Share of world exports market (%)	0.63	0.64	0.65	0.60	0.51	0.47
Nominal unit labour costs growth: t/t-1 (%)	2.17	0.33	0.54	5.76	7.82	-1.49
Nominal unit labour costs growth: t/t-5 (%)	1.46	0.81	0.75	1.73	3.28	2.53
Total goods and services real export growth: t/t-1 (%)	7.02	12.15	8.17	6.33	-20.07	5.06
Total goods and services real export growth: t/t-5 (%)	3.60	5.65	6.62	8.35	1.99	1.61
Real effective exchange rates (2000=100)	108.78	108.06	107.58	111.51	117.84	112.35
Total public expenditure on education (% of GDP)	6.31	6.19	5.91	6.13	.	.
Human Resources in S and T as % of total employment **	49.60	50.60	51.20	51.40	52.50	.
RCA index: high tech	1.00	0.87	0.46	0.92	0.75	.
RCA index: medium-high tech	0.77	0.78	0.89	0.90	0.93	.
RCA index: medium-low tech	1.10	1.19	1.34	1.08	1.13	.
RCA index: low tech	1.35	1.40	1.47	1.20	1.30	.
Exports of high technology products (% of total exports)	21.34	18.12	17.52	17.33	.	.
High skills sectors: share in GDP (%)	37.53	38.03	38.25	.	.	.
Specialisation index* (hs)	0.92	0.93	0.93	.	.	.
High-intermediate skills sectors: share in GDP (%)	17.41	17.17	16.68	.	.	.
Specialisation index* (his)	1.14	1.12	1.11	.	.	.
Low-intermediate skills sectors: share in GDP (%)	30.92	30.80	30.76	.	.	.
Specialisation index* (lis)	1.15	1.14	1.14	.	.	.
Low skills sectors: share in GDP (%)	14.14	14.00	14.31	.	.	.
Specialisation index* (ls)	0.84	0.83	0.85	.	.	.
High technology manufacturing sectors: share in GDP (%)	5.96	6.18	6.60	.	.	.
specialisation index* (ht)	2.65	2.75	2.94	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	5.69	5.88	6.22	.	.	.
specialisation index* (mht)	0.93	0.95	1.01	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	6.85	7.27	7.28	.	.	.
specialisation index* (mlt)	1.20	1.26	1.25	.	.	.
Low technology manufacturing sectors: share in GDP (%)	8.04	8.02	7.61	.	.	.
specialisation index* (lt)	1.51	1.56	1.50	.	.	.
Knowledge-intensive services: share in GDP (%)	43.86	44.11	44.19	.	.	.
specialisation index* (kis)	0.91	0.92	0.91	.	.	.
Less knowledge-intensive services: share in GDP (%)	29.59	28.54	28.10	.	.	.
specialisation index* (lkis)	0.91	0.88	0.87	.	.	.
Foreign Direct investment flows (% of GDP)	2.43	3.68	5.03	-2.65	1.07	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
sector						
1 - Transport	0.96	0.49	0.61	0.50	0.43	0.47
2 - Travel	0.61	0.43	0.47	0.32	0.37	0.36
3 - Other services	1.26	1.47	1.32	0.66	1.27	1.03
3a - Communications	1.29	0.66	0.52	0.67	0.57	0.40
3b - Construction	2.91	1.60	1.72	1.52	1.38	1.33
3c - Insurance	-0.25	0.25	0.24	-0.13	0.22	0.18
3d - Financial services	0.12	0.25	0.26	0.06	0.22	0.20
3e - Computer and information	0.85	4.68	3.73	0.44	4.04	2.89
3f - Royalties and licence fees	2.06	0.88	1.12	1.08	0.76	0.87
3g - Other business services	1.66	1.58	1.52	0.87	1.36	1.18
3h - Personal, cultural and recreational services	0.03	0.03	0.03	0.02	0.03	0.02
3i - Government services n.i.e.	0.30	0.26	0.23	0.16	0.22	0.18
Total services	1.00	1.00	1.00	0.52	0.86	0.77

Finland
Nace - Revision 2

nace	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
B-D_F	6.9	0.9										
C	4.8	-0.4	-5.1	-3.0	-1.2	-3.4	10.4	2.6	6.1	3.1	-6.2	0.6
C10	-0.5	-0.2	0.2	-3.3	-0.9	-3.9	-0.7	3.2	0.4	3.8	0.2	2.3
C11	-2.1	-2.3	.		.		.				-0.8	3.3
C12												
C13	9.3	-4.9	.		.		.		.		-7.9	3.6
C14	4.6	-5.2	.		.		.		.		-4.8	0.8
C15	24.3	4.7	.		.		.		.		-15.5	-5.0
C16	12.8	-5.0	3.0	-4.9	6.8	-6.2	9.5	-0.2	5.6	1.2	-6.5	3.8
C17	11.1	-0.4	-5.5	-11.4	-4.0	-10.9	17.5	12.4	15.6	11.9	-13.2	-3.8
C18	-3.5	-4.0	-8.7	-3.4	-13.1	-5.1	5.7	-0.6	11.1	1.2	-1.8	1.4
C19												
C20		.	-2.8	-3.5	2.0	-3.2	.		.		.	
C21		.	1.5	.	8.4	.	.		.		.	
C22		.	-13.3	-7.4	-10.2	-8.1	.		.		.	
C23	9.6	-3.0	-4.6	0.8	1.6	0.6	14.9	-3.8	7.9	-3.6	-4.4	4.7
C24	22.8	-2.8	2.6	-2.9	11.7	-4.5	19.8	0.1	10.0	1.8	-14.5	2.4
C25	4.7	-2.3	-8.3	-1.1	-1.5	-1.4	14.2	-1.2	6.4	-0.9	-8.2	2.9
C26		.	-10.3	-5.1	-9.3	-4.8	.		.		.	
C27		.	-0.9	-0.3	4.7	-1.0	.		.		.	
C28	5.1	-0.6	-4.2	1.2	2.2	0.8	9.7	-1.7	2.9	-1.3	-7.8	2.8
C29	-3.1	-7.5	5.7	-2.4	11.9	-3.4	-8.3	-5.2	-13.4	-4.3	-1.2	6.9
C30	-8.9	-2.1	-10.7	-1.2	-9.6	-3.6	2.1	-1.0	0.9	1.5	-0.8	2.1
C31	4.1	-3.4	-16.9	-3.9	-15.8	-3.4	25.3	0.4	23.6	-0.0	-7.5	2.1
C32	-3.8	0.7	-19.4	-5.6	-24.3	-7.6	19.3	6.7	27.1	9.0	4.6	1.6
C33	1.4	-0.5	-2.3	4.3	7.6	3.9	3.8	-4.7	-5.8	-4.2	-2.5	3.6

Finland
Nace - Revision 1

nace	Value Added share in GDP (%) 2009	Value-added growth (%) 2008-2009	Value-added growth (%) 2004-2009	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Mark-up 1993-2004	Mark-up 1981-1992	Gross operating rate 2007	Business churn 2006	Openness ratio 2009	R&D intensity 2008	Patent intensity 2008	Labour productivity per person growth (%) 2008-2009	Labour productivity per person growth (%) 2004-2009	ULC growth (%) 2008-2009	ULC growth (%) 2004-2009	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.37	11.85	8.45	1.54	3.71	.	.	23.50	9.45	.	1.60	.	10.16	4.56	-13.95	-1.73	.	.	.
D	18.17	-19.90	0.69	-10.09	-1.92	.	.	11.20	11.02	.	11.32	1.44	-10.91	2.66	13.15	0.38	.	.	.
DA15	1.77	-5.71	0.33	-4.74	-1.98	1.13	1.07	.	.	0.16	.	0.25	-1.03	2.35	6.89	1.55	-0.43	-0.50	0.22
DA16	.	.	-10.	.	-10.	1.05	1.36	.	.	.	.	.	.	.	.	.	-0.97	-0.96	0.01
DB17	0.14	-17.82	-1.03	-21.67	-6.85	1.19	1.21	12.60	.	0.66	.	0.70	4.91	6.24	3.43	-2.19	-0.55	-0.66	0.13
DB18	0.09	-9.38	-7.14	-7.41	-5.96	1.10	1.07	7.90	.	1.51	.	0.24	-2.12	-1.25	-0.89	1.88	-0.65	-0.66	0.13
DC19	0.05	-19.39	-3.82	-18.18	-6.36	.	.	12.20	9.56	1.33	.	0.44	-1.47	2.71	9.08	0.99	-0.47	-0.61	0.15
DD20	0.66	-16.07	-4.38	-16.67	-4.68	.	.	9.40	9.02	0.15	0.84	0.05	0.72	0.31	-1.59	2.32	0.56	0.60	2.56
DE21	1.69	-22.16	-5.48	-8.92	-7.20	1.36	1.30	4.20	.	0.18	3.09	0.17	-14.53	1.85	14.21	1.08	0.83	0.80	5.72
DE22	1.17	-11.98	-4.32	-6.13	-1.94	1.18	1.15	12.40	.	0.03	0.66	0.07	-6.24	-2.43	7.40	5.15	-0.14	-0.05	0.58
DF23	0.40	58.78	-9.23	.	-1.37	.	.	7.90	18.75	0.35	.	1.45	58.78	-7.97	-35.70	13.91	0.24	0.05	0.71
DG24	1.54	12.10	5.96	-9.09	-1.89	.	.	15.60	7.89	0.49	11.12	.	23.31	8.00	-18.14	-4.46	-0.14	-0.36	0.31
DH25	0.64	-16.03	-0.74	-15.19	-4.31	.	.	12.90	6.34	0.33	8.65	0.79	-0.99	3.73	2.10	-0.60	-0.02	-0.06	0.57
DI26	0.60	-32.13	-3.91	-12.28	-1.41	.	.	16.30	8.84	0.16	2.20	0.83	-22.63	-2.54	28.58	6.38	-0.10	-0.13	0.50
DJ27	0.60	-22.33	-5.14	-16.05	-2.58	1.17	1.16	15.20	.	0.45	2.64	0.49	-7.48	-2.62	3.70	3.94	0.17	0.04	0.70
DJ28	1.73	-23.57	3.34	-13.04	0.49	1.15	1.22	12.70	.	0.12	1.11	0.35	-12.11	2.84	12.43	0.17	-0.09	-0.11	0.52
DK29	2.76	-24.42	2.62	-8.02	1.30	.	.	9.10	8.22	0.23	7.31	.	-17.83	1.30	21.13	1.50	0.24	0.17	0.92
DL30	0.01	-31.82	-2.47	-25.00	-5.59	0.95	2.30	5.60	.	4.33	.	286.66	-9.09	3.30	37.50	3.96	-0.60	-0.69	0.12
DL31	0.87	-23.41	8.60	-9.57	1.22	1.17	1.22	11.60	.	0.35	12.45	.	-15.30	7.29	20.62	-3.22	0.23	0.21	0.99
DL32	1.90	-38.28	4.99	-3.85	-2.87	1.27	1.31	14.90	.	0.02	41.51	.	-35.82	8.09	56.04	-3.73	0.02	0.07	0.75
DL33	0.53	-9.86	1.80	-8.13	-0.69	1.20	1.32	13.70	.	0.51	23.86	.	-1.88	2.51	4.23	0.85	0.17	-0.11	0.52
DM34	0.23	-28.95	5.96	-15.19	-0.59	1.02	1.13	8.80	.	1.48	.	7.97	-16.22	6.58	16.21	-4.39	-0.40	-0.42	0.26
DM35	0.37	-26.58	-7.99	-14.77	-2.07	1.10	0.94	-1.00	.	0.43	4.57	2.14	-13.86	-6.04	17.27	10.52	0.30	0.01	0.66
DN36	0.36	-27.36	-6.79	-11.80	-3.54	1.18	1.27	9.20	.	0.35	1.95	0.86	-17.64	-3.38	23.87	6.35	-0.53	-0.62	0.15
DN37	0.07	18.18	-2.38	-13.33	13.18	1.33	1.00	5.80	.	.	.	.	36.36	-13.75	-24.96	19.24	.	.	.
E	2.67	-1.61	-1.36	1.91	0.64	1.65	1.65	23.90	8.37	.	0.30	.	-3.46	-1.99	5.61	6.11	.	.	.
F	7.00	-7.50	0.66	-7.00	2.34	1.10	1.17	11.10	16.47	.	0.27	.	-0.53	-1.64	2.04	5.53	.	.	.
G-K_X_K7415	.	.	.	.	.	.	.	.	17.78	.	.	.	.	.	.	.	.	.	.
G50	1.64	-33.71	-5.76	-6.37	1.54	1.44	1.35	3.20	12.53	.	.	.	-29.20	-7.19	46.07	11.28	.	.	.
G51	4.60	-25.16	-3.36	-5.71	-0.18	1.27	1.23	4.30	12.64	.	.	.	-20.62	-3.19	28.46	6.60	.	.	.
G52	3.64	-7.60	1.19	0.72	2.00	1.33	1.25	6.00	24.55	.	.	.	-8.27	-0.79	10.43	3.91	.	.	.
H	1.64	-11.79	-0.54	-1.59	1.10	1.10	1.11	9.60	17.16	.	.	.	-10.37	-1.62	11.23	4.22	.	.	.
I60	2.83	-3.49	-2.03	-1.50	0.19	1.64	1.38	17.60	8.27	.	.	.	-2.02	-2.22	0.65	5.08	.	.	.
I61	0.50	-12.95	-0.77	-5.56	-0.95	1.32	1.31	13.90	11.78	.	.	.	-7.82	0.18	10.28	2.50	.	.	.
I62	0.40	-35.31	-4.67	-10.71	-0.40	1.40	1.39	9.50	1	.	.	.	-27.55	-4.29	44.38	7.25	.	.	.
I63	2.20	-11.00	0.17	-10.13	0.22	1.61	1.40	8.20	18.67	.	.	.	-0.96	-0.05	2.78	3.85	.	.	.
I64	2.00	-0.98	3.83	-5.52	-2.35	1.59	1.36	20.70	19.41	.	.	.	4.80	6.34	-0.13	-3.11	.	.	.
J	3.02	10.88	7.11	-0.96	1.41	.	.	.	20.87	.	.	1.69	11.95	5.62	-8.72	-2.00	.	.	.
K70	12.29	-1.52	1.91	0.99	1.69	2.34	2.09	38.50	19.53	.	.	.	-2.49	0.21	4.40	2.71	.	.	.
K71	0.36	4.98	4.74	-5.45	2.04	1.88	1.67	30.20	13.96	.	.	.	11.04	2.65	-12.16	0.02	.	.	.
K72	2.45	-2.97	3.98	1.14	3.22	1.29	1.23	12.20	22.72	.	9.83	.	-4.06	0.74	4.85	3.11	.	.	.
K73	0.57	2.14	-1.01	-1.19	0.12	1.08	1.07	-1.10	16.13	.	20.51	.	3.37	-1.13	1.99	4.15	.	.	.
K74	6.19	-8.79	2.18	-1.82	5.39	1.26	1.13	13.40	.	.	2.02	.	-7.10	-3.04	7.66	6.76	.	.	.

Sweden

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	44.52	47.06	48.14	50.15	45.14	47.01
Relative trade balance	0.09	0.09	0.08	0.07	0.07	0.06
Share of world exports market (%)	1.26	1.23	1.22	1.14	1.06	1.07
Nominal unit labour costs growth: t/t-1 (%)	0.21	-0.46	4.16	3.07	4.80	-1.62
Nominal unit labour costs growth: t/t-5 (%)	1.00	-0.10	0.63	1.19	2.33	1.96
Total goods and services real export growth: t/t-1 (%)	6.63	8.96	5.72	1.74	-13.40	10.71
Total goods and services real export growth: t/t-5 (%)	4.65	6.33	7.24	6.73	1.59	2.36
Real effective exchange rates (2000=100)	95.93	94.42	97.48	94.66	87.42	92.82
Total public expenditure on education (% of GDP)	6.97	6.85	6.69	6.74	.	.
Human Resources in S and T as % of total employment **	48.80	49.10	49.70	50.30	51.20	.
RCA index: high tech	0.89	0.86	0.83	0.87	0.92	.
RCA index: medium-high tech	1.02	1.04	1.07	1.04	1.01	.
RCA index: medium-low tech	1.02	1.01	1.00	0.99	0.96	.
RCA index: low tech	1.08	1.10	1.08	1.09	1.14	.
Exports of high technology products (% of total exports)	14.23	13.39	13.84	13.53	.	.
High skills sectors: share in GDP (%)	43.79	43.51	42.90	.	.	.
Specialisation index* (hs)	1.07	1.06	1.04	.	.	.
High-intermediate skills sectors: share in GDP (%)	22.81	22.39	22.03	.	.	.
Specialisation index* (his)	1.49	1.47	1.47	.	.	.
Low-intermediate skills sectors: share in GDP (%)	18.15	18.35	18.96	.	.	.
Specialisation index* (lis)	0.68	0.68	0.70	.	.	.
Low skills sectors: share in GDP (%)	15.26	15.74	16.11	.	.	.
Specialisation index* (ls)	0.90	0.94	0.96	.	.	.
High technology manufacturing sectors: share in GDP (%)	5.29	5.26	4.68	.	.	.
specialisation index* (ht)	2.35	2.34	2.09	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	7.76	7.85	8.07	.	.	.
specialisation index* (mht)	1.27	1.27	1.31	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	5.88	6.00	6.56	.	.	.
specialisation index* (mlt)	1.03	1.04	1.13	.	.	.
Low technology manufacturing sectors: share in GDP (%)	6.26	6.14	5.94	.	.	.
specialisation index* (lt)	1.18	1.19	1.17	.	.	.
Knowledge-intensive services: share in GDP (%)	55.62	55.35	55.28	.	.	.
specialisation index* (kis)	1.16	1.15	1.14	.	.	.
Less knowledge-intensive services: share in GDP (%)	19.18	19.41	19.47	.	.	.
specialisation index* (lkis)	0.59	0.60	0.60	.	.	.
Foreign Direct investment flows (% of GDP)	2.79	6.83	5.69	8.42	3.09	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

sector	Revealed Comparative Advantage index			Share in total World exports (%)		
	2000	2008	2009	2000	2008	2009
1 - Transport	0.96	0.75	0.75	1.31	1.47	1.43
2 - Travel	0.67	0.74	0.82	0.92	1.46	1.56
3 - Other services	1.23	1.22	1.17	1.68	2.39	2.23
3a - Communications	1.50	1.16	1.41	2.06	2.28	2.68
3b - Construction	1.71	0.48	0.33	2.34	0.94	0.63
3c - Insurance	1.49	0.79	0.74	2.04	1.55	1.41
3d - Financial services	0.50	0.32	0.28	0.68	0.64	0.53
3e - Computer and information	1.90	1.97	1.92	2.60	3.86	3.65
3f - Royalties and licence fees	1.13	1.31	1.36	1.55	2.56	2.59
3g - Other business services	1.42	1.50	1.39	1.95	2.94	2.65
3h - Personal, cultural and recreational services	0.40	0.76	0.73	0.55	1.49	1.39
3i - Government services n.i.e.	0.46	0.46	0.42	0.63	0.91	0.80
Total services	1.00	1.00	1.00	1.37	1.96	1.90

Sweden
Nace - Revision 2

nace	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
B-D_F	8.1	-0.4										
C	8.3	-1.6	-3.6	-3.3	-1.9	-2.6	12.3	1.7	10.4	1.0	-7.6	2.4
C10	-2.6	0.4	-1.2	-2.5	-1.6	-2.3	-1.4	3.0	-1.0	2.8	1.7	-0.2
C11	-2.1	0.2	0.0	-2.4	-4.6	-1.0	-2.2	2.7	2.6	1.2	-2.4	1.2
C12	.	.	3.5	-0.4	-1.6	-18.7	.	.	.	.	.	.
C13	.	.	-1.7	-4.9	4.0	-0.3	.	.	.	.	.	.
C14	.	.	-2.2	-4.6	-6.7	-8.0	.	.	.	.	.	.
C15	.	.	-15.5	-9.6	73.1	-17.2	.	.	.	.	.	.
C16	-1.9	-2.4	3.0	-1.6	3.1	-2.4	-4.8	-0.7	-4.9	0.0	5.8	3.1
C17	6.7	0.5	-2.2	-3.2	-1.5	-4.9	9.2	3.7	8.3	5.7	-7.1	-2.0
C18	10.1	1.1	-5.5	-3.0	-12.6	-0.0	16.5	4.3	25.9	1.1	-17.8	-1.4
C19	-2.4	0.0	-1.3	-1.5	1.3	-13.2	-1.1	1.5	-3.7	15.2	11.6	-9.3
C20	9.5	-0.1	-5.3	-2.2	-8.4	-0.5	15.6	2.2	19.6	0.4	-14.2	3.1
C21	4.0	-3.3	-7.7	-4.4	-2.6	-4.0	12.7	1.1	6.8	0.7	-6.1	2.0
C22	13.7	0.6	1.8	-3.9	-7.3	-4.6	11.6	4.6	22.6	5.4	-15.9	-2.5
C23	3.2	-0.5	-4.9	-2.6	-3.8	-3.3	8.6	2.2	7.3	2.9	-5.1	1.0
C24	18.7	-5.9	0.8	-3.3	4.0	-3.4	17.7	-2.8	14.0	-2.6	-9.4	6.4
C25	15.6	-2.3	-4.4	-1.6	-6.2	-2.1	20.9	-0.8	23.2	-0.3	-17.2	3.9
C26	9.6	4.2	-3.2	-0.8	-5.2	-2.7	13.2	5.0	15.6	7.1	-10.6	-3.1
C27	-0.8	-3.2	-0.9	-0.1	-0.8	1.2	0.1	-3.2	-0.0	-4.4	3.1	9.2
C28	8.9	-2.9	-5.4	-3.6	-2.0	-2.9	15.1	0.7	11.1	0.0	-8.0	3.7
C29	35.3	-5.8	-4.7	-4.8	7.2	-5.0	42.0	-1.0	26.2	-0.9	-20.1	5.0
C30	-4.4	-6.8	-4.4	-2.9	0.9	4.1	0.0	-4.0	-5.2	-10.5	8.2	17.7
C31	5.7	-5.1	-1.7	-3.1	-3.6	1.2	7.5	-2.1	9.6	-6.3	-2.3	12.5
C32	6.8	3.2	-25.6	-16.7	6.2	-1.2	43.6	23.9	0.6	4.5	1.3	-1.4
C33	-1.2	0.3	-0.2	-0.3	-9.8	-0.9	-1.0	0.7	9.5	1.2	-9.4	0.9

Sweden
Nace - Revision 1

nace	Value Added share in GDP (%) 2009	Value-added growth (%) 2007-2008	Value-added growth (%) 2003-2008	Employment growth (%) 2008-2009	Employment growth (%) 2004-2009	Gross operating rate 2007	Business churn 2006	Openness ratio 2007	R&D intensity 2007	Patent intensity 2008	Labour productivity per person growth (%) 2007-2008	Labour productivity per person growth (%) 2003-2008	ULC growth (%) 2007-2008	ULC growth (%) 2003-2008	Relative trade balance 2010	Symetric RCA index 2009	Share in World exports 2009
C	0.60	-10.22	-4.09	-4.65	1.01	41.10	4.73		1.09		-19.61	-5.24	11.66	8.48			
D	15.52	-5.30	3.79	-9.90	-1.99	9.90	9.08		10.14	2.25	-5.35	4.68	2.92	-2.31			
DA15															-0.28	-0.30	0.72
DA16															-0.35	-0.62	0.31
DB17		-2.91	-0.21	-8.45	-4.07	7.70		1.14		1.07	-0.18	3.45	-1.16	-2.30	-0.27	-0.49	0.45
DB18		4.44	-2.34			10.10		4.67		0.84	9.19	1.74	-10.22	-0.90	-0.42	-0.46	0.49
DC19		-2.31	2.44			5.60		3.00		3.11	5.83	2.44	-9.14	-0.74	-0.49	-0.63	0.30
DD20	0.62	-0.86	-0.04	-12.78	-2.20	11.70	8.27	0.19	0.27	0.07	-1.36	-0.19	-1.87	2.60	0.52	0.59	5.16
DE21		2.23	-0.51	-2.37	-3.24	11.60		0.32	2.67	0.35	5.26	3.15	-6.53	-0.35	0.69	0.69	7.15
DE22		-2.59	-2.73	-4.04	-0.61	6.00		0.04		0.11	-3.84	-1.96	2.12	3.45	-0.11	-0.21	0.86
DF23	0.23	84.92	52.64	5.56	4.84	22.20		0.69	30.22	1.36	74.64	47.17	-46.26	-32.50	0.13	0.07	1.52
DG24	2.22	-4.64	-0.34	-10.58	-3.67	25.20	7.97	0.67			-0.13	2.59	-2.93	-0.12	0.09	-0.03	1.24
DH25	0.46	-5.49	1.47	-13.48	-3.76	8.60	6.05	0.52	1.36	1.47	-3.02	4.47	-2.60	-1.74	-0.07	-0.06	1.18
DI26	0.40	6.24	7.92	-11.76	-0.71	9.20	8.61	0.28	1.20	1.43	5.67	7.10	-8.26	-4.51	-0.24	-0.25	0.80
DJ27		-14.41	-2.28	-14.12	-2.72	9.50		0.45	3.49	0.91	-15.89	-2.05	14.63	4.95	0.11	-0.02	1.28
DJ28		-4.71	4.43	-13.29	-0.68	10.60		0.21		0.63	-7.79	2.56	5.01	-0.17	0.09	-0.02	1.27
DK29	1.96	-4.93	5.29	-12.99	-1.30	8.00	6.78	0.36			-5.20	4.66	1.33	-2.09	0.20	0.12	1.69
DL30		-5.79	-2.86	-10.34	-6.30	-5.20		1.63		71.00	10.45	1.43	-12.11	-0.16	-0.41	-0.47	0.47
DL31		7.78	28.70	-2.33	0.79	7.70		0.15			3.33	30.45	-9.28	-22.33	-		1.33
DL32						14.60									0.06	-0.08	1.13
DL33		-9.62	0.12	-4.47	-0.91	13.80		0.44			-11.46	1.93	9.63	-0.78	0.07	-0.07	1.15
DM34		-29.46	-1.90	-16.67	-4.38	5.50		0.40		3.35	-27.72	-1.23	43.03	5.12	0.02	-0.03	1.25
DM35		-8.65	0.54	-1.91	-0.10	5.10		0.26		2.74	-9.96	1.30	9.81	1.20	0.09	-0.45	0.50
DN36		-5.14	5.81	-15.08	-4.63	-2.40		0.53	2.42	1.20	-2.28	8.91	1.30	-5.76	-0.05	-0.15	0.97
DN37		-2.54	8.35	-4.00	4.78	10.60					-2.54	1.46	-5.61	0.70			
E	3.32	-2.99	0.84	2.37	1.45	22.10	7.02		0.66		-6.72	-0.44	4.03	2.69			
F	5.23	-5.83	2.31	-1.15	4.64	8.90	12.42				-12.27	-2.55	9.56	3.97			
G-K_X_K7415							12.97										
G50						3.60	11.55										
G51						4.60	12.60										
G52						4.40	15.06										
H	1.49	4.54	2.56	1.58	2.87	9.70	15.54				-0.35	-0.41	-0.20	2.03			
I60		-0.20	1.61	-0.15	2.00	12.40	9.74				-2.88	-0.28	1.47	2.56			
I61		-1.65	7.14	-7.04	-2.39	7.40	10.51				-3.73	8.75	-0.22	-4.49			
I62		22.46	-2.30		-10.90	2.10	10.70				17.43	10.48	-17.74	-10.31			
I63		0.74	2.84	-16.64	-1.90	4.40	12.40				0.46	0.99	-4.75	1.23			
I64		6.13	7.24	-3.80	-2.01	18.90	15.06				7.81	9.65	-8.89	-6.82			
J	4.48	-0.74	2.83	0.72	1.26		11.86		0.71		-4.85	2.07	-3.23	0.59			
K70		4.90	1.49	-2.01	2.31	37.90	9.33				5.18	-1.33	-7.18	3.18			
K71		7.53	4.32	-4.88	1.61		12.60				5.78	2.57	-4.99	-0.38			
K72		9.05	9.77	1.42	2.44	7.10	14.51		7.07		3.28	7.44	-7.40	-5.34			
K73		-1.84	5.71	-4.59	3.23		9.40		4.88		-5.94	1.38	4.07	0.85			
K74						11.80											

United Kingdom

Country level

Indicators	2005	2006	2007	2008	2009	2010
Trade openness (% of GDP)	28.09	30.02	28.15	30.56	29.09	31.13
Relative trade balance	-0.06	-0.05	-0.05	-0.04	-0.04	-0.05
Share of world exports market (%)	3.70	3.74	3.16	2.86	2.85	2.73
Nominal unit labour costs growth: t/t-1 (%)	2.13	2.92	2.98	2.27	6.09	2.13
Nominal unit labour costs growth: t/t-5 (%)	2.47	2.37	2.58	2.44	3.27	3.27
Total goods and services real export growth: t/t-1 (%)	7.90	11.08	-2.57	1.03	-10.08	5.27
Total goods and services real export growth: t/t-5 (%)	3.72	5.30	4.54	4.38	1.19	0.69
Real effective exchange rates (2000=100)	102.21	104.59	107.55	92.44	84.34	87.18
Total public expenditure on education (% of GDP)	5.36	5.47	5.39	.	.	.
Human Resources in S and T as % of total employment **	41.90	43.40	44.20	43.80	45.80	.
RCA index: high tech	1.26	1.46	1.09	1.09	1.18	.
RCA index: medium-high tech	1.01	0.95	1.07	1.07	1.06	.
RCA index: medium-low tech	0.87	0.77	0.90	0.92	0.84	.
RCA index: low tech	0.77	0.72	0.86	0.85	0.85	.
Exports of high technology products (% of total exports)	22.13	26.48	16.17	15.11	.	.
High skills sectors: share in GDP (%)	39.96	40.10	40.56	.	.	.
Specialisation index* (hs)	0.98	0.98	0.99	.	.	.
High-intermediate skills sectors: share in GDP (%)	18.20	18.05	17.90	.	.	.
Specialisation index* (his)	1.19	1.18	1.19	.	.	.
Low-intermediate skills sectors: share in GDP (%)	25.46	25.75	25.58	.	.	.
Specialisation index* (lis)	0.95	0.96	0.94	.	.	.
Low skills sectors: share in GDP (%)	16.37	16.11	15.96	.	.	.
Specialisation index* (ls)	0.97	0.96	0.95	.	.	.
High technology manufacturing sectors: share in GDP (%)	2.73	2.63	2.67	.	.	.
specialisation index* (ht)	1.21	1.17	1.19	.	.	.
Medium-high tech. manufacturing sectors: share in GDP (%)	3.95	4.16	3.76	.	.	.
specialisation index* (mht)	0.65	0.67	0.61	.	.	.
Medium-low tech. manufacturing sectors: share in GDP (%)	4.22	4.26	4.39	.	.	.
specialisation index* (mlt)	0.74	0.74	0.75	.	.	.
Low technology manufacturing sectors: share in GDP (%)	3.88	3.63	3.58	.	.	.
specialisation index* (lt)	0.73	0.70	0.70	.	.	.
Knowledge-intensive services: share in GDP (%)	51.52	51.14	51.74	.	.	.
specialisation index* (kis)	1.07	1.06	1.07	.	.	.
Less knowledge-intensive services: share in GDP (%)	33.70	34.19	33.86	.	.	.
specialisation index* (lkis)	1.03	1.05	1.05	.	.	.
Foreign Direct investment flows (% of GDP)	7.72	6.39	6.63	3.44	2.08	.

Notes: * Specialisation index: share of sectors in country divided by share of sectors in EU-27; ** S and T: Science and Technology

Trade in services

	Indicators					
	Revealed Comparative Advantage index			Share in total World exports (%)		
sector	2000	2008	2009	2000	2008	2009
1 - Transport	0.71	0.59	0.68	5.76	4.64	4.99
2 - Travel	0.60	0.53	0.53	4.91	4.18	3.92
3 - Other services	1.39	1.38	1.33	11.32	10.83	9.73
3a - Communications	1.10	1.40	1.50	8.99	10.93	11.00
3b - Construction	0.14	0.31	0.38	1.15	2.40	2.77
3c - Insurance	1.97	2.17	2.40	16.05	16.98	17.59
3d - Financial services	2.67	3.04	2.88	21.76	23.79	21.14
3e - Computer and information	1.16	0.86	0.84	9.45	6.69	6.16
3f - Royalties and licence fees	1.22	0.90	0.93	9.91	7.07	6.84
3g - Other business services	1.25	1.16	1.08	10.20	9.07	7.95
3h - Personal, cultural and recreational services	1.17	1.31	1.32	9.52	10.27	9.67
3i - Government services n.i.e.	0.60	0.76	0.68	4.86	5.97	5.02
Total services	1.00	1.00	1.00	8.14	7.82	7.34

United Kingdom
Nace - Revision 2

	Indicators											
	Production growth (%)		Employment growth (%)		Hours worked growth (%)		Labour productivity per person growth (%)		Labour productivity per hour growth (%)		ULC growth (%)	
	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010	2010	2005-2010
nace												
B-D_F	3.8	-1.6	.	.	.	.	.	.	.	.	.	.
C	3.8	-1.5	-3.6	-3.9	-1.6	-3.8	7.7	2.5	5.5	2.4	-4.4	0.7
C10	7.3	0.1	1.7	-2.0	0.1	-2.5	5.6	2.2	7.3	2.7	-3.1	1.3
C11	-4.9	-0.4	0.6	-1.8	-3.0	-3.4	-5.5	1.4	-2.0	3.1	9.3	1.9
C12	-4.5	-3.0	.	.	26.6	-1.1	.	.	-24.5	-1.9	-7.0	8.1
C13	6.0	-0.7	9.0	-4.0	10.1	-3.8	-2.8	3.5	-3.7	3.3	-6.6	-3.2
C14	5.5	-1.1	-9.6	-10.6	-10.5	-12.2	16.8	10.5	17.9	12.7	-12.3	-3.6
C15	-6.6	-2.2	-18.7	-11.2	-32.0	-7.2	14.9	10.1	37.4	5.4	7.6	5.3
C16	1.7	-4.2	-0.8	-3.7	11.0	-2.7	2.5	-0.5	-8.4	-1.5	-1.8	4.8
C17	0.8	-4.0	-6.6	-7.3	-3.8	-7.8	7.9	3.5	4.7	4.1	4.5	0.9
C18	-3.0	-2.9	-3.7	-6.3	-2.6	-4.7	0.7	3.6	-0.4	1.9	-0.5	0.7
C19	-2.2	-3.3	-11.1	0.0	3.8	0.1	10.0	-3.3	-5.8	-3.4	11.1	9.3
C20	-4.2	-3.2	-5.7	-5.9	-3.8	-5.1	1.6	2.8	-0.4	2.0	-4.8	-0.6
C21	-6.2	0.3	-12.5	-10.8	-9.9	-11.6	7.2	12.5	4.1	13.5	-1.8	-3.5
C22	-0.2	-3.2	6.1	-4.4	10.6	-4.4	-6.0	1.3	-9.7	1.3	3.0	0.3
C23	7.4	-1.9	4.3	-2.4	10.1	-1.4	3.0	0.5	-2.4	-0.5	-2.2	2.1
C24	13.8	-3.2	-18.5	-6.1	-11.8	-4.8	39.5	3.1	29.0	1.6	-11.7	2.7
C25	6.5	-2.4	-3.9	-0.8	1.3	-1.4	10.9	-1.6	5.2	-1.0	-6.7	4.2
C26	-0.3	-1.9	-7.5	-5.7	-10.1	-7.1	7.7	4.1	10.9	5.6	-4.8	-0.5
C27	4.0	-3.6	-10.8	-7.3	-8.4	-7.2	16.6	4.0	13.5	3.8	-7.8	1.2
C28	15.8	0.3	-13.5	-7.1	-7.5	-7.0	33.8	8.0	25.2	7.8	-12.1	-0.7
C29	14.5	-4.8	-4.9	-7.5	-1.5	-7.5	20.3	2.9	16.2	2.9	-10.9	-0.9
C30	5.3	2.7	-4.5	3.2	-4.7	2.4	10.2	-0.5	10.5	0.3	-7.0	-0.2
C31	1.1	-3.2	2.7	-1.7	3.7	-2.1	-1.5	-1.6	-2.4	-1.1	-4.7	2.2
C32	7.1	0.7	2.5	-0.5	1.8	-2.4	4.4	1.2	5.2	3.1	-13.0	-1.1
C33	3.9	1.4	-8.8	-3.2	-14.5	2.3	14.0	4.7	21.6	-0.9	-5.9	-0.8

United Kingdom
Nace - Revision 1

	Gross operating rate 2007	Business churn 2006	Symetric RCA index 2009	Share in World exports 2009
nace				
C	46.30	19.34	.	.
D	13.40	15.94	.	.
DA15	14.50	.	-0.01	3.16
DA16	10.40	.	-0.05	2.94
DB17	12.20	.	-0.29	1.78
DB18	20.50	.	-0.20	2.14
DC19	11.20	19.89	-0.34	1.60
DD20	15.30	14.92	-0.62	0.76
DE21	9.10	.	-0.14	2.45
DE22	18.40	.	0.49	9.41
DF23	4.80	22.92	-	3.22
DG24	15.40	15.88	0.21	4.98
DH25	13.20	12.36	-0.08	2.76
DI26	17.40	15.92	-0.18	2.23
DJ27	11.90	.	-0.12	2.54
DJ28	16.00	.	-0.13	2.50
DK29	12.30	14.49	-0.03	3.05
DL30	19.00	.	-0.16	2.35
DL31	12.00	.	-0.12	2.53
DL32	16.00	.	-0.36	1.53
DL33	17.90	.	0.07	3.70
DM34	6.50	.	0.05	3.54
DM35	16.50	.	0.10	3.94
DN36	17.70	.	-0.04	2.98
DN37	15.00	.	.	.
E	25.80	26.32	.	.
F	19.20	21.12	.	.
G-K_X_K7415	.	23.78	.	.
G50	7.90	16.26	.	.
G51	5.40	16.13	.	.
G52	8.30	20.63	.	.
H	17.10	28.38	.	.
I60	15.40	22.13	.	.
I61	21.70	18.77	.	.
I62	11.10	21.40	.	.
I63	16.70	18.98	.	.
I64	21.20	30.60	.	.
J		19.86	.	.
K70	38.40	22.15	.	.
K71	39.00	18.45	.	.
K72	27.60	24.89	.	.
K73	7.90	17.38	.	.
K74	24.50	.	.	.