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CEECs' Competitiveness in the Global Context

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Executive summary

In an international comparison, the Central and Eastern European countries (CEECs) show a relatively strong economic growth performance coming close to that of the first and second tier of Asian Tiger countries over the past decade, which were the best growth performers (setting aside China). This is particularly true for per capita GDP growth, where the CEECs showed a strong income expansion from the mid-1990s (exceeding the growth rates of the Asian economies except China). In recent years their dynamic growth performance has accelerated despite an economic slowdown in their most important trading partners, the old EU member states.

The CEECs' economic structure is still at an intermediate stage, with a comparatively large share of manufacturing in both gross value-added and total trade, and a consequently lower share of services. As in many respects, the new EU member states are considerably more advanced than the three candidate countries, Bulgaria, Romania and Croatia. While the latter generate little more than half of their total value-added in the services sector, services account for about 65% of value-added in the new members. Given the relative importance of the manufacturing sector, these countries are important suppliers of manufactured products to the EU-15 market. Despite being considerably smaller than their competitors in East Asia (taken together about half the size of China), they have gained a very considerable market share in the EU-15, which is their main export market. Up to date, the CEECs have successfully defended and expanded their market shares in the EU-15, thus keeping well up with the successful exporting economies of East Asia.

As one of the most commonly used indicators of competitiveness, the trade balance shows a steady (though declining) deficit in CEECs. The pronounced reduction in the trade deficit, despite weak demand in their major trading partners and strengthening currencies, is a sign of improved competitiveness in the new member states. The candidate countries show less favourable developments with growing imbalances despite sometimes high export growth. Dilemmas in the exchange rate policy (or exchange rate arrangements such as the currency board) may play a major role here. The reduction in the mostly positive services trade balances in the new members was to be expected and can be interpreted as a sign of catching-up, stemming from increased demand for imported service inputs in goods production and thus evidence for the intensifying economic integration in Europe. While trade balances in goods production might turn to become positive for the new members as this reflects their longer-term comparative advantages, the old members are likely to maintain a competitive edge in advanced business services. The strong degree of integration in production is also reflected in the importance of FDI for the new member states. FDI inward stock in per cent of GDP in these countries is notably high in a global comparison. Only the first tier of Asian Tigers shows higher values; in some cases (particularly in Hong Kong and Singapore), however, FDI is often in effect destined for

other economies such as China, and thus the number is somewhat misleading. The recent privatization has certainly put the CEECs in a special position with respect to FDI, however, their attractiveness as a destinations for foreign capital remains undisputed.

Table A

Macroeconomic overview

	GDP growth	Share of services		current account	goods balance	services balance	FDI
	% change to previous year	in % of gross value added	in % of exports	in % of GDP			inward stock in % of GDP
	2000-2004	2002		2004			2004
EU-15	2.1	69.0	26.9	0.4	0.8	0.5	27.3
Advanced OECD	2.4	66.8	23.0	-2.3	-2.4	0.1	12.9
NMS-8	3.7	64.9	21.2	-4.0	-3.1	0.9	38.1
Candidates	5.0	56.0	32.1	-7.1	-13.9	5.0	30.0
Turkey	4.3	63.3	29.0	-5.2	-7.9	4.2	11.7
Mexico	2.6	69.5	7.2	-1.1	-1.3	-0.9	27.0
1st Tigers	4.0	74.5	17.1	8.5	7.1	1.1	56.9
2nd Tigers	4.8	46.8	12.4	5.1	9.5	-3.7	19.0
China	8.9	38.3	10.8	3.1	3.0	-0.6	14.9
India	5.5	50.7	32.1	1.2	-1.5	-0.4	5.9

Source: World Bank, World Development Indicators; IMF Balance of Payments Statistics; UNCTAD, World Investment Report.

In order to evaluate the attractiveness of CEECs for foreign investors and domestic entrepreneurs, we collected a range of qualitative indicators that assess dimensions such as infrastructure (human capital, telecommunications, etc.), the ease and reliability of doing business, economic freedom and corruption. While the new members rank on average very high on most of these indicators – they usually occupy fourth rank behind the two groups of advanced economies (EU and other OECD) and the first tier of Asian Tigers – the candidate countries rank generally lower, thus having to defend their position more intensively against competition from the second tier of Asian Tigers and emerging market economies such as Turkey and Mexico. The two giant emerging markets China and India still have a long way to go to catch up in these qualitative indicators. It has to be noted that the gap between the new member states and the most advanced countries is surprisingly small; it should further be mentioned that the first Tigers have often surpassed the advanced EU and OECD members, particularly so in terms of ease of doing business (time required for starting a business, exporting, etc.).

A distinguishing feature of the new members is their strong performance in terms of human capital and business infrastructure, which is yet not totally matched by an equally strong performance in institutions guaranteeing a reliable and sound business environment. Their performance on the corruption index and the investor protection index is likely to improve in the near future, a process that is certainly helped by their recent accession to the EU.

Table B

Average rankings in alternative competitiveness indicators

	Infrastructure	Business environment	Economic freedom
EU-15	2	3	3
Advanced OECD	1	1	1
NMS-8	4	4	5
Candidates	5	6	7
Turkey	6	5	8
Mexico	8	7	4
1st Tigers	3	1	2
2nd Tigers	7	9	6
China	9	8	9
India	10	10	10

Source: World Bank, IFC, Heritage Foundation, World Economic Forum, own rankings.

The comparisons of the NMS and the candidate countries with a whole range of catching-up economies have shown that they do comparatively well in overall growth and also in the speed of the structural upgrading process which characterizes catching-up economies and regions in general. A detailed analysis of the manufacturing sector has shown that the NMS have moved rapidly in changing the composition of industrial production and exports in the direction of a strong representation of medium-high-tech industries (i.e. industries with a higher technology and know-how content). It is in these industries (largely engineering industries including transport equipment) in particular in which they have developed relatively strong positions, often in the context of cross-border production networks in which transnational corporations from the old member states play an important role. Their positions in labour-intensive, low-skill industries has been declining for some time and unit labour cost comparisons show that the NMS are not particularly competitive in these industries. There is a considerable difference between the NMS and the candidate countries, the latter being still more strongly oriented towards labour-intensive industries, but also in these countries a move away from these activities has set in lately. This is partly due to a gradual loss of cost advantages in these areas and also due to the increasing import pressure from China (and other low-cost producers) in European markets. Some of the NMS (such as the Czech Republic and Hungary) have also improved their positions in higher-tech areas (particularly electronics, electrical engineering, precision instruments, etc.) which are areas in which Asian catching-up economies are extremely strong (especially in electronics and computing equipment). A range of indicators (on relative productivity developments across industries, trade specialization indicators, etc.) all reveal a picture of a dynamically changing pattern of industrial and trade specialization of the NMS within the European division of labour. This is in line with what can be observed with other successful catching-up regions (such as the Asian economies explicitly brought into the study for comparative purposes).

An interesting set of results were obtained by looking at detailed price and market share developments of commodities exported to the EU-15 markets. Here an analysis of price vs. quality competition (a success in the latter was defined as an improvement in the market share of a producer when its relative price has actually increased) revealed that the NMS were particularly successful in improving their position in quality competition in comparison with other catching-up economies. Such improvements took place across all types of industrial groupings (grouped again by technology intensity) but they were particularly strong in the medium-high-tech areas of manufactured commodities; in these areas the NMS (more detailed analysis revealed that this was due particularly to the performances of the Czech Republic, Hungary, Poland and Slovakia) occupied a real outlier position. The candidate countries showed their usual features of lagging (so far) in these developments.

In conclusion we would like to comment on the relationship between the features which were observed and commented upon at the macro-level (both quantitative and qualitative) and at the structural or branch level. One way to look at the performance of the NMS is to see it straightforwardly as a process of convergence to the more advanced economies of 'Northern Europe': this implies at the macro-level a faster process of income, productivity and wage growth in the CEECs than in the 'older' EU member countries for a considerable period of time (say, another 15-20 years) and the evidence suggests that the NMS have successfully embarked upon such a path. At the structural level, convergence implies other features some of which have also been documented in this study, such as the increased role of services, an upgrading of industrial structures towards activities with more technology content, an improvement in product quality, an increased demand for more skilled labour, etc. The qualitative (institutional and infrastructural) indicators reported in this study regarding institutional improvements, business climate, human capital and R&D infrastructure are all necessary ingredients in such a process of qualitative upgrading and important conduits to attract international investors, which in turn contribute to the upgrading process and whose presence feeds back into institutional and behavioural development (as shown in the study, a significant gap still exists in this respect). The reported relatively successful and speedy process of structural catching-up in the NMS (the speed is not inferior compared to that observed in the previously successful Asian catching-up economies) is testimony that the CEECs have successfully embarked upon such a cumulative developmental process and are – so far – successfully facing the competition from other catching-up regions.

However, a too simplistic view of a 'convergence' process would also be misleading: economies are not all becoming alike in all their features. This would contradict the importance of structural, institutional and behavioural diversity and, more specifically relevant for this study, the importance of international specialization, which is part and parcel of international economic integration. Particularly in the course of the catching-up process (i.e. when CEECs have not yet reached the productivity, wage and income levels

of the more advanced economies) there is a lot of scope for inter- and intra-sectoral specialization and differentiation. We have already mentioned above the likely medium-run scenario in which the more advanced Western European economies will maintain a comparative advantage in business services, while (at least some of) the NMS will further strengthen their positions as preferred locations for industrial production activities. But also within branches, there is and will continue to be much scope for vertical and horizontal differentiation and specialization (which goes together with cross-border integration) depending on a multitude of relative locational advantages and disadvantages. This characterizes regional developments within countries and also cross-country regional developments and can be observed currently in the European, the Asian and the global context.

Keywords: *economic growth and structure, trade balances and market shares, productivity and unit labour costs, price versus quality competition*

JEL classification: *F14, F20, L60, O52*

Michael Landesmann and Julia Wörz

CEECs' Competitiveness in the Global Context

Introduction

This study attempts to evaluate the competitiveness of the Central and Eastern European countries (CEECs) in comparison with their major competitors in the OECD and in emerging Asia. Thus, we shall give a comprehensive picture of CEECs' competitiveness by first sketching their macroeconomic performance in comparison with these competitors. In a second step we shall illustrate their attractiveness as locations for international production as measured by indicators reflecting the quality of their infrastructure, their business environment and their investment climate. Moving on towards the industrial level, we then compare cost indicators (labour costs, productivity, etc.) and structural indicators (trade specialization) to further analyse their attractiveness within product groups that are stratified by technology intensity. Finally, we investigate to what extent an improvement of their market position is related to price versus quality improvements.

Box 1.1: **Geographic coverage of our sample**

The sample covers 45 countries, which can broadly be classified into advanced economies and catching-up countries (see Appendix Table A.1 for a listing and grouping of all countries). The group of advanced countries is divided into EU members and other advanced OECD members (Australia, Canada, Iceland, Japan, New Zealand, Norway, Switzerland, United States). The group of catching-up economies falls into three broad geographic regions: the cohesion countries, Central and Eastern European countries (CEECs) and Asian emerging countries. The cohesion countries include Greece, Portugal and Spain. The CEECs are divided into the eight new Central and Eastern European members of the European Union and the candidate countries, Bulgaria, Romania and Croatia[1]. The Asian countries are split into the early or first wave of Asian Tigers (Hong Kong, Republic of Korea, Singapore, Taiwan where available) and the second wave of Asian Tigers (consisting here of Indonesia, Malaysia, Philippines and Thailand). We further include four emerging markets into our analysis: Turkey[2], Mexico, China and India. These groups of catching-up economies have – at different stages – become successful internationally particularly in manufacturing production and trade; this has also become an important feature of the new EU member states (NMS) and less so for some of the candidate countries. Thus, we focus on a total of eight groups of catching-up regions. Comparisons are also drawn with two groups of advanced economies: the remaining 12 old member states and the remaining advanced OECD members.

The transformation in Central and Eastern Europe together with the process of European integration has resulted in a strong increase of market shares held by CEECs in the old EU

[1] For the sake of convenience, we term all three countries 'candidate countries', although Bulgaria and Romania already have the status of 'accession countries'.

[2] While also being a formal candidate to the EU, we treat it separately here in order to keep the group of candidate countries more homogenous in terms of economic size and other economic indicators.

member states. In general, the export performance in particular of the new EU members has been impressive over the past decade and one of the main drivers of their prosperous economic development (see Podkaminer, Gligorov et al., 2006 for recent evidence on this). However, the new members are not the only expanding region on the EU-15 market. Increasingly, also Asian economies have gained a stronger position in the Western European markets, with new competitors entering the scene as the first wave of Asian Tigers matures and a second wave of Asian Tigers (i.e. Indonesia, Malaysia, Philippines and Thailand besides China and India) has emerged in Eastern Asia. Thus, the new members have to defend their recently gained position on the EU-15 market in an increasingly competitive environment. Another group of competitors emerges also from the candidate countries, whose ties with the EU are not only strengthening in institutional terms, but also in terms of trade volume. In this study, we draw comparisons for CEECs with various groups of catching-up economies and in relation to the major advanced economies (see Box 1.1 for a description of these groups).

In Part One of the study we assess the relative performance of individual competitors, analysing their growth performance, trade balances, business environment and human capital. We pay attention to trade in goods and services.[3] We further discuss developments in FDI inward and outward flows, since these provide information on a country's integration into international production networks, which is also an important indicator of the country's international performance. Apart from the widely used trade balance as a major indicator of international competitiveness, we further collected information on the ease of doing business and other business-related indicators of infrastructure. This information will complete our picture of the relative standing of individual regions or countries in terms of their competitive strength and their prospects of defending or improving their positions on the EU-15 market.

In Part Two of the study we focus on the manufacturing sector and discuss structural and developmental features of this sector. We review competitiveness issues of the CEECs' manufacturing sector in a number of steps: first, the issue of productivity, wage costs and unit labour costs for the manufacturing sector as a whole and, second, structural issues as reflected in individual patterns of trade specialization, the evolution of relative export prices (as indicators of quality levels of traded products) and of relative market positions in different groups of industries, employing a classification which is guided by the relative technological sophistication of industries.

[3] Developments in services trade can have major feedbacks on developments in goods trade, if they are complementary (referring to business-related services) to the latter rather than substitutes. The relationship between trade in services and the domestic economy depends largely on the structure of the services traded. If services trade consists mainly of travel services, there will be a weak and sometimes negative link between the two balances. This is often the case in countries such as Croatia, where a strong dependence on travel services may be considered as being an impediment to the development of a strong, export-oriented, domestic manufacturing sector.

Some remarks about competitiveness

Although widely used and extensively researched, the concept of competitiveness is not unambiguously defined in economics (see the famous contribution by Krugman, 1994 and the discussion in Aiginger and Landesmann, 2002). Its meaning may differ for a number of reasons. A first critical distinction arises from the level of analysis, i.e. whether the focus of research lies on firms, industrial sectors, regions, or countries. While firms have to be competitive if they want to survive and withstand the pressure from competing firms, countries cannot go out of business. Thus, the concept of competitiveness is well-defined at the firm level, referring to the ability of firms to survive and to strengthen their position vis-à-vis their competitors. At all other levels, however, the objectives for the industry, region, or country may differ across individual agents inside these entities. Simply extending the meaning of competitiveness from the well-defined firm level to more aggregate levels leads to serious shortcomings and over-simplifications in the analysis. Thus, the question which concepts to apply and how to measure competitiveness remains essentially an open question and has to be answered separately in each case, depending on the specific angle of the analysis.[4]

The OECD proposed the following working definition of competitiveness in the mid-1990s: '... the ability of companies, industries, regions, nations or supranational regions to generate, while being exposed to international competition, relatively high factor income and factor employment levels on a sustainable basis'. (Hatzichronoglou, 1996)

The EU employs a similar concept when defining competitiveness as output growth and high rates of employment in a sustainable environment. By being very broadly defined, these definitions encompass two – in the short run often conflicting – objectives of a nation/ region/industry: generating high factor income while keeping employment levels high. Focusing on different levels of analysis in this study – i.e. the national, supra-national, regional as well as the industrial level – we shall define competitiveness as the ability to sell goods and services internationally, the ability to grow and the ability to attract resources, in particular FDI.

[4] Alan Deardorff's 'Glossary of International Economics' provides the following definition of competitiveness: 'Competitiveness usually refers to characteristics that permit a firm to compete effectively with other firms due to low cost or superior technology, perhaps internationally. When applied to nations, instead of firms, the word has a mercantilist connotation.' (http://www-personal.umich.edu/~alandear/glossary/c.html)

Indicators of competitiveness used in the analysis

The measurement of competitiveness indicators is far from being straightforward as well.[5] Guided by the above methodological considerations we shall use traditional indicators of competitiveness, such as trade balances, market shares, import market penetration rates and the like. In addition, we augment this set of indicators by less frequently used indicators of business environment, infrastructure, etc. at the macro level as well as quality measures to distinguish between price and quality competitiveness at the industry level. The indicators used here to measure competitiveness can broadly be divided into three classes: The first set includes traditional indicators of competitiveness such as trade balances, market shares in export markets, price and cost indicators and quality indicators. We shall employ these measures at the macro level as well as at the industrial level. A second set of competitiveness measures reveals structural features and refers to specialization measures, which we shall use in different ways at the industrial level. These two sets of competitiveness indicators are purely quantitative measures. We further employ a range of qualitative measures in order to capture additional cost components of competitiveness, such as costs of financial intermediation, costs related to conducting business (enforcing contracts, negotiation costs, distribution costs, etc.), costs caused by insufficient infrastructure and costs related to acquiring R&D. These components are difficult to measure, especially at more disaggregated data levels: therefore we use a range of qualitative indicators (on infrastructure, perceptions of entrepreneurs and the like) reflecting some of these costs at the macro level.

[5] The same indicator – for instance a reduced trade deficit – may reflect different underlying causes and consequences, i.e. it implies an improvement in competitiveness if it stems from increased exports, but it may also reflect a weakening in domestic demand and as such be unrelated to competitiveness. Germany may currently be mentioned as an example for the latter case. Among other factors, weak domestic demand led to an improvement of the trade balances from 3.2% in 1999 to 7.0% in 2004.

Part One: Macroeconomic analysis

1.1 Strong growth performance of CEECs in recent years

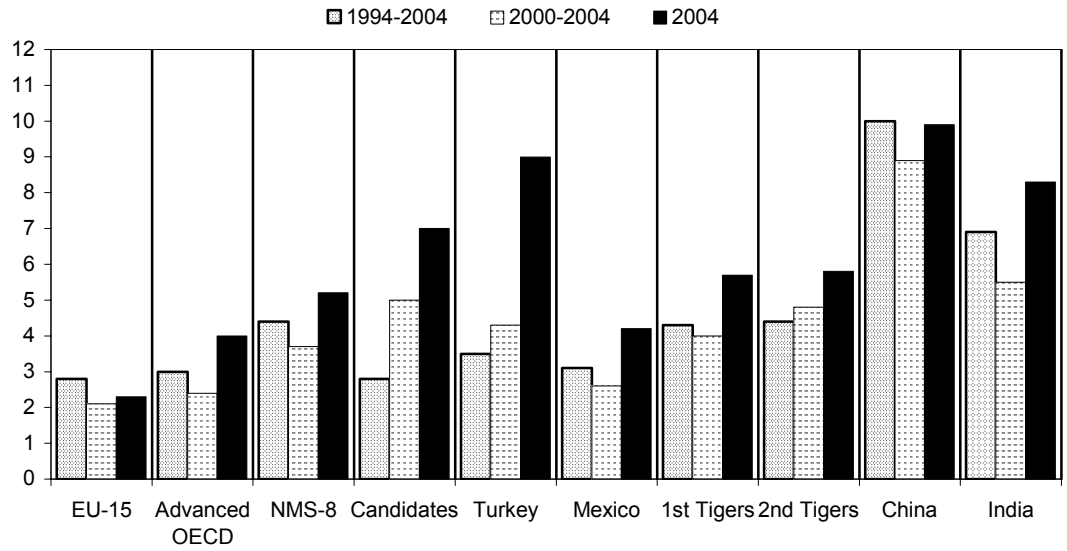
Recent dynamic GDP growth in CEECs is comparable to Asian Tigers

As a general feature, economic growth slowed down in the five-year period 2000-2004 as compared to the decade 1994-2004 (Figure 1.1). Due to their special history, the CEECs show a continuously stronger growth performance than most catching-up regions over the past decade. The post-transformational recession in the early 1990s implied that economic growth strongly picked up in the latter half of the decade, with a better growth performance on average in the new EU member states as compared to the three candidate countries Bulgaria, Romania and Croatia. Another distinct feature of the CEECs, tied to their specific

Figure 1.1

Real GDP growth

% change to previous year



Note: India only up to 2003.

Source: IFS, Eurostat, wiiw.

demographic developments, is the fact that per capita GDP growth surpasses GDP growth in these countries, while in all other regions the opposite holds true (see Appendix Table A.2). This is equally true for both, NMS and candidates, with a more pronounced increase in per capita GDP in the latter group. With the exception of China, individual incomes rise on average relatively more in CEECs than in all other regions. In the past five years they even surpassed the average of the Asian Tiger countries and reached a level slightly above that of India. Among the OECD members, Ireland emerges as an exceptional growth performer, with recent rates coming down to normal levels. By contrast,

Greece and Turkey show signs of accelerating growth. Only few advanced OECD members – Luxembourg, Canada, New Zealand, Sweden and the UK apart from Ireland – show a constantly good growth performance over the past five years at rates roughly comparable to those of the second tier of Asian Tigers. Finally, the outstanding growth performance of China is not being matched by any other country.

Given their economic size and income levels, the NMS-8 offer a strong market potential …

In terms of economic size, the new member states as a region are roughly comparable to the second tier of Asian Tigers (Indonesia, Malaysia, Philippines and Thailand). As mentioned above, they range well above this group in terms of per capita income. Great differences prevail up to date between the eight new EU member states and the candidate countries. In particular Bulgaria and Romania are more comparable in terms of per capita income to the second tier of Asian Tigers. The first tier of Asian Tigers (Taiwan, Hong Kong, Korea and Singapore) have reached per capita GDP levels comparable to those of the cohesion countries (Greece, Portugal, Spain), while the emerging economies of Mexico and Turkey are still well below these levels. The distance to the average income levels of the most advanced OECD members remains large when measured at exchange rates.

… while their economic structure is only moderately advanced …

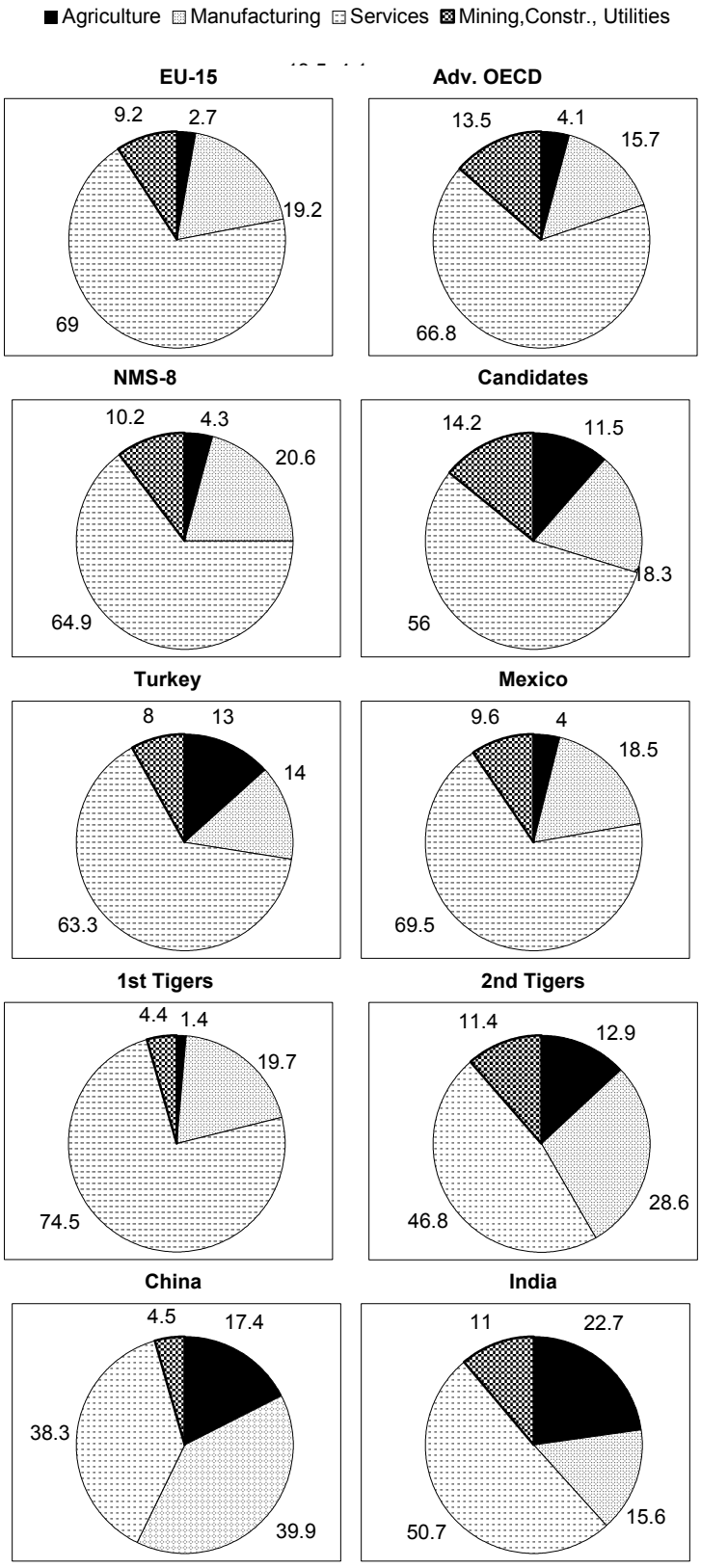
The broad economic structure of the different regions in our sample also display some interesting differences (Figure 1.2). While services account for roughly two thirds of gross value added in OECD countries and new member states on average, their importance is considerably smaller in the candidate countries (56%), India (51%), the second tier of Asian Tigers (47%) and China (39%)[6]. In line with this finding, the agricultural sector still plays a greater role in these countries. On the other hand, services play a prominent role in the first tier of Asian tigers, with 75% of gross value added in 2002. The role of the manufacturing sector is greatest in our sample for China (40%), followed by the second Asian Tigers (29%) and the new member states (21%). Thus, despite their more advanced economic structure as compared to the second wave of Asian Tiger countries (including China and India), the importance of manufacturing production for the new member states is still substantial.

[6] Recent national accounts revisions in China have led to an increase in the share of the services sector in GDP and a lowering of the share of manufactures (Urban 2006).

Figure 1.2

Economic structure, 2002

% of gross value added



Source: World Bank, World Development Indicators.

… as is their trade structure

Since also the vast majority of international trade still takes place in merchandise goods (and within goods in manufactured products, as illustrated in Table 1.1 and Appendix Table A.3), the competitive position of CEECs in the manufacturing sector deserves special interest. On a broader scale, merchandise exports still account for 70-80% of all exports in most regions, leaving a share of roughly 20-30% to trade in services. The EU-15, the candidate countries, Turkey and India are characterized by a relatively high importance of services in trade (of 30% and more), while the share of services in total trade is towards 20% for the remaining advanced OECD members and the new member states, as well as the first Tigers. The second Tigers remain more specialized on trade in goods up to date (figures are for 2002); the same holds true for China with a 10% share of services in total trade. Croatia is exceptional with its extremely strong position of services in the trade balance (more than 50% in 2002).

Table 1.1

Export structure, 2002

in % of total exports

Country name	Merchandise exports	Services exports
EU-15	*73.1*	*26.9*
Advanced OECD	*77.0*	*23.0*
NMS-8	*78.8*	*21.2*
Candidates	*67.9*	*32.1*
Turkey	71.0	29.0
Mexico	92.8	7.2
1st Tigers	*82.9*	*17.1*
2nd Tigers	*87.6*	*12.4*
China	89.2	10.8
India	67.9	32.1

Source: UN COMTRADE and World Bank, World Development Indicators.

1.2 High export growth in CEECs with diminishing trade deficits in NMS

CEECs are important goods suppliers to EU-15, facing competition from the first but not yet second wave of Asian Tigers

Thus, the majority of worldwide cross-border trade still takes place in goods, and the differences between the new member states and other advanced industrialized countries (OECD members and the first tier of Asian Tigers) are small in this respect. In terms of total merchandise export volume to the world, the new members as a group accounted for roughly 260 billion USD in 2004, which amounts to half the export volume of China in the same year. In absolute size, the new members taken together are thus comparable to

countries such as the Netherlands, Hong Kong or South-Korea. On the EU market, however, they feature much more prominently as a provider of goods than the most important exporters from Asia. With 60% of their total exports destined for the EU-15, their import share in the EU-15 market is well comparable to that of the first wave of Asian Tigers, while the second wave of Tigers has not yet gained substantial market shares in the old member states. Also the candidate countries are heavily oriented towards the EU-15 (57%), while Turkey ships only about half of its exports to the EU-15 (see also Appendix Table A.4).

Merchandise goods trade in itself is again heavily concentrated on manufactures, the shares of manufactures in total exported goods are well comparable between the old and the new member states (slightly below 80%), and are as such further comparable to countries like Mexico and Turkey. The concentration on manufactured products among dynamic Asian countries (including both waves of Asian Tigers and China) is even more strongly pronounced (90%) while it is somewhat less in the candidate countries (in particular Bulgaria and Croatia) and India (60-75%).

Diminishing trend in CEECs' trade deficits

A major indicator of a country's competitive performance is its trade balance. Figure 1.3 lists the balance in the current account and the goods and services balance for all regions in the sample in 1999 and 2004. Most country groups share common characteristics with respect to their external balance. All new member states and the candidate countries displayed a trade deficit in 2004 (sometimes relatively high in per cent of GDP, for instance in the Baltic States). Also the catching-up OECD members Turkey and Mexico were running a trade deficit, as were the cohesion countries among the old member states. In contrast, many of the Asian Tigers and China were running trade surpluses (often very high in per cent of GDP, as in Singapore, Malaysia, Indonesia and Taiwan). Results for the advanced EU-15 and the remaining advanced OECD countries were more mixed. The often large deficits in CEECs' goods trade have to be seen against a background of strong demand for intermediate inputs and capital goods. The general trend over the recent years was a reduction of deficits in the trade balances of the new member states (except in the Baltic States) based on improved export performance in spite of weak growth in the old member states (see Podkaminer, Gligorov et al., 2006). Further, the reduction in trade deficits took place against a background of real appreciation of their currencies against the euro. The latter two factors may both translate into improvements in competitiveness in the longer run. Developments in the three candidate countries have not shown improved performance in trade balances so far, even though recent export growth rates particularly in Romania are very impressive. The increasing trade deficit in Turkey can be attributed primarily to strongly increasing domestic demand and took place despite positive export growth. The dynamic Asian countries clearly emerge as strong export nations from Figure 1.3 with a constantly high record of substantial surpluses in goods trade.

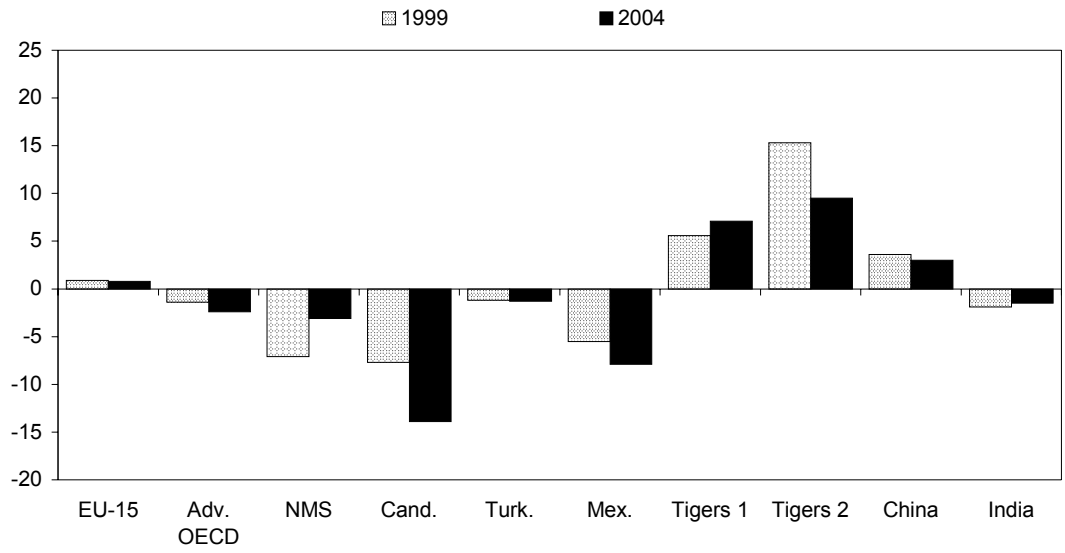
Often opposing signs in goods and services trade deficits

It is interesting to note that in almost all catching-up regions, the signs of the goods and services balance differ. Table 1.2 gives detailed information on current account balances, trade and services balances for all countries in the sample. In particular the second tier of Asian Tigers, China and surprisingly also India show a deficit in their services trade balance, while all CEECs with the exception of Romania recorded a surplus in services trade flows as measured by the balance of payments. In per cent of GDP, the imbalances remained relatively stable over the past five years. The increasing goods trade deficit in the candidate countries was contrasted by an improved services balance, both in absolute terms as well as in relation to GDP. This is especially true for Croatia due to the importance of travel exports for the economy. Tourism may be regarded as the main reason behind these improvements in services trade balances. In general, we would expect to see an increase in services imports due to increasing demand for imported business-related services. We see these developments in most of the new member countries.

Figure 1.3

Trade balance, goods

in % of GDP



Source: BOP Statistics, IMF; own calculations.

Outstandingly strong export growth in NMS over the past decade …

All eight catching-up regions recorded high growth rates of goods exports over the past decade. The outstandingly high export growth rates for the new member states clearly surpass those of the Asian competitors in the five-year average as well as in the ten-year average. Turkey also recorded high growth rates, as did Romania among the candidate

Table 1.2

External balances

		Current account			Goods balance			Services balance		
		in USD mn	in % of GDP		in USD mn	in % of GDP		in USD mn	in % of GDP	
		2004	**1999**	**2004**	**2004**	**1999**	**2004**	**2004**	**1999**	**2004**
Austria		988	-3.1	0.3	4205	-1.7	1.4	1816	0.9	0.6
Belgium+Luxembourg		16721	5.1	4.3	6457	2.6	1.7	14278	2.2	3.7
Denmark	a	6963	1.8	3.3	9697	3.8	4.5	3418	0.9	1.6
Finland		7529	6.2	4.0	12821	9.4	6.9	-2882	-0.8	-1.5
France		-4833	2.8	-0.2	-7944	1.2	-0.4	12790	1.3	0.6
Germany		103425	-1.2	3.8	191784	3.2	7.0	-53412	-2.7	-1.9
Ireland		-748	0.3	-0.4	39562	24.4	21.4	-11333	-11.2	-6.1
Italy		-15138	0.7	-0.9	10911	2.0	0.6	1719	0.1	0.1
Netherlands		23172	3.3	3.8	31042	4.0	5.1	2309	-0.1	0.4
Sweden	a	22844	2.4	7.5	18933	6.2	6.2	1883	-1.1	0.6
United Kingdom		-41883	-2.7	-2.0	-107302	-3.2	-5.0	37009	1.5	1.7
Greece	a	-11225	-5.8	-6.4	-25606	-14.3	-14.7	13033	5.8	7.5
Portugal		-12682	-8.1	-7.2	-18149	-11.4	-10.3	5112	1.6	2.9
Spain		-49225	-2.2	-4.7	-64524	-4.9	-6.2	31198	3.7	3.0
EU-15			*-0.1*	*0.4*		*0.9*	*0.8*		*0.2*	*0.5*
Australia		-40025	-5.7	-6.5	-18215	-2.5	-2.9	-761	-0.2	-0.1
Canada		22000	0.3	2.2	50682	4.3	5.1	-9769	-0.7	-1.0
Iceland		-1055	-6.9	-8.4	-519	-3.6	-4.1	-215	-1.1	-1.7
Japan		172059	2.6	3.7	132134	2.8	2.8	-37903	-1.2	-0.8
New Zealand		-6199	-6.1	-6.3	-1431	-0.6	-1.5	945	-0.3	1.0
Norway		34445	5.3	13.6	33576	6.8	13.2	1971	0.6	0.8
Switzerland		50568	10.5	14.1	15547	0.3	4.3	17508	4.8	4.9
United States		-665939	-3.2	-5.7	-662036	-3.7	-5.6	44961	0.9	0.4
Advanced OECD			*-1.3*	*-2.3*		*-1.4*	*-2.4*		*0.3*	*0.1*
Czech Republic		-5595	-2.5	-5.2	-876	-3.2	-0.8	478	2.0	0.4
Estonia		-1432	-5.3	-12.7	-1966	-15.7	-17.5	1087	10.3	9.7
Hungary		-8819	-7.8	-8.7	-2922	-4.5	-2.9	-28	1.8	0.0
Latvia		-1673	-9.1	-12.1	-2749	-14.3	-19.8	604	4.7	4.4
Lithuania		-1590	-11.0	-7.1	-2317	-12.9	-10.3	918	2.8	4.1
Poland		-3594	-7.4	-1.4	-5584	-9.0	-2.2	922	0.8	0.4
Slovak Republic	a	-282	-5.7	-0.9	-649	-5.4	-2.0	241	0.3	0.7
Slovenia		-275	-3.2	-0.8	-1044	-5.7	-3.2	833	1.6	2.6
NMS-8			*-6.4*	*-4.0*						
Croatia		-1668	-7.1	-4.9	-8346	-16.6	-24.3	5997	8.2	17.5
Bulgaria		-2053	-5.0	-8.5	-3366	-8.3	-13.9	877	2.4	3.6
Romania		-5589	-3.6	-7.6	-6665	-3.1	-9.1	-265	-1.2	-0.4
Candidates			*-4.8*	*-7.1*		*-7.7*	*-13.9*		*2.0*	*5.0*
Turkey		-15543	-0.7	-5.2	-23925	-5.5	-7.9	12774	4.1	4.2
Mexico		-7394	-2.9	-1.1	-8811	-1.2	-1.3	-5775	-0.6	-0.9
Hong Kong, China		16357	6.4	10.0	-9312	-2.0	-5.7	23761	6.5	14.6
Korea, Rep.		27613	5.5	4.1	38161	6.4	5.6	-8769	-0.1	-1.3
Singapore	a	28184	18.5	30.5	29323	15.1	31.7	1135	2.5	1.2
Taiwan	a	29202	2.7	10.1	24899	5.0	8.6	-2533	-2.4	-0.9
1st Tiger			*6.0*	*8.5*		*5.6*	*7.1*		*0.4*	*1.1*
Indonesia	a	7252	4.1	3.0	23708	14.7	9.9	-12107	-5.6	-5.1
Malaysia	a	13381	15.9	12.9	25711	28.6	24.8	-3954	-3.6	-3.8
Philippines		2080	9.5	2.4	-6381	6.5	-7.4	-1282	-3.6	-1.5
Thailand		7080	10.1	4.3	11124	11.4	6.8	-4170	0.9	-2.6
2nd Tiger			*8.6*	*5.1*		*15.3*	*9.5*		*-3.3*	*-3.7*
China	a	45875	2.1	3.1	44652	3.6	3.0	-8573	-0.5	-0.6
India	a	6853	-0.7	1.2	-8870	-1.9	-1.5	-2313	-0.6	-0.4

Note: a) 2003 instead of 2004.

Source: BOP Statistics, IMF.

countries. China was the only country with a comparable export growth performance. Appendix Table A.5 further records export growth of the advanced OECD members, which compare on average to those of the Asian Tiger economies, thus reflecting the global increase in export volumes. As a consequence, the new member states have increased their exports above world exports and thus gained new market shares, above all in the EU-15 market (see also Figure 2.3 below).

… together with strong increases in service exports

The increasing presence of CEECs on the world market (and in particular on the EU-15 market) is not confined to goods only, also their services exports expanded strongly (see again Appendix Table A.5) and on average more than in the Asian Tiger countries. Here, developments in the candidate countries were more dynamic than in the new member states.

1.3 FDI plays a major role in economic development for CEECs

CEECs still net recipients of FDI in contrast to first Asian Tigers

Apart from a country's ability to produce goods that are demanded abroad, another important factor is the attractiveness of a country as a location for the international production of goods as well as its ability to finance international production through foreign direct investment. The major net donors of foreign capital remain advanced countries such as Japan, Germany, Switzerland, the Netherlands, Sweden and Norway. Ireland has developed from being a net importer of foreign capital to becoming a net exporter. Also the Asian Tigers are often net exporters of foreign capital, in particular the most advanced countries among them, i.e. Singapore, South Korea and Hong Kong – the latter due to its special function as a port into China for foreign capital. On the other hand, the greatest net receivers of foreign capital remain the USA and the UK. Further, the new member states and the candidates are important net receivers of FDI. Recently, also Turkey has gained attractiveness for foreign investors and become a net receiver of foreign direct investment.

FDI plays a strong role in CEECs …

Table 1.3 reports the importance of foreign direct investment, measured by the FDI stock in per cent of GDP, for the ten country groups. Detailed country information and the balance of FDI flows can be read again from Appendix Table A.6. The strong importance of FDI especially for the new member states is reflected in above-average inward FDI stocks in per cent of GDP (with Slovenia being the obvious exception) compared to most other regions. This is largely due to the large-scale privatization in these countries, which was often done through FDI. The new member states exhibit a great deal of homogeneity with respect to the importance of FDI for their economies, while all other regions show considerably more diversity among individual countries. For instance, Ireland, Spain and some other old

member states have very high FDI stocks in relation to GDP. Great diversity is also found among the Asian countries, with FDI stock to GDP ratios well above 100% in some special cases (Hong Kong and Singapore) and very low numbers in other countries (Indonesia and Korea).[7] Since FDI is strongly influenced by government policies, it should not be interpreted as a direct indicator of underlying competitiveness, however, it is certainly intrinsically linked to competitiveness and it has shown positive effects particularly in CEECs.[8]

Table 1.3

Economic relevance of FDI, 2000 and 2004

inward FDI stock in % of GDP

	2000	2004
EU-15	23.9	27.3
Advanced OECD	12.0	12.9
NMS-8	29.3	38.1
Candidates	18.1	30.0
Turkey	9.6	11.7
Mexico	16.7	27.0
1st Tigers	53.0	56.9
2nd Tigers	26.3	19.0
China	17.9	14.9
India	3.7	5.9

Source: UNCTAD: World Investment Report.

… and has grown despite the global downturn

While most regions experienced a decline in both, inward and outward FDI flows in recent years, CEECs mostly experienced increases in inward FDI and even more so in outward flows. The latter is of course explained by the low initial level of outward FDI, but all the more remarkable since it shows a graduation of these countries from pure net receivers towards becoming net outward investors. Strong increases in inward FDI flows were observed for the Baltic states, Slovenia and Slovakia. In terms of outward flows, again the Baltics, Slovenia, Poland and the Czech Republic showed high increases over the past five years. The rising attractiveness of Turkey for foreign investors is again observed here.

[7] The reported figures are official UNCTAD figures. The wiiw estimates a substantially higher value for China: 27% of GDP (Urban, 2006). This FDI to GDP ratio still remains below the value for almost all CEECs.

[8] In theory, FDI may act as a catalyst to boosting economic development directly by augmenting the capital stock (and often renewing or improving it) and indirectly through spillovers. There are various channels for spillovers from FDI on domestic economic development (and thus on competitiveness as the ability of a country to produce goods in an environment of strong international competition) through imitation, training of local workers, increases in competition and finally vertical spillovers, i.e. the increased variety of intermediate goods and improved access to new products and embodied technologies may induce a more effective specialization in international production. The empirical literature is more mixed about the effects of FDI in general, it finds however mostly positive effects in CEECs (see for example Javorcik, 2004; Kinoshita, 2001).

While FDI flows to and from the first tier of Asian Tigers remained relatively constant, there was a strong decline in inward flows into the second tier of Asian Tigers over the past five years. Again, this puts the new members into a good position vis-à-vis that group of competitors in emerging Asia. Table A.7 in the Appendix gives an overview of the dynamics of inward and outward FDI flows in each country. The recent global decline in FDI flows is clearly visible from the predominantly smaller and often negative average annual growth rates over the past five years as opposed to the past decade.

1.4 Summary: Generally sound macroeconomic competitiveness in NMS, less so in the candidates

The evidence presented so far shows that CEECs are catching up in terms of macroeconomic competitiveness. They show a strong growth performance at intermediate and rising income levels. Their importance on the EU-15 market is comparable to the first tier of Asian Tigers, leaving the second tier of Asian Tigers clearly behind up to date. In terms of economic structure and export structure, they are still at an intermediate level with a distinctly more backward pattern than advanced OECD members and the first tier of Asian Tigers. Thus, they play an important role as suppliers of manufacturing goods to the EU-15, while trade integration in services, and for the new EU members particularly in business-related services, is intensifying. Although all CEECs run trade deficits up to date, there are signs of improvements, despite weak domestic demand in the EU-15 and adverse currency movements. Export growth in these countries is remarkable against this background and one of the main drivers of their strong growth performance. FDI, in particular privatization-related inward FDI, has been an important contribution to economic development in these countries. In contrast to the Asian Tigers, who record mostly net outflows of foreign direct capital, CEECs are still large net receivers of FDI. Thus, in terms of the investment development path (see Dunning, 1996) they may be regarded as being at an earlier stage of development in this respect compared to the Asian economies. Nevertheless, due to the high importance of FDI in CEECs, the positive contribution to overall development has been pronounced. In sum, the new member states can be considered as being comparable in terms of economic development to the first wave of Asian Tigers. They are in a more advance position compared to the second wave of Asian Tigers and thus still able to stand up against competition from these countries on the EU-15 market. The candidate countries still have to undergo substantial restructuring before reaching a position similar to those of the new members.

1.5 Good performance on infrastructure-related indicators of competitiveness for NMS

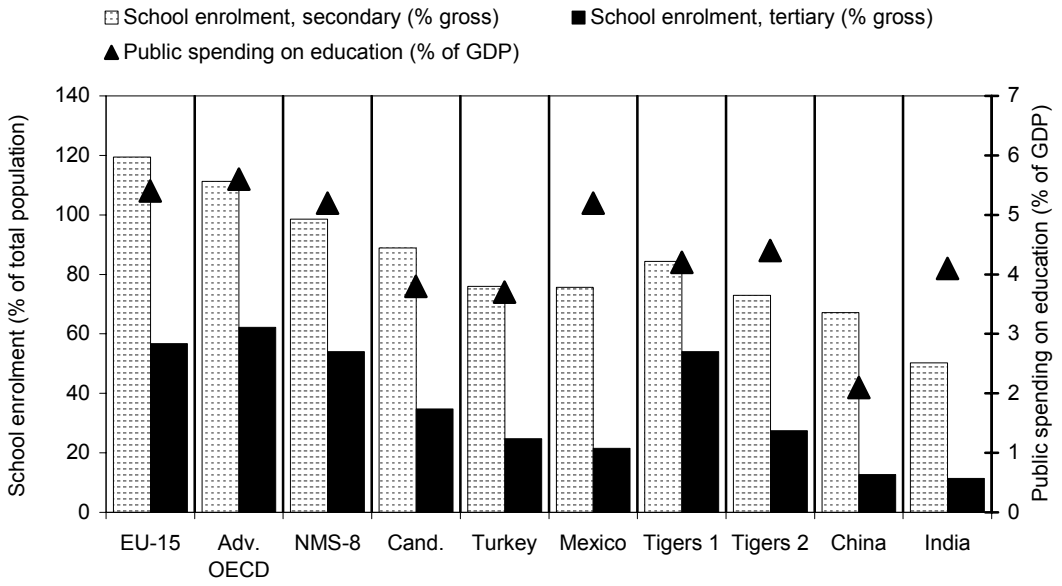
In the following subsections we describe a number of indicators reflecting alternative components of price competitiveness, in addition to the quantitative measures to be described in more detail at the industrial level in Part Two below. These alternative, qualitative indicators are available on the country level only and are therefore treated in this section. They often measure entrepreneurs' perceptions or infrastructure in terms of transport, communications, education, etc. They represent an important addition to traditional indicators, since they are better suited to capture future trends and – by influencing investor decisions – they have also a certain impact on future developments.

In terms of education infrastructure, NMS-8 are performing better than all other catching-up regions ...

Figure 1.4 displays three indicators of human capital-related infrastructure. The most recent available figures here are for 2001. However, no dramatic changes, especially in relative terms, can be expected to have occurred over the short time period since then with respect to this set of indicators.

Figure 1.4

Infrastructure indicators: Human resources, 2001



Note: Gross school enrolment is defined as students of all age groups enrolled in the respective education sector in per cent of the relevant age group (therefore shares may exceed 100%).

Source: World Bank, World Development Indicators.

There are some remarkable differences among the individual catching-up regions in the sample. With 5.2% on average, the new member states show no notable gap to the old members or the remaining advanced countries. However, the candidate countries are

considerably below this level. With only 3.8% they even rank below the average for the first (4.2%) and second (4.4%) wave of Asian Tigers. In the latter group, the simple average is strongly influenced by the very high level for Malaysia of 7.9%. China spends considerably less on education on average than most competitors, while India is well comparable to the first wave of Tiger economies. Most countries are at intermediate levels, between 3% and 5%. In our sample, public spending on education in per cent of GDP ranges between 1.3% in Indonesia and 8.5% in Denmark. In terms of school enrolment (both secondary and tertiary) a similar picture emerges, with the exceptions that the candidate countries surpass the Asian Tiger countries according to this indicator, in particular with respect to secondary school enrolment. China and India are both characterized by relatively low enrolment rates, in particular in the tertiary sector. Thus, the new members rank third behind the advanced OECD group and the EU-15 in these indicators, ahead of all other catching-up regions.

... while they rank behind the first Tigers and sometimes even behind China in terms of R&D expenditure

In terms of R&D expenditure (again measured in per cent of GDP) a rather different picture emerges (see Appendix Table A.8). Here, both groups of CEECs fall short of the relative expenditure levels in more advanced countries of roughly 2%. With levels below 1% they are however comparable to the cohesion countries among the old member states. Slovenia stands out in its group with a level comparable to Luxembourg. Again, Bulgaria and Romania perform considerably worse than the remaining CEECs. In contrast, the first Tiger countries – in particular Korea and Singapore – spend considerably more on R&D, reaching similar levels as many advanced OECD members. The remaining Asian economies show relatively low R&D expenditures. With 1.2% China is still above the NMS average and comparable to the Czech Republic. The number of researchers in R&D per million people conveys the same general information, with the exception that fewer researchers are employed in R&D in China than in the individual CEECs, including the candidates. China ranges exactly in the middle between the second wave of Tigers and Turkey and Mexico at the lower end and the two groups of CEECs on the higher end. The figures for the first wave of Asian Tigers are more in line with those of the EU-15, reflecting their equally high expenditures on R&D in relation to GDP.

Mobile phone penetration in CEECs is high and communication infrastructure is generally good, but lagging behind first Tigers

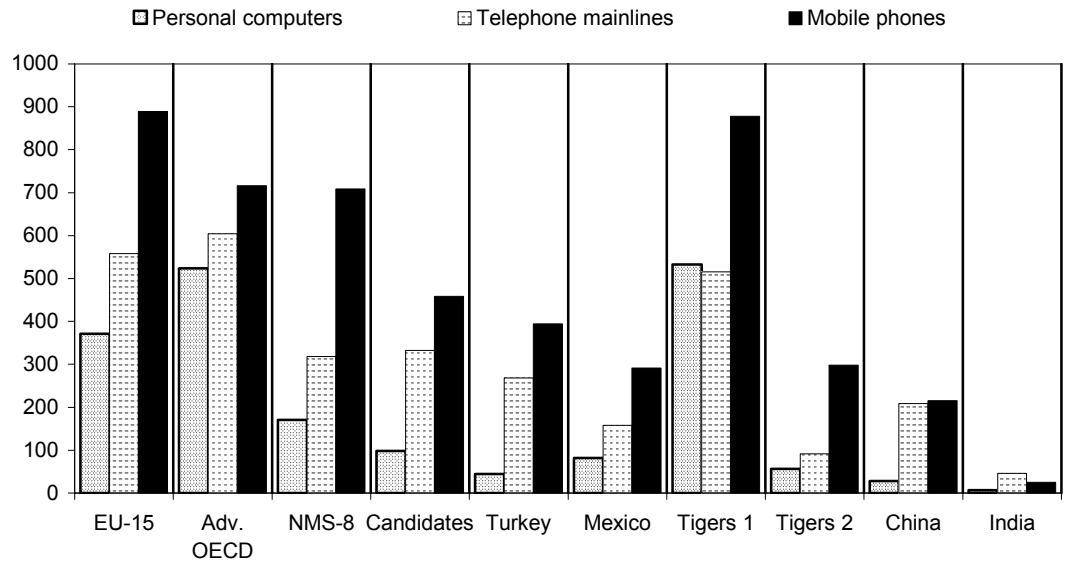
Finally, we collected information on telecommunications and computer infrastructure (see Figure 1.5) as measured by the number of personal computers, telephone lines and mobile phones per 1000 people. Telecommunications and computing infrastructure is best developed in the old EU members, the advanced OECD members and the first tier of Asian Tigers. With respect to personal computers, the latter group is in the lead in absolute terms. Both groups of CEECs range at intermediate levels, while the second wave of Asian

Tigers, together with the emerging markets, Mexico, Turkey, China and India, are still lagging behind to a large extent.

Figure 1.5

Infrastructure indicators: Telecommunications, 2002-2003

per 1000 people



Source: World Bank, World Development Indicators.

The legacy of weak institutions has to be overcome in CEECs in order to make best use of their relatively well developed infrastructure

Appendix Table A.9 lists a set of predominantly business-related infrastructure indicators, drawn from the Investment Climate Surveys of the World Bank, carried out in cooperation with the International Finance Corporation. These indicators are not available for our complete sample but for most of the countries within the two groups of catching-up economies, the CEECs and the emerging Asian countries. While on average CEECs do better with respect to indicators of business-related infrastructure, such as delays in obtaining electrical and telephone connections and the usage of internet for customer interactions, they perform relatively worse with respect to the legal environment in terms of the general confidence of business entrepreneurs in the judiciary system, the time to resolve overdue payments and the costs related to maintaining security. Turkey shows a constantly good performance in all indicators, surpassing the individual CEECs in almost all cases. Thus, some competitive weakness in terms of the legal system can be identified for CEECs, a clear sign of an unwelcome heritage from their communist past. As will be evident also from additional qualitative indicators listed below, it is a major challenge for CEECs to overcome this heritage in the near future. The accession to the EU has clearly helped (and will help, respectively) in this regard. While especially the new member states

generally appear to have a stronger competitive position as compared to the second wave of Asian Tigers and China and India, in this particular respect they fall behind this group of catching-up countries.

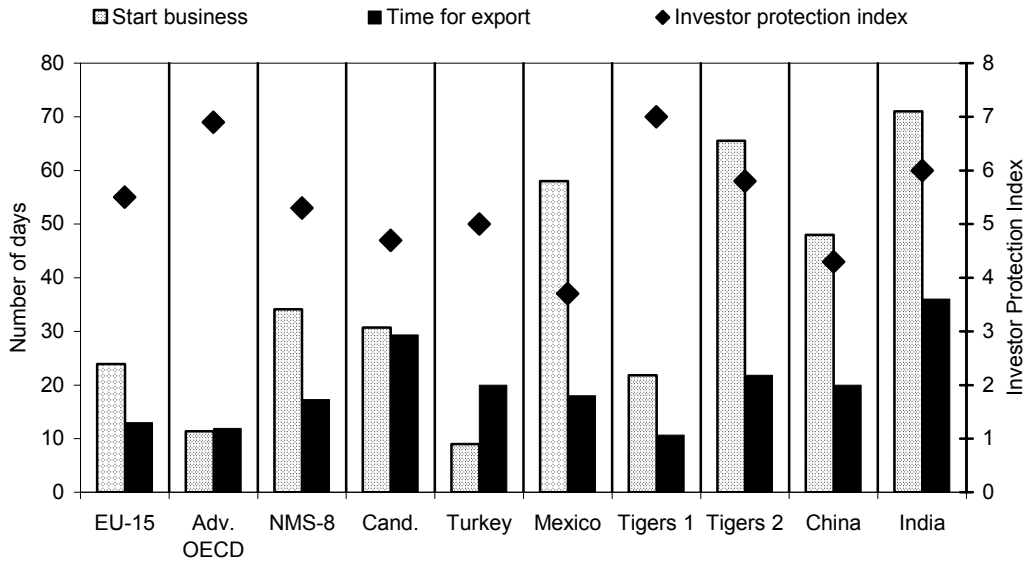
1.6 Business environment is at an intermediate level, but above most catching-up regions

The business climate in NMS-8 ranks behind the advanced economies and the first Tigers, thus yielding a strong competitive position against other catching-up countries, while the candidate countries are ranking lower

This subsection captures indicators of the overall business climate, i.e. through perceptions on the ease of doing business in individual economies, and through various indices for economic freedom and corruption. Figure 1.6 shows that the old EU members on average require comparatively long procedures for setting up new businesses. The remaining advanced OECD members provide for much faster procedures, particularly so in the US, Australia and Canada. The first group of Tigers (except Taiwan) show on average faster procedures than the EU-15. The new member states and the candidates range again in the middle, with a better position here for the candidate countries in comparison to the new member states.

Figure 1.6

Business environment, 2003



Note: Higher values reflect better investor protection.

Source: World Bank / International Finance Corporation: Doing Business Database.

In terms of time for exporting (again Figure 1.6), the first wave of Asian Tigers clearly stand out with the lowest average number of days for completing all relevant procedures.

Singapore in particular is characterized by fast procedures (six days), which is only matched by Denmark, Germany and Sweden, but also Lithuania. The EU-15 average is negatively influenced by countries such as Greece, Italy and France. Again, exporting procedures are completed faster in the remaining advanced OECD countries with the exception of Switzerland. CEECs, and particularly the candidate countries, require on average considerably longer procedures, however, they compete well with the second wave of Asian Tigers in this respect. Also China and India fall into the same range.

Finally, the investor protection index (ranging from 0 to 10, with higher numbers indicating better protection) reflects the earlier findings. The first Tigers show an excellent average rate of protection of minority shareholders. In more detail, Singapore and Hong Kong, but also Malaysia exhibit values comparable to those in New Zealand, Canada and the US, while Korea and Taiwan fall behind on this indicator. They are better comparable to the new member states and the candidate countries, as well as to many old EU members. Among the new members, Poland, Slovenia and Latvia have good protection rates; Slovakia ranges at the end of the list.

Another important index is related to legal security (see Appendix Table A.10) and given by the costs of contract enforcement in per cent of the outstanding debt. Here, the new members states fall well into the range spanned by the advanced OECD members together with the first Tigers. Again, Denmark heads the list with 5.3%, followed by Korea (5.4%) and Sweden (5.9%). Surprisingly, Ireland performs very badly on this indicator, followed by Italy, Portugal and the UK. The CEECs and Turkey range in between these countries, while the costs of contract enforcement are considerably higher in the second tier of Asian Tigers and China and India.

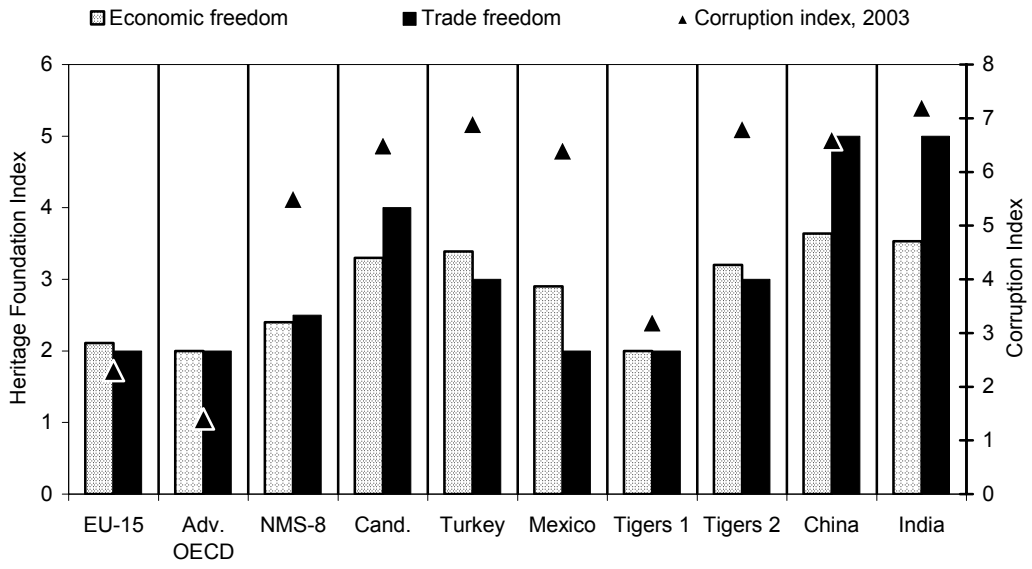
In summary, NMS-8 provide for an intermediately well developed business environment, ranking shortly below the first Tigers. They have to catch up still in terms of legal environment and corruption.

Figure 1.7 summarizes the results from different data sources to obtain similar information on the ease of doing business. The often used Heritage Foundation's Index of Economic Freedom defines low values as referring to greater economic freedom. The ranking of countries and regions remains in principle the same as before, with the new member states falling in between the most advanced countries – represented here by the first wave of Asian Tigers, the advanced OECD members and the old member states in this order – and the second wave of Asian Tiger economies jointly with China and India at the lower end. The candidate countries and Turkey match more closely with the latter group, reflecting an apparent differential in economic development and international competitiveness between the two groups of CEECs. Turning towards the corruption index, the picture becomes somewhat modified. While the ranking of countries and regions remains unchanged, the distance between the new member states and the most advanced

countries in this respect is higher, thus it appears that the new members fall more strongly behind the old members and especially their competitors among the first Tigers in this respect. As mentioned previously, these 'bad habits' that have carried over from their communist past have a negative impact on competitiveness and have thus to be overcome soon.

Figure 1.7

Economic freedom and corruption indices, 2004



Note: Lower values reflect a better position in all three indices.

Source: World Bank/International Finance Corporation: Doing Business Database.

1.7 Summary: NMS-8 rank high among catching-up regions in qualitative competitiveness indicators

In conclusion, the Eastern European catching-up economies perform well in comparison to their competitors in Asia. Their performance can be classified in between the two groups of Asian Tiger countries. While the first Tigers have closed the gap to the advanced OECD members (and often surpassed them in their performance on some indicators), the second set of Tiger countries is still lagging further behind than the new EU member states. The candidate countries face stronger competition from the Asian emerging economies according to these indicators.

The Appendix provides more detailed information on relevant qualitative indicators in Tables A.12 and A.13. Appendix Table A.12 reports perceptions on the ease of doing business by firms operating in the respective market. These indicators are again taken from the Investment Climate Surveys of the World Bank and refer to CEECs and the second wave of Asian catching-up countries only. Low values reflect a good business

environment, implying a general perception of low obstacles to the operation and growth of firms. On most issues, CEECs on average surpass the emerging Asian economies and represent a better environment for the smooth and prosperous operation of businesses. There are some exceptions though. Anti-competitive practices are more often perceived as disrupting the smooth operation of businesses in CEECs, likewise access to and costs of financing are often perceived to be higher in CEECs. Also, tax rates are more often perceived as being an obstacle to doing business in CEECs than in the Asian group of catching-up countries. Finally, economic and regulatory policy uncertainty is seen as being of roughly equal quality in both regions in its implications for the operation of businesses, with the best ratings for Slovenia, Estonia, the Czech Republic and Hungary together with India. Turkey is falling well behind all other countries for this specific indicator. Of course, a considerable degree of diversity is observed within the group of CEECs, which differs from indicator to indicator. Slovenia, Hungary, the Czech Republic and Latvia are in general performing above-average, while again the business climate in Bulgaria and Romania, but to some extent also in Poland and in Lithuania is perceived to rank below the average.

Finally, Appendix Table A.13 ranks all countries in our sample according to an aggregate 'ease of doing business' indicator. This shows that the Baltic states in particular exhibit a good general performance, followed by the Czech and Slovak Republics and Hungary among the new member states. It can further be seen from this table that the specific ranking varies greatly between different indicators used. However, the general picture for the NMS-8 is to rank below the two groups of advanced (OECD and EU) countries and the first tier of Asian Tigers, but above all other catching-up regions. Thus, we evaluate their competitiveness with respect to these indicators as relatively good, with one drawback stemming from still too weak institutions in order to effectively fight corruption and guarantee for a sound legal environment in the presence of an already very satisfying business infrastructure.

Part Two: Structural features

In this part of this study we focus on competitiveness of manufacturing industry in the CEECs in comparison with other groups of catching-up economies. The analysis proceeds from traditional measures of cost competitiveness (unit labour costs with their two components, wage costs and labour productivity) to trade performance indicators (evolving export growth and market share performance) to an analysis of trade specialization in which industrial groupings are distinguished by the degree of technological sophistication, and finally to an analysis of relative export price developments which – at a detailed level – is used to keep track of relative product quality improvements of traded commodities. The analysis of export price developments is undertaken by distinguishing industrial groupings (low-, medium/low-, medium/high- and high-tech) and is set in relation to market share developments so that success and failure in 'quality' and 'price competition' can be tracked across the groups of competing catching-up economies.

2.1 Productivity, wages and unit labour costs

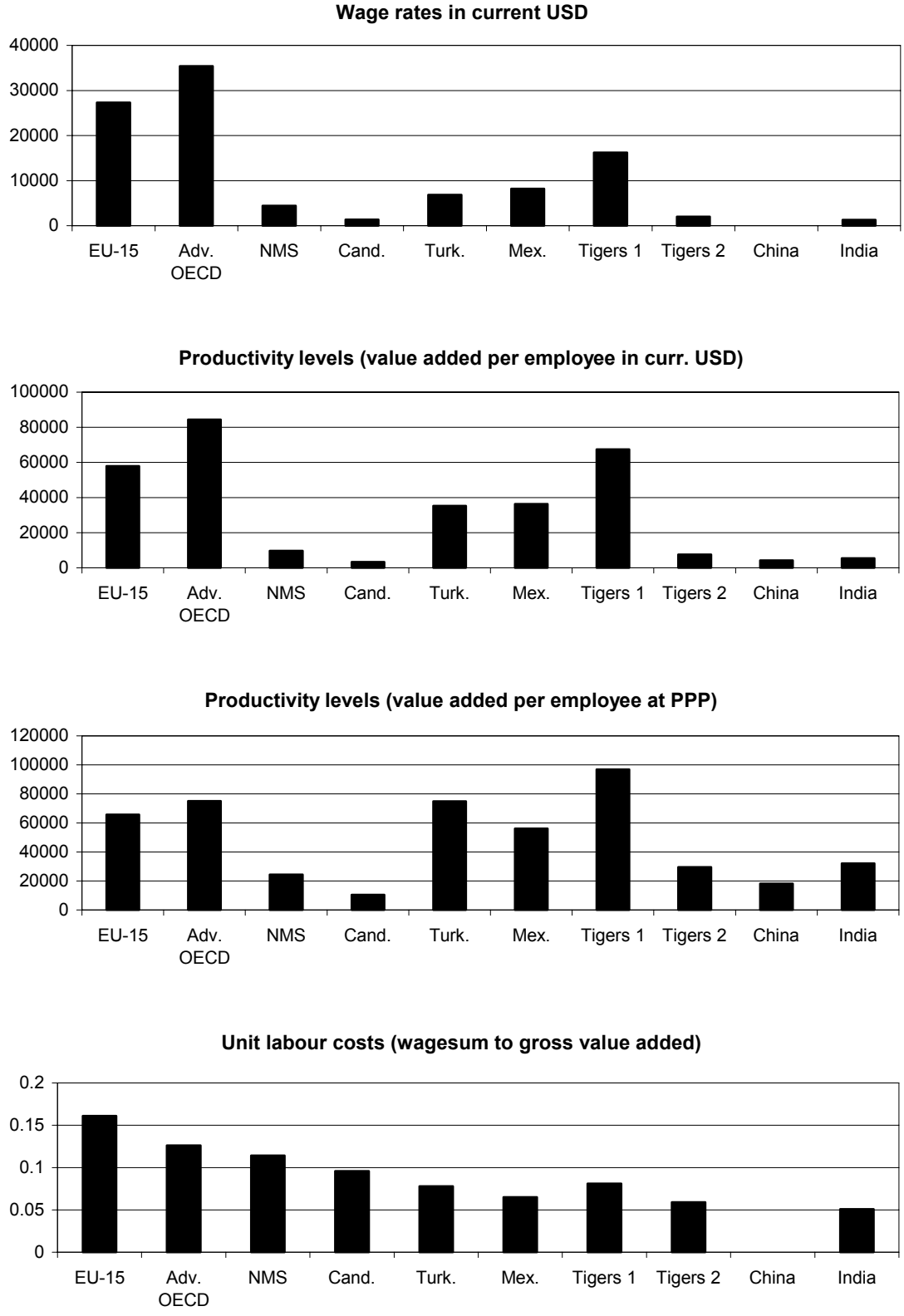
Figure 2.1 presents an overview of relative productivity levels, wage rates and unit labour costs of the NMS, the candidate countries and the groups of comparator countries discussed above (more detailed information for each country is provided in Appendix Table B.2). The data are extracted from the UNIDO industrial database and are limited to the latest available year for which data – at the industry level – were available for all these economies: this is the year 2000. This nonetheless provides a picture of the global hierarchy of economies in terms of these basic determinants of cost competitiveness. We should emphasize that data are not sufficiently available to provide any more sophisticated estimations of comparative productivity levels than simple labour productivity (defined as value added per employee) and we show two such estimates: one in which the value of output was compared at current exchange rates and another at (macroeconomic) purchasing power parity rates. Unit labour costs show the wage costs per unit of output (where the latter is measured at current exchange rates).

We can see that – in 2000 – the NMS and even more so the candidate countries were economies with very low average wage rates in manufacturing (on average USD 4400 per employee per year) which were below those of Turkey and Mexico but above those of the Asian second Tiger economies (where the figure amounts to USD 1997). There is considerable variation amongst the NMS (with high wages paid in Slovenia at one end, USD 8689, which is slightly above the level of Portugal, and low rates paid in Latvia and Lithuania, about USD 2500, which are similar wage levels as those paid in Thailand or the Philippines in manufacturing).

Figure 2.1

Manufacturing sector competitiveness, 2000

(weighted averages for regional groupings)



Source: wiiw calculations.

There is a significant difference in estimates of productivity levels at current exchange rates or at purchasing power parity (PPP) rates which take account of price level differences of comparative baskets of commodities (in our case only at the level of the economy as a whole, as no such price level comparisons across all our comparator economies are available for manufacturing alone). We can see that all the catching-up economies show higher levels of labour productivity when corrections are made for price level differences (through the PPP measure). These corrections might be too high as we know that such price level differences – measured at current exchange rates – are particularly high in the non-tradable services sector. Hence the truth will be somewhere in between these two measurements. As with wage rates, so with productivity levels (when measured at current exchange rates), the NMS are somewhat above the Asian second Tiger countries but not by much (and significantly below the first Tiger economies and even Turkey and Mexico). We shall come back to industry-level comparisons further below (section 2.6).

In pure unit labour cost terms the CEECs are not cost-competitive relative to other groups of catching-up economies

Overall the gaps in wage rates to the EU-15 and the other advanced OECD economies are higher in productivity levels than in wage rates in the CEECs compared to the other catching-up economies; this is shown when we look at unit labour costs (the variable which effectively combines wage rates and labour productivity estimates). Here the NMS and the candidate countries exceed the unit labour cost levels of the other catching-up economies and are relatively close to those of advanced OECD economies. Hence, if we compare competitiveness simply by looking at unit labour cost and leave out other factors (such as the quality of output produced, location advantages, etc.) the NMS and the candidate countries are not particularly cost-competitive. In the detailed tables in the Appendix one can find that unit labour cost levels are very advantageous for Hungary and Slovakia as these countries combine a relatively good position in productivity levels with relatively low wage rates in manufacturing.

2.2 Indicators of aggregate manufacturing trade orientation and trade performance

In export growth terms the CEECs (with the exception of Slovenia, Croatia and Bulgaria) are among the catching-up economies with the best export performance over the past decade; furthermore, export growth has accelerated over the most recent period.

Figure 2.2 shows the shares of manufacturing exports sold by the NMS and the candidate countries to three types of markets: the EU-15, the markets of the NMS themselves, and the rest of the world. In general more than 50%, and in the majority of cases more than 60% of exports go to the EU-15 markets and about 10-20% to NMS markets, the rest to all

other markets of the world. We can see that in the case of Slovenia, Bulgaria and Romania the export share going to the other NMS is somewhat lower as they have more substantial exports to other Balkan countries (a feature which also shows up with Croatia with its higher share of RoW exports; Lithuania shows, for other reasons, a stronger link with non-EU-25 regions, in this case Ukraine and Russia). The high share of exports to the EU-15 by the NMS indicates that attention on competitiveness of CEECs in relation to

Figure 2.2

Export shares of NMS to different markets, 2004

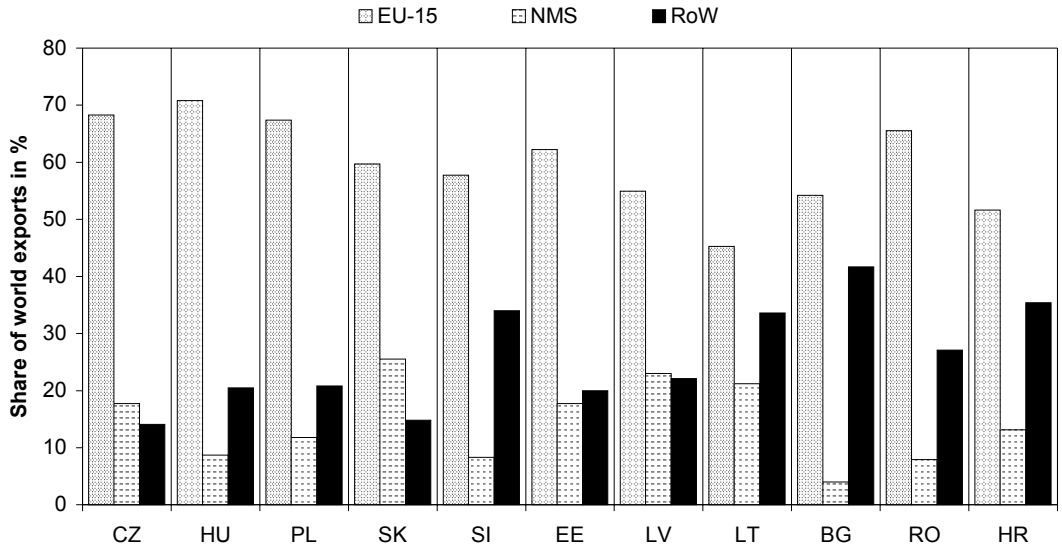
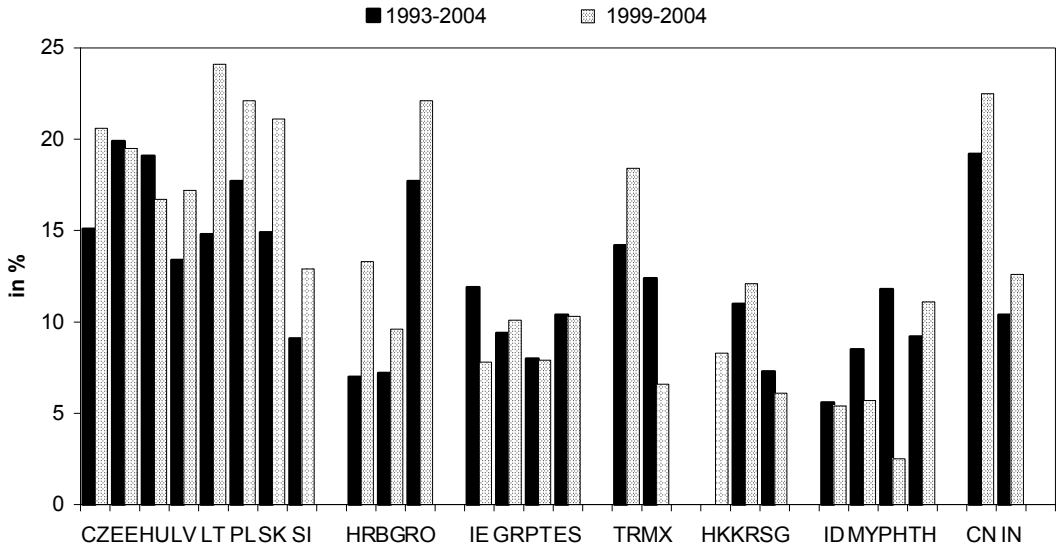


Figure 2.3

Average annual export growth rates



Note: Export growth rates calculated from current USD values.

Source: BOP Statistics, IMF; own calculations.

other comparator country groupings should focus in particular on conditions and performance in EU-15 markets. This will be kept in mind in the analysis conducted throughout Part Two. Figure 2.3 shows the very impressive export performance by the NMS in comparison with other catching-up economies over the past decade. With the exception of Slovenia, Croatia and Bulgaria, all other CEECs recorded export growth rates which were amongst the highest of all catching-up economies and, furthermore, we observe a speeding-up of such growth over the past five-year period (1999-2004) as against the longer 1993-2004 period. Over the most recent period only China and Turkey fall into this league of very impressive export growth performances.

2.3 Unit value ratios (indicators for export quality performance)

Next we report the calculations of relative export prices which we interpret as indicators of relative product quality (for earlier calculations of this type, see Landesmann, 2000 and Landesmann and Stehrer, 2003). The calculations of unit value ratios proceed in the following way (a more formal description is presented in Box 2.1): we use the COMEXT trade statistics at the most detailed (8-digit) level which contains information on price and quantity (usually weight) for about 12,000 products. We then calculate export prices for each exporter to the EU-15 market at this detailed product level and compare the export price with the average price of the respective product in total EU-15 imports. This gives us detailed export (or unit value) ratios for each exporter to the EU-15 market and we then calculate an aggregate index by simply weighting the individual products by their shares in the export basket in the particular country's exports to the EU-15 market. Later on we also report unit value ratios for groupings of industries and in this case we use as weights the shares of the products in the particular industries' exports to the EU-15 market.

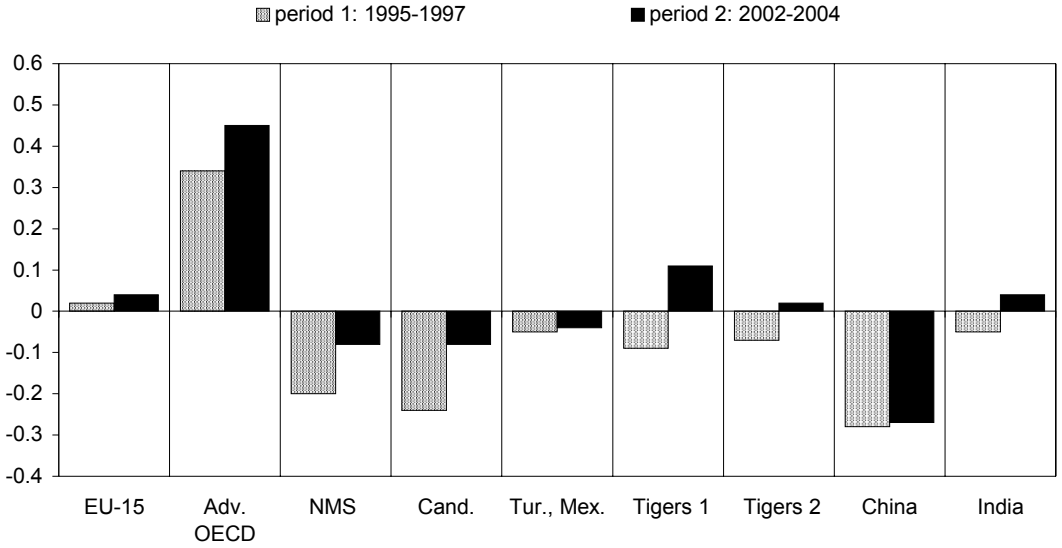
Let us discuss the results of these detailed export price comparisons at the level of total goods exports, which are depicted in Figure 2.4. We present the unit value ratios for two periods: an average over the period 1995-1997 and an average over the period 2002-2004. If we take the first period, we still see that the NMS and the candidate countries sold their export products on the EU-15 markets at substantial price discounts compared to the average EU-15 imports; this indicates a significant 'quality gap'; only China showed an even higher quality gap/price discount. In the more recent period (2002-2004) the quality gap (price discount) has shrunk quite dramatically, from over 20% to less than 10% (for China it remained at close to 30%). We can also see in Figure 2.4 a very dramatic increase in export prices of the Asian Tigers 1 and, a bit less so, the Asian Tigers 2 as well as India. One should add two remarks to these calculations: first, while the calculations of export price ratios were done at the most detailed product level, the aggregation (using trade weights) across products means that differences in composition of exports also matter in these comparisons. For example, as India – as we shall see later on – still exports mostly in the low-tech areas, the aggregate unit value ratios obtained for India will reflect the fact that its

main competitors are those countries which also principally export in this field (which might also be very low-cost suppliers). In contrast, if a country exports mostly higher-tech products (as do the Asian Tigers 1) the aggregate unit value ratios will reveal their relative export price performance compared to other high-tech producers in these fields. This compositional effect should not be forgotten when interpreting these figures. Second, a relatively low unit value ratio indicates – accounting for the commodity composition of that country's exports – that a country sells its products at relatively low or high export prices (compared to the mix of producers who sell in these product areas). It does not by itself reveal whether a country's sales are high or low or whether sales performance has improved or deteriorated (due to a high or low price). We shall deal with this issue explicitly in section 2.5 by combining the information on unit value ratios with information on sales performance.

Figure 2.4

Unit value ratios in EU-15 markets

(calculated from detailed export price data)



Note: Positive values reflect above-average per unit prices of the respective partner in total EU-15 imports, negative values below-average per unit prices.

Export price developments indicate strong product quality improvement of the new member countries and this upgrading is particularly fast in 'medium-high-tech' industries

As a precursor to the more detailed discussion to be conducted in section 2.5, we show in Figure 2.5 the unit value performance for two groups of industries: the 'low-tech' group (comprising industries such as textiles, leather, footwear, wood products, etc.) and the 'medium-high-tech' group (comprising industries such as motor vehicles, electrical and mechanical machinery, chemicals, etc.); these groupings are indicated as groups 1 and 3

respectively in Figure 2.5 (in Appendix Table B.1 we present the full industry details on these groupings). What we observe in these figures with respect to the NMS and the candidate countries is that in the earlier period 1995-1997 the largest price-quality gaps were in the 'medium-high-tech' group, while the price gaps were smaller in the 'low-tech' group of industries. For the NMS the largest reductions in price-quality gaps (from the earlier to the more recent period 2002-2004) took place in the more sophisticated 'medium-high-tech' group, while in the candidate countries the biggest price gap closures still took place in the 'low-tech' group. This reveals the very promising feature for the NMS producers in that they managed to close 'quality gaps' most strongly in the more sophisticated groups of engineering industries where (quality) competition with higher-quality producers is more fierce than in 'lower-tech' industries. This is a distinguishing characteristic of the NMS in comparison to other low-cost competitors such as Mexico/Turkey, China and India.

Box 2.1: **Unit value ratios to calculate quality competition**

In the calculation of relative unit values of traded products we use the COMEXT trade database at the most detailed 8-digit level. Denoting the value of exports to the EU of commodity i by country c in year t by v_{it}^c and the quantity (measured in tons) by x_{it}^c, the export unit value is defined as

$$u_{it}^c = v_{it}^c / x_{it}^c \quad (1)$$

The unit values of country c's exports to the EU are then compared to the unit values of total EU imports (from the world, including intra-EU trade) by calculating the logs of the unit value ratios

$$r_{it}^c = \ln (u_{it}^c / u_{it}^{EU}) \quad (2)$$

where u_{it}^{EU} denotes the unit value of total EU imports for a particular commodity i in year t. Taking the logarithm of (u_{it}^c / u_{it}^{EU}) ensures a symmetric aggregation across products for ratios larger and smaller than 1 (see below). In logs, the ratio is thus larger (smaller) than zero if the export unit value of country c is larger (smaller) than the unit value of total EU imports.

We shall not present information at the very detailed (8-digit) product level but aggregate the unit value ratios to the level of (3-digit NACE) industries and further to industry groupings. This is done by constructing a weighted sum of the unit value ratios r_{it}^c across the products belonging to a particular industry j (or an industry group). The weight used for a particular commodity i in such an aggregation is the share of its export value in the industry's exports of country c. Denoting the set of commodities i belonging to an aggregate j (industry or industry grouping) by $i \in I(j)$ the weights are calculated as

$$w_{it}^c = v_{it}^c / \sum_{i \in I(j)} v_{it}^c \quad (3)$$

The unit value ratio for a particular aggregate j is then

$$r_{jt}^c = \sum_{i \in I(j)} r_{it}^c w_{it}^c \quad (4)$$

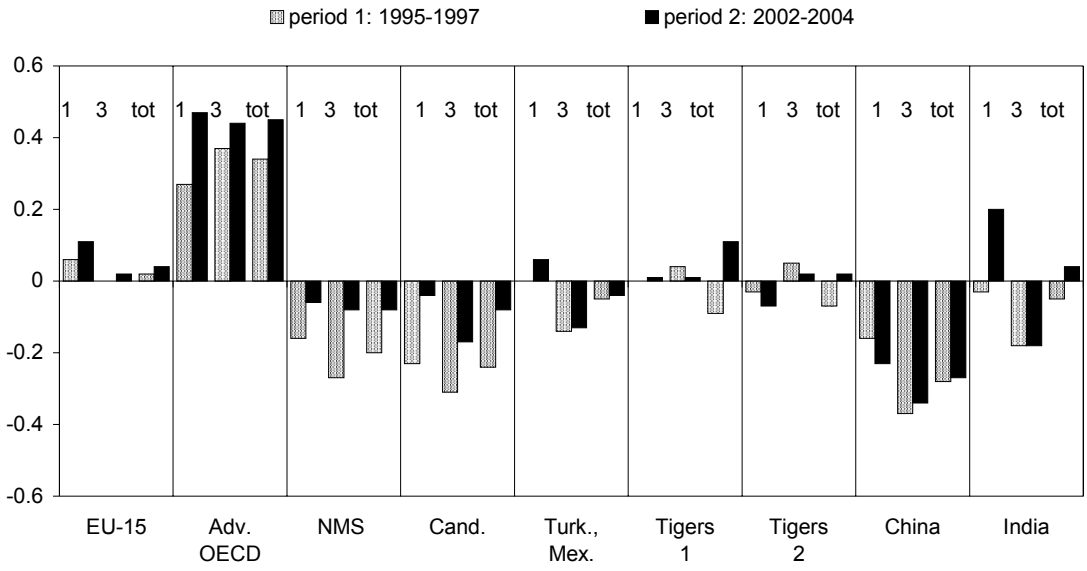
This measure can be interpreted analogously to the unit value ratios for a particular commodity as mentioned above.[9]

[9] As the COMEXT trade data may contain errors at the detailed product level, we have – in our procedure of calculating unit value ratios – deleted very extreme levels of relative unit values. The criterion we used to classify an observation as

Figure 2.5

Unit value ratios by industrial groupings

(groupings 1 – low-tech, 3 – medium/high-tech, and total manufacturing)



Note: For a definition of industrial groupings see Appendix Table B.1, see also note to Figure 2.4.

Source: wiiw calculations.

2.4 Market share developments and trade specialization by industry groupings

We continue with the more detailed examination of trade performance and trade specialization by distinguishing groupings of industries. We adopted here an industry classification that was recently also used by the European Commission (see European Commission, 2005) and which distinguishes four groupings of industries: 'low-tech', 'medium-low-tech', 'medium-high-tech' and 'high-tech'; for a full account of this industry classification turn to Appendix Table B.1. At times we shall take out the industry 'office and computing machinery' (NACE 30) from the group of 'high-tech' industries and show it separately; this will be useful particularly in relation to features of the Asian export performance.

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an outlier was derived from the levels of the so-called 'adjucant values' in the distribution of the unit value ratios in the following way: The lower (upper) adjucant values are defined as the 25th (75th) percentile of the data minus (plus) 1.5 times the interquartile range (i.e. the range from the 25th to the 75th percentile). The lowest adjucant value in the data was found for Bulgaria in 1995 with about 2.5 (≈ -ln 12) and the highest adjucant value for Slovenia in 1999 with about 1.75 (≈ ln 5.75). In the calculations we dropped observations where $r_{jt}^{c} > \ln | 20 |$, i.e. at a value larger than the highest and lowest adjucant values in the sample. This means that observations where the ratio (u_{it}^{c} / u_{it}^{EU}) was higher than 20 or lower than 1/20 have been classified as outliers and removed from the sample. Using this criterion we think that extreme outlier values have been removed without biasing the data.

Export structure of new member states has shifted strongly in the direction of medium-/high-tech industries. This is not (yet) the case for the candidate countries.

Figures 2.6a and 2.6b show the structure of exports on EU-15 markets by the four groupings named above (indicated as sh1, sh2, sh3, sh4) for the two periods 1995-1997

Figure 2.6a

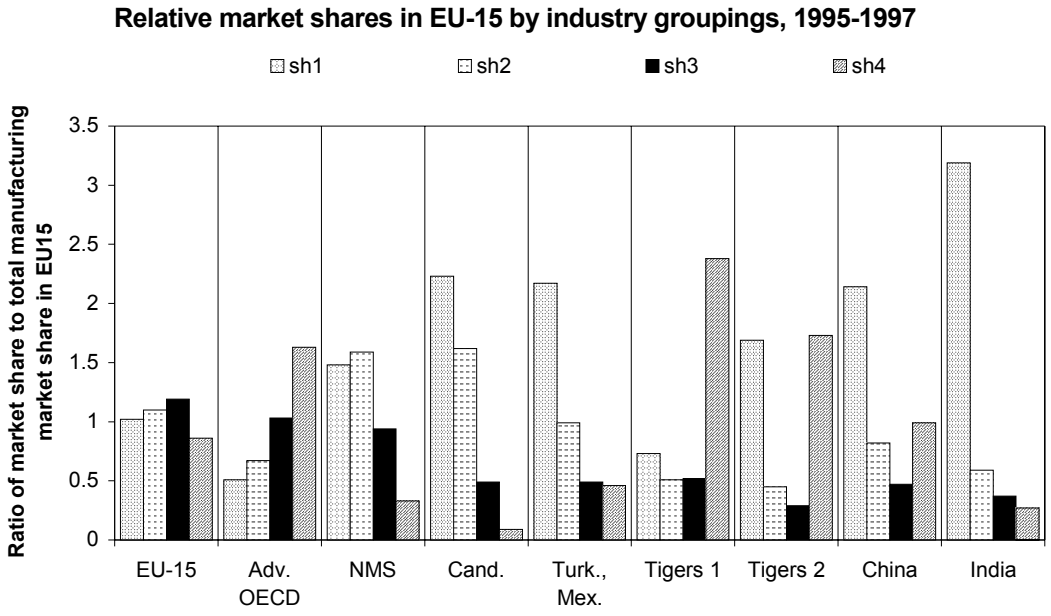
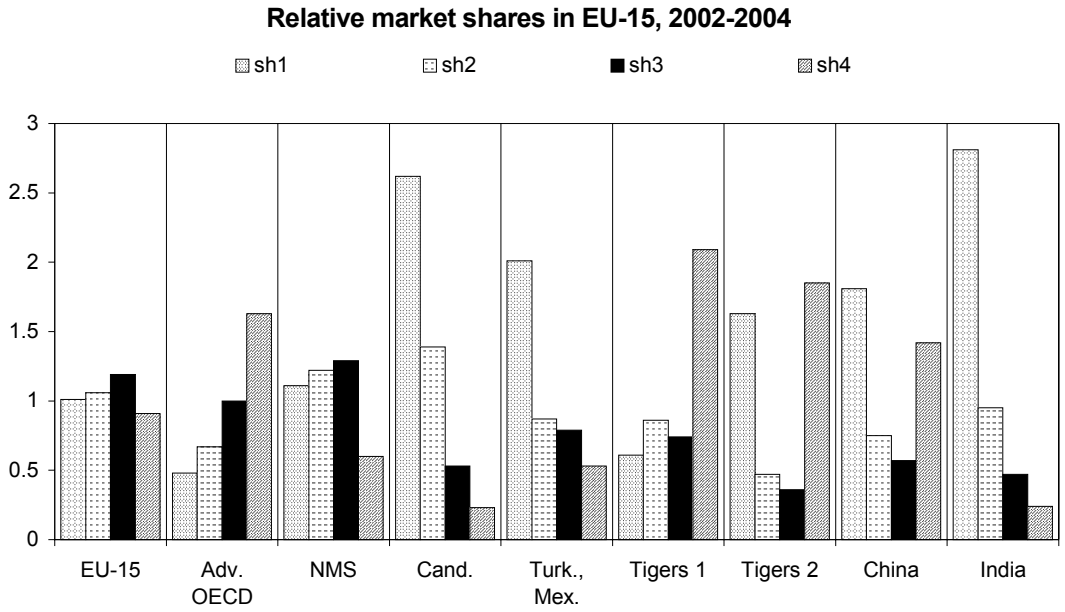


Figure 2.6b



Note: sh1, …, sh4 refer respectively to the relative market share position of the different industrial groupings (low, medium-low, medium-high, high) in a country's exports to EU-15 markets. The market shares are always set in relation to (i.e. divided by) the country's overall market share in EU-15 imports. For a detailed definition of the industry groupings see Appendix Table B.1.

Source: wiiw calculations.

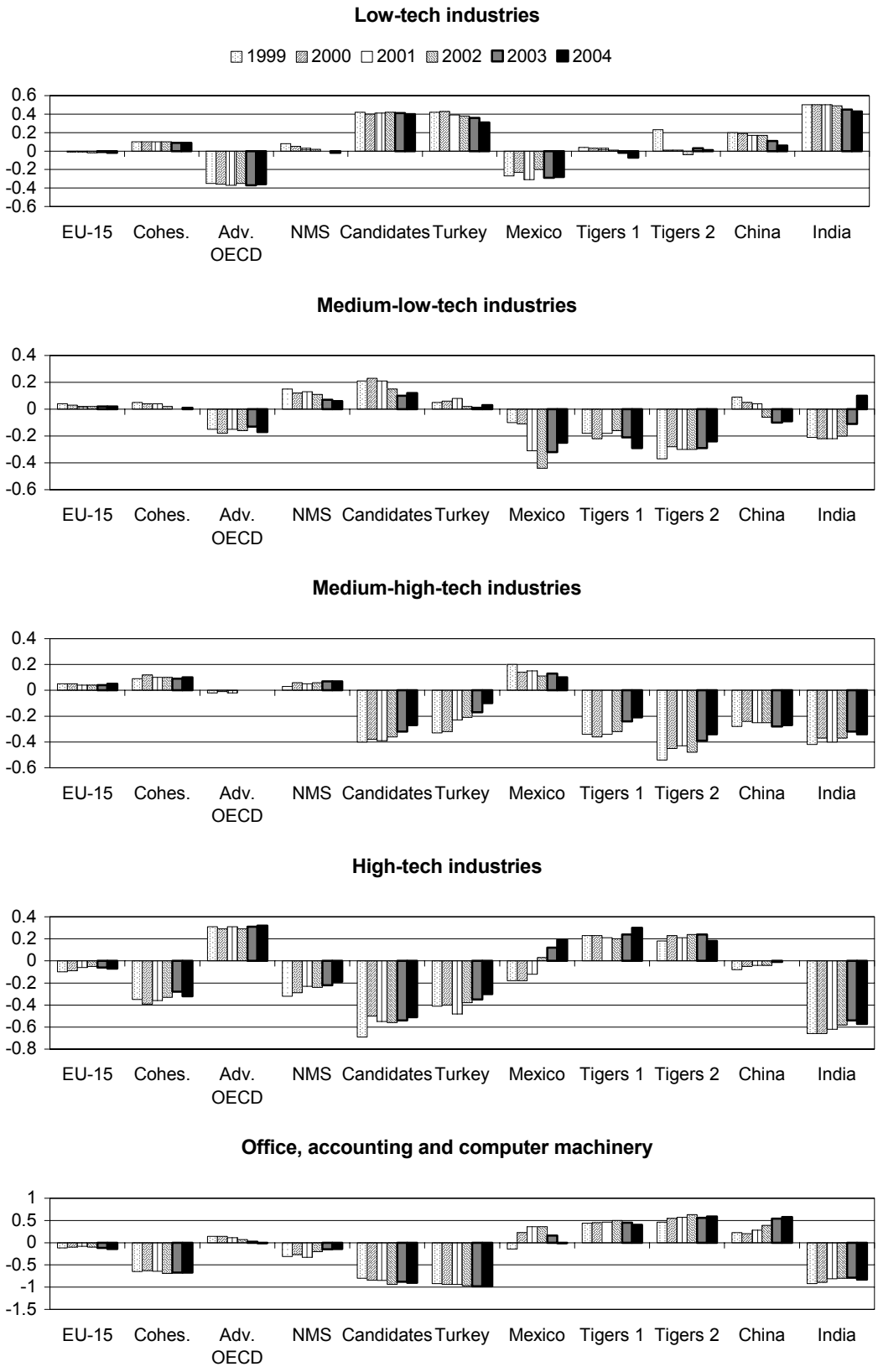
and 2002-2004. Looking at the earlier period first, we see what we would expect to see: countries such as India, China and Mexico/Turkey have relatively high market shares in the low-tech industries (sh1) while advanced OECD countries, and also the Asian Tigers 1 and 2, have relatively high market shares in the high-tech group (sh4); as we shall see later on, this is particularly due to the very strong position of Asian producers in exports of office machinery and computing equipment. As regards the NMS and the candidate countries we see an interesting differentiation which has become much more marked in the second period: while both groups have relatively higher market shares in the low-tech and low-medium-tech groupings than in the high- and medium-high-tech groupings, this hierarchy is much more pronounced with the candidate countries than with the NMS. This difference gets even more accentuated in the more recent period, 2002-2004, when the NMS strongly improved their relative market share position in the two medium-tech groupings, which now account for the largest relative shares; their relative market share in the high-tech grouping also increased, while the relative share of the low-tech grouping was falling. This is not what we find in the candidate countries, where the reliance on strong relative market share positions in the low- and low-medium-tech industries has – if anything – become more pronounced. We take this as an indication that the NMS underwent over this period a significant process of 'upgrading' in its export structure. We shall see that this is also very much borne out by further analyses of developments in unit value ratios across industry groupings reported below. The same phenomenon of upgrading in the export structure is also visible – although less pronounced – in the case of the Asian Tigers 1 and 2, but here (and also in the case of China) the strong market presence in the high-tech group – which is particularly driven by computing equipment – is a distinguishing characteristic.

We now come to a discussion of indicators of trade specialization. Three different indicators of trade specialization have been calculated:

- An indicator of export specialization, which simply calculates whether an industry's share in a country's exports to a particular market is greater or smaller than that country's overall trade share in that market.
- The traditional Balassa index, which is calculated as (exports-imports)/(exports+imports) for an industry grouping i. This index reveals relative trade balances (exports-imports) of different industries.
- The CEPII index of trade specialization (see Box 2.2 for a detailed explanation) looks at the relative export and import specialization while normalizing around the country's overall trade balance.

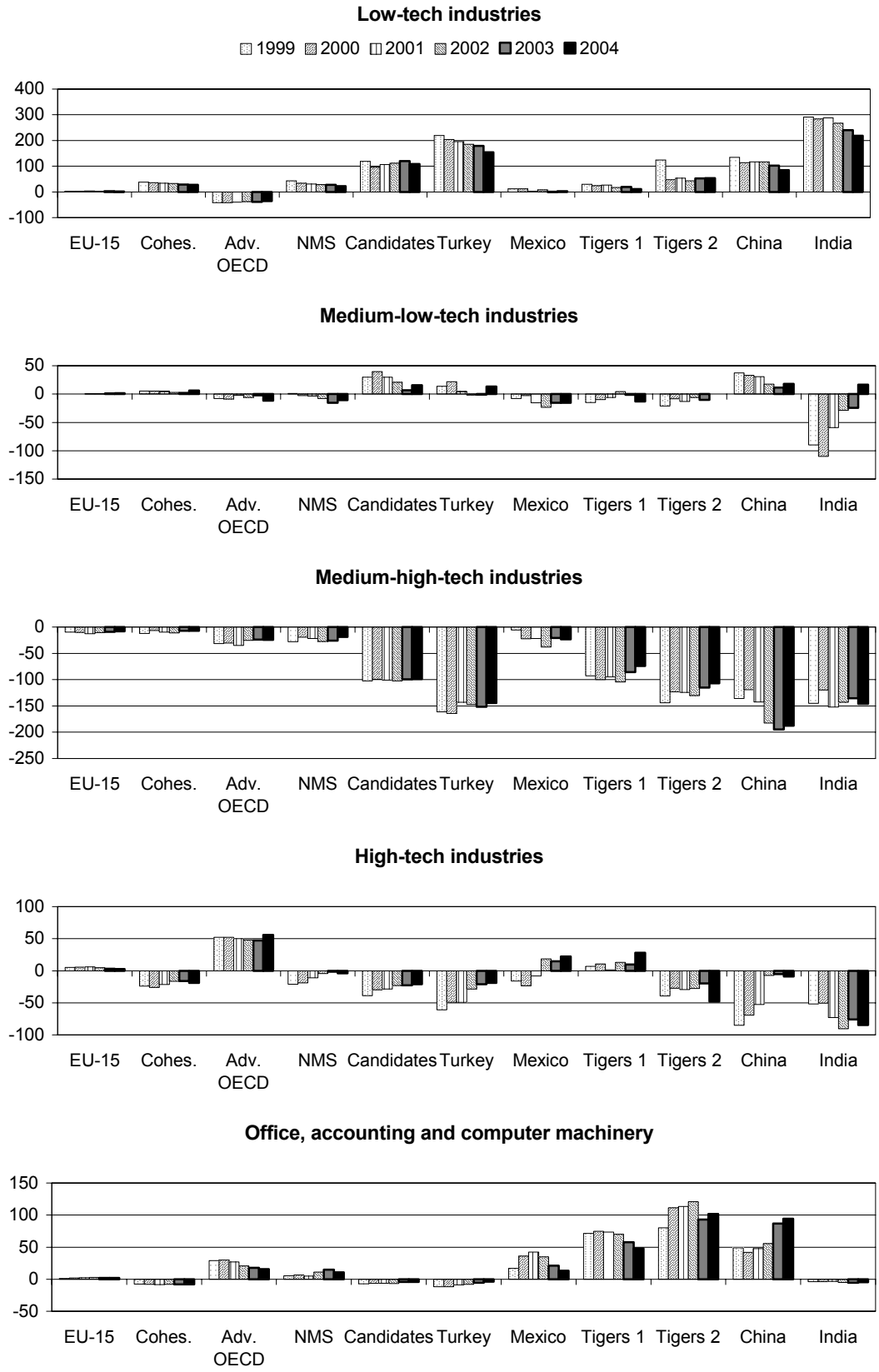
Further, these three types of indicators of trade specialization have been calculated in relation to three types of markets: the EU-15 market, the markets of the RoW (i.e. all markets except the EU-15) and global markets. We reproduce these graphs in the

Figure 2.7 **Export specialization on EU-15 market**



Note: The index of trade specialization is unbound and symmetric around zero, positive values reflect strengths, negative values weaknesses. – *Source:* wiiw calculations.

Figure 2.8 **Trade specialization on EU-15 market (CEPII indicator)**



Note: The CEPII index gives the contribution of each industry group to the overall manufacturing goods balance.
Source: wiiw calculations.

Box 2.2: **Trade balance-based comparative advantage indicator – CEPII Index**

The trade balanced-based comparative advantage indicator can be used to measure the contribution of individual products/industries to the overall trade balance of a country or country grouping. The indicator standardizes the revealed comparative advantage by total trade for the exporting country.

$$RCA_{ic} = \frac{1000}{X_{i.}^{t} + M_{i.}^{t}} * \left[\left(X_{ic}^{t} - M_{ic}^{t} \right) - \left(X_{i.}^{t} - M_{i.}^{t} \right) * \frac{\left(X_{ic}^{t} + M_{ic}^{t} \right)}{\left(X_{i.}^{t} + M_{i.}^{t} \right)} \right] \quad (1)$$

with X_{ic}^{t} and M_{ic}^{t} being respectively country *i*'s exports and imports in industry cluster *c* in year *t* and $X_{i.}^{t}$ and $M_{i.}^{t}$ being respectively country *i*'s total exports and imports in year *t*.

The term $\left(X_{ic}^{t} - M_{ic}^{t} \right)$ is the observed trade imbalance of country *i* for the industry cluster *c* in year *t*, while $\frac{\left(X_{ic}^{t} + M_{ic}^{t} \right)}{\left(X_{i.}^{t} + M_{i.}^{t} \right)}$ is the weight given to cluster *c* in country *i*'s total trade in the same year. The theoretical imbalance is thus given by the expression $\left(X_{i.}^{t} - M_{i.}^{t} \right) * \frac{\left(X_{ic}^{t} + M_{ic}^{t} \right)}{\left(X_{i.}^{t} + M_{i.}^{t} \right)}$, to which the actual imbalance is compared. To allow comparisons across industries, the term $\frac{1000}{X_{i.}^{t} + M_{i.}^{t}}$ is used as a weighting factor which expresses each individual industry cluster's contribution to the trade balance as percentage of total trade. This resulting trade balance-based comparative advantage indicator allows to identify an economy's structural strengths and weaknesses via the composition of international trade flows. It takes into account not only exports but also imports, and tries to eliminate business cycle variations by comparing an industry's trade balance with the overall trade balance. It can be interpreted as an indicator of revealed comparative advantage, as it indicates whether an industry performs relatively better or worse than manufacturing total, whether manufacturing total itself is in deficit or surplus. A positive value for an industry cluster indicates a structural surplus and a negative value a structural deficit. The indicator is additive and adds up to zero across all industry clusters.

Source: OECD, STI Scoreboard 2003.

Appendix (see Figures B.3 to B.6). In the main text we focus on the EU-15 markets and on two indicators, that of export specialization and the CEPII index of trade specialization (see Figures 2.7 and 2.8). The following issues can be seen from these graphs:

The NMS started off with some degree of export specialization in low-tech and medium-tech industries and had a rather strong deficit in high-tech industries. Over time, export specialization in low-tech and medium-low-tech industries disappeared and the export specialization in medium-high-tech industries strengthened. As mentioned above, this group comprises electrical engineering products, mechanical engineering and motor vehicles amongst others. Further, the deficit in high-tech and in computing equipment (separately identified) has declined. This is all in line with the upgrading process of the NMS with regard to their export structure developed earlier.

NMS show increasingly export specialization in medium-/high-tech industries (mostly engineering industries and transport equipment) which distinguishes them from Asian economies, which show stronger orientation towards office machinery and computing equipment

As regards competition with the Asian Tigers 1 and 2, we can see that the specialization structures differ quite substantially in that the Asian Tigers do not show positive specialization in the medium-high-tech industries (as do the NMS) but rather in the high-tech, particularly in the office machinery and computing equipment industry. The latter is also true for China, which shows no specialization in the medium-tech engineering industries either (at least on EU-15 markets). The EU cohesion countries show much higher deficits in the high-tech industry export specialization than the NMS, but also similar strengths in the medium-high-tech industries (motor vehicles, etc.).

As regards the candidate countries (Bulgaria, Romania and Croatia) as well Turkey, these all show strong export specialization in the low-tech and – to a lesser degree – the low-medium tech areas and, persistent, very strong deficits in the high-tech areas, particularly in office machinery and computing, while there is some reduction of deficits in export structures in the medium-high-tech areas. Hence a much more gradual upgrading in export structures is visible for the candidate countries as compared with the NMS.

An analysis of export and import specialization structures indicates high degrees of international production networking within the group of medium/high-tech industries for the NMS and in the high-tech industries for the Asian economies

Using the CEPII index of trade specialization, which looks at trade specialization both on the export and the import side, modifies the picture somewhat. The reduction of positive trade specialization in the low-tech areas for the NMS is still visible when account is taken of exports and imports, as well as the reduction of the deficits in the high-tech areas. Similarly, the strong and persistent trade specialization of the candidate countries and Turkey in low-tech areas is clearly visible. What is interesting is that the positive export specialization in medium-high-tech industries is also true on the import side and the NMS still show an overall negative trade specialization in this area. What at first sight appears to be a strange picture of strong positive export specialization in medium-high-tech areas and slightly negative trade specialization in the same industries using the CEPII indicator can be easily resolved by acknowledging that there is both high export and high import specialization in this area, with import specialization slightly above that of exports. This is a clear sign that the NMS are involved very strongly on the import and export side in production networks (or intra-industry trade) in this area of medium-high-tech industrial production. A very similar picture and explanation applies to the Asian Tigers 2 with respect to high-tech areas, where they showed highly positive export specialization and at the same time negative trade specialization using the CEPII index (which includes exports and imports). Again the correct

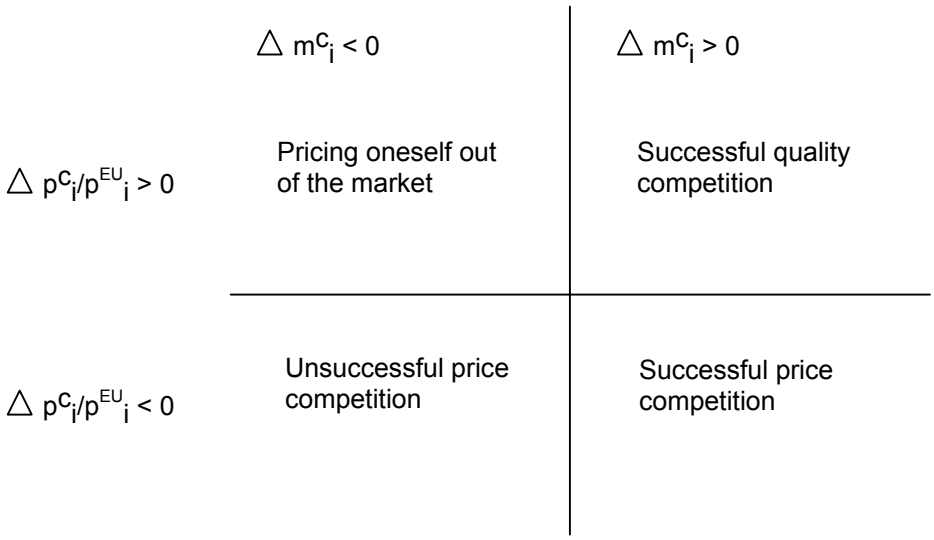
interpretation of this phenomenon relates to strong international production networks in this area and strong flows of intra-industry trade.

2.5 Unit value ratios by industry groupings and the evolution of market shares and product quality upgrading

The next interesting exercise is to look jointly at relative product quality developments (as measured by the unit value ratios discussed in section 2.3 above) and changes in market shares. Figure 2.9 shows a diagram with two coordinates: on the horizontal axis we show the change in market share by a country or country grouping in EU-15 markets (more precisely: in total EU imports in that industry type) and on the vertical axis we show the development of a country's unit value ratios (or: relative export prices). Each time we look at the changes from 1995-1997 to 2002-2004. As already discussed above, the unit value ratio can be interpreted as an indicator of a country's quality of export products compared to those of the aggregate of other exporters in that market (and industry type). In principle, the intersection of the two axes define four fields (see Figure 2.9): In one field relative export prices rise and market shares fall (producers in this field 'price themselves out of the market'). In another field relative export prices rise but market shares rise as well: this can clearly be interpreted as product quality having improved, and this is honoured to such a degree by consumers in that market that market shares (in value terms) even improve ('successful quality competition'). In the two other fields relative export prices fall, but in one

Figure 2.9

Price/quality competition and market share development



Note: △ pci/pEUi refers to the change in export price p by country c in industry i relative to the average EU import price; △ mci refers to the change in market share.

quadrant market shares increase, which would be a sign of successful price competition, while in the other quadrant market shares fall together with relative export prices ('unsuccessful price competition').

NMS are pursuing successful quality competition particularly in the medium-high-tech industries; the figures so far indicate mostly (highly) successful price competition from China

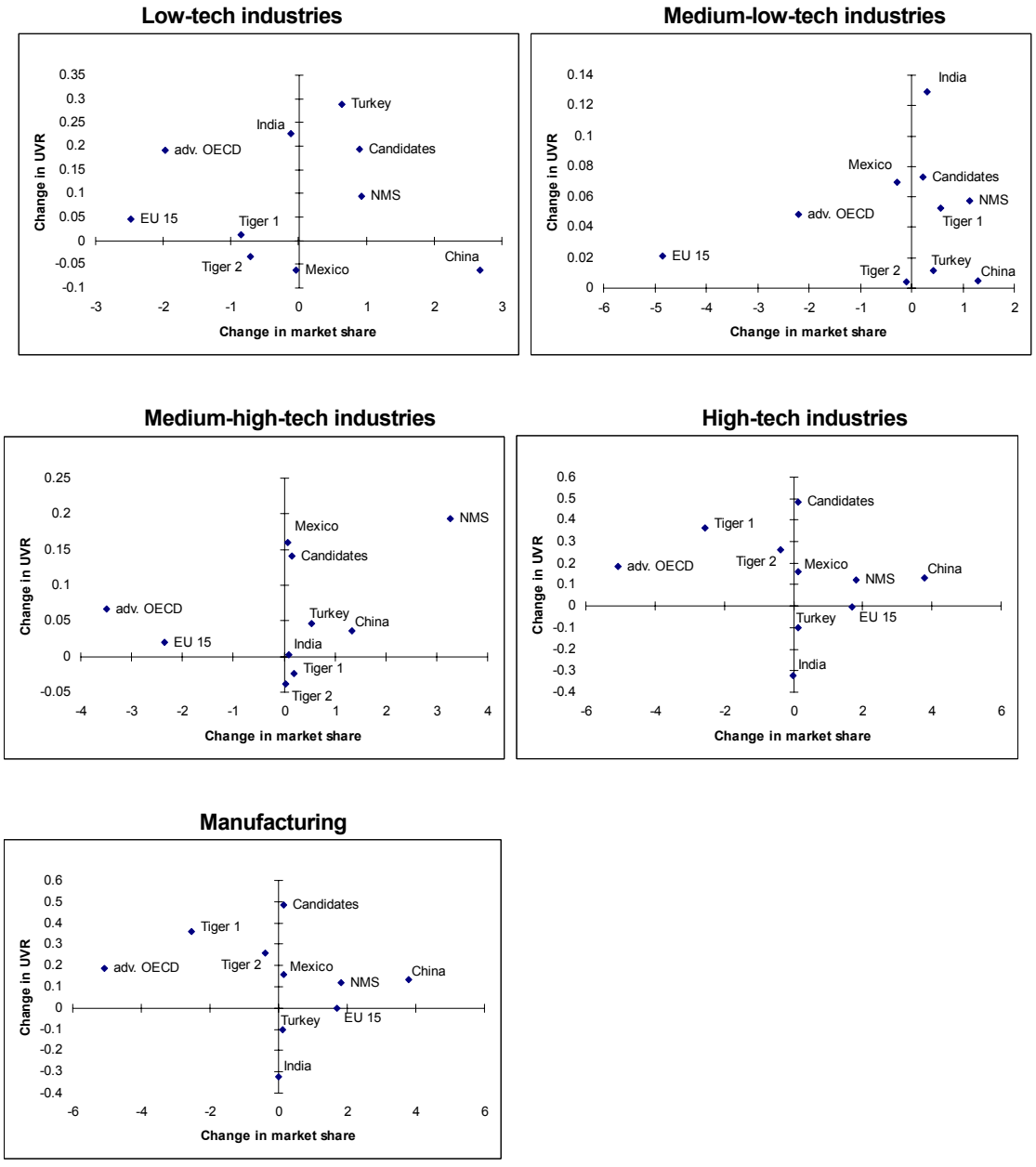
Figure 2.10 shows the groups of NMS and candidate countries together with the comparator country groups and for different industry groupings (the same we identified above). The news for the NMS is positive throughout: they always find themselves – as a group – in the quadrant where both market shares and relative export prices improve – a clear sign of successful quality upgrading honoured by the consumers. Particularly impressive is the NMS' extremely high position in the North-East corner of the diagram in the medium-high-tech group: this is fully consistent with our story of successful export specialization in this area. But the picture of product quality upgrading is true in all the reported industry groupings. Interestingly, while the candidate countries are also in the same quadrant as the NMS, they are much closer to the y-axis: i.e. they experience very substantial relative export price increases while being less successful than the NMS in gaining market shares (though more in the low-tech areas than in the medium- and high-tech areas). Also interesting is the picture for China, where there is more moderate relative export price upgrading than in the NMS (except for the high-tech products) but very substantial market share improvement – hence more evidence of successful price rather than quality competition but, obviously, the price-to-quality ratio is right.

Figure 2.11 breaks down the performances of the NMS and the candidate countries by individual countries. We can see that the overall excellent performance in the medium-high-tech area is particularly carried by four countries: Slovakia, Hungary, the Czech Republic and Poland. The other countries are rather close to the y-axis or even to the origin, hence little improvement was made in market shares or in relative product quality upgrading over this period. On the other hand, when we look at the low-tech industry grouping we see that over this period Romania did extremely well in both market share improvements and in product quality upgrading. Quite strong market share improvements are also evident for Hungary and the Czech Republic in the high-tech industry group.

Figure 2.10

Changes in quality/price competitiveness and in market shares in EU-15 markets, 1995/98 to 2002/04

by country groups



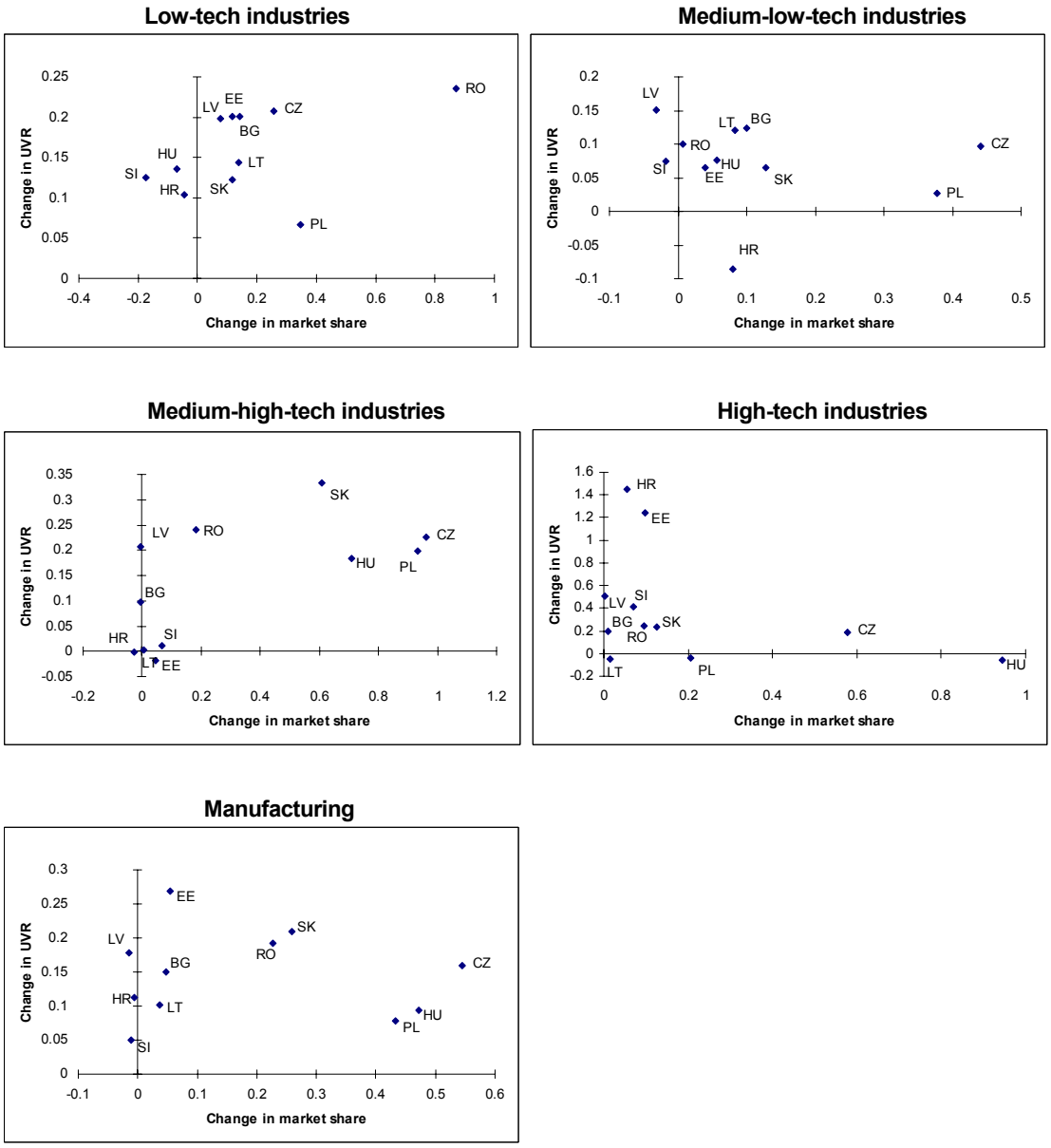
Note: UVR refers to the relative export price; see Box 2.1 and Figure 2.9.

Source: wiiw calculations.

Figure 2.11

Changes in quality/price competitiveness and in market shares in EU-15 markets, 1995/98 to 2002/04

of CEECs



Note: UVR refers to the relative export price; see Box 2.1 and Figure 2.9.

Source: wiiw calculations.

2.6 Unit labour costs and determinants by industry groupings

The final analysis we conduct in this part, looking at performance characteristics at the disaggregated level, is to break down the picture on wage rates, productivity levels and unit labour costs which we presented in section 2.1 for total manufacturing by individual industries. Here we are again constrained by the availability of UNIDO industrial statistics, which are the only source for global industry-level data. The last year for which comparable data for the investigated set of countries is available is 2000. We are also unable to construct a data set along the same industry classification we used in the other sections and hence we present data for a number of 2-digit ISIC industries. The figures on wage rates (see Appendix Figure B.1) show again the dramatic gaps in wage rate levels (at current exchange rates) between the advanced OECD countries and the different catching-up economies which we already saw for total manufacturing. Similarly, we can see (Appendix Figure B.2) the hierarchies in productivity levels (measured as output per employee at current exchange rates); here the Asian Tigers 1 have closed the gap to the EU-15 and the advanced OECD economies. The main point we wish to make, however, with these figures refers to relative unit labour costs, which combine the impact of relative wage rates and productivity levels into a combined indicator of cost competitiveness and which can be looked at in Figure 2.12.

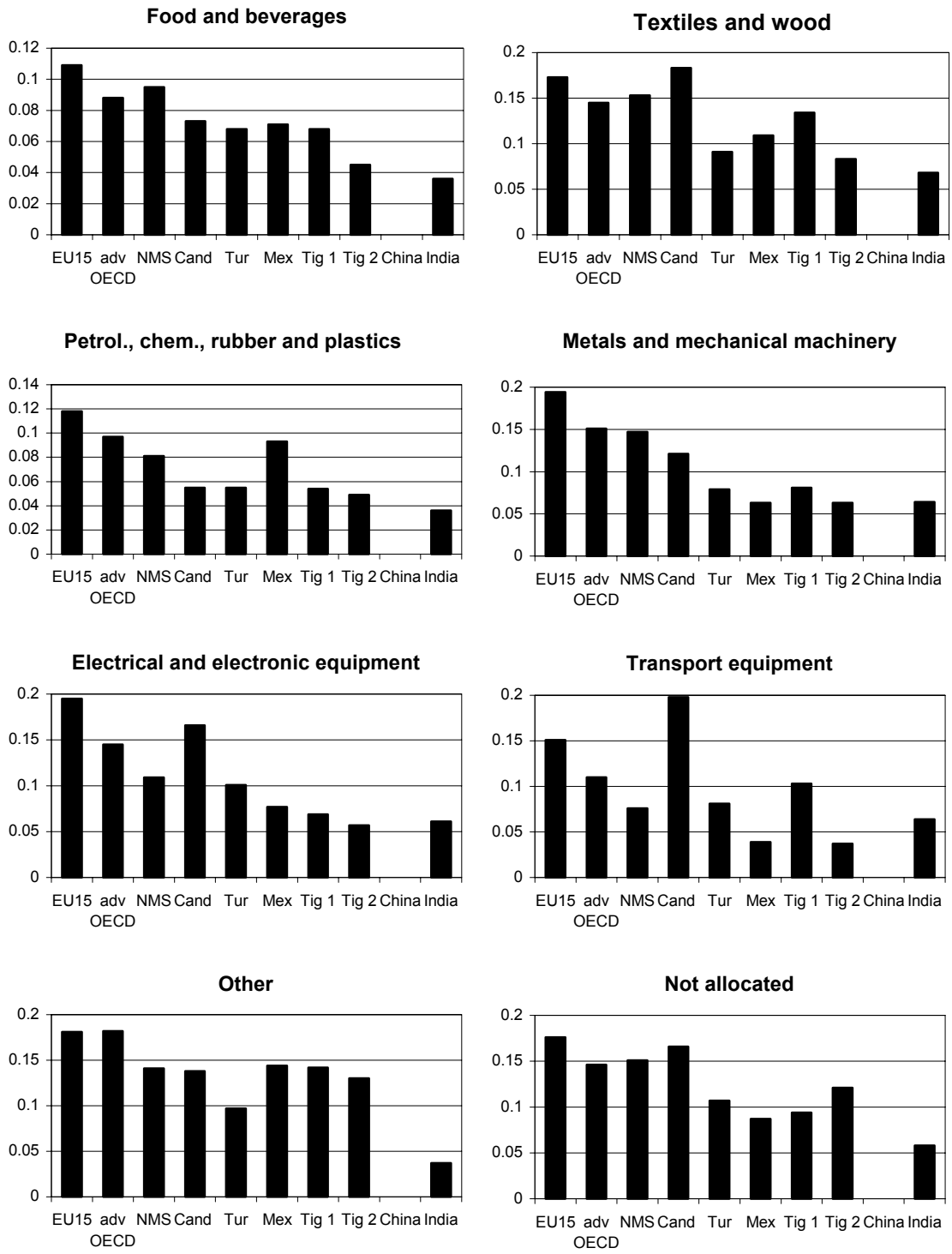
NMS show stronger unit labour cost competitiveness (due to good productivity performance) in electrical goods and in transport equipment branches than in labour-intensive (food-, textiles-, and wood-based) industries

Here again, a picture consistent with our previous analysis emerges. If we look at the NMS and compare their position in the hierarchy of unit labour costs across countries and country groups, we see that their unit labour costs are quite high in the rather labour-intensive (low-tech) food and beverages and the textiles and wood products industries, but relatively low in the more (medium-to-high) technology-intensive industries such as electrical engineering industries and transport equipment. Hence the relative cost indicators here support the tendencies of specialization we outlined and analysed in the previous sections: less competitiveness in the low-tech industries and more competitiveness in the medium-to-high-tech industries. This is not the case with the candidate countries, where we see rather high unit cost positions in these latter industries and rather stronger cost competitiveness in chemicals and petroleum-based products.

Figure 2.12

Unit labour costs at exchange rates, 2000

(weighted averages for regional groupings)



Source: wiiw calculations.

Conclusions

In this study we presented a comprehensive picture of the competitive position of important regions of catching-up countries in the major world markets (i.e. globally, in the EU-15 and in the rest of the world). In particular, we assessed the relative standing of the new member states and the countries which are candidates to the EU vis-à-vis their competitors in the OECD and in Eastern Asia, where we defined two waves of catching-up economies. Taking all our empirical evidence on macroeconomic indicators of competitiveness together, a relatively robust ranking of country groups emerges.

The first wave of Asian Tigers have clearly finished their process of catching up and compare well with advanced OECD members in many respects. In many instances (particularly as regards the ease of trading and doing business, communication infrastructure, etc.) they have already surpassed the advanced countries. A second wave of Asian Tigers has arisen, including two large economies (China and India) as well as smaller countries such as Indonesia, Malaysia, Philippines and Thailand. Among these, China performs well in many respects, most of all in terms of supply potential (given its size and outstandingly high growth rates over the past decade), export growth, sustainable and high trade surpluses, but also important FDI inflows. However, in terms of infrastructure, business environment and the like, China performs worse, and also in its economic structure it is still far more backward than most countries in the sample. India is an economy which is lagging behind substantially in many respects and whose presence in international markets has only recently begun to be felt more significantly.

In a global comparison, the CEECs have gained a relatively strong competitive position, mostly so on the EU-15 market but also in general. The new member states fall into a middle position between the first Asian Tiger countries and the second wave, including China and India. On most indicators, they perform considerably better than the newly emerging Asian economies and all other catching-up regions in our analysis, including the candidate countries. Also with respect to their income position, economic structure and export performance they are placed well above those countries. A clear competitive gap exists between the much more advanced new member states and the candidate countries. In terms of their competitive position, the latter are more comparable to the second Asian Tigers, implying still a substantial potential for catching up. Turkey has an intermediate position: while it is certainly not comparable along our indicators with the new member states, it often performs better than the candidate countries, particularly so with respect to many business environment indicators.

A common feature of all catching-up regions is the relative importance of the manufacturing sector in both, economic structure and trade. Clearly, competition for market shares in the advanced countries is most intense in the case of manufactured products among the various catching-up regions. We therefore calculated a range of indicators

which capture price and quality competitiveness as well as structural developments with respect to trade specialization and market share developments within the manufacturing sector. The main export market for CEECs remains the EU-15; hence the study examined in more detail the export performance on this market and compared it to the overall trade performance and vis-à-vis the rest of the world.

While wage rates (in USD) range at intermediately low levels in the NMS, these economies are not very competitive in terms of pure unit labour costs. This is mainly due to still low productivity levels, especially when measured at current exchange rates. On the other hand, productivity improvements, particularly in recent years, have been impressive. These improvements are among other things reflected in an outstandingly strong export performance of the NMS even in periods in which their main export markets (the EU-15) have grown rather weakly. The candidate countries show a weaker performance in this respect. Exchange rate policy and exchange rate arrangements (such as the currency board) may have played an import role here. Notable changes have occurred in terms of both, export structure and the quality of exported goods. The export structure of the new member states has shifted strongly in the direction of medium-high- and high-tech industries, while at the same time quality upgrading has also been fast particularly in the medium-high-tech segment (largely engineering industries). Again, the candidate countries are lagging in this respect. In comparison with the Asian economies, the NMS show a much stronger specialization in medium-high-tech industries like engineering and transport equipment, while especially the first wave of Asian Tigers show a stronger specialization in office machinery and computing equipment. Further, in contrast to the second wave of Asian Tigers and also opposed to China, the NMS have successfully competed on the EU-15 market through quality improvements rather than through pure price competition. Again, this is mostly true in industries with a medium technology content.

Hence the study comes out with a relatively optimistic picture as regards the positioning of the NMS in the globalized economy: they have successfully integrated with the European (i.e. largely EU) economy, they have undergone a process of structural adaptation both in institutional and behavioural terms and in economic structural terms (tertiarization, role of the public sector, etc.) which – though far from complete – has shown them to be attractive locations for international investors, and they have embarked upon a process of industrial upgrading at a speed which is not below that previously observed in the successful Asian catching-up economies. The international trade and production integration of the CEECs will continue to have an overwhelmingly European (i.e. 'regionalist') orientation – which was less the case in the past with the Asian catching-up economies, which used to target the high-income Western markets but have – more recently – been also much attracted by the fast growing Asian regional markets. Catching-up processes by their very nature provide the basis for a dynamically changing picture of comparative advantage, changing patterns of specialization and international integration and continuous changes in locational

patterns across the regions of an integrated economic space; this is precisely what we currently observe in Europe, Asia and – on the wider scale – in the global economy.

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Appendix A: Tables to Part One

Table A.1

Grouping of countries

Advanced economies	Catching-up economies
EU-15	*NMS-8 (CEECs)*
Austria	Czech Republic
Belgium	Estonia
Luxembourg	Hungary
Denmark	Latvia
Finland	Lithuania
France	Poland
Germany	Slovak Republic
Ireland	Slovenia
Italy	
Netherlands	*Candidates (CEECs)**
Sweden	Bulgaria
United Kingdom	Romania
Greece (cohesion)	Croatia
Portugal (cohesion)	
Spain (cohesion)	Turkey
	Mexico
Advanced OECD	
Australia	*1st Tigers*
Canada	Hong Kong, China
Iceland	Korea, Rep.
Japan	Singapore
New Zealand	
Norway	*2nd Tigers*
Switzerland	Indonesia
United States	Malaysia
	Philippines
	Thailand
	China
	India

Note: *) For the sake of convenience, we subsume Bulgaria, Romania and Croatia under the group 'candidates', although the former two countries already have the status of 'accession countries'. Turkey, while also being a formal candidate to the EU, is treated separately here in order to keep the group of candidate countries more homogenous in terms of economic size and other economic indicators.

Table A.2

Economic growth performance

Country Name	GDP growth			GDP/capita growth		
	Average annual % change					
	2004	*2000-2004*	*1994-2004*	*2003*	*1999-2003*	*1993-2003*
Austria	2.1	1.6	2.4	1.8	1.3	2.2
Belgium	2.6	2.0	2.7	2.3	1.6	2.4
Luxembourg	4.6	4.1	5.2	3.8	3.2	3.9
Denmark	2.1	1.5	2.7	1.6	1.1	2.2
Finland	3.6	2.8	4.1	3.5	2.6	3.8
France	2.3	2.1	2.5	1.4	1.5	1.8
Germany	1.7	1.2	1.7	1.6	1.1	1.5
Ireland	4.4	6.1	8.5	2.8	4.4	7.2
Italy	1.2	0.9	1.6	0.0	1.1	1.6
Netherlands	1.8	5.4	5.2	1.4	0.7	2.1
Sweden	3.8	2.6	3.3	3.3	2.2	2.9
United Kingdom	3.2	2.7	3.3	2.6	2.4	3.0
Greece	4.7	4.4	3.9	4.4	4.1	3.3
Portugal	1.0	1.1	2.9	0.5	0.3	2.1
Spain	3.1	3.5	4.0	2.5	2.7	3.4
EU-15	*2.3*	*2.1*	*2.8*	*1.8*	*1.6*	*2.2*
Australia	3.5	3.2	4.3	2.3	2.0	2.9
Canada	3.1	3.1	3.8	1.9	2.0	2.7
Iceland	5.2	3.1	3.4	7.1	2.5	3.1
Japan	3.7	1.8	1.6	2.2	1.3	1.0
New Zealand	3.7	3.5	3.9	3.1	2.6	2.2
Norway	2.9	2.0	3.5	2.5	1.6	2.9
Switzerland	2.1	1.4	1.5	1.9	1.1	1.1
United States	4.3	2.6	3.6	3.2	1.5	2.4
Advanced OECD	*4.0*	*2.4*	*3.0*	*2.8*	*1.5*	*2.0*
Czech Republic	4.5	3.1	3.3	4.6	3.3	3.0
Estonia	7.8	7.2	5.9	8.2	7.7	7.1
Hungary	4.6	4.4	4.2	5.2	4.8	4.6
Latvia	9.7	7.6	5.9	9.1	8.5	7.5
Lithuania	6.9	7.0	4.5	7.3	7.5	5.4
Poland	5.3	3.1	6.0	5.3	3.4	5.2
Slovak Republic	5.6	4.1	4.9	5.4	4.0	4.7
Slovenia	4.2	3.4	4.4	4.2	3.3	4.4
NMS-8	*5.2*	*3.7*	*4.4*	*5.3*	*4.0*	*4.7*
Croatia	4.5	4.1	3.5	2.1	3.8	5.0
Bulgaria	5.6	4.9	1.9	6.4	5.6	1.9
Romania	8.3	5.3	2.8	8.8	5.7	3.4
Candidates	*7.0*	*5.0*	*2.8*	*7.0*	*5.3*	*3.4*
Turkey	9.0	4.3	3.5	7.3	2.0	1.6
Mexico	4.2	2.6	3.1	2.7	1.1	1.4
Hong Kong, China	8.2	4.7	4.1	7.5	3.9	2.6
Korea, Rep.	4.6	5.4	5.8	4.1	4.7	4.9
Singapore	8.5	4.0	6.2	6.9	2.8	3.6
1st Tigers	*5.7*	*4.0*	*4.3*	*4.5*	*2.8*	*2.9*
Indonesia	5.1	4.6	3.7	3.7	3.8	2.4
Malaysia	7.1	5.2	6.0	5.1	2.8	3.2
Philippines	5.0	4.6	4.6	4.0	2.4	2.2
Thailand	6.2	5.1	4.1	5.1	4.1	3.0
2nd Tigers	*5.8*	*4.8*	*4.4*	*4.4*	*3.4*	*2.7*
China	9.9	8.9	10.0	9.4	8.5	9.4
India	8.3	5.5	6.9	6.3	3.9	4.7

Note: India only up to 2003.

Source: IMF: IFS and WEO, Eurostat, wiiw.

Table A.3

Economic size and structure

Country Name	GDP	GDP/capita	Agriculture	Manufacturing	Services
	current USD, bn	*current USD*	*in per cent of Gross Value Added*		
	2004			*2002*	
Austria	295	36050	2.4	21.6	65.6
Belgium	358	34381	1.3	19.3	71.7
Luxembourg	32	70281	0.7	11.4	79.0
Denmark	244	45171	2.5	16.2	71.1
Finland	186	35614	3.6	24.0	64.6
France	2049	32961	2.6	18.2	72.1
Germany	2755	33390	1.2	22.9	69.2
Ireland	185	45538	3.3	31.9	55.2
Italy	1680	28942	2.7	20.4	69.0
Netherlands	608	37334	2.6	15.2	71.6
Sweden	351	38985	1.9	21.1	70.0
United Kingdom	2132	35798	1.0	17.4	72.0
Greece	208	18825	7.3	12.2	69.5
Portugal	175	16701	3.7	18.2	67.6
Spain	1041	24415	3.4	17.5	67.0
EU-15	*12299*	*35626*	*2.7*	*19.2*	*69.0*
Australia	618	30598	2.9	11.8	71.1
Canada	992	31119	2.3	19.7	63.8
Iceland	13	43096	9.6	14.6	62.7
Japan	4671	36598	1.3	20.5	68.3
New Zealand	98	24492	9.0	16.9	65.7
Norway	254	55343	1.7	11.1	60.4
Switzerland	359	48420	.	.	.
United States	11729	39900	1.6	15.2	75.3
Advanced OECD	*18733*	*38696*	*4.1*	*15.7*	*66.8*
Czech Republic	108	10577	3.8	27.5	56.7
Estonia	11	8292	5.0	17.8	67.0
Hungary	101	9978	3.8	22.2	65.3
Latvia	14	6003	4.6	13.6	72.8
Lithuania	22	6538	7.1	19.2	62.5
Poland	253	6634	3.1	17.4	66.9
Slovak Republic	41	7651	4.1	20.1	67.4
Slovenia	33	16278	3.2	27.0	60.4
NMS-8	*583*	*8994*	*4.3*	*20.6*	*64.9*
Croatia	34	7732	8.9	20.3	61.2
Bulgaria	24	3105	12.4	17.8	57.9
Romania	73	3382	13.1	16.9	48.8
Candidates	*132*	*4740*	*11.5*	*18.3*	*56.0*
Turkey	301	4210	13.0	14.0	63.3
Mexico	676	6400	4.0	18.5	69.5
Taiwan	290	12820			
Hong Kong, China	163	23286	0.1	4.5	87.5
Korea, Rep.	680	14279	4.1	26.9	71.1
Singapore	107	24842	0.1	27.6	64.7
1st Tigers	*1239*	*18807*	*1.4*	*19.7*	*74.5*
Indonesia	258	1171	17.1	25.4	38.7
Malaysia	118	4730	9.2	30.5	43.5
Philippines	86	1055	15.9	24.6	56.9
Thailand	163	2567	9.4	33.9	48.0
2nd Tigers	*625*	*2381*	*12.9*	*28.6*	*46.8*
China	1649	1261	17.4	39.9	38.3
India	685	630	22.7	15.6	50.7

Note: Gross value added is the sum of Agriculture, Mining-Construction-Utilities, Manufacturing and Services; therefore the last three columns do not add up to 100.

Source: World Bank, World Development Indicators, IFS, EUROSTAT, National Bureau of Statistics of China.

Table A.4

Export structure, 2004

Country name	Total exports	Merchandise exports	Services exports	Exports to EU-15[a)]
	USD million	*in % of total exports*		*in % of merchandise exports*
Austria	160094	69.4	30.6	58.2
Belgium+Luxembourg	332322	74.2	25.8	72.7
Denmark	96210	67.1	32.9	61.0
Finland	70096	87.1	12.9	48.8
France	531436	79.2	20.8	62.7
Germany	1050937	86.6	13.4	54.0
Ireland	145907	67.7	32.3	61.6
Italy	435872	80.8	19.2	53.7
Netherlands	377778	80.6	19.4	72.9
Sweden	132734	76.9	23.1	53.9
United Kingdom	531063	65.8	34.2	55.4
Greece	36864	34.1	65.9	47.8
Portugal	52017	71.7	28.3	78.5
Spain	269491	68.4	31.6	70.1
EU-15	*4222818*	*77.1*	*22.9*	*62.3*
Australia	112481	77.4	22.6	9.9
Canada	377646	87.4	12.6	5.4
Iceland	4517	64.1	35.9	72.7
Japan	636610	84.7	15.3	14.9
New Zealand	28305	72.3	27.7	14.7
Norway	109104	76.1	23.9	77.4
Switzerland	176929	78.1	21.9	59.0
United States	1147181	70.7	29.3	20.6
Advanced OECD	*2592773*	*77.6*	*22.4*	*34.3*
Czech Republic	76569	87.3	12.7	68.1
Estonia	8794	67.9	32.1	61.2
Hungary	65461	84.6	15.4	70.9
Latvia	5969	70.1	29.9	45.5
Lithuania	11758	78.9	21.1	52.1
Poland	94982	85.9	14.1	67.3
Slovak Republic	25241	86.9	13.1	59.7
Slovenia	19285	82.0	18.0	58.2
NMS-8	*308058*	*84.7*	*15.3*	*60.4*
Croatia	17824	46.1	53.9	51.5
Bulgaria	942	77.8	22.2	54.3
Romania	94982	85.9	14.1	65.7
Candidates	*113748*	*79.6*	*20.4*	*57.2*
Turkey	202002	93.1	6.9	51.6
Mexico	91048	73.6	26.4	3.5
Hong Kong, China	313841	82.9	17.1	13.5
Korea, Rep.	299174	86.2	13.8	13.3
Singapore	188568	83.7	16.3	13.7
Taiwan				12.2
1st Tigers	*801583*	*84.3*	*15.7*	*20.9*
Indonesia	68547	92.3	7.7	.
Malaysia	118577	88.5	11.5	11.8
Philippines	42829	90.4	9.6	.
Thailand	115147	83.5	16.5	14.7
2nd Tigers	*345100*	*87.8*	*12.2*	*13.3*
China	485004	90.4	9.6	16.8
India	82735	71.7	28.3	20.9

Note: a) Exports to the EU based on customs statistics, all other data based on balance of payments statistics.

Source: IMF, Balance of Payments Statistics and UN COMTRADE.

Table A.5

Trade flows

		Exports of goods			Exports of services		
		USD mn	av. ann. % change		USD mn	av. ann. % change	
		2004	**1999-2004**	**1993-2004**	**2004**	**1999-2004**	**1993-2004**
Austria		111134	11.5	9.7	48960	9.4	5.7
Belgium+Luxembourg		246741	29.2	17.2	85580	4.9	5.1
Denmark	a	64537	6.7	5.7	31672	12.2	9.7
Finland		61083	7.8	9.0	9013	6.7	6.7
France		421123	7.0	7.1	110313	6.1	2.2
Germany		909704	10.9	8.2	141233	11.0	7.5
Ireland		98745	7.8	11.9	47162	24.6	25.8
Italy		352166	8.3	6.9	83706	7.3	4.4
The Netherlands		304306	9.2	8.2	73472	8.3	6.2
Sweden	a	102080	3.9	7.5	30654	11.4	9.3
Great Britain		349623	5.4	6.0	181440	8.9	10.2
Greece	a	12578	10.1	9.4	24286	10.1	11.5
Portugal		37279	7.9	8.0	14738	11.2	7.2
Spain		184255	10.3	10.4	85236	9.8	9.8
EU-15			*7.3*	*7.2*		*7.0*	*6.5*
Australia		87063	9.2	6.7	25418	7.9	7.1
Canada		330112	5.8	7.6	47534	5.6	7.3
Iceland		2897	7.6	6.8	1620	11.7	9.4
Japan		538999	6.0	3.9	97611	9.9	5.7
New Zealand		20458	12.4	9.0	7847	10.5	7.2
Norway		82993	10.1	6.3	26111	12.3	9.6
Switzerland		138164	8.5	5.7	38765	6.3	5.5
USA		811084	3.4	5.3	336097	3.7	5.6
advanced OECD			*5.4*	*5.5*	*5.5*	*5.9*	
Czech Republic		66874	20.6	15.1	9695	6.6	6.8
Estonia		5970	19.5	19.9	2824	13.6	21.4
Hungary		55368	16.7	19.1	10093	14.1	12.2
Latvia		4185	17.2	13.4	1783	11.7	11.6
Lithuania		9274	24.1	14.8	2484	17.9	25.9
Poland		81596	22.1	17.7	13386	9.9	11.1
Slovak Republic	a	21944	21.1	14.9	3297	14.8	5.5
Slovenia		15818	12.9	9.1	3467	13.1	8.6
NMS-8			*17.2*	*15.0*	*9.3*	*9.5*	
Croatia		8208	13.3	7.0	9616	20.9	14.3
Bulgaria		733	9.6	7.2	209	26.3	33.5
Romania		81596	22.1	17.7	13386	9.9	11.1
Candidates			*21.0*	*15.9*		*13.8*	*12.4*
Turkey		67000	18.4	14.2	24048	7.3	7.7
Mexico		187998	6.6	12.4	14004	3.6	3.6
Hong Kong		260263	8.3	.	53578	9.4	.
Korea		257745	12.1	11.0	41429	9.3	11.2
Singapore	a	157853	6.1	7.3	30715	3.9	5.1
1st Tigers			*6.9*	*n.a.*		*5.8*	*n.a.*
Indonesia	a	63254	5.4	5.6	5293	3.6	2.9
Malaysia	a	104999	5.7	8.5	13578	3.3	7.8
Philippines		38728	2.5	11.8	4101	-3.1	-1.2
Thailand		96107	11.1	9.2	19040	5.4	5.1
2nd Tigers			*5.9*	*8.1*		*4.9*	*5.3*
China	a	438270	22.5	19.2	46734	15.5	15.4
India	a	59338	12.6	10.4	23397	12.7	16.4

Note: a) 2003 instead of 2004.

Source: BOP Statistics, IMF.

Table A.6

FDI stocks and balance

		FDI balance USD million		FDI stock % of GDP	
		1999	**2004**	**2000**	**2004**
Austria		6961	1156	16	21.6
Belgium + Luxembourg		-11603	.	78.8	.
Denmark	a	-2151	-9803	46.4	40.5
Finland		-6427	-7591	20.2	30.1
France		-49025	1336	19.9	26.5
Germany		-12767	-120576	14.5	12.9
Ireland		-2211	4907	134.1	126.3
Italy		-9364	11009	11.3	13.1
The Netherlands		-5294	-12678	65.8	74.2
Sweden	a	-3294	-22240	39.2	47
Great Britain		35893	21821	30.5	36.3
Greece	a	5042	10890	12.4	13.2
Portugal		8891	11683	27	39
Spain		11853	45403	27.6	34.9
Australia		20908	40021	28.6	41.1
Canada		-11901	-20742	29.8	30.5
Iceland		778	1956	5.8	14.1
Japan		-115102	-138360	1.1	2.1
New Zealand		1785	8231	54.3	51.5
Norway		-5552	-25972	18.1	20.4
Switzerland		-30355	-59802	36.1	50.6
USA		236548	615494	12.9	12.6
Czech Republic		1441	6902	38.9	52.7
Estonia		299	1429	51.4	85.1
Hungary		4134	8471	49.0	60.7
Latvia		603	1565	29.1	32.9
Lithuania		1239	1119	20.9	28.8
Poland		10306	-365	20.9	25.4
Slovak Republic	a	1012	153	18.4	35.3
Slovenia		658	679	15.3	15.1
Croatia		2411	2847	19.4	39.1
Bulgaria		625	1339	17.9	31.7
Romania		458	3676	17.5	25.2
Turkey		-376	12729	9.6	11.7
Mexico		13571	8190	16.7	27
Hong Kong		-8967	-17230	275.4	277.6
Korea		-20551	-28583	8.1	8.1
Singapore	a	-18375	-31763	123.1	150.2
Taiwan		-9220	6740	5.7	12.8
Indonesia	a	-7860	-4597	16.5	4.4
Malaysia	a	-11331	-13377	58.6	39.3
Philippines		-5900	-1390	16.9	14.9
Thailand		-12461	-4983	24.4	29.7
China	a	-3448	-63812	17.9	14.9
India	a	2915	-10875	3.7	5.9

Note: a) 2003 instead of 2004.

Source: BOP Statistics, IMF, UN: World Investment Report.

Table A.7

FDI flows

		Inward FDI flows			Outward FDI flows		
		USD mn	av. ann. % change		USD mn	av. ann. % change	
		2004	**1999-2004**	**1993-2004**	**2004**	**1999-2004**	**1993-2004**
Austria		4916	10.3	14.3	7271	17.1	17.9
Belgium+Luxembg.		112999	-7.3	22.2	89792	-12.8	26.6
Denmark	a	1185	-48.5	-3.6	856	-53.2	-4.6
Finland		4662	0.1	16.6	-1106	.	.
France		24503	-11.8	1.5	47707	-18.7	7.9
Germany		-38569	-17.8	51.5	-8102	.	.
Ireland		13725	-5.6	25.6	11271	13.1	43.0
Italy		16772	19.3	14.6	19144	23.3	9.1
The Netherlands		-816	-21.4	9.4	2494	-46.6	-11.8
Sweden	a	3268	-51.6	-1.2	17341	-3.0	28.0
Great Britain		72561	-4.1	14.4	80239	-16.8	10.3
Greece	a	717	6.0	-3.0	9	-64.1	.
Portugal		825	-7.8	-5.5	6121	15.2	40.3
Spain		9898	-8.6	0.2	42836	0.5	26.6
EU-15			*-8.8*	*13.1*		*-16.6*	*10.8*
Australia		43519	67.4	23.4	16598	.	21.5
Canada		6284	-24.0	2.6	47013	22.2	21.1
Iceland		312	36.7	95.1	2596	83.6	60.3
Japan		7805	-8.7	46.3	30958	6.8	7.6
New Zealand		2271	-42.6	-6.0	299	-20.2	9.5
Norway		502	10.0	-0.3	1948	-21.9	-13.5
Switzerland		5382	-15.4	11.0	25033	-5.5	10.7
USA		115532	-16.8	7.6	248509	2.0	10.4
Advanced OECD			*-12.4*	*9.7*		*4.1*	*11.2*
Czech Republic		4454	-6.7	19.0	572	44.8	18.3
Estonia		1049	28.0	18.5	268	26.5	40.8
Hungary		4184	4.8	5.4	535	16.7	42.7
Latvia		647	13.2	27.4	109	45.0	.
Lithuania		773	9.7	34.3	263	98.1	85.7
Poland		6288	-2.9	12.5	909	96.5	42.8
Slovak Republic	a	559	12.1	10.9	24	.	-9.0
Slovenia		516	37.1	14.8	498	59.9	71.7
NMS-8			*-0.6*	*11.8*		*84.3*	*29.6*
Croatia		1176	-4.3	23.0	314	41.1	29.4
Bulgaria		175	31.6	29.7	44	48.4	.
Romania		6288	-2.9	12.5	909	96.5	42.8
Candidates			*-2.7*	*13.8*		*68.5*	*38.1*
Turkey		2733	28.4	14.2	859	5.9	45.4
Mexico		16602	4.3	12.9	3490	-7.5	.
Hong Kong		34035	6.7	.	39753	15.5	.
Korea		8189	-2.6	27.1	4792	2.7	12.3
Singapore	a	11431	-8.1	9.3	5537	-7.4	9.9
1st Tiger			*-13.3*	*n.a.*		*-17.4*	*n.a.*
Indonesia	a	-597	.	.	.	.	.
Malaysia	a	2473	-10.7	-6.8	1370	-0.9	.
Philippines		469	-22.9	-8.4	412	.	0.9
Thailand		1412	-25.4	-2.2	361	0.9	4.1
2nd Tiger			*-17.0*	*-7.4*		*4.2*	*7.8*
China	b	47077	5.0	5.5	2518	12.4	-6.0
India	a	4585	20.6	23.6	1325	102.1	124.9

Notes: a) 2003 instead of 2004. - b) 2002 instead of 2004.

Source: BOP Statistics, IMF.

Table A.8

Infrastructure indicators: Human resources, R&D, telecommunications

	2001 Public spending on education (% of GDP)	*2001* School enrolment, secondary (% gross)	*2001* School enrolment, tertiary (% gross)	*2002* Research and development expenditure (% of GDP)	*2002* Researchers in R&D (per million people)	*2002* Personal computers (per 1,000 people)	*2003* Telephone mainlines (per 1,000 people)	*2003* Mobile phones (per 1,000 people)
Austria	5.8	99.1	48.3	2.2	.	369	481	879
Belgium	5.9	157.1	59.8	2.2	3180	241	489	793
Luxembourg	3.6	96.1	11.5	1.7	3757	594	798	1194
Denmark	8.5	128.8	62.6	2.5	4822	577	669	883
Finland	6.2	126.5	85.7	3.5	7431	442	492	910
France	5.7	107.8	53.6	2.3	3134	347	566	696
Germany	4.6	99.8	48.7	2.5	3222	431	657	785
Ireland	4.3	104.8	49.9	1.1	2315	421	491	880
Italy	5.0	98.1	53.1	1.1	1156	231	484	1018
Netherlands	5.0	122.2	57.0	1.9	2826	467	614	768
Sweden	7.3	145.7	76.2	4.3	5171	621	736	980
United Kingdom	4.7	178.2	63.6	1.9	.	406	591	841
Greece	3.9	95.7	68.3	0.6	1357	82	454	902
Portugal	5.9	114.7	53.1	0.9	1745	135	411	898
Spain	4.4	115.7	58.9	1.0	2036	196	434	909
EU-15	*5.4*	*119.4*	*56.7*	*2.0*	*3242*	*371*	*558*	*889*
Australia	4.9	153.8	64.6	1.5	3446	565	542	719
Canada	5.2	105.3	57.7	1.9	3487	487	629	417
Iceland	6.2	111.3	54.6	3.1	6592	451	660	966
Japan	3.6	102.6	49.2	3.1	5085	382	472	679
New Zealand	6.7	113.2	71.7	1.2	2593	414	448	648
Norway	7.0	113.4	74.1	1.7	4442	528	713	909
Switzerland	5.5	98.0	44.4	2.6	3594	709	744	843
United States	5.7	93.0	81.4	2.7	.	659	621	543
Advanced OECD	*5.6*	*111.3*	*62.2*	*2.2*	*4177*	*524*	*604*	*716*
Czech Republic	4.2	95.8	33.7	1.2	1467	177	360	965
Estonia	5.5	95.9	63.9	0.7	2253	210	341	777
Hungary	5.1	103.6	44.1	1.0	1473	108	349	769
Latvia	5.5	94.5	68.5	0.4	1476	172	285	526
Lithuania	5.9	100.5	64.5	0.7	1824	110	239	630
Poland	5.6	101.3	59.5	0.6	1469	106	319	451
Slovak Republic	4.0	89.5	32.1	0.6	1707	180	241	684
Slovenia	6.1	107.6	66.0	1.5	2364	301	407	871
NMS-8	*5.2*	*98.6*	*54.0*	*0.8*	*1754*	*171*	*318*	*709*
Croatia	4.5	88.4	36.4	1.1	1920	174	417	584
Bulgaria	3.5	94.3	37.7	0.5	1158	52	380	466
Romania	3.3	84.2	30.4	0.4	910	69	199	324
Candidates	*3.8*	*88.9*	*34.8*	*0.7*	*1329*	*98*	*332*	*458*
Turkey	3.7	76.0	24.8	0.7	345	45	268	394
Mexico	5.2	75.7	21.5	0.4	259	82	158	291
Hong Kong, China	4.1	77.8	26.0	0.6	1568	422	559	1079
Korea, Rep.	4.3	91.1	82.0	2.5	2979	556	538	701
Singapore	.	.	.	2.2	4352	622	450	852
1st Tigers	*4.2*	*84.4*	*54.0*	*1.8*	*2966*	*533*	*516*	*878*
Indonesia	1.3	57.9	15.2	.	.	12	39	87
Malaysia	7.9	69.6	26.6	0.7	294	147	182	442
Philippines	3.2	81.9	31.1	.	.	28	41	270
Thailand	5.2	82.8	36.7	0.2	289	40	105	394
2nd Tigers	*4.4*	*73.0*	*27.4*	*0.5*	*292*	*57*	*92*	*298*
China	2.1	67.2	12.7	1.2	633	28	209	215
India	4.1	50.3	11.4	0.8	.	7	46	25

Source: World Bank, World Development Indicators.

Table A.9

Business-related infrastructure

	Delay in obtaining an electrical connection (days)	Delay in obtaining a telephone connection (days)	Firms using the Web to interact with clients/suppliers (%)	Confidence in the judiciary system (%)	Dispute resolution time (weeks)	Security and protection costs (% of sales)
Czech Republic (2002)	0.1	1.9	69.8	52.9	12.2	2.7
Estonia (2002)	1.8	2.4	89.4	71.4	7.2	0.8
Hungary (2002)	3.9	4.4	66	59.7	15.8	0.9
Latvia (2002)	1.7	2.8	54	50.9	6.7	1.6
Lithuania (2004)	22.2	..	61.9	33.2	8.7	14.6
Poland (2002)	3.3	7.6	65	58.1	31.2	1.9
Slovak Republic (2002)	2.9	2.9	80.6	46.1	12	1.5
Slovenia (2002)	3.3	7.8	89.4	54.4	21.8	1.8
NMS average	*4.9*	*4.3*	*72.0*	*53.3*	*14.5*	*3.2*
Croatia (2002)	0.6	5	72.2	66.7	18.4	2
Bulgaria (2004)	23.3	47.3	..	53.5	..	3.2
Romania (2002)	4.4	6	53.7	54.2	15.2	2.5
Candidates average	*9.4*	*19.4*	*63.0*	*58.1*	*16.8*	*2.6*
Turkey (2002)	0.9	1.5	50.8	66.9	9	1.6
China (2003)	18.5	7.1	..	82.5	9	1.5
India (2002)	81.6	86.7	35.9	70.6	..	..
Indonesia (2003)	14.6	26.6	24.3	59.2	3.9	1.8
Philippines (2003)	8.2	13.2	24.4	66.2	9.5	4
Asia average	*30.7*	*33.4*	*28.2*	*69.6*	*7.5*	*2.4*

Source: World Bank/International Finance Corporation: Investment Climate Surveys.

Table A.10

Business environment, 2003

	Start business	Time for export	Contract enforcement	Investor protection Index
	number of days		*costs in % of debt*	
Austria	29	8	9.8	3.7
Belgium	34	7	6.2	7.3
Denmark	5	5	5.3	6.3
Finland	14	7	6.5	5.7
France	8	22	11.7	5.3
Germany	24	6	10.5	5.3
Ireland	24	14	21.1	7.7
Italy	13	28	17.6	4.7
Netherlands	11	7	17	4.3
Sweden	16	6	5.9	4.7
United Kingdom	18	16	17.2	8
Greece	38	29	12.7	3.3
Portugal	54	18	17.5	6
Spain	47	9	14.1	4.7
EU-15	*23.9*	*13.0*	*12.4*	*5.5*
Australia	2	12	14.4	6
Canada	3	12	12	8.7
Iceland	5	15	9.3	5
Japan	31	11	8.6	6.7
New Zealand	12	8	4.8	9.7
Norway	13	7	4.2	6.7
Switzerland	20	21	5.2	4
United States	5	9	7.5	8.3
Advanced OECD	*11.4*	*11.9*	*8.3*	*6.9*
Czech Republic	40	20	9.1	5
Estonia	35	12	10.6	6
Hungary	38	23	8.1	4.7
Latvia	18	18	10.4	5.7
Lithuania	26	6	9.1	5.3
Poland	31	19	8.7	6.3
Slovak Republic	25	20	15	4
Slovenia	60	20	15.2	5.7
NMS-8	*34.1*	*17.3*	*10.8*	*5.3*
Croatia	49	35	10	3
Bulgaria	32	26	14	5.3
Romania	11	27	12.4	5.7
Candidates	*30.7*	*29.3*	*12.1*	*4.7*
Turkey	9	20	12.5	5
Mexico	58	18	20	3.7
Hong Kong, China	11	.	12.9	8.7
Korea	22	12	5.4	4.7
Singapore	6	6	9	9.3
Taiwan, China	48	14	7.7	5.3
1st Tigers	*21.8*	*10.7*	*8.8*	*7.0*
Indonesia	151	25	126.5	5.3
Malaysia	30	20	20.2	8.7
Philippines	48	19	50.7	3.3
Thailand	33	23	13.4	6
2nd Tigers	*65.5*	*21.8*	*52.7*	*5.8*
China	48	20	25.5	4.3
India	71	36	43.1	6

Source: World Bank/International Finance Corporation: Doing Business Database.

Table A.11 **Economic freedom, competitiveness and corruption indices**

Country	Economic freedom		Trade freedom		Competitiveness rank	Corruption index
	2004	*change 1997-2004*	*2004*	*change 1997-2004*	*2003*	*2003*
Austria	2.08	0.06	2	-1	17	2
Belgium	2.19	0.17	2	0	27	2.4
Luxembourg	1.71	-0.25	2	0	21	1.3
Denmark	1.8	-0.18	2	0	4	0.5
Finland	1.95	-0.23	2	0	1	0.3
France	2.63	0.31	2	0	26	3.1
Germany	2.03	-0.22	2	0	13	2.3
Ireland	1.74	-0.4	2	0	30	2.5
Italy	2.26	-0.15	2	-1	41	4.7
Netherlands	2.04	0.17	2	0	12	1.1
Sweden	1.9	-0.35	2	0	3	0.7
United Kingdom	1.79	-0.16	2	0	15	1.3
Greece	2.8	-0.01	2	0	25	5.7
Portugal	2.38	-0.03	2	0	25	3.4
Spain	2.31	-0.19	2	0	23	3.1
EU-15	*2.11*		*2.0*			*2.3*
Australia	1.88	-0.31	2	0	10	1.2
Canada	1.98	-0.1	2	0	16	1.3
Iceland	2	-0.3	2	0	8	0.4
Japan	2.53	0.37	2	0	11	3
New Zealand	1.7	-0.05	2	0	14	0.5
Norway	2.35	-0.04	2	-1	9	1.2
Switzerland	1.84	-0.07	2	0	7	1.2
United States	1.85	-0.02	2	0	2	2.5
Advanced OECD	*2.0*		*2.0*			*1.4*
Czech Republic	2.39	0.1	3	2	39	6.1
Estonia	1.76	-0.7	1	-1	22	4.5
Hungary	2.6	-0.44	3	-1	33	5.2
Latvia	2.36	-0.55	2	-2	37	6.2
Lithuania	2.19	-0.86	2	0	40	5.3
Poland	2.81	-0.28	3	-1	45	6.4
Slovak Republic	2.44	-0.74	3	1	43	6.3
Slovenia	2.75	-0.7	3	-1	31	4.1
NMS-8	*2.4*		*2.5*			*5.5*
Croatia	3.11	-0.45	4	1	53	6.3
Bulgaria	3.08	-0.45	4	1	64	6.1
Romania	3.66	0.36	4	2	75	7.2
Candidates	*3.3*		*4.0*			*6.5*
Turkey	3.39	0.69	3	2	65	6.9
Mexico	2.9	-0.45	2	-1	47	6.4
Hong Kong	1.34	-0.2	1	0	24	2
Korea, South	2.69	0.38	4	1	18	5.7
Singapore	1.61	-0.06	1	0	6	0.6
Taiwan	2.43	0.22	2	0	5	4.3
1st Tigers	*2.0*		*2.0*			*3.2*
Indonesia	3.76	0.71	3	1	72	8.1
Malaysia	3.16	0.31	3	-2	29	4.8
Philippines	3.05	-0.01	2	-3	66	7.5
Thailand	2.86	0.29	4	1	32	6.7
2nd Tigers	*3.2*		*3.0*			*6.8*
China, PRC	3.64	-0.09	5	0	44	6.6
India	3.53	-0.35	5	0	56	7.2

Note: 1997-2004 = 2004 value – 1997 value.

Sources: Economic & trade freedom: Heritage Foundation, '2004 Index of Economic Freedom', http://www.heritage.org/research/features/index/countries.html

Competitiveness rank: World Economic Forum, 'Global Competitiveness Report, 2003-2004', Chapter 1.1, Table 3, http://www.weforum.org/pdf/Gcr/GCR_2003_2004/GCI_Chapter.pdf

Corruption index: Transparency International, 'Global Corruption Report 2004'; published values were rescaled (new value = 10 – old value) to have low values representing best values in order to be consistent with other columns in this table; http://www.globalcorruptionreport.org/download.htm

Table A.12

Perceptions of obstacles to business operation and growth

Country	Telecom (%)	Electricity (%)	Transportation (%)	Anti-competitive practices (%)	Access to land (%)	Access to financing (%)	Cost of financing (%)	Skills and education of workers (%)	Tax rates (%)	Tax administration (%)
Czech Republic (2002)	2.3	5.3	2.3	20.2	5.4	25.1	20.8	9.1	25.6	19.8
Estonia (2002)	5.4	10.1	4.2	15.8	3.8	12.1	5.5	23.8	16.7	4.5
Hungary (2002)	1.6	1.2	4	14.9	3	21.6	19	12.5	30.2	13.7
Latvia (2002)	3.4	4	3.5	9.9	3.7	6.1	8.4	15.5	27.3	27.6
Lithuania (2004)	2.5	7.5	5.4	35.6	17.2	26.8	26.4	30.1	66.5	36.8
Poland (2002)	4.8	5.4	5.6	31.5	7.6	32.7	51.7	11.2	63.3	39.6
Slovak Republic (2002)	1.8	3	6	11.8	12.9	29.6	29.7	9.7	31.7	19.8
Slovenia (2002)	1.1	0.5	0	8	3.7	8.2	13.4	4.3	11.2	5.9
NMS average	*2.9*	*4.6*	*3.9*	*18.5*	*7.2*	*20.3*	*21.9*	*14.5*	*34.1*	*21.0*
Croatia (2002)	1.1	1.1	2.7	19.7	1.1	24.9	19	8.7	27.8	7.7
Bulgaria (2004)	3.4	6.7	8.1	52.4	8.7	42.1	57	16.6	39.8	15.6
Romania (2002)	7.1	9.5	8.4	25	9.2	29.7	34.8	10.8	51.6	33.2
Candidates average	*3.9*	*5.8*	*6.4*	*32.4*	*6.3*	*32.2*	*36.9*	*12.0*	*39.7*	*18.8*
Turkey (2002)	10.9	17.3	8.4	22.7	6	17.3	28.2	12.8	38.1	33.1
China (2003)	23.5	29.7	19.1	23.7	14.7	22.8	21.8	30.7	36.8	26.7
India (2002)	5.3	28.9	12.4	17.5	9.1	18.3	20.2	12.5	27.9	26.4
Indonesia (2003)	9.1	22.3	16.4	17.3	13	17.5	28.5	18.9	29.5	23
Philippines (2003)	11.3	33.4	18.3	24.3	14.8	13.5	23	11.9	30.4	25.1
Asia average	*12.3*	*28.6*	*16.6*	*20.7*	*12.9*	*18.0*	*23.4*	*18.5*	*31.2*	*25.3*

Table A.12 continued

Table A.12 (continued)

Country	Customs and trade regulations (%)	Labour regulations (%)	Business licensing and permits (%)	Economic and regulatory policy uncertainty (%)	Macroeconomic instability (%)	Corruption (%)	Crime, theft and disorder (%)	Legal system (%)
Czech Republic (2002)	5.6	3.5	10.2	20.2	18.6	12.5	14.3	11.1
Estonia (2002)	3.8	4.2	11.2	12	8.9	5.4	6.5	4.8
Hungary (2002)	5.8	7.3	3.3	21.1	16.1	8.8	4.9	4.5
Latvia (2002)	9.4	4.1	9.2	27.4	12.6	11.7	6.4	3.2
Lithuania (2004)	15.5	15.5	13.4	40.6	25.9	27.6	15.9	20.5
Poland (2002)	22.3	25.8	14	56.8	50.5	25.3	23.8	23.1
Slovak Republic (2002)	19.5	7.4	17.9	44.6	47	27.5	15.4	25.3
Slovenia (2002)	0.5	2.7	3.2	11.8	10.1	6.1	3.3	8
NMS average	*10.3*	*8.8*	*10.3*	*29.3*	*23.7*	*15.6*	*11.3*	*12.6*
Croatia (2002)	9.9	5.4	9.2	35.9	24.5	22.5	8.5	27.6
Bulgaria (2004)	18.4	17.8	23.1	48.5	36.3	..	42.1	29.7
Romania (2002)	16	8.1	23.2	43.3	53.4	34.9	19.8	20.9
Candidates average	*14.8*	*10.4*	*18.5*	*42.6*	*38.1*	*28.7*	*23.5*	*26.1*
Turkey (2002)	8.9	8.7	5.8	53.8	53.7	23.7	12.9	11.9
China (2003)	19.3	20.7	21.3	32.9	30.2	27.3	20	..
India (2002)	14	16.7	13.4	20.9	16.1	37.4	15.6	..
Indonesia (2003)	15.7	25.9	20.5	48.2	50.1	41.5	22	24.7
Philippines (2003)	21.7	24.7	13.5	29.5	38.4	35.2	26.5	..
Asia average	*17.7*	*22.0*	*17.2*	*32.9*	*33.7*	*35.4*	*21.0*	*24.7*

Note: Percentage of firms identifying the following indicators as major or very severe obstacles to business operation and growth.

Source: World Bank/International Finance Corporation: Investment Climate Surveys.

Table A.13

Economic ranking, data for 2005

	Ease of doing business	Starting a business	Dealing with licences	Hiring and firing	Registering property	Getting credit	Protecting investors	Paying taxes	Trading across borders	Enforcing contracts	Closing a business
New Zealand	1	4	2	4	1	7	1	16	15	4	21
Singapore	2	5	7	7	14	8	2	9	6	11	2
United States	3	3	17	6	12	15	7	30	17	10	17
Canada	4	1	21	24	27	10	3	12	13	34	4
Norway	5	19	11	46	7	39	16	40	7	1	3
Australia	6	2	12	14	34	3	26	14	22	12	15
Hong Kong, China	7	6	77	3	70	2	4	2	26	16	14
Denmark	8	15	6	17	31	22	18	61	1	2	25
United Kingdom	9	9	29	15	23	1	9	81	21	30	10
Japan	10	81	5	20	36	18	14	50	12	3	1
Ireland	11	11	14	59	69	11	10	21	18	32	7
Iceland	12	14	27	31	11	17	69	56	23	5	12
Finland	13	18	19	84	16	23	39	68	4	23	6
Sweden	14	20	13	86	8	30	95	38	2	14	18
Lithuania	15	37	16	93	2	36	61	31	31	7	29
Estonia	16	43	9	111	29	48	27	18	14	19	42
Switzerland	17	28	26	11	13	31	119	13	57	9	33
Belgium	18	34	31	43	141	45	13	33	9	17	9
Germany	19	47	20	131	33	5	57	54	3	25	30
Thailand	20	29	8	23	22	59	33	34	89	49	37
Malaysia	21	57	101	34	53	6	5	19	36	61	43
Netherlands	24	42	66	70	20	14	103	120	5	20	8
Latvia	26	26	47	103	89	26	40	83	62	15	11
Korea	27	97	25	105	64	25	87	44	16	18	13

Table A.13 continued

Table A.13 (continued)

	Ease of doing business	Starting a business	Dealing with licenses	Hiring and firing	Registering property	Getting credit	Protecting investors	Paying taxes	Trading across borders	Enforcing contracts	Closing a business
Spain	30	86	50	150	37	29	94	25	10	24	16
Austria	32	59	41	110	28	20	121	72	8	35	20
Taiwan, China	35	79	126	108	26	58	65	32	54	27	5
Slovak Republic	37	48	40	74	6	28	118	69	60	81	44
Czech Republic	41	77	87	60	57	21	68	70	24	21	101
Portugal	42	104	94	145	93	55	32	47	29	46	19
France	44	13	23	142	144	115	56	35	44	13	32
Hungary	52	72	119	85	96	24	84	98	38	31	50
Poland	54	92	120	64	75	88	22	106	34	104	23
Bulgaria	62	80	118	90	62	46	54	78	45	79	56
Slovenia	63	78	48	133	88	57	46	77	63	85	69
Italy	70	45	93	138	48	51	86	102	90	76	40
Mexico	73	84	49	125	74	68	125	95	39	100	22
Romania	78	8	86	149	114	74	44	116	72	65	102
Greece	80	121	42	148	130	83	128	67	64	8	34
China	91	126	136	87	24	113	100	119	48	47	59
Turkey	93	46	137	141	49	103	75	66	95	37	125
Philippines	113	89	91	82	92	121	132	80	33	89	132
Indonesia	115	144	107	120	107	63	58	118	49	145	116
India	116	90	124	116	101	84	29	103	130	138	118
Croatia	118	103	148	109	99	131	135	85	109	43	66

Source: World Bank/International Finance Corporation: Doing Business Database.

Notes to Tables A.8 – A.13

Table A.8

Public expenditure on education consists of public spending on public education plus subsidies to private education at the primary, secondary and tertiary levels.

Gross enrolment ratio is the ratio of total enrolment, regardless of age, to the population of the age group that officially corresponds to the level of education shown. Secondary education completes the provision of basic education that began at the primary level, and aims at laying the foundations for lifelong learning and human development, by offering more subject- or skill-oriented instruction using more specialized teachers. Tertiary education, whether or not to an advanced research qualification, normally requires, as a minimum condition of admission, the successful completion of education at the secondary level.

Expenditures for research and development are current and capital expenditures (both public and private) on creative, systematic activity that increases the stock of knowledge. Included are fundamental and applied research and experimental development work leading to new devices, products or processes.

Researchers in R&D are people trained to work in any field of science and who are engaged in professional R&D activity. Most such jobs require completion of tertiary education.

Table A.9

Delay in obtaining an electrical connection (days): Average actual delay, in days, that firms experience when obtaining an electrical connection, measured from the day the establishment applied to the day they received the service or approval.

Delay in obtaining a telephone connection (days): Average actual delay, in days, that firms experience when obtaining a telephone connection, measured from the day the establishment applied to the day they received the service or approval.

Firms using the Web to interact with clients/suppliers (%): Percentage of firms that regularly make use of the Web in interacting with clients and/or suppliers.

Confidence in the judiciary system (%): Percentage of firms that agree with the statement ‘I am confident that the judicial system will enforce my contractual and property rights in business disputes’.

Dispute resolution time (weeks): Average amount of time, in weeks, that it usually takes to resolve an overdue payment.

Security and protection costs (% of sales): Firms' costs, as a percentage of total sales, of providing security (equipment, personnel, or professional security service) and protection payments (e.g. to organized crime to prevent violence).

Table A.10

Start business: All generic procedures that are officially required for an entrepreneur to start up an industrial or commercial business are recorded. These include obtaining all necessary licences and permits and completing any required notifications, verifications or inscriptions with relevant authorities. Time is recorded in calendar days. It is assumed that the minimum time required for each procedure is 1 day. Time captures the median duration that incorporation lawyers indicate is necessary to complete a procedure. If a procedure can be accelerated for an additional cost, the fastest procedure is chosen. It is assumed that the entrepreneur does not waste time and commits to completing each remaining procedure without delay. The time that the entrepreneur spends on gathering information is ignored. It is assumed that the entrepreneur is aware of all entry regulations and their sequence from the beginning. If answers by local experts differ, inquiries continue until the data are reconciled. To make the data comparable across countries, several assumptions about the business and the procedures are used.

Time for export: Every official procedure for exporting and importing a standardized cargo of goods is recorded – from the contractual agreement between the two parties to the delivery of goods – along with the time necessary for completion. All documents and signatures required for clearance of the goods across the border are also recorded. For exporting goods, procedures range from the packing of the goods at the factory to their departure from the port of exit. Local freight forwarders, shipping lines, customs brokers and port officials provide information on the time to complete each procedure. To make the data comparable across countries, several assumptions about the business and the traded goods are used. Time is recorded in calendar days. The time calculation for a procedure starts from the moment it is initiated and runs until it is completed. If a procedure can be accelerated for an additional cost, the fastest legal procedure is chosen. It is assumed that neither the importer nor the exporter wastes time and that each commits to completing each remaining procedure without delay. Procedures that can be completed in parallel are treated as simultaneous for the purpose of measuring time. The waiting time between procedures (for example, during unloading of the cargo) is included in the measure.

Enforcing contracts: Indicators on enforcing contracts measure the efficiency of the judicial (or administrative) system in the collection of overdue debt. The data are built by following the step-by-step evolution of a payment dispute either before local courts or through an administrative process, if such a process is available and preferred by creditors. The data are collected through study of the codes of civil procedures and other court regulations as well as surveys of local litigation lawyers. The cost indicator measures the official cost of going through court procedures, including court costs and attorney fees where the use of

attorneys is mandatory or common, or the costs of an administrative debt recovery procedure, expressed as a percentage of the debt value.

Protecting investors: This measures the strength of minority shareholder protections against directors' misuse of corporate assets for personal gain. The indicators distinguish three dimensions of investor protection: transparency of transactions (extent of disclosure index), liability for self-dealing (extent of director liability index) and shareholders' ability to sue officers and directors for misconduct (ease of shareholder suits index). The data come from a survey of corporate lawyers and are based on company laws, codes of civil procedure and securities regulations. To make the data comparable across countries, several assumptions about the business and the transaction are used. The strength of investor protection index is the average of the extent of disclosure index, the extent of director liability index and the ease of shareholder suits index. The index ranges from 0 to 10, with higher values indicating better investor protection.

Table A.11

The index of economic freedom measures 161 countries against a list of 50 independent variables divided into 10 broad factors of economic freedom. Low scores are more desirable. The higher the score on a factor, the greater the level of government interference in the economy and the less economic freedom a country enjoys.

The competitiveness rank is the result of the global ranking of the Growth Competitiveness Index (GCI), developed and calculated by the World Economic Forum. This index is composed of three component indices: the technology index, the public institutions index, and the macroeconomic environment index, which are themselves calculated on the basis of both 'hard data' and 'Survey data'.

Table A.12

Telecom (%): Percentage of firms that say the shortcomings of telecommunications infrastructure present major or severe obstacles to the operation and growth of their business.

Electricity (%): Percentage of firms that say the shortcomings of the electrical utilities and infrastructure present major or severe obstacles to the operation and growth of their business.

Transportation (%): Percentage of firms that say transportation presents major or severe obstacles to the operation and growth of their business.

Anti-competitive practices (%): Percentage of firms that say anti-competitive practices present major or severe obstacles to the operation and growth of their business.

Access to land (%): Percentage of firms that say access to land presents major or severe obstacles to the operation and growth of their business.

Access to financing (%): Percentage of firms that say access to financing presents major or severe obstacles to the operation and growth of their business.

Cost of financing (%): Percentage of firms that say the cost of financing presents major or severe obstacles to the operation and growth of their business.

Skills and education of workers (%): Percentage of firms that say the skill levels and education levels of available workers present major or severe obstacles to the operation and growth of their business.

Tax rates (%): Percentage of firms that say tax rates present major or severe obstacles to the operation and growth of their business.

Tax administration (%): Percentage of firms that say tax administration presents major or severe obstacles to the operation and growth of their business.

Customs and trade regulations (%): Percentage of firms that say customs regulations present major or severe obstacles to the operation and growth of their business.

Labour regulations (%): Percentage of firms that say labour regulations present major or severe obstacles to the operation and growth of their business.

Business licensing and permits (%): Percentage of firms that say processes for obtaining business licences and permits present major or severe obstacles to the operation and growth of their business.

Economic and regulatory policy uncertainty (%): Percentage of firms that say uncertainty about economic and regulatory policy is a major or severe obstacle to the operation and growth of their business.

Macroeconomic instability (%): Percentage of firms that say macroeconomic instability is a major or severe obstacle to the operation and growth of their business.

Corruption (%): Percentage of firms that say corruption is a major or severe obstacle to the operation and growth of their business.

Crime, theft and disorder (%): Percentage of firms that say crime, theft and disorder present major or severe obstacles to the operation and growth of their business.

Legal system (%): Percentage of firms that say the legal system presents major or severe obstacles to the operation and growth of their business.

Appendix B: Tables and Figures to Part Two

Table B.1

Grouping of industries

NACE code	Industry description	Technology group	Technology intensity
15	Food products and beverages	1	low tech
16	Tobacco products	1	low tech
17	Textiles	1	low tech
18	Wearing Apparel; dressing and dyeing of fur	1	low tech
19	Leather and footwear	1	low tech
20	Wood and wood products	1	low tech
21	Pulp, paper and paper products	1	low tech
22	Publishing, printing and reproduction of recorded media	1	low tech
23	Coke, refined petroleum products and nuclear fuel	2	medium-low tech
24	Chemicals and chemical products	3	medium-high tech
25	Rubber and plastic products	2	medium-low tech
26	Other non-metallic mineral products	2	medium-low tech
27	Basic metals	2	medium-low tech
28	Metal products	2	medium-low tech
29	Machinery and equipment n.e.c.	3	medium-high tech
30	Office machinery and computers	4	high tech
31	Electrical machinery and apparatus n.e.c.	3	medium-high tech
32	Radio, television and communication equipment and apparatus	4	high tech
33	Medical, precision and optical instruments, watches and clocks	4	high tech
34	Motor vehicles	3	medium-high tech
35	Other transport equipment	3	medium-high tech
36	Furniture, manufacturing n.e.c.	1	low tech
37	Recycling	1	low tech

Table B.2

Manufacturing sector competitiveness in current USD, 2000

(weighted averages for regional groupings)

	Wage rates (USD)	Productivity levels (USD)	Productivity levels (int. dollars)	Unit labour costs (USD)	Unit labour costs (int. dollars)	FDI-output ratio	FDI-employment ratio
Austria	27502	151702	180084	0.181	0.153	0.095	14435
Denmark	30207	85612	82302	0.353	0.367	0.106	9070
Finland	25886	207194	229628	0.125	0.113	0.127	26350
France	25957	209063	247905	0.124	0.105	0.115	24146
Germany	37383	180545	168856	0.207	0.221	0.035	6269
Ireland	31122	275771	313968	0.113	0.099	0.000	n.a.
Italy	18397	169448	227539	0.109	0.081	0.066	11190
The Netherlands	35953	256956	301403	0.140	0.119	0.455	116959
Sweden	22860	165604	165100	0.138	0.138	1.081	178977
Great Britain	29130	155999	163157	0.187	0.179	0.175	27277
Greece	11657	91101	144510	0.128	0.081	0.050	4549
Portugal	7320	62413	104182	0.117	0.070	0.263	16398
Spain	17770	145319	212495	0.122	0.084	0.133	19290
EU-15	*27321*	*169835*	*192826*	*0.161*	*0.142*	*0.132*	*22415*
Australia	21765	152667	200419	0.143	0.109	0.094	14401
Can	28252	200448	241220	0.141	0.117	0.201	40321
Japan	32561	322558	224866	0.101	0.145	0.008	2690
Norway	31304	187021	182704	0.167	0.171	0.145	27026
USA	39305	272694	272694	0.144	0.144	0.129	35073
advanced OECD	35372	279759	248991	0.126	0.142	0.084	23490
Czech Rep.	4101	37985	102077	0.108	0.040	0.205	7774
Estonia	3484	22927	71723	0.152	0.049	0.213	4878
Hungary	3751	49671	130580	0.076	0.029	0.207	10261
Latvia	2498	18077	49888	0.138	0.050	0.132	2387
Lithuania	2608	22432	61515	0.116	0.042	0.128	2868
Poland	4855	38495	91924	0.126	0.053	0.139	5354
Slovak Rep.	3184	35105	100595	0.091	0.032	0.149	5220
Slovenia	8689	51818	96397	0.168	0.090	0.102	5280
NMS	*4403*	*38689*	*97243*	*0.114*	*0.045*	*0.163*	*6308*
Croatia	5877	37669	82775	0.156	0.071	0.160	6009
Bulgaria	1232	13191	45561	0.044	0.013	n.a.	n.a.
Romania	1428	14800	44926	0.044	0.015	n.a.	n.a.
Candidates	*1376*	*14389*	*45094*	*0.096*	*0.031*	*n.a.*	*n.a.*
Turkey	6840	87928	n.a.	0.078	n.a.	0.004	330
Mexico	8204	126035	194736	0.065	0.042	0.257	32436
Hong Kong	21026	144183	168087	0.146	0.125	n.a.	n.a.
Korea	15134	187752	282052	0.081	0.054	0.053	9873
Singapore	20838	305963	381900	0.068	0.055	0.255	78110
Tigers 1	*16238*	*200167*	*287664*	*0.081*	*0.056*	*0.090*	*18004*
Indonesia	940	18067	100012	0.052	0.009	1.152	20809
Malaysia	4188	70587	211931	0.059	0.020	0.359	25337
Philippines	2297	34972	131845	0.066	0.017	0.307	10720
Thailand	2734	44284	149577	0.062	0.018	0.573	25354
Tigers 2	*1997*	*33966*	*132073*	*0.059*	*0.015*	*0.706*	*23989*
China	*n.a.*	20024	86548	*n.a.*	*n.a.*	*n.a.*	*n.a.*
India	1322	26151	153166	0.051	0.009	*n.a.*	*n.a.*

Note: Productivity levels are based on output per employee due to data limitations for data on value added in some countries.

Source: wiiw calculations.

Table B.3

Manufacturing wages in current USD, 2000

(weighted averages for regional groupings)

	Food and beverages	Textiles and wood	Petrol., chem., rubber, plastics	Metals, mech. machinery	Electronic machinery	Transport	Other	Not allocated
Austria	20769	20579	23601	31467	37521	30571	20229	20522
Denmark	28072	27228	35509	31302	31379	32438	27412	31342
Finland	22739	26370	26881	25371	30628	24588	20339	22752
France		23407	29092	23779	29443	27836	20276	22645
Germany	25922	30829	36503	37169	40288	44054	29650	32392
Ireland	21687	30829	60344	27553	29213	22636	14595	28322
Italy	18560	15839	23465	18878	19397	20959	14951	16163
The Netherlands	35015	32761	42573	34617	39989	32471	27197	31751
Sweden	21013	21941	24279	22331	24432	23755	19305	21414
Great Britain	23767	27110	31698	28762	29462	37896	26661	27707
Greece	11596	8443	16446	13812	13513	10368	7171	13067
Portugal	6621	6060	11840	7368	11927	12739	4920	6655
Spain	15868	14469	22845	18060	20454	21925	13008	15280
EU-15	*21828*	*21592*	*30174*	*27505*	*31961*	*35623*	*20131*	*20839*
Australia	22664	16728	23700	23703	22581	23470	15032	19919
Canada	25457	25490	26986	31622	28644	34614	21164	26643
Japan	20393	22421	36033	32152	37971	48057	19264	22140
Norway	27316	27941	36467	33572	37424	34581	25546	31504
USA	30221	28681	40312	41636	50138	47836	28954	34482
advanced OECD	*25420*	*25565*	*37709*	*37279*	*43152*	*45767*	*25750*	*29068*
Czech Rep.	3965	3420	4663	4289	4062	4971	3411	4004
Estonia	3393	3395	3423	3769	3670	4100	3108	3850
Hungary	3665	2714	5457	3774	4098	4927	2479	3281
Latvia	2930	2689	2988	2508	2831	2752		2597
Lithuania	2662	2355	2716	2594	3342	4122	2350	2696
Poland	4536	3942	6344	5184	5854	5845	3889	4590
Slovak Rep.	3003	2569	3951	3500	3028	3932	2722	2883
Slovenia	9655	7631	11172	8699	8902	9285	7421	7973
NMS	*4171*	*3589*	*5768*	*4708*	*4745*	*5375*	*3522*	*4193*
Croatia	6920	4686	7758	5253	7680	6863	4140	4992
Bulgaria	1240	897	1830	1456	1249	1448	862	1136
Romania	1277	1110	2052	1737	1709	1798	1103	1276
Candidates	*2076*	*1418*	*2721*	*1931*	*2469*	*2368*	*1367*	*1631*
Turkey	6577	5011	11238	7531	9836	7239	5384	7159
Mexico	7499	5961	11185	7971	7439	10133	4919	6921
Hong Kong	14954	20782	21956	22522	22387	28986	20550	24840
Korea	12525	12304	17098	15975	16148	18158	11576	13710
Singapore	17681	18596	27934	18675	21641	21577	15978	17509
Tigers 1	*13148*	*13870*	*18564*	*16540*	*17708*	*18874*	*12850*	*14160*
Indonesia	955	740	1257	1408	1270	1489	631	790
Thailand	2130	2350	3031	3665	3401	3738	1633	2286
Malaysia	3762	3324	4493	5042	4445	5036	3100	4629
Philippines	2701	1806	3498	2179	2508	2701	1593	1855
Tigers 2	*1601*	*1399*	*2499*	*2696*	*3117*	*2797*	*1202*	*1650*
China	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
India	786	1033	1757	1773	1957	2008	1146	962

Source: wiiw calculations

Table B.4

Labour productivity in current USD, 2000

(output per employee, weighted averages for regional groupings)

	Food and beverages	Textiles and wood	Petrol., chem., rubber, plastics	Metals, mech. machinery	Electronic machinery	Transport	Other	Not allocated
Austria	193823.6	125797.5	160539.2	159997.9	184957.7	133291.8	90941.66	112108.3
Denmark	89429	98797	68799	65175	143905	122727	85688	11744
Finland	190287	210959	151595	174665	343973	126850	95451	124179
France		149407	318220	145228	191130	329018	128317	128625
Germany	210200	151018	167650	149730	164361	244570	128508	144911
Ireland	296309	117825	610929	304100	221180	63728	73011	144228
Italy	267597	131789	295146	150512	135035	172164	141046	132295
The Netherlands	411722	170787	382871	182014	198988	232413	150850	176101
Sweden	197856	162684	229486	138790	173349	166266	110769	107442
Great Britain	151636	121351	248629	133577	144085	225822	110937	127154
Greece	114855	46348	175839	100797	108122	28304	35174	72735
Portugal	80548	44944	159393	52755	87828	152330	38142	46513
Spain	162225	89075	269792	113830	134113	232409	71129	101636
EU-15	*199890*	*124900*	*255175*	*141855*	*163570*	*236098*	*111044*	*118559*
Australia	186020	85452	211748	175303	126060	163482	66514	90614
Canada	239147	142489	257616	165350	170364	361616	106038	140911
Japan	264433	192414	460866	296914	322955	502833	196423	217944
Norway	236136	132653	343976	184538	176216	169744	103736	161405
USA	338622	180740	377778	234339	289873	377440	136366	198121
advanced OECD	*290044*	*175870*	*387925*	*247636*	*296839*	*416241*	*141833*	*198837*
Czech Rep.	47542	27123	69494	30741	27884	68923	25439	30086
Estonia	28780	20761	36963	20376	18982	26152	18545	24529
Hungary	46508	20516	78266	34393	73444	143318	16104	23319
Latvia	22873	15347	24463	12875	15224	13615	25038	14278
Lithuania	22823	14612	97373	12682	23439	15518	13522	15342
Poland	45842	25403	68407	32169	41208	54896	26790	29625
Slovak Rep.	37814	17651	79310	30238	22374	92406	22453	19586
Slovenia	76716	34949	74431	49740	40188	126792	40369	40880
NMS	*43745*	*23476*	*71313*	*32015*	*43683*	*71146*	*25039*	*27761*
Croatia	48116	20498	106975	24856	35349	30344	24005	24790
Bulgaria	16999	5535	37037	12720	9671	9417	9670	9073
Romania	29500	6620	42500	16400	12100	9540	8140	7880
Candidates	*28396*	*7756*	*49262*	*16024*	*14901*	*11983*	*9924*	*9831*
Turkey	97027	55319	203284	94895	97128	89146	55343	66925
Mexico	105707	54619	120265	127184	96402	261347	34080	79729
Hong Kong	85660	120497	145377	177406	230907	113529	133946	293507
Korea	212530	100810	322175	187749	214752	196970	85575	147504
Singapore	136604	93709	559173	290909	398107	104080	89088	153615
Tigers 1	*194025*	*103331*	*344942*	*203657*	*256597*	*182848*	*90560*	*151245*
Indonesia	17608	12296	23168	30423	31882	62628	5019	6410
Malaysia	119779	28609	81478	61408	88129	79615	24664	44627
Thailand	42563	28235	68474	90828	42040	96216	12333	14332
Philippines	58775	13385	85734	29050	38540	59066	11029	18173
Tigers 2	*35518*	*16893*	*51173*	*42716*	*55027*	*75690*	*9268*	*13655*
China	26068	13684	26306	17373	33232	21164	13036	11625
India	22148	15155	48941	27517	31889	31567	30879	16605

Source: wiiw calculations.

Table B.5

Unit labour costs at current exchange rates, 2000

(weighted averages for regional groupings)

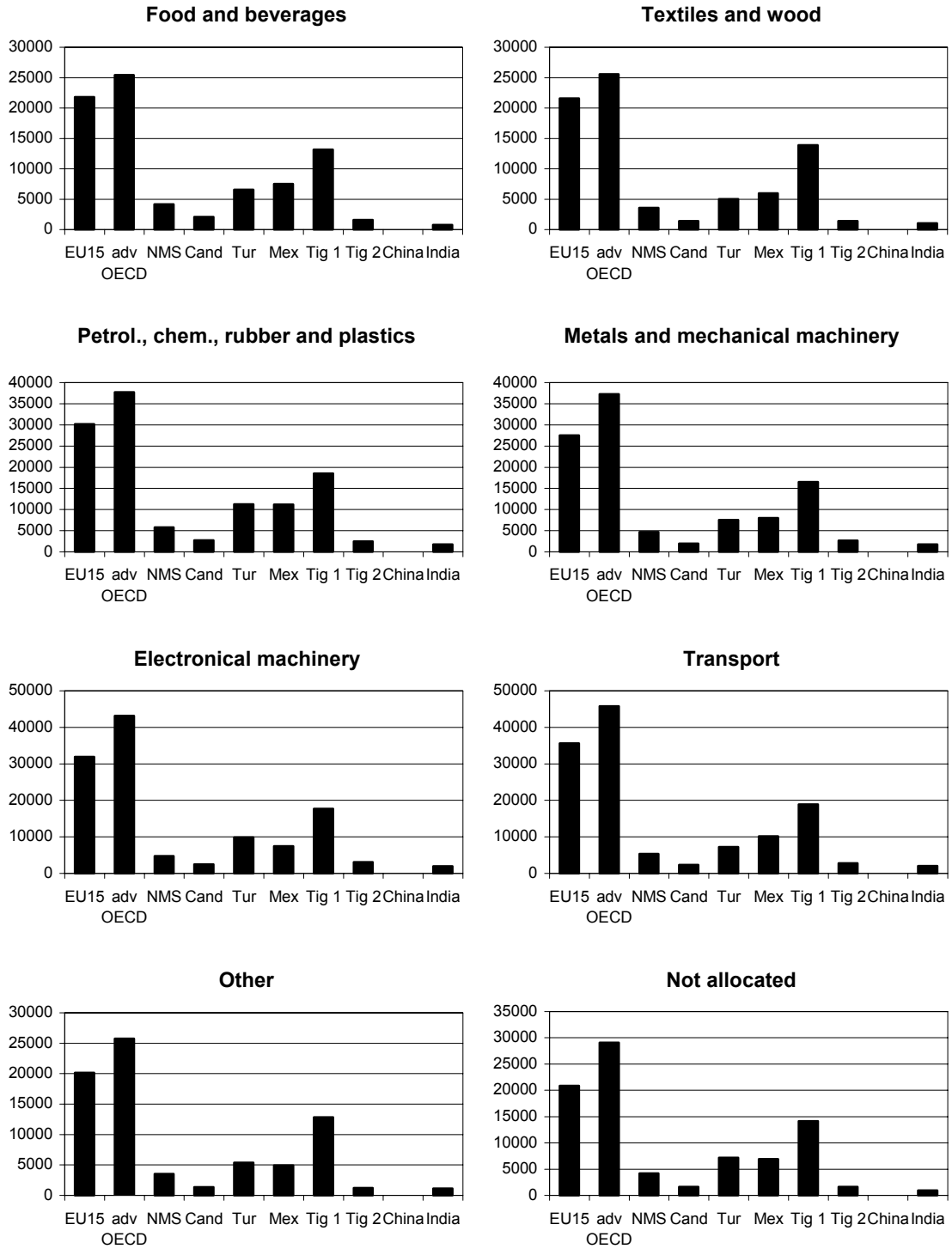
	Food and beverages	Textiles and wood	Petrol., chem., rubber, plastics	Metals, mech. machinery	Electronic machinery	Transport	Other	Not allocated
Austria	0.107	0.164	0.147	0.197	0.203	0.229	0.222	0.183
Denmark	0.314	0.276	0.516	0.480	0.218	0.264	0.320	2.669
Finland	0.119	0.125	0.177	0.145	0.089	0.194	0.213	0.183
France		0.157	0.091	0.164	0.154	0.085	0.158	0.176
Germany	0.123	0.204	0.218	0.248	0.245	0.180	0.231	0.224
Ireland	0.073	0.262	0.099	0.091	0.132	0.355	0.200	0.196
Italy	0.069	0.120	0.080	0.125	0.144	0.122	0.106	0.122
The Netherlands	0.085	0.192	0.111	0.190	0.201	0.140	0.180	0.180
Sweden	0.106	0.135	0.106	0.161	0.141	0.143	0.174	0.199
Great Britain	0.157	0.223	0.127	0.215	0.204	0.168	0.240	0.218
Greece	0.101	0.182	0.094	0.137	0.125	0.366	0.204	0.180
Portugal	0.082	0.135	0.074	0.140	0.136	0.084	0.129	0.143
Spain	0.098	0.162	0.085	0.159	0.153	0.094	0.183	0.150
EU-15	*0.109*	*0.173*	*0.118*	*0.194*	*0.195*	*0.151*	*0.181*	*0.176*
Australia	0.122	0.196	0.112	0.135	0.179	0.144	0.226	0.220
Canada	0.106	0.179	0.105	0.191	0.168	0.096	0.200	0.189
Japan	0.077	0.117	0.078	0.108	0.118	0.096	0.098	0.102
Norway	0.116	0.211	0.106	0.182	0.212	0.204	0.246	0.195
USA	0.089	0.159	0.107	0.178	0.173	0.127	0.212	0.174
advanced OECD	*0.088*	*0.145*	*0.097*	*0.151*	*0.145*	*0.110*	*0.182*	*0.146*
Czech Rep.	0.083	0.126	0.067	0.140	0.146	0.072	0.134	0.133
Estonia	0.118	0.164	0.093	0.185	0.193	0.157	0.168	0.157
Hungary	0.079	0.132	0.070	0.110	0.056	0.034	0.154	0.141
Latvia	0.128	0.175	0.122	0.195	0.186	0.202		0.182
Lithuania	0.117	0.161	0.028	0.205	0.143	0.266	0.174	0.176
Poland	0.099	0.155	0.093	0.161	0.142	0.106	0.145	0.155
Slovak Rep.	0.079	0.146	0.050	0.116	0.135	0.043	0.121	0.147
Slovenia	0.126	0.218	0.150	0.175	0.221	0.073	0.184	0.195
NMS	*0.095*	*0.153*	*0.081*	*0.147*	*0.109*	*0.076*	*0.141*	*0.151*
Croatia	0.144	0.229	0.073	0.211	0.217	0.226	0.172	0.201
Bulgaria	0.034	0.076	0.023	0.054	0.061	0.072	0.042	0.059
Romania	0.020	0.077	0.022	0.049	0.065	0.087	0.062	0.075
Candidates	*0.073*	*0.183*	*0.055*	*0.121*	*0.166*	*0.198*	*0.138*	*0.166*
Turkey	0.068	0.091	0.055	0.079	0.101	0.081	0.097	0.107
Mexico	0.071	0.109	0.093	0.063	0.077	0.039	0.144	0.087
Hong Kong	0.175	0.172	0.151	0.127	0.097	0.255	0.153	0.085
Korea	0.059	0.122	0.053	0.085	0.075	0.092	0.135	0.093
Singapore	0.129	0.198	0.050	0.064	0.054	0.207	0.179	0.114
Tigers 1	*0.068*	*0.134*	*0.054*	*0.081*	*0.069*	*0.103*	*0.142*	*0.094*
Indonesia	0.054	0.060	0.054	0.046	0.040	0.024	0.126	0.123
Malaysia	0.031	0.116	0.055	0.082	0.050	0.063	0.126	0.104
Thailand	0.050	0.083	0.044	0.040	0.081	0.039	0.132	0.159
Philippines	0.046	0.135	0.041	0.075	0.065	0.046	0.144	0.102
Tigers 2	*0.045*	*0.083*	*0.049*	*0.063*	*0.057*	*0.037*	*0.130*	*0.121*
China	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
India	0.036	0.068	0.036	0.064	0.061	0.064	0.037	0.058

Source: wiiw calculations.

Figure B.1

Manufacturing wages in current USD, 2000

(weighted averages for regional groupings)

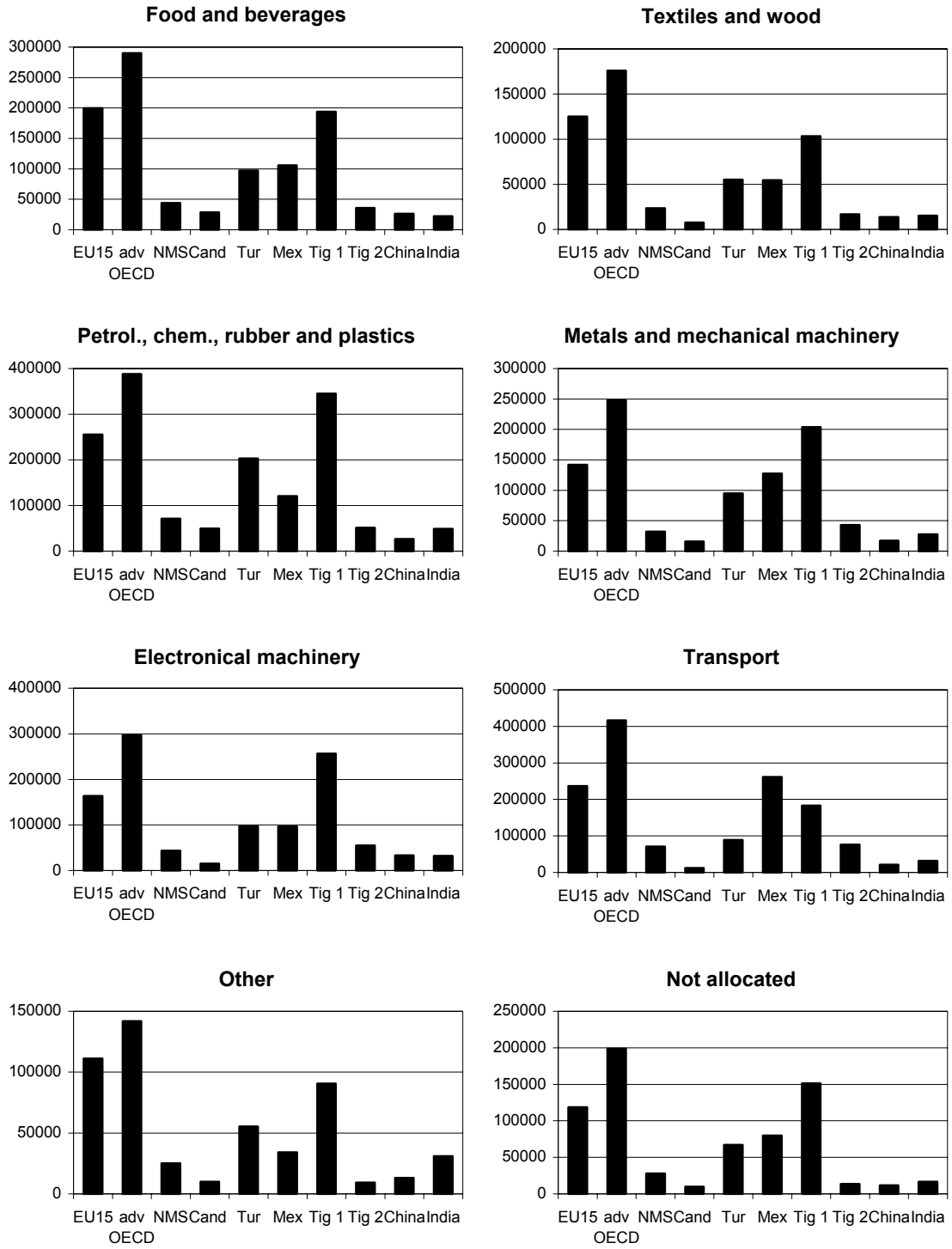


Source: wiiw calculations.

Figure B.2

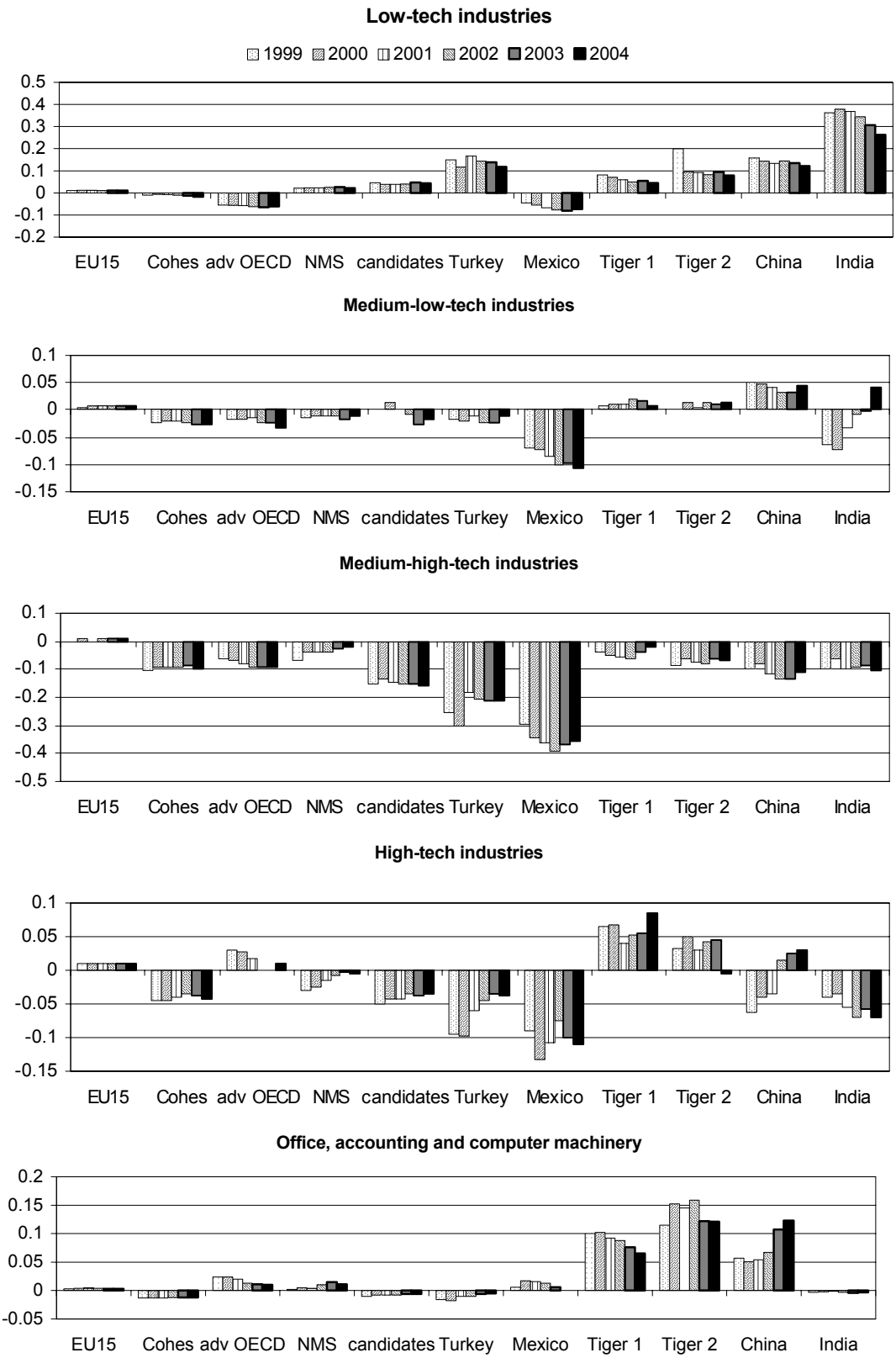
Labour productivity in current USD, 2000

(output per employee, weighted averages for regional groupings)



Source: wiiw calculations.

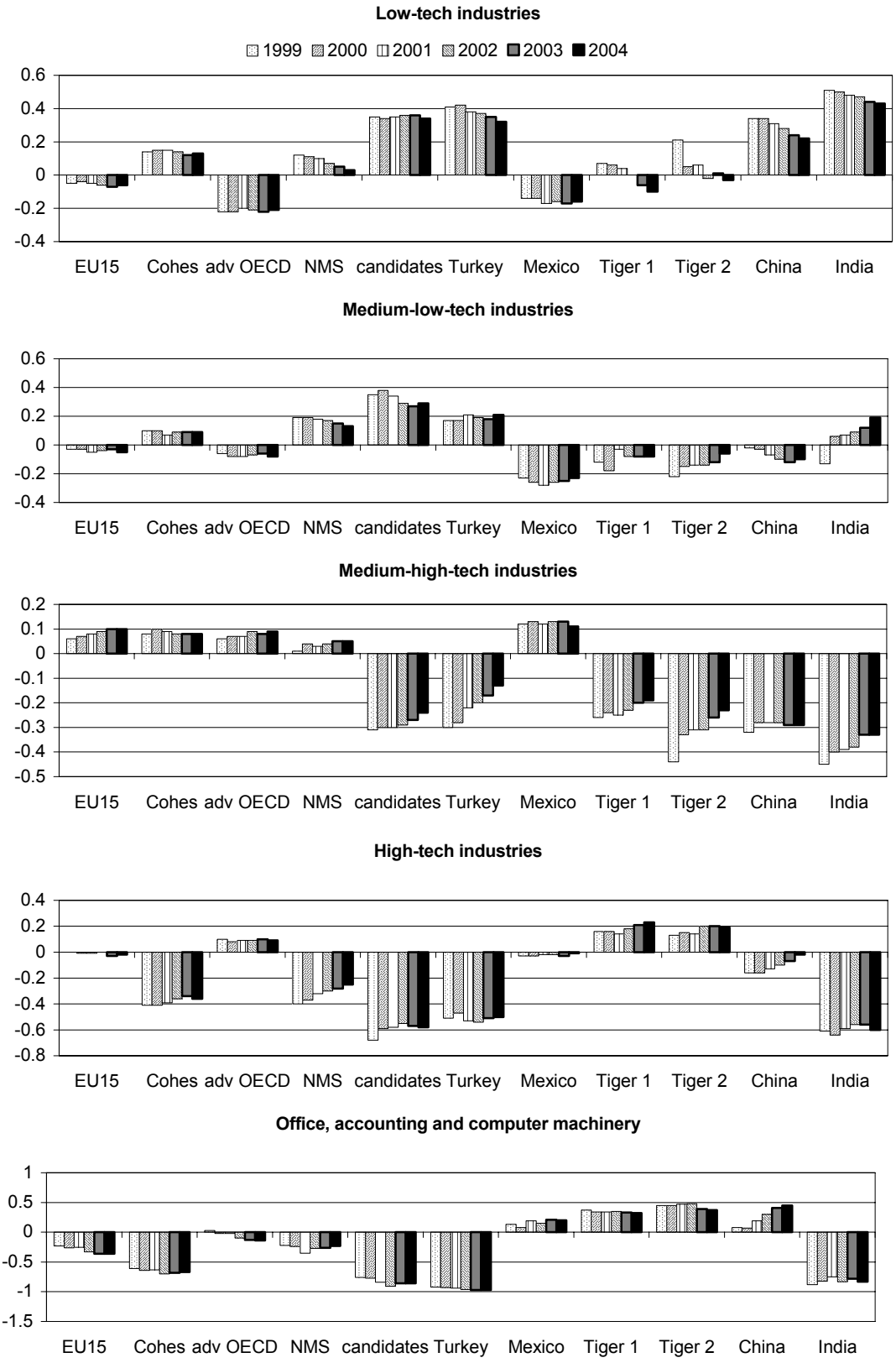
Figure B.3 **Balassa trade specialization index, EU-15 market**



Note: The index of trade specialization is unbound and symmetric around zero, positive values reflect strengths, negative values weaknesses.

Source: wiiw calculations.

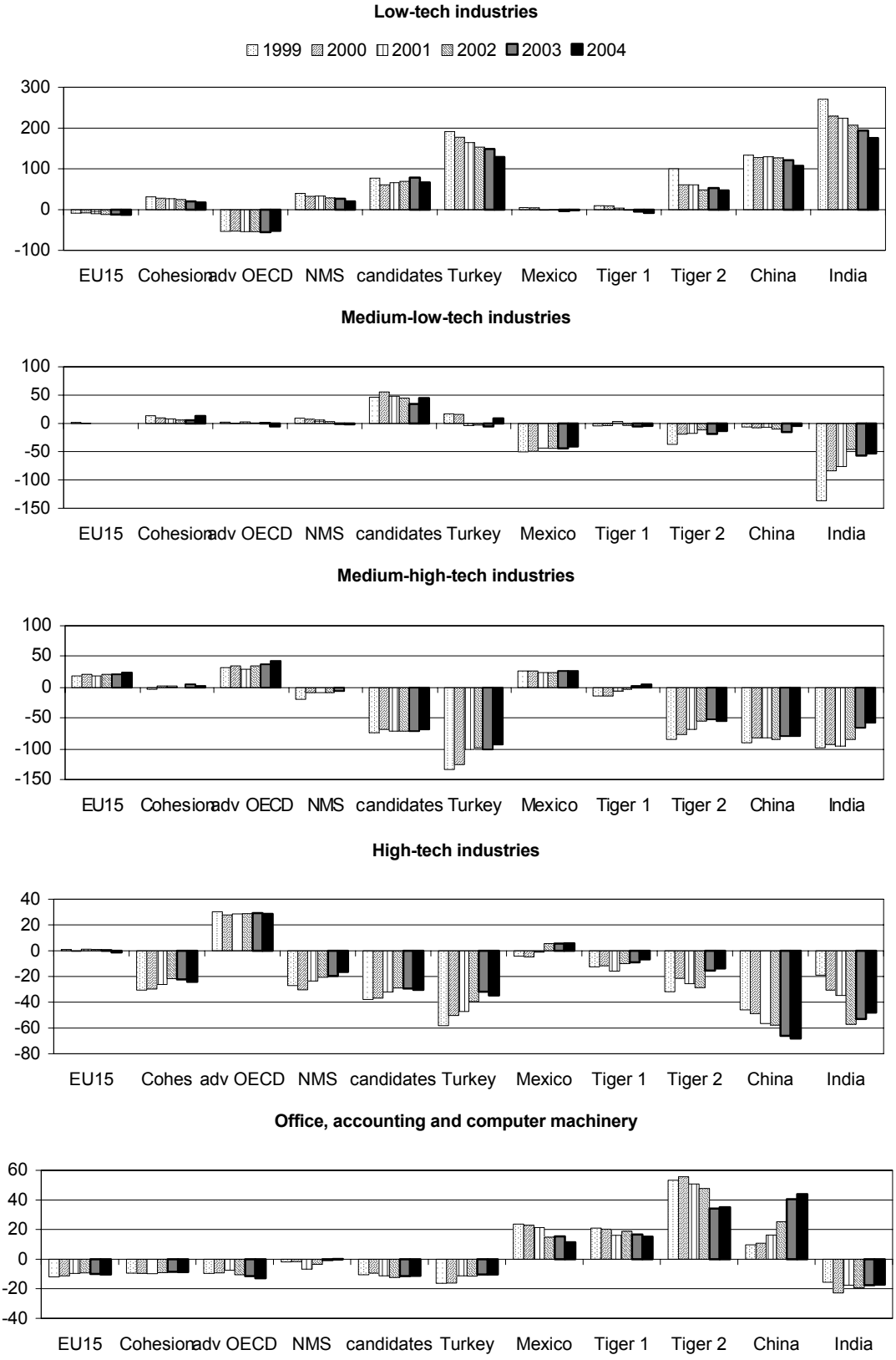
Figure B.4 **Export specialization, world markets**



Note: The index of trade specialization is unbound and symmetric around zero, positive values reflect strengths, negative values weaknesses.

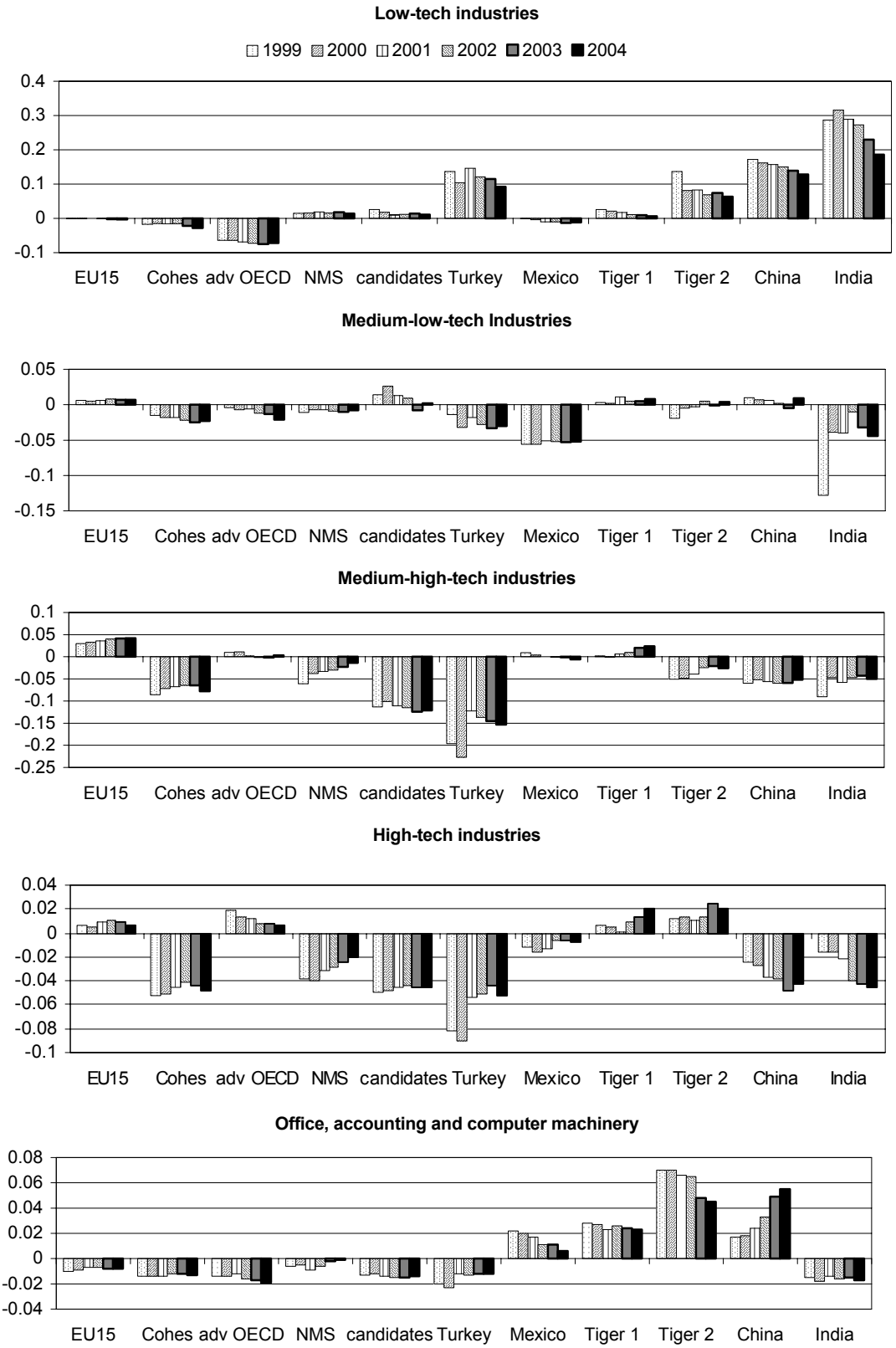
Source: wiiw calculations.

Figure B.5 **CEPII trade specialization, world market**



Note: The CEPII index gives the contribution of each industry group to the overall manufacturing goods balance.
Source: wiiw calculations.

Figure B.6 **Balassa trade specialization index, world market**



Note: The index of trade specialization is unbound and symmetric around zero, positive values reflect strengths, negative values weaknesses.

Source: wiiw calculations.

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