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Abstract

The paper provides a review of the background, components, indicators and revealed effects of Hungary's trade competitiveness at the macroeconomic and sectoral levels, in particular in the manufacturing industry. These features are described and interpreted in two respects: first, in terms of their evolution during the nineties; and secondly, on the basis of an international comparison.

Hungary, after suffering from a deep recession in the early years of the political and economic transformation, experienced considerable improvements in both the 'real' and the 'nominal' components of international competitiveness. First of all, labour productivity, particularly in manufacturing, grew at an outstanding rate, mainly due to FDI-inflows. As for the 'nominal' side, labour costs expressed in foreign currency terms increased modestly in comparison with both other transition countries and gains in domestic productivity. As a consequence, the real exchange rate index based on unit labour costs improved markedly, especially in the period 1995-1999.

Actual trade performance of the country reflected the positive changes in relative productivity and costs. In the second half of the 1990s, Hungary's trade share on EU markets (in manufacturing products) increased by 1 percentage point. As for the components of that market share increase, roughly 80% can be attributed to improved competitiveness. The pronounced increase in manufacturing output, productivity and exports was based on profound structural changes, which involved exceptionally rapid expansion in a limited number of branches/activities (viz. motor vehicles and office machinery) and slower growth or shrinkage in a number of others.

In the last section of the paper an attempt is made to interpret the recent sharp changes in the factors underlying Hungary's international competitiveness (nominal appreciation of the forint combined with a sharp increase in nominal wages and a slow-down in productivity growth in the manufacturing sector).

Keywords: Hungary, competitiveness, productivity, unit labour costs, manufacturing, trade performance, market share, EU enlargement

JEL classification: F14, F15, L60, O11

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1 Introduction

Our paper aims to present an overview of the macroeconomic and certain sectoral aspects of Hungary's international competitiveness: in particular, the competitiveness of the country's manufacturing industry on EU markets. Our analysis thus takes as its point of departure one of the well-known 'Copenhagen criteria' governing EU membership which lay down both political and economic conditions that have to be met. The economic criterion relevant to our approach is *the ability of the candidate country's economy to withstand competitive pressures within the enlarged Union*. This ability is not easily proven; all the more so as it hinges on currently unpredictable *future* conditions – in the year of accession and thereafter – prevailing in the economies of both the old and new members (e.g. the business cycle, in general, as well as sector- and branch-specific cycles; the new members' external balances; exchange rate-related issues; impact of possible transitional arrangements for adopting the *acquis*, etc.).

That notwithstanding, the kind of analysis we intend to present in our paper, comprising a review of recent specific macroeconomic developments in Hungary, as well as a comparison of the country's external economic performance and competitiveness with both other candidate countries and an EU incumbent country (Austria)— may well provide a useful basis on which to judge the ability of the Hungarian economy to withstand the increasing competitive pressure in the European Union in the post-accession period.

In first part of the paper, we discuss the macroeconomic aspects and indicators of Hungary's international competitiveness. In the second part, both the competitiveness and the trade performance of the Hungarian manufacturing industry on EU markets are discussed. In the third part, we turn to sectoral aspects of competitiveness and trade performance and endeavour to identify those sectors that emerged as the main winners and losers in the course of the radical structural changes that characterized Hungary's manufacturing output and exports during the 1990s. Finally, we draw our conclusions, including some cautious predictions as to the evolution of Hungary's competitiveness in the years to come.

* An earlier version of the paper was presented at the conference 'Hungary and EU Eastern Enlargement', organized jointly by the Institute for Advanced Studies (IHS), Vienna and the Austrian Ministry of Finance, on June 6, 2002, in Vienna.

2 Macroeconomic background to Hungary's competitiveness and structural changes in the domestic economy

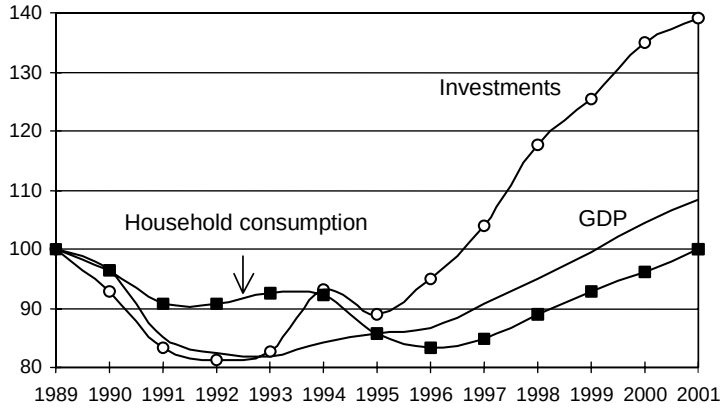
Below we address three issues. First, we briefly review the macroeconomic and policy background/environment governing Hungary' international competitiveness. Secondly, we take a look at developments in terms of output, employment and productivity in the main branches of the domestic economy. Thirdly, we analyse, and try to interpret, the evolution of real exchange rate indices.

2.1 Macroeconomic and policy background

Our point of departure is a brief historical review of changes in output and components of domestic demand. Figure 1 shows some cardinal features of Hungary's macroeconomic history in the nineties. Like all transition economies, the country experienced a very sharp and deep recession in the early years of the decade (in the period 1989-1993 GDP fell by 18%); investments slumped almost as much as output, while consumption also decreased, albeit to a lesser extent. By 1993, the gap between the change in output and domestic absorption resulted in a large external deficit. Output and investments started to rise in 1994; the external imbalance, however, remained excessive, leading to a severe stabilization package being introduced in early 1995. The stabilization measures brought about a further steep drop in consumption and a temporary drop in investments; however, owing to the increase in net exports, GDP did not fall. Since 1997, output has been increasing at an annual rate of some 4-5%, with extremely rapid investment growth and relatively modest increases in consumption. In 1999, the volume of GDP reached its pre-transition level and consumption was still much lower (by about 7.5%), yet investments were 25% higher than they had been a decade earlier. By 2001, real GDP had risen 8.5% above its level in 1989 and consumption returned to its pre-transition level, whereas investments stood at roughly 40% higher than they had been in the last pre-transition year.

Figure 1

The change in GDP, household consumption and investments, 1989-2000 (1989 = 100)

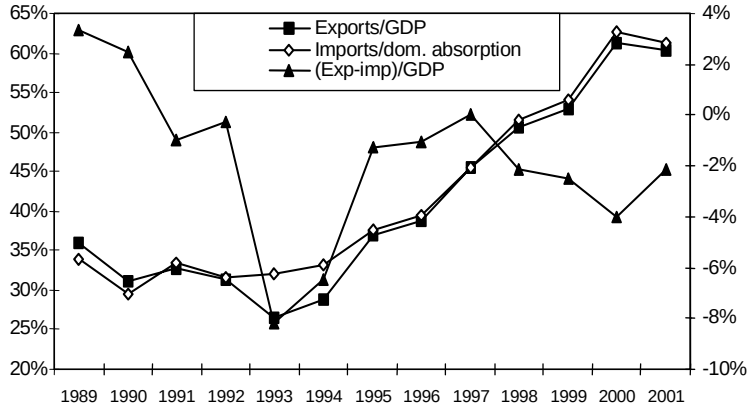


Source: Central Statistical Office (CSO).

Between 1995 and 2001, the rate of investment increased from 20 to 24%[1]. The contribution of FDI-inflows to fixed capital formation was very significant in that period (see below). This points to the importance of the external sector in Hungary's macroeconomic development. Indeed, as shown by the following graph, the relative volume of exports and imports (*of goods and services*) is large and has been increasing at an extremely rapid rate.

Figure 2

Exports relative to GDP, imports relative to domestic absorption (left scale) and net exports relative to GDP (right scale)



Source: Central Statistical Office (CSO).

Whereas exports/GDP may be considered an indicator of the export-orientation of production, imports/domestic absorption indicates the extent of 'import-penetration' or the role of imports in final domestic demand. As shown in the graph, a significant gap emerged between the two indicators in 1993-1994, accompanied by a sharp deterioration in net exports. The gap was almost closed in 1995, whereafter both export-orientation and import-penetration increased very rapidly (almost in parallel), while net imports fluctuated between 2 and 4% of GDP. The recent *apparent* decrease in both export-orientation and import-penetration is due to the nominal (and real) appreciation of the domestic currency in 2001[2]: an issue to be addressed later.

In order to understand the marked export- (or the more generally outward-) oriented character of Hungary's economic growth in the second half of the 1990s, particular account has to be taken of three factors; (a) the size and role of FDI; (b) the behaviour of wages ; and (c) the conduct of economic policy (in particular, exchange-rate policy).

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[1] Owing to shifts in relative prices, the increase in the share of investments in GDP was larger at constant prices (5 percentage points) than at current prices.

[2] In real terms, both exports and imports continued to increase more rapidly than GDP in 2001.

As for the role of FDI, the official balance-of-payments (BOP) statistics are somewhat misleading. The problem with measuring FDI is that Hungarian BOP figures do not include reinvested earnings, an important component of foreign direct investments. In Table 1 we present some calculations regarding the absolute and relative size of FDI, taking reinvested profits into consideration, as reported by the CSO.[3]

Table 1

Indicators of FDI flows, 1995-2000

(EUR billion and per cent)

	1995	**1996**	**1997**	**1998**	**1999**	**2000**
Gross FDI (CB) EUR bn	3.47	1.82	1.92	1.82	1.87	1.84
Net FDI (CB) EUR bn	3.44	1.82	1.53	1.39	1.61	1.23
Reinvested profits EUR bn	0.78	1.09	1.57	1.74	1.87	2.12
Gross FDI (AB) EUR bn	4.25	2.91	3.49	3.56	3.72	3.96
Net FDI (AB) EUR bn	4.21	2.91	3.10	3.13	3.48	3.35
			In per cent of GDP			
Gross FDI (CB)	10.1	5.0	4.7	4.3	4.1	3.6
Net FDI (CB)	10.0	5.0	3.8	3.3	3.6	2.4
Reinvested profits	2.3	3.0	3.9	4.2	4.1	4.2
Gross FDI (AB)	12.3	8.1	8.6	8.5	8.3	7.8
Net FDI (AB)	12.2	8.1	7.7	7.5	7.7	6.6
Current account/GDP (CB)	-5.5%	-3.7	-2.1	-4.9	-4.3	-2.5
			In per cent of gross capital formation			
Gross FDI (CB)	50.2	23.6	21.3	18.4	17.2	15.0
Net FDI (CB)	49.7	23.6	17.0	14.0	14.9	10.1
Reinvested profits	11.2	14.1	17.5	17.6	17.3	17.4
Gross FDI (AB)	61.4	37.7	38.8	36.0	34.5	32.4
Net FDI (AB)	60.9	37.7	34.5	31.7	32.3	27.4

Note: CB: cash-flow basis; AB: accrual basis.

Source: NBH (CB-figures) and CSO (reinvested earnings): National Accounts.

By 1999, the volume of reinvested earnings, as reported by the CSO, was on a par with that of gross FDI in the balance of payments. Even if we consider the CSO-figures to have overestimated the volume of reinvested profits, there can no question that the actual volume of FDI in Hungary (on an accrual basis) is much closer to the AB than to the CB (official) figures shown in Table 1. Thus, over the past few years, the actual ratio of gross

[3] Although several problems may arise with adding up figures from different sources, we had no choice in this case. The NBH does not report data on reinvested earnings in the BOP: the CSO reports these figures when presenting the components of the difference between GDP and GNI (gross national income). Cash-flow statistics (prepared by the NBH) on FDI are based on data reported by commercial banks; reinvested earnings are based on the tax returns of the corporate sector. Therefore, the FDI figures on 'accrual-basis' (AB) in Table 1 are only meant to offer an approximate indication of the degree to which annual FDI due cash-flow statistics are underestimated.

FDI to GDP is likely to have been closer to 8%, rather than the official figure of around 4%. The fact that earnings were reinvested on a large scale in Hungary is indicative of an implicit inflow having been ignored by official statistics.

While the interpretation of the calculated (AB) FDI figures relative to GDP do not involve fundamental conceptual problems, their *ratio to real investments* do. The latter figures (in the lower section of the table) have to be treated with caution[4] since up until 1999 about *one-third* of the cumulative EUR 19,1 billion cash-FDI-inflow into Hungary consisted of *privatization revenue* that had little do with real capital formation. The proceeds were mainly used to redeem foreign public debt.

In order to assess the actual *macroeconomic* impact/importance of FDI, both BOP-statistics and our rough adjustments of the official figures have to be put aside, and data based on tax returns, as reported by the CSO (2002), used in their stead. As it turns out, the importance of FDI in the Hungarian economy is much more significant than the picture revealed by BOP-statistics. Table 2 below which relates to the non-financial corporate sector shows the contribution to performance in that sector of companies with more than 10% foreign ownership.

Table 2

Contribution of foreign-owned companies to indicators in the corporate sector

(in per cent)

	Value-added	Investments	Exports	Imports
1994	39	51	54	57
1995	39	60	58	63
1996	43	54	69	70
1997	48	60	75	74
1998	48	60	77	74
1999	49	59	80	76
2000	49	57	75	76

Source: CSO (2002).

Up until 1998-1999, the role of (partly or fully) foreign-owned companies had been increasing almost continuously in all three respects presented in Table 2: output, investments and foreign trade. In 1999-2000, the monotonous increase would appear to have come to a halt; even a slight reversal would seem to have occurred in terms of

[4] In actual fact, measuring FDI flows at current exchange rates (just as with any item in foreign currency) relative to GDP poses a problem: the official exchange rate is significantly undervalued relative to PPP. According to OECD-EUROSTAT calculations, Hungary's GDP at the official exchange rate was about 40% of its GDP at PPP in 1999. Thus, the relative size of any foreign-currency item (in percent of GDP) would have to be scaled down significantly, if expressed in proportion to GDP at PPP.

exports and imports, but it is too early to decide whether former trends have in fact been ruptured. However, the foreign-owned sector displays two prominent features. First, it has had a higher share in investments than in value-added, while its share in foreign trade is higher than in investments. Secondly, whereas in the mid-1990s, this sector registered a higher share in imports than in exports, the two ratios were reversed in 1997-99, only to be followed by yet another reversal in 2000.

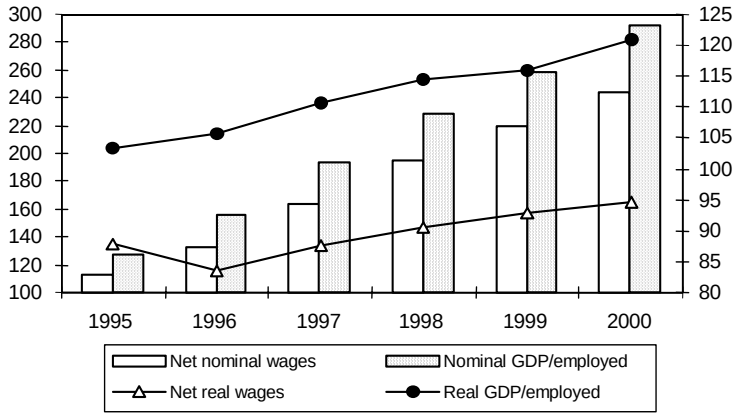
It should be emphasized that the characteristics of the sector with more than 10% foreign ownership actually apply to companies with full (or at least more than 50%) foreign involvement since the latter provide the bulk of value-added, investments and foreign trade generated by foreign-owned companies. We may thus conclude that: (a) investments from FDI-flows have become an integral and extremely dynamic feature of the Hungarian economy; and (b) their current macroeconomic impact cannot be assessed on the basis of the FDI-inflows recorded in the balance of payments.

Although relative changes in investments and consumption have already indicated the type of shift in income shares that took place in the second half of 1990s, it is worth taking a look at wage developments in that period as well. Figure 3 shows developments in terms of net wages. Since 1995, a large gap has emerged between nominal wages per wage earner on the one hand, and nominal GDP per employed person on the other. The gap is more significant, and has even been increasing in terms of real wages and GDP/employment. Although the official data on real wages, presented in the figure, tend to overestimate the actual decline in net wages, there can be no question that in the second half of the 1990s, incomes have undergone a vast redistribution much to the detriment of wage-earners.

Figure 3

Net nominal wages and nominal GDP/employed (left scale); net real wages and real GDP/employed (right scale)

(1994 = 100)



Source: CSO.

As a final point, we should draw attention to the fact that at least up until 2001 (a pre-election year), sustaining international competitiveness constituted a major goal of *economic policy*. The cautious liberalization of (non-FDI) capital inflows, restraint in wage increases in the public sector, prudence in increasing public expenditures and, most importantly, maintenance of a crawling-band exchange rate regime – all contributed to the international competitiveness of the Hungarian economy.

All in all, in the second half of the 1990s, autonomous developments and the macroeconomic policy stance adopted lent firm support to improvements in international competitiveness. The country witnessed a significant growth in output, a large inflow of FDI and a considerable increase in the investment rate. Meanwhile, increases in real wages were rather limited and a crawling exchange rate regime was maintained in order to sustain the exporters' competitive position.

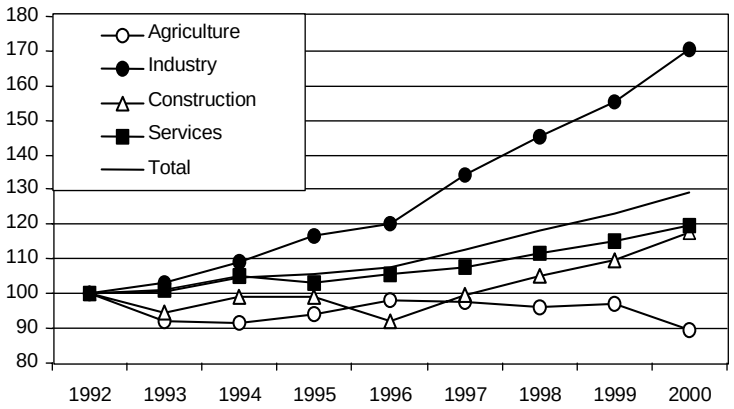
2.2 Sectoral output, employment and productivity

In this section, we review general developments on the supply side of the Hungarian economy in order to identify the major shifts in sectoral output, employment and productivity. Figure 4 shows the changes in real GDP and value-added in the main branches (agriculture, industry, construction and services) relative to 1992. 1992 was taken as the year of reference since it marked the end of the so-called 'transformational recession'.[5]

Figure 4

Real growth in value-added, by main branch

(1992 = 100)



Source: Central Statistical Office (CSO).

[5] On the meaning of 'transformational recession' see Kornai (1994)

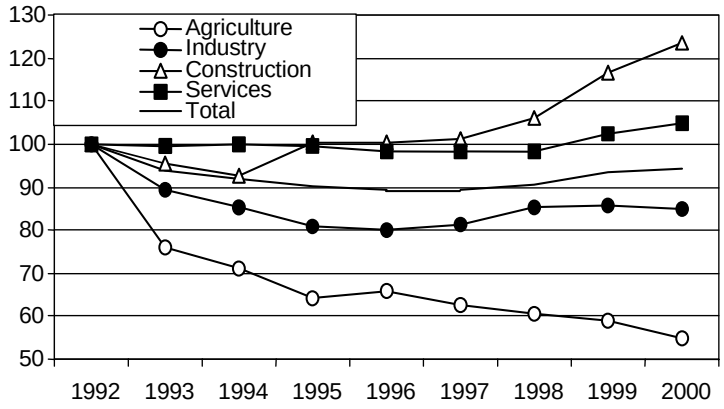
Clearly, industry was the outright 'winner' and agriculture was the 'loser' during developments after 1992. While gross value-added (GDP at factor cost)[6] increased by almost 30% in the economy as a whole, and by more than 70% in industry, it fell, amid fluctuations, by 10% in agriculture. In services, the increase was about 20%, roughly the same as in construction.

The next figure shows trends in employment.

Figure 5

Changes in employment, by main economic sector

(1992 = 100)



Source: CSO.

While overall employment fell by almost 6% in the period 1992-2000, 1998 witnessed a turn in the declining trend. Construction and services are the two sectors to have recorded an increase relative to 1992; however, despite the increase since 1996, the level of employment in industry is still far below the base period. Employment in agriculture was almost halved over the eight years under review.

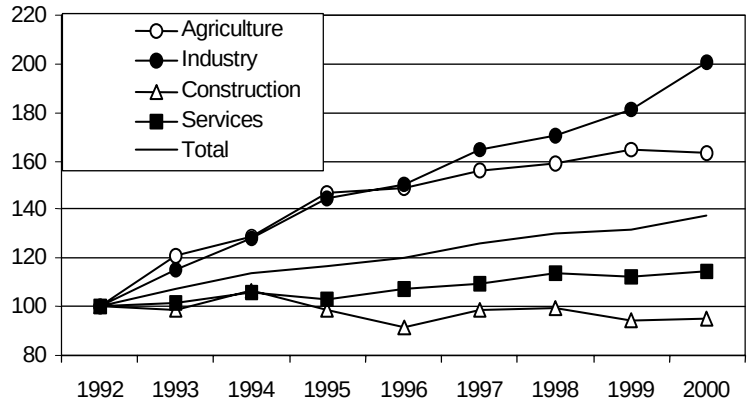
Figure 6 shows the effects of changes in output and employment on labour productivity. While overall productivity increased by roughly 37%, it doubled in industry and grew by more than 60% in agriculture. Productivity growth in services was much smaller (14%) and in construction it was negative (-5%).

[6] It should be noted that output (and its change), measured as the value-added of all sectors, does not match GDP (and its change). The reason is that the sum of the sectoral figures does not include two important adjustments necessary to reach GDP: correction for FISIM (Financial Intermediary Services Indirectly Measured) and correction for product taxes.

Figure 6

Changes in productivity, by main economic sector

(1992 = 100)



Source: CSO.

Table 3 shows employment and output shares by main economic sector in 1992 and 2000, as well as changes therein over that period.

Table 3

Changes in employment and output shares, 1992-2000

(in per cent and percentage points)

	Employment			*Output*			
	Shares		Changes in	Shares at current prices		Changes in shares at	Changes in shares
	1992	2000	shares[1]	1992	2000	current prices[1]	at prices of 1992[1]
Agriculture	11.3%	6.5%	-4.7	7.2%	4.2%	-3.0	-2.2
Industry	29.7%	26.8%	-3.0	27.3%	28.7%	1.4	8.7
Construction	5.3%	7.0%	1.6	5.9%	4.6%	-1.2	-0.5
Services	53.7%	59.7%	6.0	59.6%	62.4%	2.8	-4.4
Total	100%	100%	-	100%	1000%	-	-

Note: 1) Percentage points.

Source: Calculations based on CSO.

There was a clear shift *from* agriculture and industry *towards* services in terms of employment, but the changes were far less in terms of output shares – at least, as long as shares are considered at current prices. However, if production shares in 2000 are considered at base-period prices, the picture is entirely different (cf. the last two columns of Table 3). At constant prices there was a very marked shift in output shares from all other sectors, *including services*, towards industry. This points to two important developments.

– First, the nature of Hungary's economic growth (following the transformational recession) has been based much more firmly on industrial expansion than that implied by the minor shifts in output shares. In fact, the country's overall development over this period can be characterized as something akin to 'reindustrialization'. The reason for this type of development not being self-evident is that prior to political transformation in 1990, the country's economy was rightly considered as 'over-industrialized' and 'under-serviced'. This initial state of affairs could also have led to a different growth path: one more firmly based on the emancipation and expansion of the service sector. What actually happened, however, was an enormous drop (30%) in industrial value-added in the period 1989-1992; the output-loss in services over that period, however, was much smaller. Thus, in the initial years of economic transformation, the adjustment in output shares came about via differential losses in production. That period was followed by a rapid (and accelerating) increase in industrial output which was pronouncedly export-oriented and mainly based on foreign direct investment. Developments in the period 1992-2000, and especially in the second half of the decade, can thus be accurately described as a process of reindustrialization: the characteristics of the evolving new industrial structure had little in common with the structure that marked the pre-transition period.

– Secondly, the relative prices of industrial output and services underwent a radical change. The difference between changes in output shares at current and constant prices is a clear indication of the magnitude of relative price changes (industry: -7.3; services +7.2). This indicates that services achieved their 'emancipation' via significant increases in their relative prices; a process facilitated by the differential increase in productivity in the respective sectors. Thus, the so-called 'Balassa-Samuelson effect'[7], which also has a bearing on movements of the real exchange rate (an issue to which we return in section 2.3.) can be seen to have worked rather powerfully in Hungary during the 1990s.

Developments affecting overall productivity are summarized below. For the sake of simplicity, branches have been aggregated into two broad sectors: one supplying traded goods and the other supplying non-traded items (services).[8]

Table 4 presents changes in output, employment, and productivity relative to 1992 in the traded and non-traded goods sectors, as well as for both sectors as a whole.

[7] See Balassa (1964) and Samuelson (1964)

[8] Industry and agriculture are included in the traded goods sector, and all other branches in the not-traded sector. Of course, this is a simplification since agricultural output is 'semi-tradable', while several types of services are internationally traded (e.g., by travel). This categorization serves as a rough approximation.

Table 4

The cumulative change in value-added, employment and productivity in the traded and non-traded goods sectors

(1992 = 100)

									Annual growth rate (per cent)	
	1993	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	1992-1998	1992-2000
GDP – traded	100.4	104.9	111.2	114.9	125.2	133.3	141.4	151.5	4.9	5.3
GDP – non-traded	100.7	104.8	102.8	104.4	107.1	111.1	114.8	119.2	1.8	2.2
GDP – total	100.6	104.8	105.4	107.7	112.8	118.0	123.1	129.3	2.8	3.3
Employment – traded	85.7	81.5	76.2	76.1	76.2	78.4	78.5	76.6	-4.0	-3.3
Employment – non-traded	99.4	99.1	99.8	98.5	98.4	99.0	103.7	106.6	-0.2	0.8
Employment – total	93.7	91.9	90.1	89.4	89.3	90.6	93.4	94.3	-1.6	-0.7
Productivity – traded	117.1	128.7	145.9	151.0	164.2	170.0	180.3	197.8	9.2	8.9
Productivity – non-traded	101.3	105.7	103.0	106.0	108.8	112.2	110.7	111.8	1.9	1.4
Productivity – total	107.3	114.1	117.0	120.6	126.3	130.3	131.9	137.1	4.5	4.0

Source: Own calculations based on CSO data.

Since 1994, output in the traded-goods sector has increased continuously; with the exception of one year (1995), the non-traded goods sector has shown a continuous increase as well. This exception indicates that the stabilization programme of 1995 did not just involve a change in relative prices, income shares and relative output, but it also incurred a downward adjustment in output in the non-tradable goods sector.

In the period 1992-2000, total value-added increased by 3.3% per annum (by 2.8% in the period 1992-1998); value-added in the traded goods sector rose by 5.3% (4.9%); and in the non-traded sector by 2.2% (1.8%). Up until 1997, total employment showed a continuous, albeit gradually slower decline (by almost 10.5%), whereafter it began to increase gradually. *The loss in employment was primarily due to the major fall in the traded goods sector*. In the other composite sector, the number of employed persons did not change significantly until 1998, whereafter it started to increase rather rapidly. As a result of these developments, by 2000 labour productivity in all sectors was 37% higher than in 1992: it doubled in the traded goods sector, yet increased by a mere 12% in the non-traded goods sector. The divergence in productivity growth was the result of different changes in both output and employment in the two sectors. However, in order to establish the relative importance of those factors, we made a very simple calculation.

First, we calculated the contribution of output and employment growth in the traded and non-traded goods sector, respectively, to the change in total output and employment.

Then, we took the differences in the respective contributions of output and employment growth as an approximation of contributions to total labour productivity growth.[9]

Table 5 shows the contributions of changes in output and employment in the traded and non-traded sectors to total productivity growth in terms of both percentage points ('absolute contributions') and per cent ('relative contributions').

Table 5

The contribution to total productivity growth of changes in output and employment in the traded and non-traded goods sectors, 1992-2000

(percentage points and per cent)

	T	**NT**	**Σ**
		percentage points	
X	16	13	29
L	-10	4	-6
P	26	9	35
		Per cent	
X	46%	37%	83%
L	-29%	11%	-17%
P	74%	26%	100%

Notations: T – traded goods; NT – non-traded goods; X –output; L – employment; P – labour productivity.

Source: Calculations based on CSO data.

The increase in productivity in the tradable sector contributed to growth in overall productivity (roughly 35%) by about three-fourths (26 percentage points); the productivity increase in the non-tradable sector contributed about one-fourth (9 percentage points). In the tradable sector, the decline in employment played a very significant role in expanding productivity in that sector; its contribution to total productivity growth was almost 30% (10 percentage points). In the non-traded goods sector, employment increased, contributing -11% (-4 percentage points) to total productivity growth.

Overall, the increase in total output and the loss in total employment, contributed to the increase in productivity by 83% (about 29 percentage points) and 17% (6 percentage points), respectively. Thus, over the period as a whole, the non-traded sector could make

[9] Formally: $(\Delta X^T/X_0 + \Delta X^{NT}/X_0) - (\Delta L^T/L_0 + \Delta L^{NT}/L_0) \approx P^* = [(\Delta X/X_0+1)/(\Delta L/L_0+1) - 1]$, where X is output (at constant prices), L is employment, P is labour productivity (=X/L); Δ and '*', respectively, indicate an absolute and relative change, T and NT (upper) indices, respectively, are the indicators of the traded and non-traded goods sectors; characters without upper-case indices refer to the economy as a whole. The lower-case index '*0*' refers to the base period. We stress that this is not an exact formulation of the respective relationships (We omitted the 'correction term' linking first differences to growth rates). However, the empirical importance of the correction term is negligible: the cumulative difference between the total growth rate of productivity calculated from the right-hand side and the left-hand side is only 2 percentage points for the period 1992-2000 (35 vs. 37 percent; 0.2 percentage points per year). Therefore, we have used the formula on the right-hand side to decompose the components of productivity growth in the period 1992-2000.

up for about one-third of the employment loss in the traded goods sector. This development, however, is solely due to changes in 1999-2000 with the onset of employment growth.

2.3 Real exchange rate changes

Having reviewed developments *affecting* Hungary's international competitiveness, viz. productivity-growth, we now turn to indicators *reflecting* actual changes in the price and cost competitiveness of the economy, viz. real exchange rate (RER) indices. RER-indices are meant to express the net effect of changes on three factors: the home country's price/cost levels, the exchange rate and the trading partners' price/cost levels.

Before presenting the figures, attention is drawn to the policy environment governing nominal exchange rate changes on the one hand, and certain data-related problems on the other. As for the first issue, three distinctly different exchange rate regimes were applied over the period 1989-2001. Up until March 1995 a 'fixed, but adjustable' exchange rate system was the rule; in the period March 1995-May 2001, the policy of a crawling peg with a narrow band was pursued; since spring 2001, a floating rate with a +/– 15% band has been in force. Until the band was widened, the domestic currency depreciated in nominal terms (inflation, albeit at a declining rate, was, and still is, above that of Hungary's trading partners). However, following the recent change in the exchange rate regime, the HUF has appreciated in nominal terms; this, as we shall see, has led to significant real appreciation.

As for the data-related problems, we have two sets of data on RER-changes from the National Bank of Hungary (NBH): one is based on earlier issues of the NBH Annual Report (the series lapsed in 2000), the other one provides more recent figures, yet has different time spans and is not entirely compatible with the longer series. Given the importance of obtaining as clear a view as possible of recent changes in competitiveness when judging the country's economic prospects, both series are presented; however, attention is called to the fact that the two sets do not bear exactly the same implications.

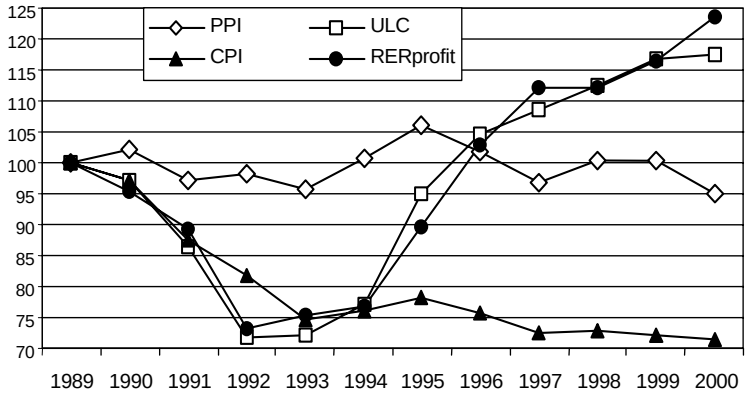
The notion underlying Figure 7 below is that there is no such thing as *the* real exchange rate. There are several RER-indicators, of which four have been selected. The first two are based on relative price indices (CPI and PPI relative to the weighted average of partner countries' CPI and PPI, adjusted for the change in the *nominal* effective exchange rate). The third is based on relative unit labour costs, ULC (i.e., the relative ratio of gross labour costs per employed persons to value-added per employed person). The fourth is a 'hybrid' indicator: the ratio of the RER based on PPI to that based on ULC. It can be shown that the

latter corresponds to the relative ratio of the producers' real wage to productivity; under certain assumptions, this is an indication of relative profitability.[10]

Figure 7

Indicators of the real effective exchange rate[1)]

(1989=100)



Note: 1) A drop indicates real appreciation.

Source: NBH (Annual Reports).

The first point to make is that Figure 7 shows the path of various RER indices, but nothing definite is known about the 'correct' level/path of those indicators. Hence, simple observations alone cannot indicate whether a change in a certain direction was economically justified (put loosely, whether it moved towards equilibrium). This can only be inferred from other pieces of information.

The second point is that while the behaviour of indices based on relative prices is relatively consistent, RER indices based on ULC and relative profitability display enormous swings. The RER based on CPI shows an almost continuous and significant real appreciation (with a temporary reversal in 1994-1996); that based on PPI, however, displays no discernible any trend (even though it also includes the cycle of 1994-1996). The variance in the longer-run behaviour of the two types of RER can be explained in part by real factors and in part by policy measures. The PPI includes traded goods, the domestic prices of which – in a very open economy after complete trade liberalization – are strongly affected by foreign prices for similar goods and the nominal exchange rate. Hence, the RER based on PPI does not contain much information on changes in a country's international competitiveness.

Since it includes the prices of non-traded goods with a large weight, the RER index based on CPI could be a better indicator of excessive (economically unjustified) changes in the real exchange rate. However, in Hungary, as in other transition economies, the RER index

[10] For details on the RER based on relative profitability, see e.g., Lipschitz, L. and McDonald (1993).

based on CPI, as well as its difference relative to that based on PPI, was influenced by two major factors unrelated to international competitiveness: (a) the gradual removal of subsidies and administrative controls on consumer prices, an ongoing process; and (b) the Balassa-Samuelson effect (see also section 2.2.). The latter involves a differential in the growth rate in the productivity of sectors supplying traded/non-traded goods and an equilibrium real appreciation of the RER based on CPI.[11] This factor has been of relevance to Hungary since 1996.

One is thus left with RER indices based on ULC and relative profitability: indices which displayed major movements in the period under review. The two indices generally moved together, as the RER based on PPI did not change significantly. In the period 1989-1993, according to the RERs based on ULC and relative profitability real appreciation was massive (almost 40% and 35%, respectively) and certainly excessive. However, a very sharp reversal in the latter two RER indices was to be observed after 1993. A similar reversal was also to be seen in the RER indices based on relative price indices: adjustments to correct the overshooting (excessive real appreciation) were introduced in 1994 as borne out by all real exchange rate indicators. It is also clear that the stabilization package in 1995 simply reinforced adjustments to the RER that had been initiated earlier, but had proven insufficient to offset the negative effects that ultimately led to the deterioration in the trade balance shown in Figure 2.

Finally, it should be noted that since 1994, the real exchange rate based on ULC (similarly to the one based on relative profits) has been depreciating almost continuously. It is quite possible that just as real appreciation in the period 1989-1993 turned out to be excessive, the real depreciation in the period 1994-2000 may have also led to overshooting, albeit in the opposite direction. However, before rushing into judgment, we should also take a look at the other (more recent and shorter) time series.

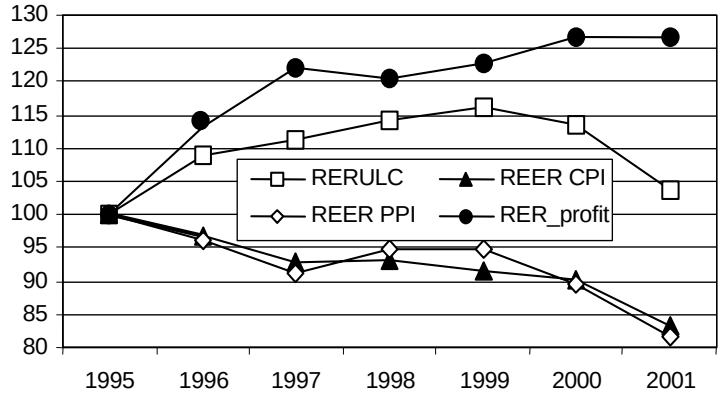
Figure 8 shows a somewhat different picture of recent developments. According to these indicators, the depreciation in the RER index based on ULC was less significant, and the turnaround had already begun in 2000, prior to widening the band (and the corresponding nominal appreciation) in 2001. The fact that the (relative) profitability-based RER index showed no change in 2001 is not truly revealing from the point of view of competitiveness. Indeed, it may well be an indication of a rather *slow pass-through* of nominal exchange rate changes to those in domestic prices (see the sharp appreciation in RER PPI), rather than an indication of genuinely stable competitiveness based on relative profitability.

[11] See e.g, Halpern –Wyplosz (1997) and ECE (2001), Chapter 6, on its relevance to the Balassa-Samuelson effect for the transition economies.

Figure 8

Real effective exchange rate indices

(1995 = 100)



Source: NBH (RER database)

To sum up: simple observations of the past evolution of alternative RER-indices do not provide any clues as to the interpretation of recent changes in those indices. It is, therefore, too early to suggest whether these changes have a bearing on the prospects of Hungary enhancing its international competitiveness. It is particularly uncertain whether weakening price/cost competitiveness is borne out by earlier improvements in that field on the one hand, and by favourable changes in non-price competitiveness on the other.[12]

3 An international comparison of Hungary's trade competitiveness in the manufacturing sector

In the following section, the perspective of our analysis shifts in two respects: (a) *we focus on the manufacturing industry*, the most important sector from the point of view of trade competitiveness; and (b) *we extend the scope of our enquiry to other countries in Central and Eastern Europe* so as to be able to assess Hungary's performance in an international context.

3.1 Components of competitiveness

The four figures below (Figures 9-13) reveal different aspects/components of change in, and the level of, international competitiveness in the manufacturing sector in the countries of Central and Eastern Europe (CEECs). Figure 9 shows average *growth rates* in manufacturing productivity for 10 transition economies after the initial collapse of industrial output (generally after 1993). It should be noted that the productivity indices are based on

[12] For want of space, we cannot treat issues related to non-price/cost (i.e., 'qualitative') competitiveness in detail; we only refer to results of our former work in this field, according to which Hungary's qualitative trade competitiveness improved significantly during the second half of the 1990s. (See Oblath–Pula–Szilágyi, 2000).

gross output, rather than on value-added (i.e., net production, which would be more relevant), but comparable data on output were only available on a gross basis. As the figure shows, the increase in Hungary's manufacturing productivity in the period 1993-2000 significantly exceeded that of other CEECs: its performance (15.4% annual growth) is one-third better than that of Estonia and Poland, ranked second and third best performers. The productivity increase in Hungary was less rapid, yet still impressive (11% per annum), if output is measured in terms of *value-added*. As already mentioned, comparable data are not available for the other countries; therefore, we cannot assess what effect an alternative interpretation of productivity would have on the relative performance of the countries compared in Figure 6.[13]

Figure 10 presents the results of estimates on labour productivity *levels* (gross production per employee) for the manufacturing industry in CEECs and, as a benchmark, for Austria. In order to permit a comparison, national currencies were converted into ECU with purchasing power parities (PPP). The first data set (black bars, PPP_GDP) is drawn from national productivity figures converted into a common currency unit with 1996 purchasing power parities for the whole GDP.[14] Conversion along these lines yields higher productivity estimates for the candidate countries. In the second data set, the conversion factor used is PPP for gross fixed capital formation in 1996 (grey bars, PPP_GCF), where the price levels in the candidate countries are relatively high.[15] This manner of conversion thus yields lower productivity estimates for the candidate countries.

Using either of the methods, the findings show Hungary to be the best performer among the countries compared, attaining 72.8% and 45.3%, respectively, of the 1999 Austrian productivity level in 2000. Productivity levels in the three countries behind Hungary were about one third lower relative to Austria (according to the GDP-based PPP). This is especially surprising in the case of Slovenia (which has a substantially higher per capita GDP than Hungary) and the Czech Republic (a country with a traditionally highly developed manufacturing industry). The productivity gap (relative to Austria) is remarkably wide in comparison to the Baltic States, Bulgaria and Romania. According to the second methodology, Hungary's advantage compared to the countries of Central Europe is somewhat smaller, yet larger compared to the Baltic States, Bulgaria and Romania. (An alternative calculation based on branch-specific unit-value ratios, which compared prices of

[13] Gács (2002) compared the cumulative difference between the growth of gross output and gross value-added in total manufacturing for the period 1997-2000. He reports the largest difference for Hungary (33 percentage points); the next is the Czech Republic with 17% points, followed by Slovakia (7% points) and Poland (6% points). This implies that productivity comparisons based on gross output should be treated with circumspection.

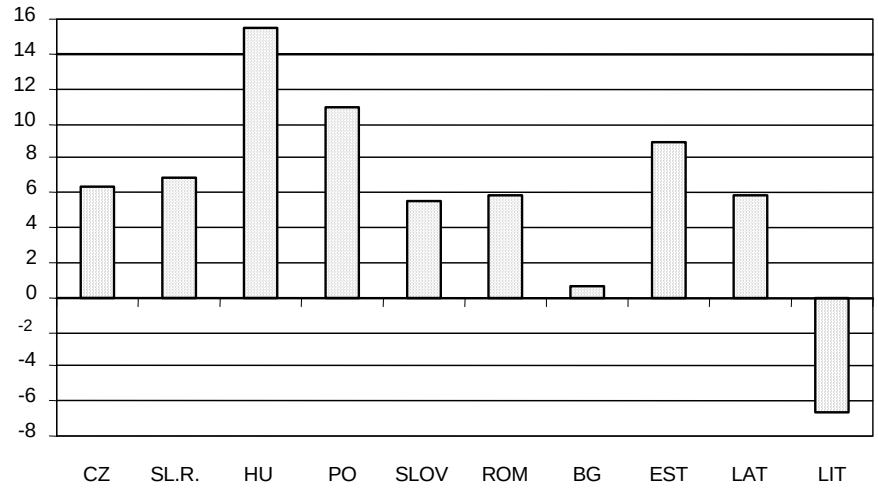
[14] Purchasing power parities were adopted from the ECP 1996 – see Eurostat-OECD (1999).

[15] This follows from the 'static' version of the Balassa – Samuelson (B-S) hypothesis referred to above.

Figure 9

Productivity: growth rates in the 1990s[1)]

(in per cent)

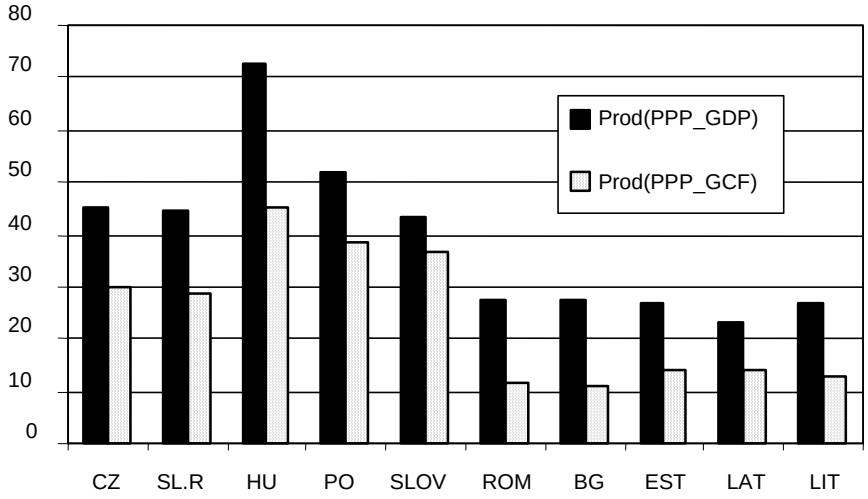


Note: 1) 1993-2000, except for BG (1997-2000), EST (1995-1999), LAT (1994-1999); LIT (93-98).

Figure 10

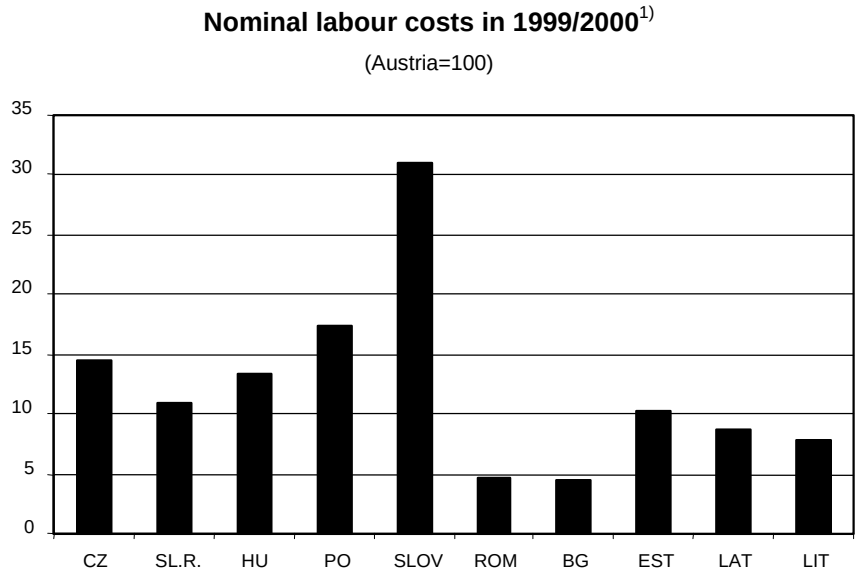
Productivity: levels in 2000/1999 compared at PPPs[1)]

(Austria = 100)



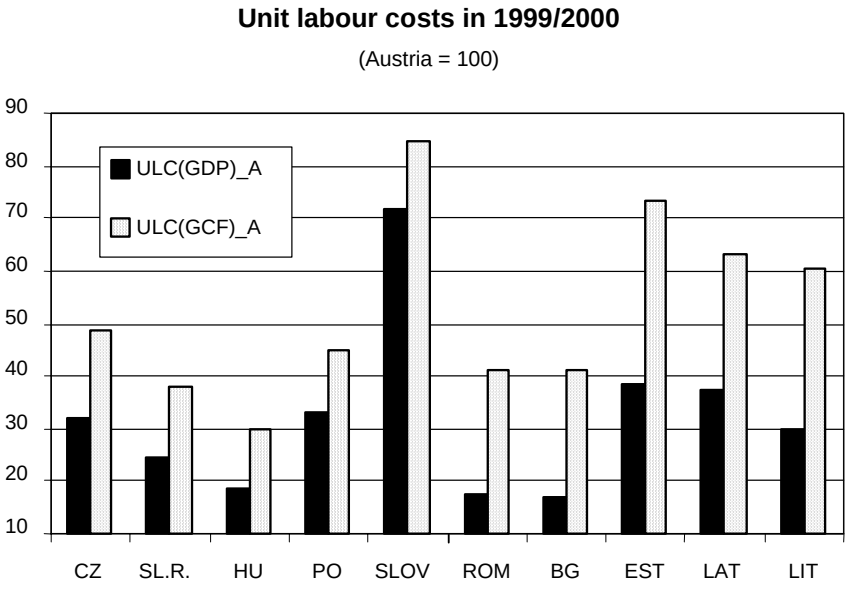
Note: 1) PPP for GDP and GCF: purchasing power parity for GDP and gross capital formation, respectively.

Figure 11



Note: 1) Converted at current exchange rates.

Figure 12



Source (Figures 9-12): WIIW Database.

representative products, yielded similar results for Hungary, Poland, the Czech Republic relative to Germany. In 1996 the level of productivity in Hungary was 41% that of Germany; the corresponding ratios for the Czech Republic (37%) and Poland (34%) were lower than those for Hungary. (These are the results of a joint research project undertaken by the WIIW and University of Groningen. See Monnikhof and van Ark, 2000).

Although productivity is an important *ingredient* in international cost-competitiveness, the latter also depends on domestic costs – in particular *labour* costs – and the nominal exchange rate. Figure 11 shows that labour costs (defined as gross wages, including indirect wage costs, per employed person in EUR at current exchange rates) were rather low in the ten countries in 1999/2000 relative to the Austrian level. Even Slovenia, with the highest labour costs in the group, attained only one-third of the level in Austria; the respective ratio in Hungary was about 14%. Wage costs in the Baltic countries, and especially in Bulgaria and Romania, were even lower.

The net effect of the two factors discussed above – productivity and labour costs – is revealed by the indicators for *unit labour costs* (ULCs – labour costs per unit of output) relative to Austria, as shown in Figure 12. The figure displays two indicators for each country; they differ from one another owing to the difference in the PPP conversion factor previously considered in Figure 10 (GDP-based, versus gross fixed capital formation, GCF-based). (The CEEC ULCs for 2000 are compared to the Austrian ULCs for 1999.) The results are highly favourable for Hungary; its ULC in manufacturing was among the lowest of the 10 countries. In the GDP-based ULC comparison, only Bulgaria and Romania had slightly lower unit labour costs (17%) than Hungary (19%) relative to Austria. According to the ULC comparison based on gross fixed capital formation, Hungary's position was even more advantageous. Its relative position (30%) was considerably lower (i.e. better) than that of the second best performing country, Slovakia (38%), and the next best thereafter, Bulgaria (41%).

We should emphasize that in comparing ULC levels in CEECs relative to Austria, we consider the comparisons based on GCF-PPPs to be the more relevant indicators. However, it should also be pointed out that Hungary's position in terms of ULC may have deteriorated substantially since 2000, the last year of comparison. First, as already mentioned, the forint has continued to appreciate appreciably since May 2001 (when the intervention band was widened to +- 15% from +- 2.25%); secondly, wages rose rapidly in 2001 and have continued to do so in 2002. We shall return to these issues in the final section of this paper.

3.2 Hungary's relative trade position in EU markets

Having reviewed some of the factors contributing to international competitiveness, we now turn to their *revealed effects*. While productivity and unit labour costs provide important insight into the efficiency of the production process and related costs, it remains to be known whether the market appreciates the commodities leaving the production process. Apart from cost efficiency, foreign trade performance also reflects marketing efficiency and product quality. This holds even more true for a small open economy such as Hungary than for economies with large domestic markets.

Table 6

EU-15 manufacturing industry imports from CEECs

(ECU million and growth in per cent)

	1995	1996	1997	1998	1999	2000	2000/95 growth in %
Bulgaria	1678.3	1594.8	1940.2	2095.0	2098.7	2910.6	73.4
Czech Republic	8318.1	9105.8	10989.1	13898.9	16022.8	20575.8	147.4
Slovak Republic	2977.9	3297.1	3845.9	5230.2	5797.4	6761.5	127.1
Hungary	7088.7	8215.9	11007.1	13790.6	16709.6	20978.1	195.9
Poland	10891.5	10992.4	12771.9	14763.4	16238.9	21686.3	99.1
Romania	3263.8	3488.6	4297.0	4990.7	5534.3	7395.2	126.6
Slovenia	4182.8	4208.2	4596.0	5131.6	5221.7	6071.8	45.2
Estonia	780.0	979.3	1337.0	1537.6	1664.6	2891.9	270.8
Latvia	868.3	967.5	1106.0	1160.4	1207.0	1630.5	87.8
Lithuania	904.4	1028.4	1238.8	1334.2	1519.6	2065.9	128.4
CEEC (7)	38401.2	40902.8	49447.3	59900.2	67623.4	86379.3	124.9
CEEC (10)	40953.8	43878.0	53129.2	63932.4	72014.5	92967.7	127.0
USA	89583.7	97004.2	116927.5	128774.9	141204.2	174391.0	94.7
Japan	53427.6	51638.1	58438.2	63788.5	69354.0	83477.8	56.2
EU total[1]	429876.9	452127.6	521519.6	574191.6	631469.5	797284.0	85.5

Note: 1) Without intra-EU trade.

Source: Eurostat COMEXT database.

Table 6 shows the levels and growth rates of manufacturing imports for the EU-15 in the period 1995-2000. In those five years, total EU-15 manufacturing imports (without intra-EU trade) increased by 86%. Imports from Japan rose at a lower rate (56%), while imports from the USA (95%) exceeded the growth rate for EU-15 external imports as a whole. The 10 CEECs registered an impressive growth record: an increase of 127% or 41 percentage points higher than the growth of EU-15 external manufacturing imports as a whole. Within that group of ten countries variations were considerable. Manufacturing imports from Hungary (i.e., Hungarian exports to the EU-15) displayed the second highest growth rate (196%) in the group. This was substantially higher (by 49 percentage points) than the growth rate of all ten countries combined. The title of 'best performer' goes to Estonia with

an incredible manufacturing export growth rate of 271% in the review period. Of the most important reference countries, the Czech Republic also achieved an impressive growth rate of 147%, as did Poland (99%), whereas Slovenia was substantially weaker (45%).

The rapid export growth enjoyed by Hungarian manufactures was reflected in the spectacular increase in the country's market share in total EU-15 manufacturing imports (without intra- EU trade). Data in Table 7 indicate that Hungary's market share in the EU-15 external imports of manufacturing products rose from 1.65% in 1995 to 2.63% in 2000, ranking second highest after Poland (2.72%) among the ten candidate countries. Alone the *increment* in the market share of close to 1 percentage point over five years exceeded the *whole* market share for 2000 of either Bulgaria, the Slovak Republic, Romania or Slovenia and was greater than the whole market share of the three Baltic States combined. In 2000 Hungary's market share in manufactures of 2.63% accounted for nearly one quarter of the ten candidate countries´ combined manufacturing market share in the EU-15. It corresponded exactly to one quarter of Japan's manufacturing market share and to 12% of the US share (see Table 7).

Table 7

CEEC market shares of the EU-15 manufacturing industry imports

(without intra-EU trade, in per cent)

	1995	**1996**	**1997**	**1998**	**1999**	**2000**
Bulgaria	0.39	0.35	0.37	0.36	0.33	0.37
Czech Republic	1.94	2.01	2.11	2.42	2.54	2.58
Slovak Republic	0.69	0.73	0.74	0.91	0.92	0.85
Hungary	1.65	1.82	2.11	2.40	2.65	2.63
Poland	2.53	2.43	2.45	2.57	2.57	2.72
Romania	0.76	0.77	0.82	0.87	0.88	0.93
Slovenia	0.97	0.93	0.88	0.89	0.83	0.76
Estonia	0.18	0.22	0.26	0.27	0.26	0.36
Latvia	0.20	0.21	0.21	0.20	0.19	0.20
Lithuania	0.21	0.23	0.24	0.23	0.24	0.26
CEEC (7)	8.93	9.05	9.48	10.43	10.71	10.83
CEEC (10)	9.53	9.70	10.19	11.13	11.40	11.66
USA	20.84	21.46	22.42	22.43	22.36	21.87
Japan	12.43	11.42	11.21	11.11	10.98	10.47

Source: UN, Eurostat COMEXT database, WIIW calculations.

It is interesting to compare the level and growth of the CEEC-10 manufacturing exports to the EU-15 with their manufacturing imports on the same terms (see Table 8). For the ten candidate countries combined, their export (127%) and import growth rates (113%) did not differ greatly in the review period. In the case of Hungary, however, there is a difference;

the growth in manufacturing exports (196%) to the EU-15 was 55 percentage points higher than the import growth rate (141%). Only two other countries, Estonia and the Czech Republic, reported such a significant difference in favour of manufacturing export growth.

Table 8

EU-15 manufacturing industry exports to CEECs

(ECU million and growth in per cent)

	1995	1996	1997	1998	1999	2000	2000/95 growth in %
Bulgaria	1891.4	1567.7	1674.1	2225.3	2479.8	2988.0	58.0
Czech Republic	10846.3	13000.1	14616.8	15853.8	17177.2	22260.8	105.2
Slovak Republic	2998.8	3754.8	4446.4	5347.3	5216.7	6159.9	105.4
Hungary	8191.7	9341.4	11819.0	14317.1	16021.8	19729.5	140.8
Poland	13906.1	17794.4	22634.4	25526.9	26641.8	30916.7	122.3
Romania	3559.0	4156.7	4708.8	5955.7	5950.0	8249.6	131.8
Slovenia	4902.1	5071.0	5922.2	6317.8	6498.6	7569.2	54.4
Estonia	1292.8	1605.9	2289.3	2578.0	2300.7	3060.4	136.7
Latvia	864.9	986.0	1416.2	1663.1	1546.6	1859.8	115.0
Lithuania	934.3	1333.1	1971.0	2182.6	1922.9	2298.9	146.0
CEEC (7)	46295.5	54686.2	65821.9	75543.8	79985.9	97873.6	111.4
CEEC (10)	49387.6	58611.2	71498.5	81967.5	85756.1	105092.7	112.8
USA	93923.6	104102.5	128291.2	146702.1	167400.4	209315.4	122.9
Japan	30753.5	33269.1	33216.0	28869.6	32778.6	41213.4	34.0
EU total	522077.2	572636.4	649658.6	661128.6	688245.4	845046.1	61.9

Source: Eurostat

Hungary's rapidly improving trade balance in the review period followed on the diverging export and import growth rates displayed by the country's manufacturing industry (See Table 9). For the CEEC-10 combined, the manufactures trade balance was deep in the red; it worsened appreciably from ECU 8.4 billion in 1995 to ECU 18.4 billion in 1997, whereafter things started to improve and the deficit dropped to ECU 12.1 billion by 2000. In the case of Hungary, whereas the trade deficit with the EU-15 in manufactures had still increased slightly in 1996 compared to the previous year, it had gone on to decrease rapidly over the four years thereafter before registering a surplus by 1999. In the period 1996-2000, the manufactures trade balance continued to improve by more than ECU 2.3 billion. Apart from Hungary, the Slovak Republic was the only country among the ten candidate countries to register a shift from a manufacturing trade balance deficit to a surplus in the period under review (Estonia also displayed considerable improvement.)

Table 9

CEEC trade balances in manufacturing industry trade with the EU-15

(ECU million)

	1995	1996	1997	1998	1999	2000
Bulgaria	-213.1	27.0	266.1	-130.3	-381.2	-77.4
Czech Republic	-2528.2	-3894.3	-3627.7	-1954.8	-1154.3	-1685.0
Slovak Republic	-20.9	-457.7	-600.5	-117.1	580.7	601.6
Hungary	-1102.9	-1125.5	-811.9	-526.6	687.8	1248.6
Poland	-3014.6	-6802.0	-9862.5	-10763.5	-10402.9	-9230.3
Romania	-295.2	-668.0	-411.8	-965.0	-415.7	-854.4
Slovenia	-719.3	-862.8	-1326.2	-1186.2	-1276.9	-1497.4
Estonia	-512.9	-626.6	-952.4	-1040.3	-636.1	-168.5
Latvia	3.3	-18.5	-310.2	-502.8	-339.6	-229.3
Lithuania	-29.9	-304.7	-732.2	-848.4	-403.4	-232.9
CEEC (7)	-7894.3	-13783.4	-16374.6	-15643.6	-12362.5	-11494.3
CEEC (10)	-8433.7	-14733.2	-18369.3	-18035.1	-13741.6	-12125.0
USA	4339.9	7098.4	11363.7	17927.2	26196.2	34924.4
Japan	-22674.1	-18368.9	-25222.2	-34918.9	-36575.4	-42264.5
EU total	92200.3	120508.8	128139.0	86937.0	56775.9	56775.9

Source: UN, Eurostat COMEXT database, WIIW calculations.

Data in Table 10 show that the *combined* growth of the ten candidate countries' manufacturing exports is attributable solely to two factors. First, one third of the growth is attributable to the effect of overall EU-15 demand for manufactures and two thirds are attributable to the competitive gains that the countries attained to the detriment of other exporters to the EU-15. Secondly, the structural component was negative for both the ten candidate countries as a group and each individual member of the group. In the case of Hungary, competitive gain was responsible for the bulk of export growth (78%); the overall demand effect was less than for the group as a whole and the structural effect was slightly negative. Over the four years, none of the 10 candidate countries, except for Estonia, managed to secure competitive gains higher than those attained by Hungary. Lithuania, the Czech Republic and Slovakia had nearly as good a record in competitive gains as Hungary (a share of over 70% for the competitive gain component).

Table 10

CEEC-10 manufacturing exports to the EU-15: results of the 'shift-and-share' analysis

	Exports (ECU million)					Export increase	Shift-and-share analysis (ECU million)			Contribution of components to the increase in exports (in per cent)[1]		
	1995	1996	1997	1998	2000	1995-2000	Component 1 (Market growth)	Component 2 (Specialization)	Component 3 (Compe-titiveness)	Component 1	Component 2	Component 3
Bulgaria	1678.3	1594.8	1940.2	2095.0	2910.6	1232.3	773.4	-174.4	639.5	62.8	-14.2	**51,9**
Czech Rep.	8318.1	9105.8	10989.1	13898.9	20575.8	12257.7	3833.2	-469.5	8894.0	31.3	-3.8	**72,6**
Hungary	7088.7	8215.9	11007.1	13790.6	20978.1	13889.4	3266.7	-234.9	10857.6	23.5	-1.7	**78,2**
Poland	10891.5	10992.4	12771.9	14763.4	21686.3	10794.8	5019.1	-634.3	6410.0	46.5	-5.9	**59,4**
Romania	3263.8	3488.6	4297.0	4990.7	7395.2	4131.4	1504.0	-186.9	2814.8	36.4	-4.5	**68,1**
Slovak Rep.	2977.9	3297.1	3845.9	5230.2	6761.5	3783.6	1372.3	-171.1	2582.5	36.3	-4.5	**68,3**
Slovenia	4182.8	4208.2	4596.0	5131.6	6071.8	1889.0	1927.5	-141.0	102.4	102.0	-7.5	**5,4**
Estonia	780.0	979.3	1337.0	1537.6	2891.9	2111.9	359.4	-49.5	1802.0	17.0	-2.3	**85,3**
Latvia	868.3	967.5	1106.0	1160.4	1630.5	762.2	400.1	-39.0	399.9	52.5	-5.1	**52,5**
Lithuania	904.4	1028.4	1238.8	1334.2	2065.9	1161.5	416.8	-73.6	818.3	35.9	-6.3	**70,5**
Total	40953.8	43878.(	53129.2	63932.4	92967.6	52013.8	18872.5	-2174.1	35320.9	36.3	-4.2	**67,9**

Note: 1) The sum of the components may differ from 100 owing to rounding.

Source: Eurostat COMEXT database and WIIW calculations.

4 Sectoral aspects of Hungary' competitiveness and trade performance

In the following section, we wish to go beyond the general features of manufacturing competitiveness and address some distinctive developments at the sub-sectoral level. We shall follow the same order of analysis as in the foregoing sections. After reviewing developments in productivity and unit labour costs, we turn to changes in sectoral trade balances and market shares.

4.1 Productivity and unit labour costs

Table 11 shows the development of manufacturing productivity by 2-digit NACE industries in 1993-2000. The comparison of the sector indicators across countries refers to a specialization pattern peculiar to Hungary. In none of the other candidate countries was the productivity growth so one-sided or concentrated. Productivity grew much above the average in two of the 14 industries in manufacturing, (*electrical and optical equipment* and *transport equipment*); all other industries recorded below-average performance. That notwithstanding, productivity grew appreciably in each industry, except *coke, refined petroleum products & nuclear fuels* and *chemicals, chemical products and man-made fibres* where only modest productivity growth was registered in the period under review.[16]

Table 11

Relative productivity gains, sub-sectoral winners and losers

(average annual change in % for total manufacturing (D) and relative gains in percentage points)

	1997-2000	1993-2000	1993-2000	1993-2000	1993-2000	1993-2000	1993-2000	1995-99	1994-99	1993-98
	BG	CZ	HU	PO	ROM	SL.R.	SLOV	EST	LAT	LIT
D	0.6	6.3	15.4	11.0	5.8	6.8	5.5	8.9	5.8	-6.6
DA	0.9	-4.4	-7.9	-4.2	-3.4	-4.6	-2.6	-7.6	-3.6	-0.5
DB	-5.0	-4.7	-7.7	-4.1	-2.0	-11.7	-0.2	6.6	0.7	-7.0
DC	-5.7	-10.8	-8.4	-1.8	-1.1	-2.5	-6.5	5.5	-10.4	-4.9
DD	8.3	-3.7	-6.9	-4.1	-7.4	-9.0	-5.7	12.4	-2.2	-9.8
DE	-1.5	0.5	-2.4	0.8	0.3	0.9	-6.6	-2.1	-0.8	-23.6
DF	-7.5	-2.6	-9.9	-5.3	-2.3	4.5	-23.0	.	.	1.0
DG	-2.9	-0.8	-10.8	-1.5	-3.1	0.3	1.1	7.4	-10.6	6.1
DH	-0.3	0.6	-5.9	-1.1	-6.3	-3.3	-0.7	2.1	8.9	9.4
DI	4.5	-0.6	-5.3	1.1	0.9	-1.2	0.1	4.1	6.9	4.2
DJ	5.7	-3.7	-2.0	-0.3	0.7	-4.9	2.3	2.3	12.2	6.7
DK	5.2	2.0	-2.9	2.5	4.5	-0.2	-2.2	3.0	-8.3	-8.9
DL	7.4	9.9	18.9	6.3	11.0	2.1	6.8	9.3	5.1	12.1
DM	-0.1	4.5	16.2	9.5	6.8	20.4	4.2	0.3	-6.4	15.8
DN	9.9	0.9	-6.4	-1.5	9.0	-1.0	0.6	2.5	.	2.6

Note: Calculations of relative gains: DA(93-00) - D(93-00) = relative gain DA.

Source: WIIW Industrial Database.

[16] We must point out here that the expressions "winners" and "losers" in the title of Table 11 are somewhat misleading, especially in the case of Hungary, where productivity increased at a formidable pace in several of the "loser" industries. Only their relative position to the electrical an optical equipment and transport equipment with extreme high productivity growth rates renders them to this apparently unfavourable ranking. We are grateful for J. Gács for his comment on this issue.

Notations to Table 11:

DA: Food products; beverages and tobacco; DB: Textiles and textile products; DC: Leather and leather products; DD: Wood and wood products; DE: Pulp, paper & paper products; publishing & printing; DF: Coke, refined petroleum products & nuclear fuel; DG: Chemicals, chemical products and man-made fibres; DH: Rubber and plastic products; DI: Other non-metallic mineral products; DJ: Basic metals and fabricated metal products; DK: Machinery and equipment n.e.c.; DL: Electrical and optical equipment; DM: Manufacture of transport equipment; DN: Manufacturing n.e.c.

Table 12 and Figure 13 show the manner in which productivity levels in manufacturing industry in Hungary developed relative to Austria over the period 1992-2000. Table 12 shows comparative productivity levels based on PPP for GDP, while Figure 13 addresses the same features based on PPP for gross capital formation (GCF). It should be clear that neither presentation is based on actual (direct, industry-by-industry) comparisons. Both rely on national statistics relating to productivity levels, the only difference being the conversion factor for 'transforming' current price data into relative volume (productivity) figures. (In the benchmark year (1996), the ratio of the PPP for GDP to the PPP for GCG was 0.62, or – in other terms – the PPP for GCF was some 60% higher than that for GDP as a whole.)

Table 12

Hungarian productivity (at PPP for GDP), 1992-2000

(Austria 1999 = 100)

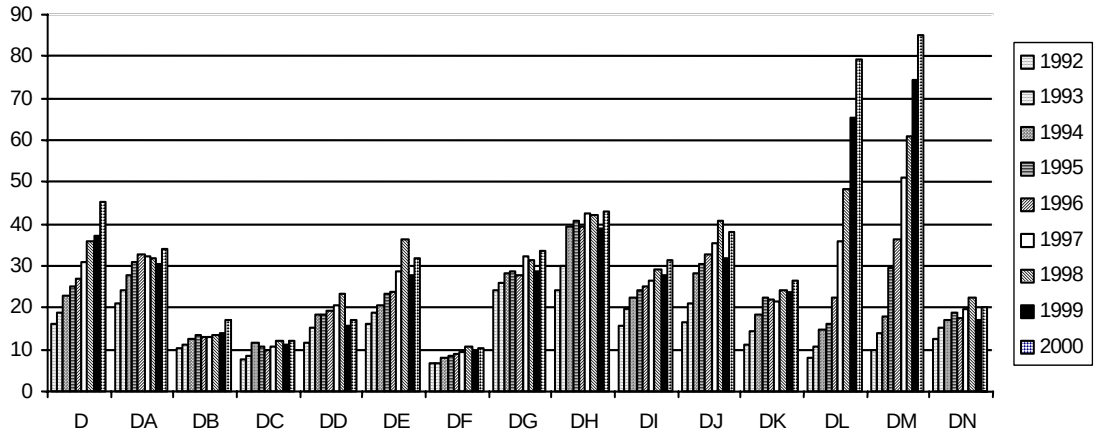
NACE		1992	1993	1994	1995	1996	1997	1998	1999	2000
D	Manufacturing total	25.8	30.4	36.5	40.5	43.2	49.9	57.4	60.0	72.8
DA	Food products; beverages and tobacco	34.1	38.7	44.6	49.5	52.5	52.0	51.4	48.7	54.6
DB	Textiles and textile products	16.3	18.3	20.1	21.3	21.0	20.9	21.5	22.4	27.3
DC	Leather and leather products	12.2	13.7	18.5	17.2	15.8	17.2	19.3	18.2	19.6
DD	Wood and wood products	19.0	24.3	29.3	29.4	30.9	32.8	37.3	25.4	27.1
DE	Pulp, paper & paper products; publishing & printing	26.0	30.3	33.0	37.5	38.1	45.9	58.4	44.9	50.8
DF	Coke, refined petroleum products & nuclear fuel	10.8	11.1	13.0	13.8	14.2	14.8	17.0	14.9	16.6
DG	Chemicals, chemical products and man-made fibres	39.0	41.6	45.6	45.9	44.7	52.1	50.2	46.2	53.8
DH	Rubber and plastic products	38.8	48.3	63.5	65.6	63.4	68.3	67.5	62.7	68.9
DI	Other non-metallic mineral products	25.0	31.3	36.1	38.7	40.4	42.1	46.5	44.9	50.7
DJ	Basic metals and fabricated metal products	26.7	33.9	45.3	49.2	52.3	57.0	65.3	50.9	61.1
DK	Machinery and equipment n.e.c.	18.2	23.2	29.5	35.7	35.5	34.3	38.8	37.9	42.3
DL	Electrical and optical equipment	12.9	17.0	23.9	26.2	36.0	57.8	77.5	104.7	127.6
DM	Transport equipment	15.6	22.1	28.9	47.2	58.0	82.0	97.8	119.6	136.5
DN	Manufacturing n.e.c.	20.1	24.5	27.0	30.2	28.3	31.7	35.9	27.1	32.5

Source: WIIW Industrial Database.

Figure 13

Hungarian productivity (at PPP for GCF), 1992-2000

(Austria 1999 = 100)



Source: WIIW Industrial Database.

The catching-up process in the eight-year period was indeed astonishing, regardless which of the two versions presented above (Table 12 or Figure 13) is considered the more relevant.

If we accept the version shown in Table 12, the interpretation is as follows. The productivity of the manufacturing industry as a whole was equivalent to hardly more than a quarter of that of Austria in the first year of the comparison (1992). By 2000 it had attained 73% of the Austrian level, reducing the difference by 47 percentage points in less than a decade. The most dynamic catching-up process took place in the *electrical and optical equipment* and *transport equipment* industries, where by 1999 Hungarian productivity had already surpassed that of Austria, even though in the first year of comparison the gap between the two countries' productivity in those two industries was larger than in total manufacturing. By 2000 Hungary's productivity in those two industries was already about a third higher than that of Austria.

If we consider the second interpretation shown by Figure 13 (the more relevant one to our mind), the *scale* certainly changed (thus none of the Hungarian industries' productivity actually surpassed the level in Austria), yet the direction remained unchanged: all 14 industries started to catch up with Austrian productivity levels. Catching-up was minimal in the *leather and leather products, textile and textile products* and *coke, refined petroleum products & nuclear fuels.* The pace was modest in other manufactures such as *chemicals, chemical products and man-made fibres* and *wood and wood products*. In the remaining nine industries the pace was formidable.

Table 13a

International comparison of ULCs in manufacturing industries

(year 2000, PPP96 for GDP, Austria 1999 = 100)

		BG	CZ	EST (1998)	*HU*	LAT (1999)	LIT (1998)	PO	ROM	SL.R.	SLOV
Manufacturing total	D	16.7	32.2	38.3	*18.5*	37.2	29.7	33.3	17.3	24.3	71.9
Food products; beverages and tobacco	DA	16.3	30.0	37.2	*29.0*	36.4	35.4	35.7	9.1	26.6	60.8
Textiles and textile products	DB	30.2	41.4	37.9	*39.8*	46.3	39.1	45.3	32.5	56.9	85.0
Leather and leather products	DC	32.5	85.3	53.8	*65.6*	86.8	40.3	54.3	30.6	50.6	128.1
Wood and wood products	DD	20.6	56.9	41.8	*38.2*	38.8	63.4	35.5	22.1	70.6	133.1
Pulp, paper & paper products; publishing & printing	DE	19.6	28.5	60.2	*25.8*	49.3	47.6	30.3	20.1	25.1	107.9
Coke, refined petroleum products & nuclear fuel	DF	19.9	22.1	.	*77.2*	.	.	60.2	23.6	20.0	297.6
Chemicals, chemical products and man-made fibres	DG	16.4	22.6	.	*32.6*	47.1	20.2	41.3	17.3	20.4	58.2
Rubber and plastic products	DH	14.4	27.4	23.8	*20.9*	20.7	34.6	24.2	18.1	23.3	59.9
Other non-metallic mineral products	DI	15.5	32.1	28.7	*26.1*	25.9	41.4	29.7	14.6	27.0	55.0
Basic metals and fabricated metal products	DJ	12.2	37.7	32.8	*21.4*	28.9	55.0	28.0	12.1	21.8	79.2
Machinery and equipment n.e.c.	DK	23.3	33.5	53.9	*29.7*	71.1	50.1	40.4	32.0	30.7	62.9
Electrical and optical equipment	DL	22.3	29.4	47.1	*9.7*	54.9	30.7	34.9	23.0	42.1	89.0
Transport equipment	DM	35.0	32.1	62.1	*11.8*	62.8	73.9	35.7	31.0	10.7	36.3
Manufacturing n.e.c.	DN	16.9	32.8	.	*36.6*	36.6	37.6	31.4	18.6	35.4	59.9

Source: WIIW estimates based on national statistics, OECD, EUROSTAT and UNIDO.

Table 13b

International comparison of ULCs in manufacturing industries

(year 2000, PPP96 for gross capital formation, Austria 1999 = 100)

		BG	CZ	EST (1998)	*HU*	LAT (1999)	LIT (1998)	PO	ROM	SL.R.	SLOV
Manufacturing total	D	40.9	48.5	73.4	29.7	63.0	60.2	44.8	41.2	37.9	84.5
Food products; beverages and tobacco	DA	39.8	45.2	71.3	46.6	61.7	71.7	48.0	21.8	41.5	71.5
Textiles and textile products	DB	73.6	62.4	72.6	63.9	78.4	79.2	61.0	77.6	88.8	99.9
Leather and leather products	DC	79.3	128.6	103.2	105.4	147.1	81.7	73.0	73.0	79.0	150.6
Wood and wood products	DD	50.3	85.8	80.1	61.4	65.8	128.5	47.7	52.6	110.1	156.5
Pulp, paper & paper products; publishing & printing	DE	47.8	43.0	115.5	41.4	83.5	96.3	40.8	48.0	39.2	126.8
Coke, refined petroleum products & nuclear fuel	DF	48.6	33.3	.	124.0		.	81.0	56.2	31.2	349.8
Chemicals, chemical products and man-made fibres	DG	40.0	34.1	.	52.3	79.8	40.9	55.6	41.4	31.8	68.4
Rubber and plastic products	DH	35.0	41.3	45.7	33.6	35.0	70.0	32.6	43.1	36.4	70.4
Other non-metallic mineral products	DI	37.9	48.5	55.0	42.0	43.9	84.0	40.0	34.9	42.1	64.6
Basic metals and fabricated metal products	DJ	29.7	56.8	62.9	34.4	48.9	111.5	37.7	28.9	34.0	93.1
Machinery and equipment n.e.c.	DK	56.8	50.6	103.3	47.7	120.5	101.5	54.4	76.4	47.9	73.9
Electrical and optical equipment	DL	54.4	44.4	90.4	15.6	93.1	62.3	47.0	54.8	65.7	104.6
Transport equipment	DM	85.4	48.4	119.1	18.9	106.4	149.7	48.0	74.1	16.6	42.7
Manufacturing n.e.c.	DN	41.3	49.5	.	58.8	62.1	76.2	42.2	44.5	55.3	70.4

Source: WIIW estimates based on national statistics, OECD, EUROSTAT and UNIDO.

Consideration then shifts to the *level* of *unit labour costs* (in 2000) in manufacturing industries relative to Austria as compared to the other CEECs. Table 13a shows comparisons based on PPP for GDP, while Table 13b is based on PPP for GCF.

Here again, where the *levels* are concerned, it makes a great difference whether we accept the results based on PPP for GDP (Table 13a), or those corresponding to PPP for GCF (Table 13b). In the following brief overview, we refer to figures in Table 13a, but also cite the corresponding figures in Table 13b (in parentheses).

Analysing Hungarian ULCs by sector, it is no wonder that in the two industries with extremely rapid productivity growth the ULCs were also extremely low: 9.7 (15.6)% of the Austrian level in the production of *electrical and optical equipment* and 11.8 (18.9)% in *transport equipment*. Other industries registered higher ULCs than the manufacturing industry average. A relative good record – 20 to 30% (35-60%) of the Austrian level – was achieved in *food products and beverages*; *pulp, paper & paper products*; *publishing and printing*; *rubber and plastic products*; *other non metallic mineral products*; *basic metals and fabricated metal products* and *machinery and equipment n.e.c.* Of the 14 industries, two recorded substantially higher than average ULCs: *leather and leather products* and *coke and refined petroleum and nuclear fuels*.

4.2 Sectoral trade balances and market shares: industrial winners and losers

Overall trade balance indicators mask significant differences in terms of individual industry trade balances. Figure 14 provides information on sectoral balances in the manufacturing industry over the period 1995-2000.

Data in Figure 14 reveal the existence of three distinct groups within the 14 industries. *Transport equipment* and *electrical and optical equipment* are those industries where the trade balance radically improved from year to year over the review period. C*hemicals, chemical products and man-made fibres, rubber and plastic products*, *basic metals and fabricated metal products* and *machinery and equipment n.e.c*. are those industries where the trade balance deteriorated continuously over the same period.[17] Within the latter group, the deterioration of the sectoral trade balance in *chemicals, chemical products and man-made fibres* and *machinery and equipment n.e.c*. bore much more weight than the other two industries. In the remaining eight industries, no clear trend is apparent where a change in direction in the sectoral trade balance is concerned.

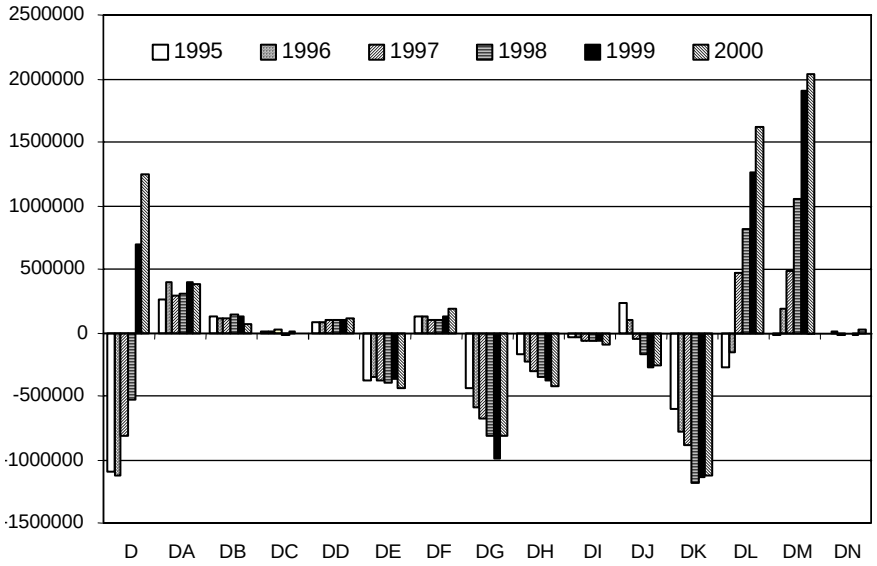
[17] In the *machinery and equipment n.e.c.* industry 1999 and 2000 brought about a minimal improvement in the trade balance.

The above data indicate that the marked specialization process in the transport vehicles and electronics sectors is linked to an albeit weak, yet still formidable 'de-specialization' process in chemicals and general engineering products.

Figure 14

Hungary: sectoral trade balances with the EU, 1995-2000

(in 1000 EUR)



Source: WIIW Industrial Database.

Finally, Table 14 attempts to give an indication (at the NACE-3 digit level) of the speed of structural change in Hungarian manufacturing industry exports in the period 1995-2000 The data are ranked according to the extent of competitive gains calculated in the framework of the above described shift-and-share analysis. *Motor vehicles* recorded the highest competitive gain in the period under review; that particular commodity group registered a remarkable market share of 11% in EU-15 *motor vehicle* imports from all non-EU member countries world-wide. *Office machinery and computers* came second, while *TV, radio and recording apparatus* enjoyed the third highest competitive gain in the period under review. In all three commodity groups, annual average export growth rates were very high: 37%, 89% and 46%, respectively. *TV, radio transmitters and apparatus for line telephony* registered the highest annual export growth rate. In the latter commodity group, exports more than doubled annually. Hungary attained a remarkable market share (8.1%) in the EU-15 imports of *TV, radio and recording apparatus.*

Table 14

Hungary: winner and loser industry exports to the EU-15, 1995 - 2000

	NACE Rev.1	***Exports 2000 ECU million***	*Average annual change in %*	***Competitive gain,1995-2000, ECU million***	*Market share in the EU-15 2000 in %*
30 highest winners					
Motor vehicles	341	3844.5	37.4	2607.7	11.01
Office machinery and computers	300	2313.3	88.6	2165.6	3.25
TV, radio and recording apparatus	323	1850.0	45.5	1420.0	8.12
TV and radio transmitters, apparatus for line telephony	322	747.5	126.0	725.3	3.04
Parts and accessories for motor vehicles	343	896.1	39.9	643.5	6.21
Electronic valves and tubes, other electronic comp.	321	398.7	57.1	331.9	0.85
Electrical equipment n. e. c.	316	706.1	23.2	307.2	5.26
Electricity distribution and control apparatus	312	465.5	30.6	283.4	5.27
Basic chemicals	241	805.5	12.3	214.1	2.34
Instruments for measuring, checking, testing, navigating	332	237.5	47.6	187.3	1.50
Electric motors, generators and transformers	311	419.2	22.3	182.5	4.38
Isolated wire and cable	313	268.5	36.5	180.6	7.12
Other general purpose machinery	292	291.1	29.6	168.9	2.02
Domestic appliances n. e. c.	297	373.4	22.0	166.4	6.96
Rubber products	251	254.5	25.4	139.1	4.02
Furniture	361	338.9	19.4	117.5	3.26
Lighting equipment and electric lamps	315	377.6	16.7	111.0	10.65
Other special purpose machinery	295	273.7	18.6	103.4	1.71
Plastic products	252	247.9	17.8	90.4	2.21
Railway locomotives and rolling stock	352	84.0	58.0	70.3	6.95
Optical instruments and photographic equipment	334	86.5	48.9	68.4	1.10
Machinery for production, use of mech. power	291	242.3	15.1	67.3	1.35
Articles of paper and paperboard	212	92.4	37.9	65.7	4.26
Pulp, paper and paperboard	211	84.6	27.2	54.5	0.74
Other fabricated metal products	287	221.0	12.7	46.9	2.40
Basic precious and non-ferrous metals	274	484.2	7.6	44.1	1.25
Knitted and crocheted articles	177	141.1	16.7	43.2	1.93
Other textiles	175	62.7	28.2	40.0	1.68
Cutlery, tools and general hardware	286	78.1	19.2	31.7	1.30
10 largest losers					
Publishing	221	20.0	0.6	-4.8	0.71
Coke oven products	231	9.0	-5.1	-5.3	1.10
Tanning and dressing of leather	191	21.0	-2.4	-8.0	0.81
Tubes	272	47.1	1.6	-8.5	2.57
Builders' carpentry and joinery	203	50.9	3.3	-8.5	3.21
Refined petroleum and nuclear fuel	232	271.0	8.5	-13.7	1.33
Games and toys	365	34.1	0.8	-13.8	0.46
Other food products	158	26.2	-10.6	-23.7	0.67
Made-up textile articles	174	80.1	1.8	-27.3	1.66
Other wearing apparel and accessories	182	855.0	4.9	-69.3	2.10
Basic iron and steel, ferro-alloys (ECSC)	271	265.3	0.2	-88.1	2.61
Total		**20978.1**	**24.2**	**10857.6**	**2.63**

Source: WIIW Industrial Database

At the other extreme, labour- and energy-intensive commodities were exported by losing industries, where competitive losses were recorded in terms of exports to the EU-15. The nature of the restructuring process is best illustrated by comparing the highest competitive gain [ECU 2,607 million] (*motor vehicles*) to the highest competitive loss [ECU 88 million] (*basic iron and steel, ferro-alloys*). The highest competitive loss was equivalent to no more than 3.4% of the highest competitive gain in the period 1995-2000.

5 Summary, conclusions and a rider

The objective of our paper was to present a broad review of the background, components, indicators and revealed effects of Hungary's trade competitiveness at the macroeconomic and sectoral levels. We aimed to describe and interpret those features of the Hungarian economy in two respects: first, in terms of their evolution during the nineties (in particular after 1995); and secondly, on the basis of an international comparison.

In common with all other transition economies, Hungary experienced a deep recession in the early years of the political and economic transformation. Unlike several other countries in the region, however, it underwent a serious stabilization crisis in the mid-1990s. Although stabilization incurred significant social costs (a palpable drop in real wages and consumption), the pattern of growth that evolved over the second half of the 1990s was characterized by a remarkable improvement in the country's international competitiveness attributable to a number of interrelated factors. Economic policy was clearly biased towards the growth of exports and investments vs. public and household consumption. While aiming at disinflation, monetary policy accorded high priority to maintaining a competitive exchange rate, while fiscal policy and autonomous developments in nominal wages also bolstered trade competitiveness. At the same time, the inflow of FDI was appreciable and contributed significantly to growth in fixed capital formation in the second half of the 1990s.

As a result of these factors, Hungary experienced considerable improvements in both the 'real' and the 'nominal' components of international competitiveness. First of all, labour productivity, particularly in manufacturing, grew at an outstanding rate, much more rapidly than in other transition economies (in the period 1993-2000, annual average growth in manufacturing productivity was 15% in Hungary, 11% in Poland and 6-7% in the Czech Republic and Slovenia).[18] As for the 'nominal' side, labour costs expressed in foreign currency terms increased modestly in comparison with both other transition countries and gains in domestic productivity. As a consequence, the real exchange rate index based on unit labour costs – perhaps the most relevant indicator of competitiveness – improved markedly, especially in the period 1995-1999.

[18] In terms of value-added, the difference is most probably smaller, see footnote 15 above.

That notwithstanding, favourable changes in relative productivity and costs merely indicate the *potential* competitiveness of a country. In the ultimate analysis materialization of that potential has to be judged on the basis of *actual trade performance*. We thus approached the question of 'revealed competitiveness' in two steps. First, we looked at changes in market shares (in EU-15 imports); and secondly, using a 'shift-and-share' analysis, we decomposed those changes into sub-components so as to be able to determine the size of the 'competitiveness factor'. In both steps, we endeavoured to asses Hungarian performance compared to ten transition (pre-accession) countries. The outcome of that analysis was extremely favourable for Hungary.

In the second half of the 1990s, Hungary's trade share on EU markets increased by 1 percentage point. This represents the largest increment and the second highest growth rate (after Estonia) among the transition countries. As for the components of that increase, roughly 80% can be attributed to improved competitiveness (once again, the second highest after Estonia, where competitiveness accounted for 85% of the increase).

The above findings indicate that, over the past few years, Hungary's economy – especially its manufacturing sector – has clearly proven its '*…ability… to withstand competitive pressures*'. However, recent changes in exchange rate policy and wage behaviour may have had an unfavourable impact on the country's competitiveness. Before interpreting these more recent developments, a brief characterization of sectoral differences would appear in order.

The rapid growth in output and productivity was associated with an extremely uneven pattern of development, at the level of both the macro-economy and manufacturing. On the one hand, the growth in industry (or, more generally, in the traded-goods sector) was very rapid, whereas the *quantitative* development of the sectors supplying non-traded goods (services) was rather modest. It should be noted, however, that official statistics might not record some improvements in the quality of services. On the other hand, the pronounced increase in manufacturing output and productivity was based on profound structural changes – the most profound of all CEECs[19]; they involved exceptionally rapid expansion in a limited number of branches/activities (viz. motor vehicles and office machinery) and relatively slow growth or shrinkage in a number of others. The differences in growth rates are clearly associated with differences in the extent of penetration of FDI (i.e. investor interest) in different sectors.

[19] See Gács (2002).

Finally, we recall recent developments that have been only partly covered by the statistics reported in our paper: most importantly, the nominal appreciation of the forint (since May 2001), combined with a sharp increase in nominal wages (since the fourth quarter of 2001) and a slow-down in productivity growth in the manufacturing sector (in 2001). These changes, and further likely developments in 2002, are estimated to result in at least 15% real appreciation in the real exchange rate based on ULC during 2001-2002. The interpretation of these sharp changes in the factors underlying Hungary's international competitiveness thus becomes a major question.

One possible interpretation is that in the period 1995-1999, the increase in competitiveness was 'excessive'; there should thus be ample room for absorbing changes of the opposite kind. If it proves correct, this interpretation bears two major implications. The first may take on particular importance for those future EU-partners closest to Hungary: the rapid convergence of nominal wages has already begun - even prior to Hungary's actual accession to the Union. The second relates to prospective developments in trade shares: after a period of achieving very large gains, the future may well see Hungary securing more limited gains in market shares than in the recent past. This interpretation should be fairly reassuring for both Hungary and its closest trading partner, Austria.

However, since we have no clue as yet about the effects of the real appreciation of the forint, a different scenario should also be considered: during 2001-2002 the real exchange rate may well have undergone excessive correction. If that is the case, Hungary may well go through a difficult period of adjustment, in which economic policy faces a dual task: keeping wage increases significantly down while implementing fiscal stringency.

It is not yet clear which of the two interpretations will prove correct. None the less, quite apart from the outcome, we believe that a social agreement pertaining to prospective price and wage changes could well assist the country to maintain/regain its competitiveness, while helping it to reach a compromise where other conflicting goals are concerned, including the nominal and real paths taken by macroeconomic variables as the country moves closer to EU- (and later EMU-) accession.

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Annex

Methodology to Table 10

The shift-and-share analysis can be applied to decompose the increment in total exports of country i (a given CEEC) to another country (in our case the EU) ΔX_i as follows:

$$\Delta X_i = \sum_i \Delta x_{ij} = \sum_i x_{ij}(\Delta M / M) + \sum_i x_{ij}\left[(\Delta M_j / M_j) - (\Delta M / M)\right] + \sum_i x_{ij}\left[(\Delta x_{ij} / x_{ij}) - (\Delta M_j / M_j)\right],$$

where x_{ij} is country i's exports of commodity/sector j; M_j denotes EU's total imports of commodity/sector j (in our case total imports from 'extra-EU', i.e. non-EU member states); M denotes EU's total imports (from 'extra-EU') and 'Δ' stands for increment.

$\sum_i x_{ij}(\Delta M / M)$ can be interpreted as a general demand component; $\sum_i x_{ij}\left[(\Delta M_j / M_j) - (\Delta M / M)\right]$ is a structural effect component and $\sum_i x_{ij}\left[(\Delta x_{ij} / x_{ij}) - (\Delta M_j / M_j)\right]$ is a component measuring the competition effect.

The shift-and-share analysis makes it possible to decompose the total increment in CEEC exports to the EU into three hypothetical components:

1. A *general demand component*, showing how a given country's exports would develop, were it to grow at the same rate as total EU imports;
2. A component measuring the *structural effect*, showing whether the country's exports are centred on commodities that are in above-average demand in the EU (i.e. they grew at an above-average rate compared with total EU imports); and
3. A component measuring the *competition effect* that shows whether the country has exported more in certain commodities to the EU than its competitors outside the EU (this decomposition refers only to 'extra-EU' trade).

Source: Competitiveness of Industry in CEE Candidate Countries. Composite Paper, Final Report (WIIW 2001)

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