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Changes in the Competitive Position of the Czech Republic, Hungary and Poland in the EU Market

Contents

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Abstract

This paper aims at comparing the uneven process of changes in competitiveness among three accession countries' manufacturing industries, the Czech Republic, Hungary and Poland, during the period prior to their EU membership (1996-2003). It demonstrates that the three countries improved competitiveness in the majority of their manufacturing industries. However, these changes were differentiated across time, among industries, in terms of the quality of segments and between the three countries overall. A drop in the productivity gap between the manufacturing industries of the three accession and the incumbent EU countries played the major role in improvement in competitiveness. It determined the drop in relative unit labour costs. The paper shows that changes in competitive advantages of a given country's industry reflect changes in relative (as compared to foreign) productivity rather than differences in level and changes in productivity among industries of a given country. The dynamics and levels of productivity among the Czech and Polish larger winners were lower than the manufacturing average of both countries. However, since the improvement in productivity in these industries in both countries was larger than in their incumbent EU counterparts, the former pushed the latter out of the EU market. Poland's and the Czech Republic's export specialisation in less productive industries implies that their export expansion to the EU would result in lower than potential economic growth in both countries. The paper shows that Smith's law of absolute advantages tends to determine changes in market share.

Introduction

The three accession countries (AC-3) - the Czech Republic, Hungary and Poland - signed the European Agreement establishing association with the European Communities and their member countries in 1991. This Agreement contributed to tangible changes in the three countries' economies, although it is not clear to what extent these were due to the Agreement itself or to other factors. It did, undoubtedly, result in an adjustment of the AC-3 economies to the mechanisms and provisions in force in the European Communities. However, this process was uneven among manufacturing industries. Some adjusted relatively smoothly and increased competitive pressure on EU producers, while others have in effect been "competed out."

Differentiation in the progress made in the competitiveness of the AC-3 and its factors is central to this paper. Deploying a Schumpeterian approach to competition and defining competitiveness as the ability to compete, the focus of analysis is the effect and factors of competition between the AC-3 and the incumbent EU countries in the enlarged EU market. As well as studying the varied processes of selecting manufacturing industries in the EU market, the analysis includes factors of this process - changes in productivity and quality of goods. The paper aims at demonstrating whether the AC-3 increased competitive pressure on the EU market and determining the characteristics of those industries that increased such pressure, as well as the factors conducive to this process. It concentrates on two types of AC-3 industries: ones whose share of the EU market was quite large and increasing, as well as those whose export dynamics were the highest and whose share of the EU market was small but dynamically increasing. A comparison of both types of industries across the three countries, as well as between them and the incumbent EU countries, allows us to determine the characteristics of the process of integration of the New Member States into the Single Market. It serves to show the effects of this integration for both the AC and the incumbent EU countries.

The subject of analysis covers the manufacturing industries (three digit level of NACE Ref. 1.1 Classification) of the three accession countries - Poland, the Czech Republic and Hungary - in the pre-accession period (1998-2003) as compared to the incumbent EU countries.

The paper is organised as follows: section 1 presents an analysis of the notion of competitiveness as the ability to compete and integrate into the European Single Market.

Section 2 describes the methodology used in the paper.

Section 3 provides a picture of the macroeconomic development of the AC-3.

Section 4 selects and characterises the losers and two types of winners of the integration process.

Conclusions stemming from this analysis wrap up the paper.

1. Competitiveness as the ability to compete

It is widely acknowledged that progress in competitiveness to a large extent determines the process of real convergence between the new and old member states (Tumpel-Gugerell, 2003) and their integration (the Copenhagen European Council, June 1993) into the Single Market. However, a key problem is that competitiveness has been ascribed with several different meanings and as a result one tends to encounter persistent miscommunication in discussing its impact on economic growth and integration into the Single Market.

In this paper we deploy a Schummpeterian approach to competitiveness. We presume that competitiveness, or competitive advantage (Krafft, 2000), derives from competition in the sense of "struggle", "rivalry" and "conflict" among actual and potential competitors (Neumann, Weigand 2003). This include rivalry in prices, in improved techniques of productions and products for a given market or for productive resources. Competition is understood in terms of situations in which parties producing substitutes - aiming to achieve the same, but in fact opposite, goals - end up in conflict. However, there is also a broader approach to competition, which covers the struggle between actual and potential rivals and implies another definition of competition: the absence of entry barriers for new competitors and exiting from an industry in the longer-term (Stigler, 1965, pp.264-265). A drop in entry barriers impacts on the evaluation of changes in the competitiveness of competitors operating and entering a given market as it reveals the level of competitiveness of the protected agents.

Competition in the sense of rivalry also includes the notion of competition as selection of the fittest and deselection of the least fit. As a never-ending struggle (Porter, 1990) competition results in the selection of producers of a given product. It encompasses the process of some firms pushing others out of the market (and therefore also the goods produced by them). Changes in the competitiveness of a given firm's products result in changes in its market position (Frischtak, 1999). As a consequence, throughout the literature one often finds 'market share' treated as synonymous with the performance indicator of competitiveness (Meeksen & Rayp, 2000).

Market participants aim at improving their position on both the domestic and foreign markets on which their goods are sold. Changes in competitiveness of exported products

are therefore reflected in the changes in foreign (export) market share. Changes in the competitiveness of domestic-based products competing against imports are reflected in the changes in domestic market share. Since the range of competition struggle marks the range of possibilities for verifying competitiveness, the product competitiveness of any given producer (domestic or foreign) is verified on both domestic and foreign markets. It follows that any evaluation of competitiveness of domestic production based solely on exports has limited research capabilities (Casson, 1999).

The Schumpeterian concept of competition is grounded in cost and quality advantages, which Schumpeter assumed to be much more important than the price competition of traditional theory. It is one of the key bases of the "creative" destruction of the capitalist economic process, as he puts it. Competition is a source of internal efficiency within a firm and plays a crucial role in its economic welfare. On the other hand, the issue of quality, incorporated into economic theory, has become an economic variable at least as important as price, along with sales methods and demand creation that necessarily go hand-in-hand with product differentiation (Clark, p. 38, see also Abbott, 1955, p.108). It is also "the single most important force leading to the economic growth of companies in international markets" (Feigenbaum, 1988, p.22).

The theoretical importance of differentiation of products and its factors in explaining the evolution of foreign trade is based on the recent trade and endogenous growth theories expounded by Grossman and Helpman (1991a, b). Their models incorporate the concepts of quality ladders and vertical product differentiation. High-income consumers tend to buy higher quality product variants and the number of variants produced within vertical product differentiation depends on the income spread. Differences in consumers' disposable incomes and changes in them have an impact on the range of competition between producers.

Higher quality makes higher price possible without losing market share. Consequently, in the framework of monopolistic competition, by increasing the quality of goods produced for the domestic market a country can at the same time shift its import demand curve inwards and its export demand curve outwards. It follows from this that increases in market share may reflect not only improvements in the relative productivity of the substitute but also an upward shift in the quality ladder. As has been widely recognised, richer countries tend to produce higher quality goods and from this the hypothesis emerges that countries with similar levels of development trade with one another more often than with very different countries (Linder, 1961). This implies that the potential of exports from the latter countries to the former is limited (Murphy & Schleifer, 1991). Since differences in product quality reflects the difference in a given production factor's scarcity or abundance, countries with scarce human capital will tend to demand low quality products and to manufacture such products. In this way,

differences in quality impact on production and export opportunities of countries and their economic growth and their specialisation at low quality levels and labour intensive products may hamper growth opportunities in the long run. As Dullock (2002) shows, this is a key reason behind the low quality trap many transition countries find themselves in - economies of scale, trade and competition policy generating a "path dependence where industrialised countries have the advantage of already having the capacity to produce high quality" (p. 15). On the other hand, the issue of quality has also been linked to the problem of production costs and factor intensity. Feigenbaum (1988, p.1) stresses that "product quality cannot be thought of apart from product cost", while Murphy and Schleifer link the level of quality of goods with the intensity and level of human capital.

Deriving competitiveness from competition as a process of selection is the rationale behind using changes in market share as a measure of changes in the competitiveness of products. However, this can be distorted by changes in:

a) market (domestic or foreign) orientation of production,

b) the dynamics of exports and imports compared to production dynamics,

c) demand, including differences in its dynamics between domestic and foreign markets,

d) changes in product quality.

Ad. a) An increase in domestic market share may be the result of a shift in orientation of production from foreign to domestic. If both markets are open this shift does not reflect changes in competitiveness of production.

Ad. b) A higher rate of growth in foreign trade than domestic production tends to result in a fall in the share of domestic production on the domestic market. This change does not necessarily have to mean worsening competitiveness of domestic production. It may be accompanied by a rising share of exports on foreign markets, which would in turn suggest an improvement in competitiveness.

Ad. c) Rapid domestic demand growth dynamics tend to encourage local producers to develop sales in this market. In such a situation acceleration of growth dynamics of deliveries to the local market may be accompanied by decelerating export growth dynamics, implying stabilisation or even reduction of export share. However, a country's share in world production may increase quicker than its share in international trade (Dlugosch and al. 1996).

Intuitively, any improvement in the competitiveness of domestic production should take place in a situation where the share of domestic products on both domestic and foreign markets is rising. Falling market share on both domestic and foreign markets suggests that the production's competitiveness is worsening. Most ambiguous is evaluation of changes in the competitiveness of production in cases where changes in

domestic and foreign market shares are divergent: for example, when the growth of production share in one market (e.g. the domestic) is accompanied by a decrease in the share of the other (i.e. foreign) market. Deficiencies in using market share measures to gauge changes in competitiveness oblige one to consider other factors that may impact on the effects of competition.

Deriving the notion of competitiveness from the ability to compete (with rivals) and exploring market share as a measure of changes in competitiveness implies, firstly, that it is a relative term. Any assessment of the competitiveness of a given product manufactured by a company by measuring its productivity must be related to the productivity of its rivals on the market where competition takes place. Improving productivity alone does not necessarily imply a rise in the company's micro-competitiveness, since another company, foreign or domestic, may increase its productivity by a wider margin. In such a case, a drop in its international competitiveness level may accompany an improvement in its productivity. This is why, when analysing in this paper the factors influencing changes in the competitiveness of AC-3 manufacturing, relative measures (as compared to the EU average) are used, for example relative labour productivity, relative product quality and investment rate.

Secondly, since competitiveness reflects competition, its boundaries and its focus are the same for all competitors. The focus of competitiveness research is the product market, its sub-sectors and substitutes produced by various companies. In this paper we focus on changes in the competitiveness of AC-3-based industries as compared to the EU average.

Thirdly, and importantly, methods of competition (price and non-price) are reflected in the methods of changing competitiveness. For many years great importance has been attached to improving productivity. However, economists have only relatively recently started to include quality of goods and their differentiation as factors influencing firms' and industries' performance. The importance of quality in any analysis of competitiveness is related to competition methods and the field of competition. Firms challenge not only those consumers already present on their product market, but also others, and their disposable incomes. Firms want them to buy their products instead of other goods even from outside the same industry category. Therefore, competition occurs not only within a quality segment of a single branch, but also across branches.

The role of quality in competition and competitiveness analysis is significant for catch-up countries as they experience a rapid change in demand structure towards goods of higher quality and higher price. If the process of catching-up is not accompanied by improvements in quality, but only by improvements in productivity, demand factors will restrain those high production growth dynamics of production that enhanced competitiveness. Therefore, in the catch-up process production dynamics will tend to be higher if accompanied by improvements in quality.

2. Methodology and model

The analysed period (1998 - 2003) was characterised by intensive adjustments in AC manufacturing industries to EU market conditions. This included a period (to 2000) of intensive liberalisation of trade with the EU and a short period just before accession when trade with EU was almost fully liberalised (most tariffs having been lifted by 2000). Although our analysis here does not cover the whole period of liberalisation its effects became mostly visible in the years used here for analysis.

The focus of this paper is the effect and factors of competition between the industries of the AC-3 and the EU-15 in the enlarged EU-25 market[1]. The share of AC exports to the EU-15 out of the EU-25's internal exports is used as a measure of the effects of competition of AC-3 manufacturing industries with those of the EU-15 in the enlarged EU market. The following areas of competition are not taken into account:

- competition of AC-3 industries with those EU-15-based industries on non-EU markets,
- competition of AC-3 industries with those non-EU industries on the EU market
- competition of AC-3 industries with those of non-EU based industries on non-EU markets

The indicator deployed has its advantages and disadvantages. On one hand, it is narrower than the share of AC-3 industries in EU-25 demand. On the other hand, it reflects not only the effects of competition of AC-3 producers with EU-25 internal exporters but also the effects of competition with EU products, sold on their domestic markets.

The following arguments support the decision to use the share of AC-3 exports to the EU-15 in EU-25 internal exports rather than their share in EU apparent consumption. Firstly, changes in the share of AC-3 exports to the EU in the EU's apparent consumption are influenced by changes in the dynamics of EU external trade. If the dynamics of EU external exports, for example, are higher than the dynamics of its production, then the share of EU production in its apparent consumption falls. However, it follows that a change in production orientation does not mean the competitiveness of its products has deteriorated (cf. the example of Germany mentioned by Dlugosh, Freitag & Kruger, 1996).

Secondly, changes in the share of EU turnover in its market may also reflect differentiation of dynamics between EU and non-EU demand. Faster growth in EU demand may encourage EU producers to sell their products on EU rather than non-EU markets. In this way, EU producers turning to the European market may be losing their share of the extra-EU markets, but not necessarily their competitiveness.

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[1] 15 EU members and 10 future - new - member states.

Thirdly, the lack of data on AC-10 domestic demand.

It is worth mentioning the high ratio of correlation between the level of and changes in the share of AC-3 in the internal exports of the EU-25 and its share in EU-25 apparent consumption. The high coefficient of this correlation (exceeding 0.94) suggests that changes in the share of AC-3 exports in EU internal exports to a large extent reflected changes in the competitive pressure of AC-3 products on European markets.

The relative nature of competitiveness implies the need to analyse it in a relative manner, i.e. as relating to rivals. The average EU-15 value of all the analysed indicators will be considered as a point of reference[2].

As potential factors influencing competitiveness changes, the following indicators have been chosen: RULC (Relative Unit Labour Costs), RUEV (Relative Unit Export Value), and IR (Investment Rate, i.e. investment related to turnover). Special emphasis was placed in investigating quality.

The competition approach to competitiveness discourages us from using value added per employee as a measure of labour productivity, as firms do not compete via value added but by lowering their costs or/and improving the efficiency of production. Such steps allow lower prices (price competition), expansion and the gathering of resources to finance quality enhancement necessary to win the competition battle via horizontal and vertical differentiation. This also enables higher dynamics of production growth. Unit Labour Costs (ULC) are calculated as the labour compensation (LC) (wages and salaries plus social contributions) of a particular industry *i* (three digit level, NACE classification) related to its total sales T. This shows whether changes in productivity managed to counterbalance increases in wages and salaries. Relatively high productivity growth (resulting, to a certain extent, from a significant gap to the EU in this field) may have been accompanied by even higher wage increases. In such a situation, despite productivity growth, the ULC would have worsened.

Deriving competitiveness from rivalry and thus treating it as a relative category, we have applied a relative approach to factor competitiveness and examined industries' Relative Unit Labour Costs (RULC), i.e. AC in relation to the EU-15[3].

Relative ULC (RULC) is derived by dividing the ULC in AC-3 by the ULC in the EU-15 for each of the industries. Whenever RULC is above one (an ULC in AC higher than in the EU), this means that the efficiency of use of labour costs in AC-3 is lower than in the EU.

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[2] Due to the lack of data for 2003 (and partly for 2002) when this analysis was being undertaken, we have based our research on data estimates for turnover, wages and labour costs, investments and intermediate costs for the EU-15 manufacturing sector. These estimates were based on Eurostat preliminary results and also on certain Eurostat forecasts and estimates for the dynamics of given indicators.

[3] In the literature, relative labour productivity is often determined as the relation of an industry's productivity to total manufacturing's productivity.

$$ULC_i = \frac{LC_i}{T}$$

$$RULC_i = \frac{ULC_i^{PL}}{ULC_i^{EU15}}$$

Unit Export Value (UEV) is used as a proxy for product quality[4]. The concept of UEV is not new, having been used in several earlier empirical studies (Abd-el-Rachman, 1985; Lemoine, 1994 and Aiginger, 1997). It is defined as the export euro value of a given industry divided by its physical weight, usually a kilogram (OECD Proceedings, 1998: 94). Its changes reflect changes in quality, shifts to higher product segments and to other value-enhancing features (service components, design and advertising). An important advantage of this measure is also its availability at a very detailed level of desegregation for most countries. However, there are certain methodological problems using unit values as measures of product quality. Firstly, changes in unit export values for a given product category may reflect both changes in product quality and changes in product bundle (Aw and Roberts 1986). The more aggregated the product the more serious the problem becomes. Secondly, it may be different from unit prices since it represents a unit of weight rather than price of any unit (Rosati, 1998).

The Relative Unit Export Value (RUEV) is used as a measure of the quality position of AC exports to the EU-15 as compared to EU-15 intra exports for each of the manufacturing industries (i).

$$UEV_i = \frac{Exports\_value_i}{Export\_weight_i}$$

$$RUEV_i = \frac{UEV_i^{PL}}{UEV_i^{EU15}}$$

Based on RUEV, the manufacturing industries of each of the AC-3 were divided into three quality segments. The first covered industries whose UEV was similar to the EU average (RUEV >0.85). The second covered industries whose RUEV was between 0.45 and 0.85 (middle quality), while the third segment covered the lowest quality products RUEV<0.45.

There were no significant differences in RUEV between the various segments in the analysed countries (graph 2.1). Only in the case of Hungary was the RUEV of the highest

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[4] However, in the literature there are several different proxies for product quality: as patents, R&D expenditure, investments, see Greenhalgh et al. 1994; Muscatelli 1995.

quality products visibly higher than in Poland and the Czech Republic. Similarity, the level of RUEV in each segment across the three countries confirms the appropriateness of the chosen RUEV level as a criterion of industry classification.

A drop in RUEV is a sign of a fall in prices and often reflects increasing price competition. It indicates that AC firms have not improved the relative quality of their products as much as their EU counterparts and have not shifted to a higher quality segment of a given product market. An increase in RUEV suggests an improvement in the relative quality of products or a widening of the range of exported commodities within the more sophisticated industries.

Graph 2.1. : Quality segments in AC-3 1996-2003
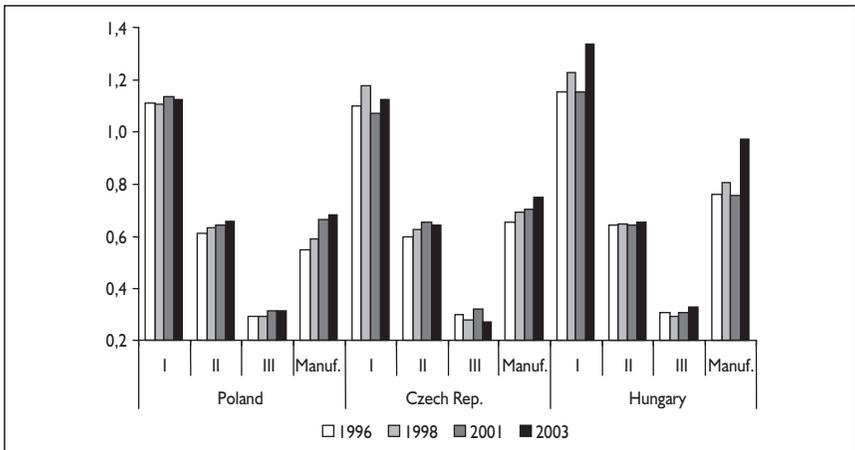
Source: Own calculations, Eurostat data.

In order to identify which factors where indeed responsible for competitiveness changes a multinomial logit model has been performed. Changes in competitiveness were proxied by changes in EU market shares[5]. As potential variables influencing industries' competitiveness, Relative Unit Intermediate Costs (RUIC) and Relative Unit Labour Costs (RULC)[6] were chosen.

As the endogenous variable, a variable describing the market performance of a particular industry was chosen. By "0" we denote a group of industries whose position on

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[5] Data on shares in the domestic market is highly unreliable in the case of the Czech Republic and Hungary due to different classifications of trade and turnover data (NACE and CPA).

[6] A model including RUEV as a potential factor of competitiveness changes has also been performed, although the results turned out to be insignificant. The investment rate could not be included due to lack of Hungarian data (a break in the time series in 2001).

the European market deteriorated in the analysed period. "1" are those industries that improved the position, while the "0" group has been chosen as the reference in the model.

Values of relative indicators for a given product group were chosen as a vector of exogenous variables (x). The multinomial logit model, where the probability that i th industry falls into a distinguished j th category (where j=1 in our case), was specified by the equations below:

$$p_{ij} = \frac{\exp(x_i^{'}\beta_j)}{1 + \sum_{k=1}^{3} \exp(x_i^{'}\beta_k)}$$

and:

$$p_{i0} = \frac{1}{1 + \sum_{k=1}^{3} \exp(x_i^{'}\beta_k)}$$

The analysis was performed for three sub periods (1998-2003, 1998-2001, 2001-2003) for all the industries in the three AC. There were two reasons behind choosing such time intervals. Firstly, it allows us to see how robust the results are over time. Secondly, we can verify whether the factors influencing the market positions change over time.

The performed models turned out to be statistically significant (at a 10% level) for all of the three sub periods (for detailed results, see Table 2.1) and the goodness-of-fit tests proved they adequately fit the data. However, out of the two variables chosen as potential factors determining competitiveness, only the RULC turned out to be significant regardless of the chosen time period. It significantly improved the odds of shifting into category no 1 and its negative coefficients show that a decline in RULC increases the

Table 2.1: Results of the multinomial logit for 1998-2003

		1998 - 2003	1998-2001	2001-2003
Intercept	Coefficient	1,04	1,00	0,16
	Std. Error	0,15	0,15	0,13
	p-value	0,00	0,00	0,23
RUIC	Coefficient	0,57	0,50	0,71
	Std. Error	0,76	0,84	0,68
	p-value	0,46	0,55	0,30
RULC	Coefficient	-0,83	-0,96	-1,06
	Std. Error	0,40	0,54	0,58
	p-value	0,10	0,08	0,06
Log – likelihood:		351,25	324,17	332,31

Source: Own calculations.

probability of achieving a better market position in the EU market by a given industry in each of the countries.

The coefficients of the other variable included in the analysis - RUIC- are not statistically significant. Therefore, this variables cannot be interpreted as a factor important for market performance in the analysed period.

To sum up, from the model we can conclude that the basis for an increase in market share was improvement in the ability to compete, measured by the level of RULC - regardless of the time period, i.e. both during a period of economic growth as well as a slowdown in each of the three countries.

It is worth mentioning here that a similar logit model performed for Polish industries only (cf. A. Wziatek Kubiak, I. Magda 2005, del. 1.7.) illustrated that the level of investment also played an important role - mainly in the period of economic recovery (2001-2003). As mentioned before, due to lack of data we are not able to verify whether investment is also an important factor of competitiveness in the two other analysed AC countries.

3. Characteristics of the three countries and changes in their position on the EU market

In 1996-2003 the dynamics of GDP growth for the AC-3 - though differentiated across the three countries and years - was significantly higher than the incumbent EU members average[7]. This goes for both periods - EU upward growth and the slowdown in growth (graph 3.1).

Two features distinguish the growth rate dynamics of the Czech Republic and Poland. Firstly, their growth as compared to Hungary and the EU average was turbulent. After a short period of high growth dynamics in the Czech Republic and Poland there were strong drops. Secondly, up to 2000 both countries' cycles were clearly out of sync with that of the incumbent EU countries and Hungary. This may be to a large extent caused by unsettled economic features and a series of country-specific crises, e.g. the Czech Republic went through a recession in 1997 and 1998 and Poland stagnated in 1999-2001. Since 1999 the trend in economic growth in both countries has approached that of the EU-15 and Hungary, although has remained more turbulent. They were able to continue with moderate growth rates even when the EU-15 was close to stagnation. Taken into consideration that the EU-15 takes about two-thirds of their exports the question is, if whenever the EU economy

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[7] With the exception of a significant slowdown in the Czech Republic in 1997-1998.

Graph 3.1. The dynamics of growth of GDP of AC-3 and EU15
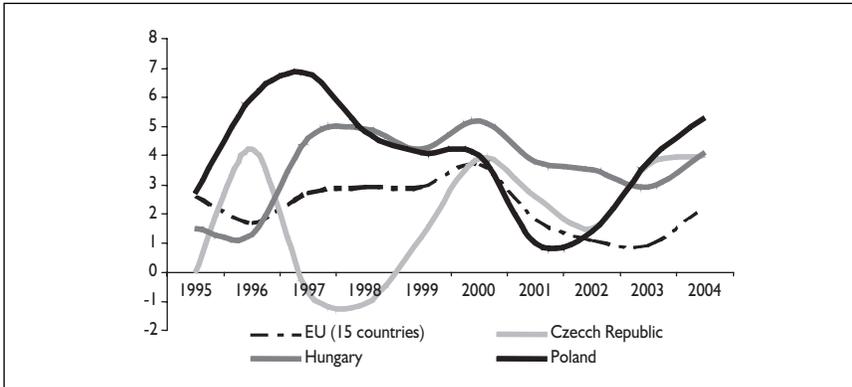
Source: Eurostat.

fails not pick up, are the AC-3's exports to the EU an important factor in their growth or must the role of exports be taken over by domestic demand? The former possibility means that either AC-3's producers catch up with the increment in relation to the incumbent EU countries' apparent consumption and/or push EU-15 producers out of their markets. This would also mean that the AC-3 producers increase their ability to integrate. The second scenario suggests that the AC-3 producers' ability to compete has not been improving considerably against the incumbent EU countries.

The catching up of the AC-3 was an effect of high growth in their productivity and improvement in the quality of their goods. The share of foreign trade turnover in Poland's GDP and the share of Polish exports to the EU-15 in EU internal exports was traditionally low, especially if compared to Hungary and the Czech Republic[8]. Domestic demand played the crucial role in Poland's growth up to 1998. As a result of the radical opening of the Polish economy, in 1995-2003 the share of exports in GDP increased from 23.7% to 34.7%, while that of imports from 21.5% to 36.9%, although the major role in economic growth is still played by domestic demand.

Among the analysed countries the highest growth dynamics in productivity were typical for Hungary and the lowest for the Czech Republic. The considerable increase in Poland's unemployment rate was linked to the rapid growth of labour productivity. If this is how the catching up process should work, the lowest improvement in productivity in the Czech Republic, accompanied by a relatively small drop in its employment, raises questions as to future developments on its labour market.

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[8] In 1996 the share of Poland's exports to the EU-15 in EU-25 intra exports was slightly higher than that of the other two AC's countries, although Poland's total GDP was higher than that of both countries combined.

Not only did the gap in productivity between AC-3 and the EU-15 diminish, but the growth in productivity also exceeded that of wages in all AC-3, especially in Poland (table 3.1). The opposite was the case with the EU-15. In effect the RULC of the AC-3 improved considerably, the most in Poland and the least in Hungary. However, over the whole period the RULC in Hungary was the lowest, reflecting the lowest productivity gap of the three countries against the EU-15.

Changes in the RULC of the AC-3 were differentiated between two sub-periods: up to 1999 and after, as well as between Hungary on the one hand and the Czech Republic and Poland on the other. The deterioration of RULC of the latter countries up to 1999 (Table 3.2) accompanied a small improvement in the quality of exported goods and a small increase in the EU-25 export share. Expansion of Polish domestic demand rather than improvements in efficiency determined Poland's economic growth up to 1999 and resulted in a small improvement of Poland's export share. Afterwards, the quite considerable improvement in RULC and quality of exported goods of Polish and Czech manufacturing were in line with considerable improvements in both countries' export shares (Tables 3.2 and 3.3). This accompanied a drop in the investment rate and continuous large inflows of FDI into both countries. Since mid 1990s inflows of FDI to both countries have increased considerably, much more than in the case of Hungary and have caught up with low FDI inflows in the earlier period (Table 3.2. on FDI stock per capita)[9]. Flows of FDI into Poland and reorientation of activity from domestic toward foreign markets at the end of the 1990s impacted on Polish export performance and the differentiation across industries of changes in the share of Polish exports in EU-25 intra

Table 3.1. Average changes in wages, productivity, turnover and employment of AC-3 and EU-15 manufacturing in 1998-2003 (in current prices)

Country	Wages per employee	Turnover per employee	Turnover	Employment	Differences between changes in wages and productivity (in percentage points)
Hungary	93%	94%	82%	-6%	1
Czech Rep.	56%	69%	58%	-6%	13
Poland	38%	82%	48%	-19%	44
EU15	30%	20%	16%	-9%	-10

Source: own estimation based on national statistic of the AC-3 and Eurostat.

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[9] The increase in cumulated FDI (in 1996-2003) in Poland reached $42 billion, in the Czech Republic $33 billion, while in Hungary $23 billion.

Graph 3.2 Number of industries within each quality segments in 1996-2003
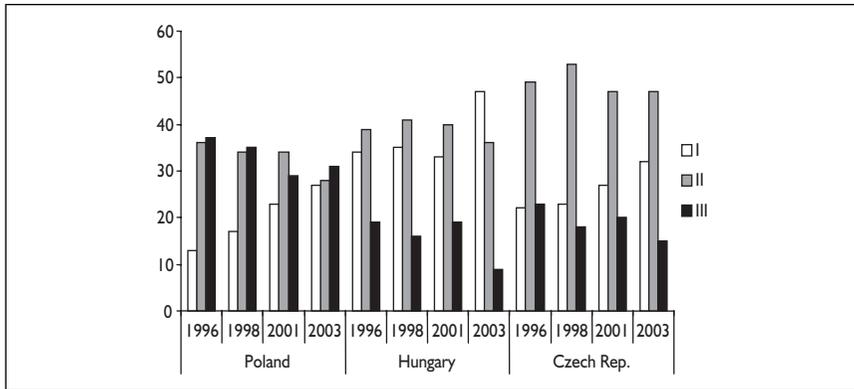
Source: Comext database (Eurostat), own calculations.

Table 3.2. Basic indicators of the AC-3 in 1996-2003

		1996	1997	1998	1999	2000	2001	2002	2003
RUEV	PL	0.55	0.57	0.59	0.59	0.61	0.66	0.66	0.68
	CZ	0.65	0.66	0.68	0.68	0.66	0.71	0.70	0.76
	H	0.76	0.77	0.81	0.82	0.87	0.76	0.97	0.97
RULC	PL	0.77	0.79	0.81	0.79	0.75	0.77	0.71	0.62
	CZ		0.80	0.81	0.82	0.79	0.77	0.79	0.73
	H			0.61	0.59	0.59	0.57	0.59	0.55
IR(%)	PL	6,8	7,2	8,2	7,1	5,7	5,0	4,9	5,0
	CZ		9,4	8,1	9,0	8,1	8,2	6,7	6,5
	H				7,4	6,6	12,6		
FDI stock p. c. USD	PL	297	377	281	675	870	1010		
	CZ	832	897	1397	1708	2108	2604		
	H	1470	1587	1835	1922	1942	2311		
Cumulated FDI inflows from 1990 bill. USD	PL	12.9	17.8	24.2	31.4	40.8	46.5	50.1	54.8
	CZ	5.5	6.8	10.5	16.9	21.8	27.5	36	38.6
	H	15.3	19.4	22.8	26.1	28.8	32.8	35.6	38.1

Data on FDI concerns the whole economy.
Source: Eurostat, OECD and national statistics, own calculations.

exports. The key question is whether FDI is an addition to domestic investment or pushes it back in time. The evidence of the AC-3 is not conclusive.

Table 3.3. Changes in the share of AC3 exports to EU15 in the EU25 internal exports (in %)

		1996	1997	1998	1999	2000	2001	2002	2003
Share of AC3 in EU15 extra imports		6.2	6.6	7.2	7.7	7.8	9.0	9.8	10.6
Share of AC3 in AC exports to EU15		70.8	72.7	73.6	74.6	75.0	76.6	75.9	74.9
Share in EU internal exports	AC-3	2.7	3.0	3.3	3.6	4.0	4.5	4.7	5.1
	PL	1.0	1.1	1.2	1.2	1.4	1.5	1.6	1.8
	CZ	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.8
	H	0.8	1.0	1.1	1.3	1.3	1.5	1.5	1.5

Source: Own estimation based on national statistic of the AC-3 and Eurostat.

The increase in the competitive pressure of the three AC was highly differentiated in time and across the countries. Hungary experienced the highest increase in its EU's market share within only three years. In the subsequent years the increase has been much more modest, especially if compared to changes in Poland and Czech Republic. The latter countries intensified their exports to EU15 only after 1998. This observation is crucial for our analysis, which, due to data availability (for Hungary and Czech Republic) concentrates on the 1998-2003 period, when Poland and the Czech Republic were catching up, whereas Hungary experienced a slowdown in its export dynamics, even though it made progress in productivity and quality of exported goods.

In 1996-2003 the AC-3 took over a part of the increase in EU demand both for EU as non-EU goods. Given also the slowdown in EU GDP growth (2000-2003) and in EU-15 intra export dynamics, this demonstrates that the analysed countries were pushing out some EU producers from the EU market. This, therefore, confirms the improvement in AC's product competitiveness compared to its EU-15 counterparts.

Poland and the Czech Republic tend to export to EU-15 products of a quality much lower than in the EU or Hungary. In contrast, Hungary's exports were composed to a large degree of products with quality corresponding to the EU level (cf. graph 3.2., Table 3.4). However, the share of high quality products in Poland's and the Czech Republic's exports increased significantly. These changes reflected not only the dynamic increase in the exports of high quality goods, but also the visible increase in the quality of most goods. The latter was reflected in shifts in industries between the three quality segments, mainly up-grades[10].

Although the number of industries exporting high quality goods in Hungary increased, their share in Hungarian exports in 2000 diminished. Either some of the highest quality

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[10] In Poland the number of industries in the highest quality segment increased from 13 to 27, in the Czech Republic from 22 to 32 and in Hungary from 24 to 47.

Table 3.4: Structure of exports of AC-3 to the EU-15 by quality segments (in %)

Quality segments	1996	1998	2001	2003
Poland				
I	27	28	33	42
II	44	43	48	36
III	28	28	19	22
Hungary				
I	58	61	52	54
II	35	34	34	45
III	7	5	14	1
Czech Rep.				
I	22	19	37	42
II	60	68	52	5
III	18	13	11	5

Source: Comext database (Eurostat), own calculations.

products - in order to compete out the EU goods - had to lower prices or by maintaining prices saw turnover and exports fall. Increasing productivity and the drop in RULC (Tables3.1. and 3.2) allow for such a strategy of maintaining EU market share.

4. Winners and losers of AC-3 manufacturing industries in EU-25 internal exports

Most AC-3 industries increased their EU market shares. This reflected a drop in the productivity gap between them and the incumbent EU countries and an improvement in RULC. Three questions arise. Firstly, in which industries was the increasing competitive pressure of the AC-3 on the EU markets strongest and what were the causes? Was it the slow progress in productivity improvements of the EU-15 producers or the impressive improvements made by the AC-3? Secondly, did highly differentiated dynamics among those AC-3 industries that increased their competitive pressure on EU market shares emerge? Thirdly, which AC-3 industries were pushed out of the EU market and what were the reasons for this?

Answers to these questions will highlight the impact of changes in competitiveness on restructuring of the enlarged EU market and trade flows and their factors. It will also be helpful in showing if the structural changes made in the AC-3 stimulated adjustments in the incumbent EU countries.

The focus is three types of AC-3 industries:

- Large winners: Industries whose competitive pressure on the EU market was the strongest and dynamically increased. These are industries in the AC-3 whose share of EU-25 internal exports was increasing and high (at least double the manufacturing average)
- Small winners: Industries whose share of the EU market was low but dynamically increasing (dynamics of EU shares at least double the dynamics of EU manufacturing's share growth in each respective country).
- Losers: Industries whose share in EU-25 internal exports in 1998-2003 diminished by at least 10% and were possibly pushed out of the EU-25 markets.

The focus of the paper are the AC-3 losers and two kinds of winners: large and small ones. Winners cover 19 industries of Hungarian manufacturing (9 large winners), 28 Czech (20) and 42 Polish (20) ones out of 96 industries.

Large winners

In 1998-2003, the EU export share of the large winners of the AC[11] increased considerably (table 4.1). With few exceptions these shares ranged from 3% to 8%. If the large winners in the AC-3 were the same and their quality similar, one could expect some of them to dominate EU markets and push out EU goods. However, the composition of the group of large winners in each AC-3 and the quality of their products was different. Half of the Polish and the Czech large winners overlap. Given that the quality of the Czech was higher than Polish ones this implies that they operate in different markets in terms of quality and were not rivals in the EU market. This was similar in case of the Hungarian and Czech large winners (graph 4.1). The differentiation of large winner industries across the three countries (cf. Annex), and high differentiation in terms of the quality of exported goods (cf. graph 4.1) meant that the AC-3 exporters of these goods were targeting different EU markets. Since these deliveries were complementary, cumulated pressure of the AC-3 industries in question on the respective EU industry counterparts did not take place. Therefore, despite a relatively high and increasing share of large winners in the EU-25 intra exports, their sales did not constitute a threat to the functioning of the respective industries in the EU incumbent countries. Such a threat may be the case only in particular industries of a handful of EU countries and across various quality segments of the European market.

In the analysed period the level of RULC among the AC-3 large winner industries was lower than the average manufacturing level and decreased strongly. However, it was

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[11] Five Polish industries, whose share in EU intra exports exceeded 9 per cent.

Table 4.1. Share of large winners, small winners and losers of AC in EU intra exports

EU share (weighted)	Hungary				Czech Republic				Poland			
	96	98	01	03	96	98	01	03	96	98	01	03
Large	1.9	2.8	4.2	5.4	1.9	2.5	3.8	4.3	4.5	5.1	6.5	7.1
small	0.3	0.7	0.9	1.1	0.3	0.4	1.2	1.9	0.5	0.7	1.5	1.9
Losers	1.3	1.3	1.2	0.9	1.0	1.0	0.8	0.8	2.3	1.9	1.5	1.1
Manuf.	0.8	1.1	1.5	1.5	0.9	1.1	1.5	1.8	1.0	1.2	1.5	1.8

Source: Comext, own calculations.

Graph 4.1. Relative Unit Labour Costs of AC-3
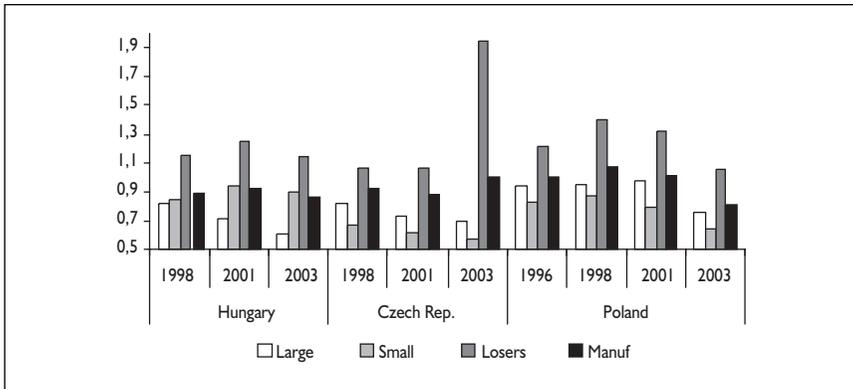
Source: Comext database, own calculations.

Graph 4.2. RUEV of Hungarian, Czech and Polish manufacturing

Source: Comext database, own calculations.

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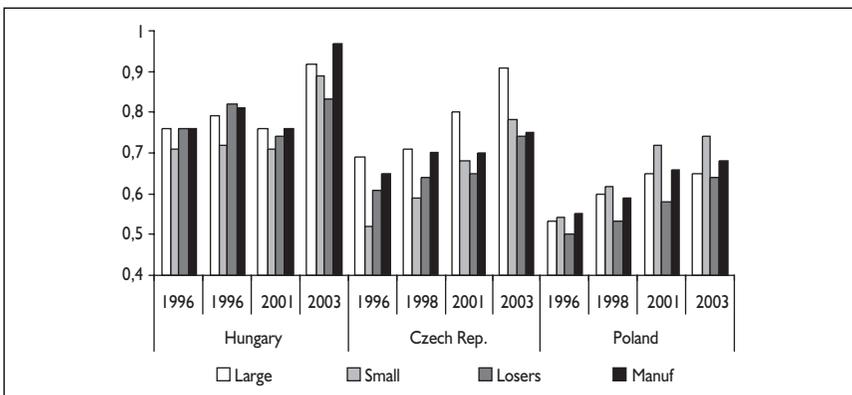
differentiated across the three countries. In 1998, the RULC of Hungarian large winner industries was the lowest and decreased most. Although the RULC of Polish and Czech large winners was lower than the average of manufacturing, it remained higher than the RULC of the small winners (graph 4.1).

There were some rather large differences in terms of quality of large winners' goods across the three analysed countries. The RUEV of Polish goods was the lowest and increased the least, while Hungarian and the Czech goods were close to the EU level and increased quite considerably. However, there was quite considerable differentiation in terms of level of quality within these Polish industries.

Surprisingly, although RULC was quite low in 1998, the labour productivity of both Polish and the Czech large winners and their EU counterparts was lower than the average for manufacturing in these countries (cf. table 4.2 and 4.3). Within the analysed period the gap in productivity between these industries and the average of manufacturing either increased (in the Polish and EU cases) or did not change (the Czech Republic). Considering the above facts, the question arises as to why Polish and Czech large winners industries' share in EU-25 internal exports high and increased strongly?

The low dynamics of growth of production in the analysed industries in the EU, which accompanied a lack of adequate adjustments in employment (Table 4.4), resulted in slower productivity growth in the EU than the AC-3 winner industries, in closing the productivity gap of the AC-3 against the EU and the drop in the RULC. It also contributed to the high dynamics of export growth of the AC-3 large winners' industries to the EU, which was the main factor behind the boost in their production. Its dynamics significantly exceeded the rate of manufacturing production growth in the analysed countries and was five to twelve times higher than the respective EU counterparts production growth (table 4.4, table 3.1). The share of large AC-3 winners in AC-3 total manufacturing production increased, while that of their EU counterparts in total EU manufacturing dropped. The obvious result of this was an increase in these industries in the AC-3 in the EU-25's internal export shares. Poland and to a lesser degree the Czech Republic increased their competitive pressure on the EU market in those goods whose productivity was comparatively low in both countries and this gap increased. However, since their productivity increased more than their EU counterpart industries, their EU export shares increased. The adjustment processes which take place within the enlarged EU market are based on differential progress in relative (among countries) productivity. The improvement in RULC and the EU market shares of both Polish and Czech large winners stemmed from their narrowing the labour productivity gap vis-a-vis the EU-15 and not from the comparative advantage of the Polish and Czech industries in question over other industries in both countries. The weakness of the European counterparts of the Polish and Czech large winners was the basis for the latters' strength on the European market

and determined changes in their EU market shares. The liberalisation of access to the EU market for the AC-3 accelerated the structural changes taking place in some of the EU incumbent countries' manufacturing, but not instigate them. It impacted on improvements in Polish large winners' share of the EU market. The trade liberalisation of the AC-3 and the EU-15 was, therefore, not the source of economic problems in the manufacturing sector in EU, as it revealed the weakness of economic performance and progress in various EU industries. On the other hand, one must keep in mind the relatively low quality level of Polish large winners' goods. They pushed out of the EU market mostly the producers of low quality goods and only to a small degree higher quality ones.

Table 4.2. Level of wages and productivity of the large winners of the AC-3 in 1998 and 2003 (in national currency or euro)

		Wages		Turnover per employee	
		1998	2003	1998	2003
Hungary (HUF)	large winners in Hungary	1269	2438	45.8	130.1
	EU counterparts	0.033	0.046	0.176	0.202
Czech (EUR)	large winners in Czech Rep.	5.3	8.3	28.6	53.0
	EU counterparts	0.026	0.034	0.115	0.135
Poland (PLN)	large winners in Poland	22.0	29.5	121	211
	EU counterparts	0.022	0.029	0.109	0.123

Source: Eurostat, own calculations.

Hungarian large winners experienced a different situation and different changes. Both in Hungary and the EU these industries were distinguished by comparatively high labour productivity (higher than average for manufacturing) and wages. The employment of a highly qualified labour force contributed to high labour productivity (Table 4.3) and to the diminishing of the gap vis-a-vis the EU-15 (Table 4.4). The high quality of Hungarian industries suggests increasing competition with the EU incumbent countries' manufacturers in these industries, thus augmenting the possibilities of them pushing the latter out of the EU market. In Poland and the Czech Republic this could be the case mainly for lower quality goods.

Three conclusions can be derived from the above analysis. Firstly, changes in the competitive pressure of a particular industry of a given country on external markets reflect changes in relative (i.e. domestic related to foreign) labour productivity and not differences in labour productivity across industries within the country. Therefore, Smith's law of absolute advantages takes precedent over the competition mechanism and

Table 4.3. Level of wages and productivity (in national currency) of manufacturing in the AC-3 and the EU

		Wages		Turnover per employee	
country	Currency	1998	2003	1998	2003
Hungary	HUF 1000	1179	2272	41.5	80.4
Czech	1000	5.4	8.4	34.6	58.5
Poland	PLN 1000	24.1	33.3	155	282
EU-15	1000	0.028	0.037	0.159	0.191

Source: Eurostat, own calculations.

determines changes in market shares. Secondly, analysis of market quality segments verifies the estimates of changes in the competitive pressure of AC-3 on EU-15 industries based on changes in relative productivity or market share. The increase in the EU market shares of a particular industry may be accompanied by differentiation in competitive pressure across market quality segments. If the focus of the analysis is the low quality segment of large-winner industries, the competitive pressure of Polish and some Czech industries would be much higher than our analysis reveals. However, the demand dynamics for these goods is quite low, which limits export potential. Thirdly, competition by productivity - and not by wages - was the main factor of competition among the AC-3 countries and the EU-15 industries (Table 4.4. and 3.1). The reason for a decrease in the RULC of the AC-3 countries was the high dynamics of productivity growth, exceeding the growth of wages. This led to an increase in employment and resulted in

Table 4.4. Changes in wages, productivity, turnover and employment of the AC-3 large export winners

		Wages per employee	Turnover per employee	Turnover	Employ ment	Differences between changes in wages and productivity (in percentage pts)
Hungary	Large winners in Hungary	92%	184%	281%	34%	92%
	EU counterparts	39%	15%	5%	-9%	-24%
Czech	Large winners in Czech Rep.	56%	86%	103%	10%	29%
	EU counterparts	29%	17%	15%	-1%	-12%
Poland	Large winners in Poland	34%	75%	78%	-1%	41%
	EU counterparts	30%	12%	11%	-1%	-18%

Source: Eurostat, own calculations.

high growth dynamics of production and an increase in EU export shares. The opposite was the case in changes in the EU incumbent countries.

The slower labour productivity growth in the analysed EU-15 industries was accompanied by shallow employment and wage adjustments created advantageous conditions for the non-EU and AC-3 competitors to export to the EU market. However, the lower quality of Polish and some Czech goods restrained the possibilities of increasing these deliveries and lowered the AC-3 competitive pressure on EU goods. It was mainly Hungarian - seldom Polish or Czech products - that, owing to the considerable improvement in productivity, kept increasing competitive pressure on EU high quality products. Improving the quality of Polish and Czech large winners' products will, therefore, be the key factor determining their possibilities for pushing their European rivals out of the market. The extent of this competitive struggle will be shaped by similarities in the quality of exported goods.

Small winners

The group of industries grouped under the banner "small winners" (covering 10 Hungarian, 23 Polish and 8 Czech industries) differed in many aspects from the "large winners" discussed above. This was observed in terms of levels (in 1998) and changes over the analysed period in RULC, in productivity, the qualifications of the labour force, the quality of exported goods and EU market shares. On the other hand, small winners from Poland and the Czech Republic differ quite considerably from those of Hungary.

Surprisingly, although the EU market share of small winners' industries in the AC-3 was quite low in 1998[12] (Table 4.1), the RULC of Polish and Czech small winners' industries was lower than the average for each's manufacturing industries and of the large winners in both countries, while the productivity of these goods and the quality of the labour force was higher. To a large extent the low EU market share of small winner industries in both countries reflected the low quality of exported goods and the low and slowly growing demand for them in the EU-15. However, we should keep in mind that in 1998 the productivity of the EU counterparts of AC small winners was also higher than the average productivity of EU manufacturing (Table 4.2 and 4.5). If one sought to characterise these goods from both countries in 1998 they would be seen as competitive but low quality products. Low quality implies that the range of competition with the EU products was limited to the low quality segment of the market.

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[12] It varied from 0,15% to 3,5%

Table 4.5: Levels of wages and productivity in small winners of AC-3 and their EU counterparts in 1998 and 2003 (in different units)

		Wages		Turnover per employee	
		1998	2003	1998	2003
Hungary	Small winners in Hungary	1461	2710	59.1	71.3
	EU counterparts	0.033	0.043	0.204	0.234
Czech	Small winners in Czech Rep.	5.3	8.2	35.3	74.7
	EU counterparts	0.027	0.039	0.150	0.192
Poland	Small winners in Poland	27.6	38.0	210	368
	EU counterparts	0.032	0.041	0.177	0.210

Source: Eurostat, own calculations.

During analysed period AC-3 small winners' industries increased their EU market shares quite considerably (Table 4.1). This was accompanied by considerable improvements in quality of goods and a drop in their RULC, which was higher than the manufacturing average. In the case of Poland, the drop in RULC was higher than that of the large winners. In terms of RULC, the competitiveness of small winners from Poland and the Czech Republic increased, while that of those from Hungary fell (cf. graph 4.2).

The changes in RULC were influenced by interdependencies between wages and productivity changes in AC-3 compared to the EU. On the one hand, except for Hungary, the increase in wages and in productivity of AC small winners' industries and their EU counterparts was higher than the average for manufacturing and the large winners' industries (Table 4.6.). A smaller drop in employment than the average for manufacturing implies that the drop in labour input did not play the key role in productivity improvement. On the other hand, the productivity growth dynamics of small winners from Poland and the Czech Republic exceeded that of the average of each countries' manufacturing and that of their EU counterpart industries. The increase in the productivity gap between small winners and the average for manufacturing was accompanied by a drop in the productivity gap between the small winners of both countries and their EU-15 counterparts. Significantly higher productivity than wage growth in Poland and the Czech Republic lead to a decrease in RULC. The changes in Hungary and the EU were in contrast to this.

This process was accompanied by a more rapid improvement in the quality of Polish and Czech small winner industries compared to both countries' large winners, and to

Table 4.6. Changes in wages, productivity, turnover and employment of the AC-3 and EU small winners in 1998-2003

		Wages per employee	Turnover per employee	Turnover	Employ-ment	Differences between changes in wages and productivity (% points)
Hungary	Small winners in Hungary	85%	21%	16%	-4%	-65%
	EU counterparts	31%	24%	20%	-3%	-7%
Czech	small winners in Czech Rep.	56%	111%	111%	0%	56%
	EU counterparts	43%	28%	15%	-10%	-14%
Poland	Small winners in Poland	37%	75%	55%	-11%	37%
	EU counterparts	28%	19%	17%	-2%	-9%

Source: Eurostat, own calculations.

Hungarian ones, and lead to a decrease in the quality gap vis-a-vis Hungary and all three countries' EU-15 counterparts. It also revealed new possibilities for export expansion onto the EU market, acquiring new markets in terms of quality, and contributed to export market share growth.

The relatively high level of wages in Polish, Hungarian and EU small winners indicates the relatively high qualifications of employees. Wage growth dynamics in these industries in Poland and Czech Republic were slower when compared to average manufacturing, but significantly higher than in EU, which suggests more restrictive wage policies in the AC than in the EU-15. Competition via labour productivity was crucial for changes in market share.

In Hungary in 1998 the level of labour productivity of the analysed industries was 40% higher than for average manufacturing, but its growth dynamics were lower than the average - and worse than its EU counterparts. As a result, in 2003 the level of labour productivity of the industries in question in Hungary remained lower then the average for Hungarian manufacturing, while wages were quite high. The competitiveness of Hungarian small winners was deteriorating at the same time.

Summing up, Hungarian export specialisation in a relatively small number of large winner industries reflected its comparative advantage over other Hungarian industries, as well as its competitive advantage over EU goods. The latter, operating in the same quality segment as the Hungarian, faced increasingly strong competitive pressure.

Large Czech and Polish winners operated in a lower quality segment of the EU market than their EU counterparts. The increase in their competitive pressure on the EU markets stemmed mainly from the weak progress made by the incumbent EU countries' counterpart industries rather than from strong progress made among the AC-3. The productivity of theses industries was smaller and increased less than the average for manufacturing. In other words, Polish and Czech large winner industries made a larger step forward in terms of improvement in competitiveness than their European counterparts. Improvements in the competitive advantage of these industries over the EU resulted from a weakness in EU progress.

One group of dynamic exporters distinguished itself among Polish and Czech manufacturing industries. Its labour productivity was high and increased more rapidly than average manufacturing and its EU counterparts. These Polish and the Czech industries were in effect gaining competitive advantages on the EU market. Furthermore, significant increases in the quality of goods exported by these industries contributed to the shifts towards more dynamic EU markets and an improvements in market shares.

Losers

In our analysis we have also distinguished a group of industries we name "losers". The decrease in their share of EU-25 internal exports reflected the lower dynamics of their production growth and their exports to the EU if compared to average manufacturing in AC-3 (Table 4.8.).

AC-3 losers could be distinguished by the highest level of RULC, higher than the country's manufacturing average, and also improving the least. High RULC indicates that they possessed no competitive advantages over their EU counterparts.

Table 4.7. Levels of wages and productivity in the losers of the AC-3 and their EU counterparts in 1998 and 2003

		Wages		Turnover per employee	
Hungary	losers in Hungary	1015	1800	34.0	70.6
	EU counterparts	0.020	0.028	0.152	0.195
Czech	losers in Czech Rep.	5.3	8.8	39.8	71.8
Rep.	EU counterparts	0.032	0.041	0.208	0.273
Poland	Losers in Poland	20.9	31.5	86	155
	EU counterparts	0.026	0.034	0.134	0.181

Source: Eurostat, own calculations.

Table 4.8. Changes in wages, productivity, turnover and employment of AC-3 losers and their EU counterparts in 1998-2003

		Wages per employee	Turnover per employee	Turn-over	Employ-ment	Difference between changes in wages and productivity (% points)
Hungary	Losers in Hungary	77%	108%	64%	-21%	30
	EU counterparts	39%	29%	12%	-13%	-10
Czech	Losers in Czech Rep.	64%	81%	32%	-27%	17
	EU counterparts	31%	31%	20%	-9%	0
Poland	losers in Poland	51%	80%	15%	-36%	29
	EU counterparts	30%	35%	14%	-15%	5

Source: Eurostat, own calculations.

In 1998 the level of wages in the loser industries was lower than the country's average in each of the AC-3, indicating a lower level of qualifications among employees. However, wage growth in these industries was more rapid than for the manufacturing average of AC-3, meaning that the wage policy was hampering improvements in competitiveness.

On the other hand, these are the industries with decidedly the lowest quality of exported goods, and which, moreover, improve relatively the least. Similar to the case of other industries discussed above, Hungarian loser industries had the highest quality among the three Acs, and Poland the lowest. This indicates that mostly low quality goods were being pushed out of the market.

In 1998 these industries (except for the Czech ones) had the lowest levels of labour productivity, below the average for manufacturing. The rapid increase in productivity, much higher than in the EU and double that for manufacturing, contributed to a decrease in the productivity gap. A strong fall in employment was the main source of the improvement in labour productivity (table 4.8.), higher than among this group's EU counterparts and several-fold higher than the average decrease in manufacturing's average employment. The restructuring of the analysed industries was rather shallow, though it brought about growth in labour productivity. A strong fall in employment, despite relatively high increases in wages, resulted in labour productivity growth higher than wage growth. The interdependencies between the above mentioned changes were stronger than in the EU. This suggests that despite the shares of loser industries in EU internal exports decreasing, these AC-3 industries made a more significant improvement in enhancing their competitiveness than their EU15 counterparts. However, the competitiveness gap and low quality of the exported goods were hampering the

possibilities of their expansion on EU markets. For the same reasons changes in this trend for EU market share development would seem unlikely.

The growth dynamics for Polish losers was threefold lower than the manufacturing average. In the Czech Republic this ratio was twofold - whereas in Hungary dynamics were 30% lower than the average, although still higher than in the EU. The decrease in the share of these industries in AC-3 manufacturing turnover and exports resulted in their fall in EU internal export share.

5. Conclusions

In the pre-accession period (1998-2003) AC-3 increased its competitive pressure on most of the manufacturing industries on the EU-25 market. The growth in the share of its manufacturing industries in the EU market, the drop in RULC, the productivity gap and the increase in the quality of exported goods all confirm the improvement in the competitiveness of AC-3 manufacturing industries. The increase in competitive pressure during the slowdown in the incumbent EU-15 countries also confirms the progress made by the AC-3.

Improvements in the competitiveness of AC-3 manufacturing industries was differentiated across time, among the three countries (Hungary versus the Czech Republic and Poland), across manufacturing industries and quality segments of the EU market. The average quality of Hungarian goods, although highly differentiated among industries, was higher than Polish or Czech goods. The increase in the competitive pressure of the former was mainly seen in high quality goods. On other hand, the share of exports to the EU of Polish and Czech high quality goods in their total exports to the EU increased quite considerably. The opposite was the case for Hungary. This suggests increasing difficulty in exporting Hungarian high quality goods to the EU.

The major sources of improvement in the competitiveness of the manufacturing industries of the analysed countries was a drop in the productivity gap in relation to the EU-15. The productivity growth dynamics of the AC-3 overtook those of wages, resulting in a drop in their RULC. The opposite was the case for the incumbent EU countries.

The share of exports of some of the AC-3 industries (large winners) of EU-25 internal exports was quite large. However, these industries' general type in the AC-3 and the quality of their goods did not overlap. This implies that the cumulative competitive pressure of the AC-3 industries on the EU market was not strong.

The specialisation of Hungarian exports on a few large winners reflected both their

comparative advantage over Hungarian manufacturing industries and their competitive advantage over EU industries. The latter, operating in the same quality segments as their Hungarians' counterparts, felt the increased competitive pressure of Hungarian goods

The growth in the competitive pressure of Czech and Polish large winners on the EU market was a result not only of the progress in productivity made by the AC-3 but also the small progress in productivity made by their incumbent EU counterparts. The level and improvement in productivity of the above mentioned Polish and the Czech industries was lower than the manufacturing average. The increasing competitive advantages of the large winners from both countries over their incumbent EU counterparts reflected the weaknesses of EU industries.

The specialisation of Polish and Czech exports to the EU on relatively less productive industries (large winners) implies that the expansion of these exports to the EU results in lower-than-potential economic growth in both countries. However, it seems that the external liberalisation of the EU market will hamper the further dynamic growth of some Polish and Czech large winners.

In the analysed period in new dynamic exporting industries (small winners) emerged among Polish and Czech exporters. They were characterised by higher and dynamically increasing productivity compared to their manufacturing average and to their incumbent EU counterparts. The improvement in the quality of their goods helped to improve their position on the EU market.

Structural changes took place in Czech and Polish exports to the EU-15. The share of dynamic industries (small winners), characterised by high productivity and high quality of goods, increased, although remained quite small.

Summing up, the increase in the EU market share of both large and small winners from the AC-3 was the outcome not only of improvements in their productivity but also the poor improvement of their EU counterparts in this respect. This sheds new light on the competitive pressures of the AC-3 winners on the EU market.

Two conclusions emerge as result of the above deliberations. Firstly, changes in the competitive pressure of an industry of a given country on a foreign market reflect changes in relative (in comparison to foreign) productivity rather than differences in productivity among industries of a given country. Smith's law of comparative advantage governs the mechanism of competition and impact of changes in market share. Secondly, taking into account the quality of exported goods helps verify evaluation of changes in competitiveness based on relative productivity and market share. The increase in the share of a given industry on export markets may be accompanied by differentiation of competitive pressures among quality segments of this market.

References

Abbott L.(1955), Quality and competition, New York: Columbia University Press.

Aiginger K (1997), The use of unit values to discriminate between price and quality competition, Cambridge Journal of Economics, 21, 571 - 592.

Clark J.M., (1963) Competition as a Dynamic Process, The Brookings Institute, Washington D.C.

Dlugosch B., Freitag A., Kruger M., (1996), International competitiveness and the balance of payments. Do current account deficits and surpluses matter? Edward Elgar, Cheltenham UK, Brookfield, US

Dulleck U. (2002), Trade and Transition - Is there a low quality trap? WIFO, Vienna.

Feigenbaum A.V. (1982) Quality and business growth today, "Quality Progress" 15(11): 22-25.

Kirzner I..M., (1973) Competition and Entrepreneurship, The University of Chicago Press, Chicago and London.

Krafft J., (2000) Introduction in "The Process of Competition" (ed. J.Kraffts), Edward Elgar, Cheltenham, UK. Northampton MA.

Martin S. Globalization and the natural limits of competition in "The International Handbook of Competition", ed. M.Neumann, J.Weigand, Edward Elgar, Cheltenham, UK, Northampton, MA,

Murphy K. M., Schleifer A., (1991), Quality and trade, NBER Working Paper no 3622, February 1991.

Rosati D. (1998), Emerging trade patterns of transition countries. Some observations from the analysis of unit values, MOCT-MOST, 8, 51 - 67.

Annex 1

Large winners:

HUNGARY	
157	Manufacture of prepared animal feeds
204	Manufacture of wooden containers
311	Manufacture of electric motors, generators and transformers
312	Manufacture of electricity distribution and control apparatus
313	Manufacture of insulated wire and cable
315	Manufacture of lighting equipment and electric lamps
316	Manufacture of electrical equipment n.e.c.
322	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy
323	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods
CZECH REPUBLIC	
171	Preparation and spinning of textile fibres
174	Manufacture of made-up textile articles, except apparel
203	Manufacture of builders' carpentry and joinery
222	Printing and service activities related to printing
251	Manufacture of rubber products
261	Manufacture of glass and glass products
262	Manufacture of non-refractory ceramic goods other than for construction purposes; manufacture of refractory ceramic products
266	Manufacture of articles of concrete, plaster, cement
281	Manufacture of structural metal products
282	Manufacture of tanks, reservoirs and containers of metal; manufacture of central heating radiators and boilers
283	Manufacture of steam generators, except central heating hot water boilers
287	Manufacture of other fabricated metal products
311	Manufacture of electric motors, generators and transformers
312	Manufacture of electricity distribution and control apparatus
313	Manufacture of insulated wire and cable
316	Manufacture of electrical equipment n.e.c.
343	Manufacture of parts, accessories for motor vehicles
352	Manufacture of railway, tramway locomotives, rolling stock
355	Manufacture of other transport equipment n.e.c.
361	Manufacture of furniture

	POLAND
153	Processing and preserving of fruit and vegetables
174	Manufacture of made-up textile articles, except apparel
182	Manufacture of other wearing apparel and accessories
183	Dressing and dyeing of fur; manufacture of articles of fur
203	Manufacture of builders' carpentry and joinery
204	Manufacture of wooden containers
205	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials
231	Manufacture of coke oven products
262	Manufacture of non-refractory ceramic goods other than for construction purposes; manufacture of refractory ceramic products
281	Manufacture of structural metal products
282	Manufacture of tanks, reservoirs and containers of metal; manufacture of central heating radiators and boilers
283	Manufacture of steam generators, except central heating hot water boilers
313	Manufacture of insulated wire and cable
314	Manufacture of accumulators, primary cells and primary batteries
315	Manufacture of lighting equipment and electric lamps
316	Manufacture of electrical equipment n.e.c.
323	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods
352	Manufacture of railway, tramway locomotives, rolling stock
355	Manufacture of other transport equipment n.e.c.
361	Manufacture of furniture

Small winners:

	HUNGARY
155	Manufacture of dairy products
175	Manufacture of other textiles
212	Manufacture of articles of paper and paperboard
222	Printing and service activities related to printing
244	Manufacture of pharmaceuticals, medicinal chemicals and botanical products
245	Manufacture of soap, detergents, cleaning, polishing
291	Manufacture of machinery for the production and use of mechanical power, except aircraft, vehicle and cycle engines
332	Manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment
334	Manufacture of optical instruments,photographic equipement
353	Manufacture of aircraft and spacecraft
	CZECH REPUBLIC
158	Manufacture of other food products
175	Manufacture of other textiles
233	Processing of nuclear fuel
245	Manufacture of soap, detergents, cleaning, polishing
247	Manufacture of man-made fibres
291	Manufacture of machinery for the production and use of mechanical power, except aircraft, vehicle and cycle engines
322	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy
323	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods
	POLAND
156	Manufacture of grain mill products, starches and starch products
157	Manufacture of prepared animal feeds
171	Preparation and spinning of textile fibres
175	Manufacture of other textiles
211	Manufacture of pulp, paper and paperboard
212	Manufacture of articles of paper and paperboard
221	Publishing
222	Printing and service activities related to printing
243	Manufacture of paints, varnishes and similar coatings, printing ink and mastics
245	Manufacture of soap, detergents, cleaning, polishing

247	Manufacture of man-made fibres
251	Manufacture of rubber products
252	Manufacture of plastic products
263	Manufacture of ceramic tiles and flags
268	Manufacture of other non-metallic mineral products
286	Manufacture of cutlery, tools and general hardware
297	Manufacture of domestic appliances n.e.c.
312	Manufacture of electricity distribution and control apparatus
331	Manufacture of medical and surgical equipment and orthopaedic appliances
333	Manufacture of industrial process control equipment
341	Manufacture of motor vehicles
343	Manufacture of parts, accessories for motor vehicles

Losers:

	HUNGARY
151	Production, processing, preserving of meat, meat products
158	Manufacture of other food products
174	Manufacture of made-up textile articles, except apparel
181	Manufacture of leather clothes
182	Manufacture of other wearing apparel and accessories
191	Tanning and dressing of leather
193	Manufacture of footwear
202	Manufacture of veneer sheets; manufacture of plywood, laminboard, particle board, fibre board and other panels and boards
205	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials
232	Manufacture of refined petroleum products
242	Manufacture of pesticides and other agro-chemical products
243	Manufacture of paints, varnishes and similar coatings, printing ink and mastics
264	Manufacture of bricks, tiles and construction products
271	Manufacture of basic iron and steel and of ferro-alloys (ECSC)
365	Manufacture of games and toys
	CZECH REPUBLIC
154	Manufacture of vegetable and animal oils and fats
181	Manufacture of leather clothes
191	Tanning and dressing of leather
192	Manufacture of luggage, handbags and the like, saddler
193	Manufacture of footwear
201	Sawmilling and planing of wood, impregnation of wood
204	Manufacture of wooden containers
241	Manufacture of basic chemicals
242	Manufacture of pesticides and other agro-chemical products
244	Manufacture of pharmaceuticals, medicinal chemicals and botanical products
264	Manufacture of bricks, tiles and construction products
265	Manufacture of cement, lime and plaster
267	Cutting, shaping and finishing of stone
354	Manufacture of motorcycles and bicycles
363	Manufacture of musical instruments

	POLAND
154	Manufacture of vegetable and animal oils and fats
182	Manufacture of other wearing apparel and accessories
192	Manufacture of luggage, handbags and the like, saddler
193	Manufacture of footwear
244	Manufacture of pharmaceuticals, medicinal chemicals and botanical products
265	Manufacture of cement, lime and plaster
273	Other first processing of iron and steel and production of non-ECSC ferro-alloys
296	Manufacture of weapons and ammunition
321	Manufacture of electronic valves and tubes and other electronic components
351	Building and repairing of ships and boats
363	Manufacture of musical instruments

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