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## **Eastern enlargement: the sooner, the better?**

Arndt, Sven and Handler, Heinz and Salvatore, Dominick

Austrian Ministry for Economic Affairs and Labour

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ECONOMIC POLICY SECTION

EUROPEAN ACADEMY  
OF EXCELLENCE

# Eastern Enlargement: The Sooner, the Better?

EDITED BY  
SVEN ARNDT, HEINZ HANDLER AND DOMINICK SALVATORE

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## PREFACE

The first **European Academy of Excellence** has been organised during the Austrian Presidency of the EU in 1998. The idea was to have a high level forum on European policy issues – gathering a selected number of outstanding politicians, businessmen, university professors and other renowned experts to discuss relevant topics which seemed important in European policy making.

The first Academy of November 1998, devoted to the "Future Competitiveness of Europe", turned out a quite successful event which helped shape the discussion of various Council meetings of the EU. Since then Eastern Enlargement has turned out to be the most important single issue that economists in the EU have become engaged with. Future competitiveness of Europe will be strongly dependent on an early perception of the adjustment needs due to Eastern Enlargement – in the countries of transition as well as in the European Union.

In order to put more emphasis on this topic, it was a pleasure for me to be the host of the second **European Academy of Excellence** devoted to "**Eastern Enlargement: The Sooner, the Better?**". It was held in Vienna on 16-17 June 2000.

After completion of the internal market and the introduction of the Euro, Eastern Enlargement has become the most important challenge for the European Union. At the outset of the next millennium, the process of deepening and widening integration put substantial adjustment pressure on the economies involved. Since the opening up of the East, the EU, and especially Austria, have gained a lot from this process. The prospects for further development of the economies involved are even more positive.

Started in Luxembourg in December 1997, the enlargement process aims at the stability and prosperity for the entire European continent. In March 1998 the EU entered negotiations with five Central and Eastern European Countries, the Helsinki Summit in December 1999 opened the door to another five Eastern applicants.

Adjustments are needed on both sides: The enlargement process, on the one hand, enhances European institutional reform. On the other hand, the envisaged integration into the Single Market, and eventually into EMU, mark important milestones in the reform efforts of the transition countries. Special efforts have to be made regarding the implementation

of the *acquis communautaire* and the relating economic and structural adjustments.

The intention of the Academy was to discuss the enlargement from the point of view of the accession countries. The first session dealt with the process of narrowing the structural gap and the search for an optimal exchange rate regime. The second session was devoted to the effects of fragmentation and outsourcing components production to Central and Eastern Europe on employment in East and West Europe.

During the Academy, many issues were raised and many questions posed. Can the current momentum of reform in the accession countries be sustained, although the political commitment towards enlargement within the Union seems to be hampered by public fears of the resulting social and economic change? What are the milestones for the CEECs in complying with the *acquis communautaire* and thereby meeting the accession requirements? Are timely negotiated and stable conditions and a well-defined timetable for accession indispensable for foreign investment to evolve smoothly? Should politicians strive for an early enlargement, regardless of the accession countries' state of transition? Is the claim "The sooner, the better" likely to jeopardise an optimal enlargement process?

Although the academy tried to develop answers to all these questions, further discussion will be necessary and even more emphasis has to be put on these issues.

In order to present the results of the Academy to a wider audience and to provide some input to further initiatives, the compendium presents the conference proceedings, including the discussion and other related material. The results of the academy will again be utilised as an input for the negotiations of the various EU Council formations I am a member of (inter alia, Internal Market, Industry, Energy, Foreign Trade and Employment and Social Policy).

In my view, the second European Academy of Excellence has again been a great success, thanks to the valuable contributions and the participation of some outstanding academics, politicians and businessmen in this field. Especially, I have been very pleased to welcome Nobel Laureate Prof. Robert Mundell and to follow his presentation on Exchange Rate Arrangements in Eastern and Central Europe. I wish to thank all participants for their ambition – especially the chairmen Prof. Dominick Salvatore and Prof. Sven Arndt – and I am

convinced that this event has contributed – as expected – a great deal to the current understanding of the enlargement process.

Martin Bartenstein  
Federal Minister for Economic Affairs and Labour

## **EUROPEAN ACADEMY OF EXCELLENCE 2000 EASTERN ENLARGEMENT: THE SOONER THE BETTER?**

### **1. Background and aim**

European integration has gained considerable momentum over the past couple of years. After completion of the internal market and the introduction of the Euro, the EU has put Eastern Enlargement on the agenda for the outset of the next millennium. These processes of deepening and widening integration put substantial adjustment pressure on the economies involved.

When the enlargement process was started in Luxembourg in December 1997, it was aiming at "the stability and prosperity for the entire European continent". In March 1998 the EU entered negotiations with five Central and Eastern European Countries (CEECs), the Helsinki Summit in December 1999 opened the door to another five Eastern applicants. All ten CEECs are now competing for a timely fulfilment of the EU's *acquis communautaire*.

The envisaged integration into the Single Market, and eventually into EMU, mark important milestones in the reform efforts of the countries in transition. In addition, the enlargement process enhances European institutional reform: the Intergovernmental Conference on this issue is supposed to be completed by December 2000, putting the Union in a position to "*welcome new Member States from the end of 2002 as soon as they have demonstrated their ability to assume the obligations of membership...*". In the accession countries (ACs), as a consequence, many policy areas are up for change, even though past reform efforts have already been adopted in view of EU requirements. Apart from the legal and institutional setting, the accession process will put much emphasis on the quality of implementing the *acquis* as well as on the economic convergence process.

On these grounds, and pursuing the idea of a high level forum on European policy issues – bringing together a selected international body from academia, business and politics – the Austrian Federal Minister of Economics and Labour invites to a second European Academy of Excellence devoted to the issue of "Eastern Enlargement: The Sooner,



the Better?" As a member of several Council formations of the EU, the host would utilise the discussion and the results in his interventions in the Council meetings.

In his introductory remarks, the Academy's host will touch upon the following questions:

1. Can the current momentum of reform in the accession countries be sustained, although within the Union the political commitment towards enlargement seems to be hampered by public fears of the resulting social and economic change?
2. What are the milestones for the CEECs in complying with the *acquis* and thereby meeting the accession requirements? How far is it up to the applicants themselves to decide about the accession date? Since membership will be extended on a country-by-country basis, what is the likely overall time span for the enlargement process?
3. Are timely negotiated and stable conditions and a well-defined timetable for accession indispensable for foreign investment to evolve smoothly?
4. Should politicians strive for an early enlargement, regardless of the ACs' state of transition? Is the claim "The sooner, the better" likely to jeopardise an optimal enlargement process?

## **2. Issues for discussion**

### **2.1. Session 1a: Narrowing the structural gap**

Since the beginning of the 1990s much progress has been made in transforming the former command economies into market economies: Legal and economic stability has been spreading, hyper-inflation has subsided, privatisation has helped establish a business sector. Currently most of the accession candidates seem to be on the right track as far as macro-policies are concerned. What remains to be done is the completion of structural reforms with a twofold aim: (a) to adopt the *acquis*, in particular the provisions of the single market; and (b) to speed up convergence of income levels towards the average of EU member states. The ACs' economies are still characterised by low wages and productivity. In the event of enlargement this may induce migration which would be unfortunate both from the point of view of ACs

(because of the likely brain drain) as well as of current EU member states (because of the resulting labour market pressure).

In the course of the reform process, the general employment situation in the CEECs has worsened dramatically with unemployment rates reaching double-digit figures. In the euro-zone, with virtually perfect capital mobility, the rather immobile factor labour will bear most of the adjustment burden. There is, however, no hard empirical evidence in favour of the widely-held opinion, that CEECs, based on inadequate social security provisions, would be dumping the EU labour markets.

Recent data on the economic structure of ACs will be provided by the Vienna Institute for Comparative Economic Studies (WIIW). In addition, a poll among (potential) Austrian investors in CEECs should reveal the (subjective) reasons for investing or not in these countries. The overall aim of this subsession is to evaluate, in view of the ongoing negotiations with applicant countries, the size, diversity and nature of the structural gaps between ACs and EU member states, and crystallising out an optimal path for the enlargement process. The questions raised in this context may include the following:

1. What is the optimal policy mix conducive to narrowing the structural gap between accession countries and current EU member states?
2. Sticking to an inflation target at the expense of investment may be required for stability in the short run. What are the long-term consequences for growth?
3. Can an efficient capital market and banking sector emerge quickly enough to provide for the necessary amounts and qualities of external capital?
4. FDI in the CEECs is characterised by low R&D spending. This can be attributed to weak protection of intellectual property rights. Have the CEECs neglected to improve important areas of their institutional framework to international standards?
5. Should migration be restricted, or can a brain drain from the East and labour market pressure in the West be avoided by just having market forces work?
6. On their path towards EU membership, the starting position of ACs is rather diverse. What are the peculiarities and the prospects of individual CEECs in view of future EU membership?

7. Will extended periods of transition perpetuate distorted economic structures or have a catalyst effect on industrial adjustment? What sectoral adaptations are to be expected for the CEECs?

## **2.2. Session 1b: In search of the optimal exchange rate regime**

This subsession will be devoted to the presentation and discussion of a paper on "Exchange Rate Arrangements in Eastern and Central Europe" by Professor Robert A. Mundell, Nobel Laureate in economics of 1999. Without prejudice to this presentation, one can judge from official statements that many ACs will strive for an early adoption of the Euro. Such an emphasis on exchange rate targets may be inadequate, as real convergence is likely to take much longer than just achieving the Maastricht criteria. As a consequence, transforming countries may apply a suboptimal policy mix which drives them into EMU membership long before their fundamentals have reached adequate levels. On the positive side, the introduction of the euro will further diminish inflationary pressures in the CEECs due to stable production costs and shrinking profit margins in the union. Subject to Professor Mundell's presentation, possible questions to be raised are:

1. What is the proper exchange rate regime for a transition economy? What are the consequences for the macroeconomic policy mix?
2. Given that inflation in the CEECs has already come under control and net capital inflows are occurring in substantial amounts, what is the additional virtue of closely monitoring, or even fixing, the exchange rate?
3. What is the optimal institutional setting for a currency peg? What provisions (in particular for restricting hot money flows) must be taken to avoid disruptive shocks?
4. What are the economic preconditions for successfully introducing the euro in the accession countries?
5. Careful real appreciation may support structural change and foster labour flows from inefficient (public sector) production to market-oriented private production. Is real appreciation then a means to support growth?

### **2.3. Session 2: The effects of fragmentation on employment**

The international fragmentation of the value-added chain (vertical specialisation) is gaining importance as the globalisation of markets is spreading. Manufacturing firms enhance their competitiveness by outsourcing parts of their production which can be produced more efficiently by other companies and perhaps in other countries. Cross-border trade increases when certain (usually labour-intensive) production stages are transposed from a high-wage to a low-wage country, and when the intermediate product is re-imported for assembly by the high-wage country. This phenomenon has stimulated a debate on the consequences for domestic value-added and employment in the high-wage country.

Trade theory provides a number of arguments which make it plausible that international fragmentation can stimulate growth and employment in both the outsourcing and the producing country. However, in models employing realistic assumptions, the outcome usually remains ambiguous, unless it can be narrowed down by empirical analyses. Towards this end, and in addition to the material already publicly accessible, a case study will be prepared for and presented in this session by the Austrian Institute of Economic Research (WIFO).

In the EU the preparation of Eastern Enlargement is accompanied by the fear, on either side, of trade-linked delocation of production. In these circumstances, a preferential treatment of the entrants as well as standards for safeguarding "fair" trade are likely to be fostered. However, preferential trade liberalisation may inhibit the realisation of the welfare effects of intra-product specialisation. Although the Europe Agreements clearly benefit the ACs, the prevailing system of trade arrangements is centred around and mostly targeted to the EU. This may limit macroeconomic convergence and integration among the CEECs, as it does not fully utilise, through intra-CEEC trade, the possibilities for reducing transaction costs.

1. What are the theoretical preconditions for positive net effects on growth and employment in outsourcing countries as a result of transposing labour-intensive production stages to low-wage countries?

- 
2. Do empirical studies on the fragmentation issue suggest net gains or losses of value-added and employment as a consequence of outsourcing the production of goods and services to other countries?
  3. What are the structural effects on production and employment of outsourcing labour-intensive parts of the production process to Eastern Europe?
  4. How does it affect income distribution on both sides?

## **WHAT WILL EASTERN ENLARGEMENT DO TO ACCESSION COUNTRIES?**

Christina Burger, Heinz Handler

### **1. Introduction**

When westerners talk about Eastern Enlargement, they usually adopt the view from the west. This comes as no surprise, as it is the EU that sets the conditions for accession and will have to adjust its institutional and financial setup. Equally important, however, seems the view from the accession countries themselves, their starting position, their ambitions to adjust to the *acquis communautaire*, and the quality of such adjustment.

During the second European Academy of Excellence, the discussions on Eastern Enlargement focussed on the problems of accession for the candidate countries. The questions raised in the background paper (reproduced in this volume) explored the structural gaps between the EU and the reforming countries, the options for an exchange rate regime, and the consequences for trade structures and jobs of outsourcing production from the EU to the low-wage eastern countries.

The scope of the discussions may best be **summarized** by the following questions which will be elaborated one by one in what follows:

1. How far play income differences between current EU member states and accession countries a role in the adjustment process of the latter?
2. Can monetary and fiscal stability already be deemed permanently established in the accession countries?
3. How can quality of technical and legal implementation of the *acquis communautaire* be secured?
4. How can accession countries gain competitiveness on European and world markets?

### **2. Income differences and their role for the adjustment process**

One of the specifics of Eastern Enlargement will be that the candidate countries on average are significantly poorer than the EU. Compared with the 1998 EU average GDP per head, income levels of citizens in the transition economies amounted, according to Salvatore<sup>1</sup>, to 51% in Central Europe (the Czech Republic, Hungary, Poland, Croatia, the Slovak Republic and Slovenia), to 32.6% in the Baltic States (Estonia, Latvia and Lithuania) and to just 22.1% in South-Eastern Europe (Albania, Bulgaria, FYR of Macedonia and Romania). Since the opening of the east in 1989, the income-per-capita gap vis-à-vis EU countries has widened, and current estimates seem to indicate that income differences will be halved only some 20-30 years after accession (or not even before 35 years, according to an EBRD estimate of 1993).

Possible **consequences** of such a long-lasting gap are:

- *Investors* from the west will seek to gain from the relatively high rate of return on capital and the low wage level. This in turn will increase the demand for labour and, in the medium term, raise per capita income.
- As predominantly low-wage components of production will move to the east, such investment will to some extent petrify the given *production structure*. As a result of the fragmentation of production, there will be income and employment gains in the east as well as in the west.
- A study by DIW (2000) concludes that accession to the EU will not lead to massive *migration* from the east. Already now - before EU accession – there is a continuous stream of migration to the west which is seen abating as a result of capital inflows and the ensuing rise in wage levels in the transition economies. Including the additional migration following from full freedom of personal movement of some 336.000 persons by, say, 2002, the total stream may culminate at some 1,1 million persons. The additional flow of persons is seen to come down to some 42.000 persons by the year 2020 (Breuss).
- However, migration may be of minor importance compared with the *commuter problem*. A number of people from the east will tend to move (at least periodically or on a daily basis) to the west in order to optimize their earnings opportunities. In border areas this may temporarily disturb western labour markets and create adverse

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<sup>1</sup> Quotations without year refer to the contributions in this volume or to the discussion at the Academy.

feelings of the working population against foreign workers. From this, restrictive policies in the west against the influx of foreigners could result, which would impede the restructuring process on both sides of the border.

- The *brain drain* from the east already visible now will continue. The possibility of acquiring new qualifications may induce temporary migration, a phenomenon which is particularly observed for people with higher qualification.

As the development since the opening of the east, and in particular the creation of a free trade association of reforming countries with the EU, has shown, do most of these possible effects not materialise immediately. They emerge rather slowly and can thus be influenced to some extent by **economic and social policies**.

The accession countries have adopted the view that *speedy adjustment* to the institutional and economic framework of the EU is the best way to minimise the negative consequences of open borders towards the EU and to gain as soon as possible from the market conditions in the EU.

Adjustment progress so far has not been completed. Apart from an almost complete restructuring of foreign trade and establishing new foreign exchange regimes, *not enough advances* are visible in other important areas, such as competition policies, banking and securities markets, non-financial institutions as well as enterprise restructuring. In spite of good results in (small-scale) privatisation, the cost efficiency within firms is still unsatisfactorily low.

However, this should not be seen as an impediment to EU accession. As Pelkmans et al. (2000) have argued, the claim for substantial ex ante real convergence towards EU standards of accession candidates is of limited relevance only, not least because no meaningful definition exists of "real convergence". As for current EU members, such adjustment occurs anyway on a more or less continuous basis. What should rather be considered is institutional adjustment, such as the abolition of border controls and changes in legal system. Adjustments of this sort are required for a smooth functioning of the EU and are by and by considered in a number of candidate countries.



### 3. Macroeconomic and exchange-rate stability as the basis for gaining competitiveness

In a market economy, macroeconomic stability is an essential precondition for private entrepreneurs and for structural policies to be successful. Sujan/Sujanova (1999) therefore proposed the following **sequence of measures** for the preparation of EU membership by the accession countries:

- economic stabilisation;
- economic reforms: definition of rules of private ownership, structural reforms which are necessary to achieve a functioning market economy;
- changing of rules and regulations to achieve compatibility with EU law.

These groups of measures are not independent. If, in the long run, stabilisation is pursued without structural reforms, this may result in a depression. On the other hand, structural reforms without stabilisation may produce high inflation and an increase in the current account deficit.

In the decade following 1989, the political and economic opening of eastern European countries caused a GDP *depression* which turned out much deeper than the great depression in the 1930s. This was partly due to the adjustment gap vis-à-vis market economies and partly to policy prescriptions, particularly to the lack of consistency between monetary policy and real sector developments. Nearly all transition countries went through long phases of inflation which brought the credit mechanism and the investment system to a standstill.

Real sector developments, however, should not be assessed exclusively by GDP movements. In the communist era a major part of GDP was just waste products, military expenditure and irrelevant investment (Fink). *Per capita consumption* seems to be a more relevant indicator not affected by the factors listed above. Measured in these terms, real income by now exceeds significantly the level of 1990. A large income gap remains, however, when compared with the average income level in EU countries (see Salvatore, Table 3). To narrow this gap, transition countries will have to improve on their competitiveness in international

markets which can successfully be pursued only on the basis of macroeconomic and exchange-rate stability.

Towards this end, what is the **optimal mix** of fiscal, monetary and exchange-rate policies?

According to Mundell, the transition countries should **fix their exchange rates to the euro** in order to gain from low inflation and low nominal interest rates. Euroisation should preferably be attained by means of a *currency board arrangement* which best ensures credibility of monetary policy and thereby fosters macroeconomic stability. Currency boards may be defined as fixed exchange-rate regimes with a firm link between foreign reserves and domestic money creation (based on a high coverage ratio). The "classic" currency boards of the late 19th and early 20th century were often run by external agents deliberately shielded from domestic political pressure. According to Ghosh et al. (2000), currency boards have been remarkably successful in reducing high inflation and simultaneously maintaining comparatively high GDP growth rates. This is attributed to the "discipline effect" of lower money supply growth and the "credibility effect" which fosters the growth of money demand.

To be successful, however, currency boards should be footed on an appropriate legal and institutional framework as well as on a broad social and economic consensus. In addition, large scale currency reserves are needed to establish and maintain currency boards. Fixing the exchange rate vis-a-vis the euro may be a problem for accession countries who have important trade relations with the USA or hold a large part of their external debt in US dollars. Moreover, the ECB has no obligation to consider the special needs of accession countries which have linked their exchange rate to the euro.

According to Mundell, the reforming countries should be persuaded to immediately join the Economic and Monetary Union (EMU), though under the condition of complying with the convergence criteria - otherwise, the euro itself could be harmed. The accession countries would then not only benefit from EU transfer payments but in addition, and even more so, from quickly establishing efficient monetary and financial conditions and the access to functioning capital markets.

However, a fixed exchange-rate regime cannot be established all at once. As a major precondition, transition countries will have to stabilise their macroeconomic environment, although this may cause severe adjustment problems, in particular for the banking sector. Another unresolved question is the conversion rate at which to enter the euro zone as long as the transition phase continues. During transition it is more or less arbitrary which rate to apply as the equilibrium exchange rate. Gros (2000) arrives at the conclusion that the strongest transition economies (like Poland) need not hurry in joining the euro. On the other hand, transition countries with a weak monetary environment may wish to find an early anchor in the euro.

Considering these arguments, von Hagen proposes that accession countries should introduce a regime of **floating exchange rates**. He stresses in particular that free international capital mobility, fixed exchange rates and monetary policy autonomy cannot be maintained at one and the same time – as frequently considered by governments. A policy which aims at achieving all these goals would result in strong exchange market pressure and speculative attacks, as several examples of the last 20 years demonstrate.

Another alternative to a fixed exchange rate regime would be **inflation targeting** which is, however, more difficult to pursue. Central bankers in the transition countries are much less than their western colleagues used to make decisions concerning interest rates or the appropriate volume of money supply. As in the west, these decisions are seen as rather demanding, because they have to meet the criteria of credibility and, therefore, should not change too often. Even under fixed exchange rates, a country cannot acquire another currency's credibility: this is solely the product of the government's own policies.

Bofinger argues that most member countries of the EU were successful under an **adjustable peg** mechanism and therefore pleads for such an exchange-rate regime also for the accession countries. Tumpell-Gugerell supports a middle-way somewhere between fixed exchange rates and adjustable pegs. She maintains that euroisation would only be a second best solution which was moreover rather costly as the accession countries would forego the seigniorage profit from issuing bank notes.

Monetary and exchange-rate policies are just one side of the stabilisation coin, **fiscal consolidation** the other. According to Halpern,

the budgetary situation is seen even more important than the exchange rate regime. Actual budget deficits in the accession countries are generally rather low by now, as privatisation and commercialisation of state-owned enterprises have worked out quite well. This does not yet hold to the same extent for the reduction of quasi-fiscal deficits which are hidden, e.g., in extra-budgetary funds or as state bank credits to enterprises (Nutti). Also, liberalisation and privatisation did not automatically result in new capital formation. Therefore, *tax policies* had to be adjusted in order to set incentives for saving and capital formation in both forms – material and immaterial capital. A shift from direct to indirect taxation (i.e. from money earned to money spent) can provide such incentives. In the communist era corporate tax was a key source of revenue. During the transition period, income taxes and VAT have by and by taken precedence over corporate taxation. *Public expenditures* which go to unproductive uses (such as a boosted bureaucracy) should be reduced in favour of increasing investment in human capital (education, R&D) and infrastructure. Hence, the Central and Eastern European countries (CEECs) face at their level of economic development similar challenges concerning tax and expenditure policies as the EU-member states.

The **reform of financial markets** has not been a top priority in the accession countries (Hochreiter/Kowalski, 2000), but all of them have, during the last 10 years, established a two-tier banking system. Competing commercial banks emerged due to liberalised entrance rules. Efficient financial markets are an essential requirement for economic growth and macroeconomic stability. However, the CEECs trail behind the EU and where the financial system has expanded, governments have often been the main beneficiaries. Many enterprises have continued to be excluded from the access to bank finance, but they have at least access to the equity market (EBRD 2000). According to Fink, the efficiency of financial markets is not only a consequence of market forces; public policies may also contribute a lot by, e.g., being transparent, providing reliable supervisory structures, and continuing credibly with the liberalisation of capital movements. Further privatisation would also point in the same direction.

**New central bank laws** were also adopted, but they need to be amended to meet the requirements of the Maastricht Treaty. The top executives of the central banks are now appointed by parliament, the governor usually by the state president. They are all appointed for at

least 5 years. Legally their degree of *independence* is rather high, there is however evidence that actual independence is less than the statutes suggest. Central banks have functional independence, i.e., they may freely choose instruments and techniques of monetary control. The prime objective of the central banks is price stability in Latvia and Poland, and currency stability in the other countries. Apart from these objectives, the central banks are supposed to support the economic policy of the government. However, in line with EU law, fiscal financing is limited or even not permitted. To mitigate the cost of further disinflation, the monetary policy strategy should clearly be laid down and the accountability of the central banks strengthened.

The process of real economic convergence is usually accompanied by strong **real appreciation** in the accession countries, i.e., by an increase in relative prices vis-à-vis their respective partner countries. Halpern/Wyplosz (1997) quote a number of reasons for this, inter alia the switch from command to market economies, the adjustment to the international price level of raw material prices, the demand for direct investments from abroad, and the productivity increase which is higher for tradable goods than in the non-tradable sectors („Balassa-Samuelson effect“). According to Gros (2000), the inflationary pressure arising from the latter effect may be strong enough to jeopardise unconditional EMU membership.

Because of the necessity to organise production more efficiently in a market-oriented economy, the situation on the **labour market** has changed completely. Excessive employment was cut back, firms were shut down and new production branches were established. However, the capacities freed thereby have not yet been absorbed completely. Hence, eastern European countries still face high unemployment, especially in those regions where large firms were closed (Pöschl, 2000). To cope with open unemployment, passive labour market policy was mainly used at the beginning of the transition period. Active labour market policies (ALMP) had to be implemented without prior experience, and have now been carried out since only a few years. Empirical analyses (see e.g. Puhani/Steiner, 1997) of ALMP effects have come to the conclusion that both, macroeconomic matching and microeconomic targeting of problem groups, could be improved.

An **overall assessment** of macroeconomic stability in the accession countries leads to the following result: Many of them are tying their

national currencies to the euro which limits the autonomy of monetary policy, but lets them share the stability of the euro zone. Fiscal autonomy is also limited because of the stability and growth pact. The scope for independent stabilisation policies is thus rather low, and exogenous shocks will not easily be absorbed by market forces. In order to permit exchange rates to be pegged successfully to the euro, more flexible labour markets and wages seem indispensable (Welfens, 1998).

Von Hagen warns that accession countries should not be assessed individually, but as a more or less *homogenous group*, as do investors from abroad: economic problems in one country will induce investors to pull their money out from other countries of that group as well, simply because they feel that disturbances in one country are likely to spread out over the whole area.

#### 4. Implementing the *acquis communautaire*

The European Council of Copenhagen in June 1993 endorsed the conditions for the accession of eastern European countries: “...Accession will take place as soon as an associated country is able to assume the obligations of membership by satisfying the economic and political conditions required. Membership requires that the candidate country has achieved stability of institutions guaranteeing democracy, the rule of law, human rights and respect for and protection of minorities, the existence of a functioning market economy as well as the capacity to cope with competitive pressure and market forces within the Union. Membership presupposes the candidate's ability to take on the obligations of membership including adherence to the aims of political, economic and monetary union...”

The European Association Agreements, signed with all accession candidates, foresee the creation of a **free trade area** in two stages within ten years. As a first step, all quantitative restrictions were removed, and the most important tariffs had to be phased out (at a faster pace by the EU than by the accession countries). This process is still not completed and will be followed by the full implementation of the *acquis communautaire*.

According to Salvatore when summarising the discussion, too much emphasis is laid on purely economic indicators. Policymakers will judge

the **readiness for accession** not just by the differences in GDP per capita, by productivity or by similar indicators. The largest emphasis will be on what the Commission calls today the “quality of implementation of the *acquis*” which includes many microeconomic factors such as the capability of implementing European competition law, administrative law and financial markets law as well as the quality of institutions. Inotai (1999) considers the benefits, but also the costs, of preparing for EU membership, in particular in areas such as environmental and social policies. His view is that the quality of implementing EU law will largely depend on the adjustment capabilities at the micro-level. Concerning environmental policies, the signing and ratification of environmental treaties can be seen as a first step in the direction of compliance with international environmental policy and a good preparation for the relevant EU policies. Significant progress has been made in this area (EBRD, 1999). The costs of full compliance with EU environmental regulation are by no means negligible – they are estimated at 1.6 to 3.2% of GDP (Gacs, 1999b).

As Fink stressed in the discussion, advances in European integration have always depended on binding time schedules – e.g. the creation of EMU. Similarly, a precise and **well-defined time schedule** can help achieve the goals which were set by and for the accession countries. However, participants in the Academy agreed that there is some lack of speed in preparing for the Eastern Enlargement, although a certain trade off may exist between the speed and the quality of implementing the *acquis*. According to Fink, the accession countries should not be given a free choice when to join the EU. They would anyway have to be prepared to join, not only with respect to implementing and adopting the *acquis*, but also by adjusting economic policies to the accession criteria of the growth and stability pact.

For the accession countries it is more difficult to comply with all EU directives than it was for existing EU members when they entered, simply because the number of directives has significantly increased over the years, reflecting the start of EMU, the euro etc. (Franke, 1999). Steinherr believes that accession will not depend on complete **compliance with the Copenhagen criteria**, but will eventually be based on a compromise between what is politically desirable and what is economically feasible. He favours a political decision which opens the EU door for as many countries as possible as quickly as possible.

According to Salvatore, small-scale privatisation, foreign trade and the exchange system all meet the standards of performance of the advanced industrial nations and therefore make the transition countries *ready for accession*. On the other hand governance and enterprise restructuring, price liberalisation, securities markets and non-bank financial institutions have not proceeded that far. Only some years ago, in 1989, the share of the official private business in all business was lower than the share of the hidden economy. Now the opposite is true – the further the transition has proceeded, the higher is the share of the private economy (Lacko, 1999).

For the preparation of the accession negotiations, the negotiations themselves and the implementation of the acquis, an enormous increase in efficiency and improvement in public administration will be required. Effective co-ordination, careful planning and the building-up of institutions are the main requirements for the preparation of EU-membership. So far, the restructuring of the public sector in the CEECs has not been completed yet. Better regulation in the CEECs is not completely equal to less public intervention. Partly, new regulation is needed, e.g., for the protection of private ownership (Gacs, 1999a).

The CEECs will receive payment from the structural funds of the EU from which also enterprises may benefit. On the other hand, the CEECs have to decrease the direct and indirect subsidies which they disburse to enterprises, mainly to publicly owned enterprises. This is a necessary condition for accession, which other EU members had to fulfil as well when they entered the EU. Moreover, the process of “depoliticising” enterprises has to go on in order to fulfil the Copenhagen criteria (EBRD, 1999).

### **5. How to gain competitiveness in accession countries?**

The recession in the early transition phase, caused – among other factors – by the trade shock of economic disintegration and the credit shock of high real interest rates, is overcome by now. **Catching up** with western income and productivity levels is sometimes seen as the most important aim in the transition period. However, this is a difficult, if not an impossible, task, as the least developed EU countries grow quite fast as well. In order to decrease the gap in national income, accession countries would have to grow even faster. Obviously, it makes sense to envisage equality in terms of macroeconomic stability, but much less so in terms of structural features (such as export price structures).



The accession countries are enormously diverse in their process of catching up, with Hungary, Poland, the Czech Republic and Slovenia taking the lead. This process not only *differs between countries*, but also *between industries*. Moreover, productivity catching-up is very different across branches of industry, while wage catching-up is distributed more evenly across sectors and branches. Productivity catches up at greater speed in electrical equipment and transport and much lower in textiles, leather and machinery. In general, the productivity advances are fastest in high-tech and medium-tech sectors. Combined with a strong wage drift, this leads to a shift in comparative advantage towards the medium-tech sector and away from low-tech, labour intensive sectors (Landesmann). Nowotny stated that, in the discussion on competitiveness of the accession countries, too much emphasis is usually put on wage developments. According to his opinion, the institutional and material infrastructure plays a more important role than wages. If these factors are neglected, regional problems are likely to evolve.

Traditionally, the *secondary sector* played an important role in socialist countries. According to Landesmann, deindustrialisation characterised the first years of the transition process, but is of rather minor importance now. In fact, some accession countries seem to move towards re-industrialisation. Since reconstruction is an important task in most of the CEECs, the construction industry is largely responsible for the high share of industry in total production, this share still exceeding the average level in the EU. Landesmann supposes that the development from deindustrialisation to re-industrialisation shows specialisation of the CEECs in manufactured goods. As a consequence, the service sector has remained underrepresented.

**Foreign direct investment** still plays an important role in the CEECs, although FDI inflows differ from country to country and are allocated predominantly near the western borders (Landesmann). It has been subject to discussion whether or not the efficiency of a firm depends, among other factors, also on the *nationality of the owner*. The causality may run either way, and it is by no means clear that foreign ownership has a favourable impact on the efficiency of production. In fact, foreign-controlled companies do exhibit the best production results, but this is because, early on in the transformation process, foreign capital was able to select and enter the most dynamic branches of industry.

*FDIs still finance* considerable parts of investment in the CEECs who would otherwise depend on the more volatile financial capital inflows. Another aspect is the transfer of management techniques and technological skills linked to FDIs (Brenton et al., 1999) and the contribution to reach conformity with EU law (Inotai, 1999). Therefore, CEECs generally continue to encourage FDIs, which requires that financial systems be liberalised further (strict rules for banking, effective banking supervision) and financial markets transmit reliable information. It is likely that FDIs will increase further after accession to the EU because of the expected fall in risk premia. This fall will be a consequence of an increase in legal security, the reduction of still existing transaction obstacles, lower administrative burden and the reduction of political risks.

When looking at *Austrian projects in CEECs*, market-driven motives clearly dominate: More than 80% of firms in a survey mentioned this motive as main reason for their engagement. In contrast, efficiency-oriented motives (in particular low wage costs) seem to be of rather minor importance. At the beginning of the opening-up of the east, FDIs were directed towards the existing, already privatised, enterprises. Today greenfield investments play an increasing role (Pfaffermayer/Stankovsky, 1999, Burger).

As to the motives for investing in plants in eastern Europe, **outsourcing of production** by western companies is of particular interest in terms of value-added and employment for both the outsourcing and the receiving country: Outsourcing means that the value-added chain of production is fragmented and part of it is moved to an eastern country. The advantage for the western company may lie in lower production costs which may help maintain international competitiveness. For CEECs it has the advantage of generating additional value added combined with a transfer of technological skills and management know-how. According to Kohler, real income per capita is likely to rise in CEECs by receiving western outsourcing. The accession to the EU will significantly broaden the outsourcing potential, because the traditional rules of origin will disappear for goods produced (partly) in eastern European countries. Like international trade in general, outsourcing is welfare-enhancing as it facilitates the specialisation and thereby the optimal allocation and use of resources. This is true for EU countries as well as the accession countries, but, given the relative size of the EU and the CEECs, the

latter should benefit more than current EU members. Therefore, CEECs may be better off by becoming a part of the global production network than by attempting to start entire new industries from scratch.

**Production and trade structures** are rather diverse across the CEEC region, even after the enormous adjustments during the transformation process. Sectoral trade structures and the factor intensity of exports have long been regarded as indicators of the level of development of an economy and of its value-added generating capacity. Exports from CEECs are on average much more labour intensive than exports from the EU. But in both regions the importance of labour intensive goods is on a strong decline. In the CEECs' exports, the R&D-intensive branches were underrepresented at the beginning of the transition period, but gained importance during that period. Hungary in particular seems to evolve as a "Pannonian tiger" (Landesmann).

In contrast to the factor-intensity of trade, according to Salvatore, the question whether transition economies should trade with industrialized western countries or within their own group is virtually meaningless. What is important is that they trade – no matter with whom. The benefits of trade can be reaped off only if there are no **trade distortions**. However, as Fink found out, some 122 trade-distorting measures have been introduced by the five most developed CEECs (i.e. Hungary, Poland, the Czech Republic, Slovenia and Slovakia). This new wave of protectionism is strongly motivated by real currency appreciations which make it more difficult for eastern firms to successfully compete on world markets. Nevertheless, if these distortions are abolished the liberalisation of foreign trade may save the country from employing strict competition rules (Welfens, 1998). The Schengen border regulations are seen by eastern countries as an important distortion of trade because the new procedures increase the waiting time at the border and thereby discriminate against competitors within the Schengen area.

## 6. Eastern Enlargement: The sooner the better?

The accession candidates have made **remarkable advances** from the starting point in 1989. In contrast to the situation after World War II, when the appropriate institutions were not available and prices did not function, the CEECs need restructuring not reconstruction which means that no "Marshall Plan"-type of financing is needed. Moreover, the

opening up of the east takes now place in a global world – in contrast to the state of closed economies right after the war (Kohler, 2000). Accession countries are now eligible to receive payment from the EU structural funds. As the Cologne Summit stressed in June 1999, the EU is aware of the importance of preparing the accession countries in time for future EU membership. This does of course not mean that all accession costs will be financed by the EU, candidate countries will certainly have to contribute themselves as well at varying degrees. The accession countries are still very uneven, measured by macroeconomic indicators like differences in GDP per head and inflation, but also with respect to the stages of institutional and economic reform.

Given the large number of candidates and their diverging income levels, it is clear that the EU **system of transfer payments** will have to be altered. The existing system would require to increase the EU budget by almost 100%, and incoming new members would then receive up to 30 % of their GDP as EU transfer payments. This would be unsustainable for both the EU and the accession countries.

The candidates have accepted by now to **enter the EU not before 2003**. When the readiness for accession will be judged, not only economic factors will be taken into account. Readiness will be evaluated by the successful implementation of market structures, the establishment of appropriate institutions and infrastructure, and the establishment of market attitudes, but certainly also by factors like internal security.

When the time table for the accession process is discussed, a number of **arguments** can be quoted **in favour of early accession**:

- keeps pressure on adjustment in the transition economies and thus avoids the prolongation of adjustment costs;
- enhances expectations in the west of successful transformation towards market structures in the east;
- with more speedy adjustment, the wage gap will be narrowed early enough to contain migration pressures;
- eastern products will early on become competitive on western markets;
- structural funds of the EU will disperse more money at earlier times;
- according to estimations by Breuss, an early enlargement results in higher GDP effects than later enlargement, for both, EU-15 and CEEC-10.

But there are of course also **arguments against early accession**:

- adjustment pressure may be too harsh for some of the transition economies, they may face the danger of social unrest and economic disturbance;
- full freedom of migration will cause a brain drain to EU countries in the first phase of membership when the high-qualified workers are especially needed (Breuss).

On balance, the discussion during the second Academy of Excellence seemed to be in favour of early accession. The title of the Academy, “Eastern Enlargement: The sooner, the better?”, could therefore be slightly transformed into “Eastern Enlargement: The sooner, the better!”. This does not mean though that accession could take place before 2003.

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## **NARROWING THE STRUCTURAL GAP**

## **NARROWING THE STRUCTURAL GAP IN TRANSITION ECONOMIES**

Dominick Salvatore

### **1. Introduction**

During the past decade we have witnessed some of the most dramatic political and economic changes in human memory with the collapse of the Communist regimes in Central, South and Eastern Europe. All these countries are now in the process of restructuring their economies along market lines. The required restructuring and privatization are on a scale larger than anything that has been attempted in the past. Even the reconstruction of Europe after the devastation of World War II was to some extent easier since it involved the reestablishment of functioning markets rather than the creation of a brand new market system. Western economists generally found themselves at a loss, for the most part, when it came to advising the government of former communist nations on the best road to a market economy. Only some general broad principles were agreed upon. The most important of these was the need to privatize the economy. But when it came on how to do it and on how rapidly to proceed (for example, gradually or all at once) disagreements abounded.

This paper examines how far the restructuring process toward a market system has proceeded in transition economies during the past decade, how ready these economies are for admission into the European Union, and how the globalization of the world economy is affecting them. Part 2 of this paper examines present economic conditions in Central Europe, the Baltic States and the South-Eastern transition economies. Part 3 presents a model of restructuring for transition economies and examines the actual progress in transition made in the ten years since the collapse of communism. Part 4 analyzes the relative structure and the international competitiveness of transition economies. Part 5 presents a model of international trade during the restructuring process, as well as the actual trade restructuring that took place and the revealed comparative advantage of transition economies. Finally, Part 6 examines their current exchange rate arrangements and evaluates those best

suited to prepare these countries for admission into the European Union and European Monetary System.

## **2. Economic conditions in transition economies**

Table 1 shows that the countries of Central Europe (the Czech Republic, Hungary, Poland, Croatia, the Slovak Republic, and Slovenia) faced the greatest restructuring burden in the form of negative growth of real GDP from 1990 to 1993. This was earlier than the Baltic States (Estonia, Latvia, and Lithuania), which faced declining GDP from 1990 to 1994. On the other hand, the transition economies of South-Eastern Europe (Albania, Bulgaria, the FYR of Macedonia, and Romania) experienced negative growth rates more or less over the entire decade of the 1990s. By 1998, only Poland, the Slovak Republic and Slovenia had reached or surpassed their real GDP level of 1989. The Czech Republic and Hungary had reached 95 percent of their 1989 GDP, while Croatia had 78 percent. The Baltic States and the transition economies of South-Eastern Europe had GDPs only from 59 to 86 percent of their 1989 level in 1998. Thus, after a decade of restructuring most transition economies (TE) had yet to reach the GDP they had before the collapse of communism.

Table 2 shows that the inflation level in TE fell below 10 percent only since 1995 in Croatia, the Slovak Republic and Slovenia, since 1997 in Latvia, Lithuania and the FYR of Macedonia, since 1998 in the Czech Republic, Poland, Estonia, Albania, and Bulgaria, and it is projected to fall below 10 percent only for 1999 in Hungary. Romania still faces strong inflationary pressures. Thus, TE (except Romania) seem to have conquered inflation only during the past few years. From table 3 we see that the average PPP GDP/capita was \$10,217 for the transition economies of Central Europe, \$6,534 for the Baltic States, and \$4,429 for the transition economies of South-Eastern Europe. These represent, respectively, 51.0 percent, 32.6 percent, and 22.1 percent of the PPP GDP/capita of EU15.

Table 4 shows that although the overstressing of industry that had characterized the communist period had declined significantly by 1998, it was still excessive in the transition economies of Central, South and Eastern

Europe in relation to other market economies at the same stage of development. Gross domestic investment (GDI) as a percentage of GDP was similar to other developing countries with similar level of per capita incomes. Government budget (GB) deficits at between 2.3 and 3.2 percent of GDP seem sustainable and so does the external debt (ED) at between 42 and 46 percent of GDP. Current account (CA) deficits, however, seem excessive, except for the Czech Republic, Slovenia and Bulgaria in view of the limited inflow of foreign capital (especially foreign direct investments) into these economies.

Table 1: Growth of real GDP in Central Europe, Baltic States, and South-Eastern Europe transition economies, 1989-1999 (percentage changes)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999*	1998 with 1989=100
<u>Central Europe:</u>												
Czech Republic	1.4	-1.2	-11.5	-3.3	0.6	3.2	6.4	3.8	0.3	-2.3	0.0	<b>95</b>
Hungary	0.7	-3.5	-11.9	-3.1	-0.6	2.9	1.5	1.3	4.6	5.1	3.0	<b>95</b>
Poland	0.2	-11.6	-7.0	2.6	3.8	5.2	7.0	6.1	6.9	4.8	3.5	<b>117</b>
Croatia	-1.6	-7.1	-21.1	-11.7	-8.0	5.9	6.8	6.0	6.5	2.3	-0.5	<b>78</b>
Slovak Republic	1.4	-2.5	-14.6	-6.5	-3.7	4.9	6.9	6.6	6.5	4.4	1.8	<b>100</b>
Slovenia	-1.8	-4.7	-8.9	-5.5	2.8	5.3	4.1	3.5	4.6	3.9	3.5	<b>104</b>
<u>Baltic States:</u>												
Estonia	-1.1	-8.1	-13.6	-14.2	-9.0	-2.0	4.3	3.9	10.6	4.0	0.0	<b>76</b>
Latvia	6.8	2.9	-10.4	-34.9	-14.9	0.6	-0.8	3.3	8.6	3.6	1.5	<b>59</b>
Lithuania	1.5	-5.0	-6.2	-21.3	-16.0	-9.5	3.5	4.9	7.4	5.2	0.0	<b>65</b>
<u>South-Eastern Europe:</u>												
Albania	9.8	-10.0	-27.7	-7.2	9.6	9.4	8.9	9.1	-7.0	8.0	8.0	<b>86</b>
Bulgaria	0.5	-9.1	-11.7	-7.3	-1.5	1.8	2.1	-10.1	-7.0	3.5	0.0	<b>66</b>
FYR Macedonia	0.9	-9.9	-7.0	-8.0	-9.1	-1.8	-1.2	0.8	1.5	2.9	0.0	<b>72</b>
Romania	-5.8	-5.6	-12.9	-8.8	1.5	3.9	7.1	4.1	-6.9	-7.3	-4.0	<b>76</b>
Weighted average	-0.2	-6.6	-10.7	-3.6	0.4	3.9	5.5	4.0	3.6	2.4	1.6	<b>95</b>

\*Projection

Source: EBRD, *Transition Report 1999*.

Table 2: Inflation in Central Europe, Baltic States, and South-Eastern Europe transition economies, 1989-1999 (percentage changes)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999*
<u>Central Europe:</u>											
Czech Republic	1.5	18.4	52.0	12.7	18.2	9.7	7.9	8.6	10.0	6.8	3.5
Hungary	18.1	33.4	32.2	21.6	21.1	21.2	28.3	19.8	18.4	10.3	8.0
Poland	639.5	249.0	60.4	44.3	37.6	29.4	21.6	18.5	13.2	8.6	6.5
Croatia	na	136.0	249.8	938.2	1149.0	-3.0	3.8	3.4	3.8	5.4	4.0
Slovak Republic	1.5	18.4	58.3	9.1	25.1	11.7	7.2	5.4	6.4	5.6	14.5
Slovenia	2772.0	104.6	247.1	92.9	22.8	19.5	9.0	9.0	8.8	6.5	6.5
<u>Baltic States:</u>											
Estonia	na	na	303.8	953.5	35.6	42.0	29.0	15.0	12.5	4.4	3.1
Latvia	na	na	262.4	959.0	35.0	26.0	23.1	13.1	7.0	2.8	2.1
Lithuania	na	na	345.0	1161.1	188.8	45.0	35.5	13.1	8.5	2.4	2.5
<u>South-Eastern Europe:</u>											
Albania	0.0	0.0	104.1	236.6	30.9	15.8	6.0	17.4	42.1	8.7	2.0
Bulgaria	10.0	72.5	338.9	79.4	63.8	121.9	32.9	310.8	578.6	1.0	2.0
FYR Macedonia	na	na	229.7	1935.0	241.8	55.0	9.0	-0.6	2.6	-3.1	2.0
Romania	0.6	37.7	222.8	199.2	295.5	61.7	27.8	56.9	151.4	40.6	40.0
Median <sup>a</sup>	5.8	37.7	229.7	199.2	35.6	26.0	21.6	13.1	10.0	5.6	3.5
Mean <sup>b</sup>	430.4	74.4	192.8	511.0	166.6	35.1	18.5	37.7	66.4	7.7	7.4

na=not available; \*Projection, <sup>a</sup> the median is the median value after all inflation rates have been arranged in order of size.

<sup>b</sup> the mean (unweighted average) tends to exceed the median due to outliers.

Source: EBRD, *Transition Report 1999*.

Table 3: GDP of Central Europe, Baltic States, and South-Eastern Europe transition economies, 1998 (% changes)

	GDP (billion \$)	Population (millions)	GDP/Capita (\$)	PPP GDP/Capita (\$)	Average growth in GDP/Capita (1994-98, %/Year)	PPP GDP/Capita (as % of EU15)
<u>Central Europe:</u>						
Czech Republic	52.0	10.3	5,479	12,479	2.2	62.3
Hungary	45.7	10.1	4,730	10,202	3.1	50.9
Poland	148.0	38.7	3,887	7,658	6.0	38.2
Croatia	19.1	4.5	4,820	6,839	5.5	34.1
Slovak Republic	19.5	5.4	3,793	9,817	5.9	49.0
Slovenia	18.2	2.0	9,779	14,305	4.3	71.4
Average	50.4	11.8	5,415	10,217	4.5	51.0
<u>Baltic States:</u>						
Estonia	5.5	1.5	3,593	7,607	4.2	38.0
Latvia	5.5	2.4	2,622	5,557	3.2	27.7
Lithuania	10.5	3.7	10,692	6,437	2.1	32.1
Average	7.2	2.5	5,636	6,534	3.2	32.6
<u>South-Eastern Europe:</u>						
Albania	2.5	3.2	930	2,860	5.7	14.3
Bulgaria	10.1	8.3	1,315	4,776	-2.1	23.8
FYR Macedonia	2.2	2.0	1,548	4,432	0.4	22.1
Romania	34.8	22.5	1,695	5,646	0.2	28.2
Average	12.4	9.0	1,372	4,429	1.1	22.1
Overall Average	28.8	8.8	4,222	7,586	3.1	35.5

Source: EBRD, *Transition Report 1999*.

Table 4: Economic structure of Central European, Baltic States, and South-Eastern European transition economies, 1998

	% of GDP in industry	% of GDP in agriculture	Gross domestic investment (% GDP)	Government balance (% GDP)	Current account (% GDP)	External debt (% GDP)	FDI/Capita 1989-1999 (million \$)
<u>Central Europe:</u>							
Czech Republic	36.6	5.0	34.0	-2.6	-1.9	41.7	967
Hungary	34.0	6.0	27.0	-4.8	-4.8	55.9	1,627
Poland	28.1	4.0	24.0	-3.0	-4.5	29.9	389
Croatia	25.4	8.9	15.0	0.6	-7.1	37.5	444
Slovak Republic	26.7	4.4	35.0	-5.8	-10.1	58.5	326
Slovenia	27.5	3.8	24.0	-1.4	0.0	25.4	596
Average	29.7	5.4	26.5	-2.8	-2.8	41.5	725
<u>Baltic States:</u>							
Estonia	18.1	5.6	26.0	-0.3	-9.2	55.8	953
Latvia	24.3	4.5	20.0	-0.8	-11.1	47.6	642
Lithuania	23.6	10.1	28.0	-5.8	-12.1	34.8	415
Average	22.0	6.7	24.7	-2.3	-10.8	46.1	670
<u>South-Eastern Europe:</u>							
Albania	18.0	63.0	12.0	-10.4	-6.3	29.4	132
Bulgaria	25.5	18.7	12.0	1.0	-2.3	92.6	159
FYR Macedonia	27.0	12.0	20.0	-1.7	-9.0	39.5	121
Romania	31.7	16.0	20.0	-3.3	-7.9	25.2	200
Average	25.6	27.4	16.0	-3.6	-6.4	46.7	153
Overall average	26.7	12.5	20.2	-3.2	-6.6	44.1	522

Legend: GDP=Gross domestic product; FDI=Foreign direct investment (cumulative).

Source: EBRD, Transition Report 1999 and World Bank, World Development Report, 1999/2000.



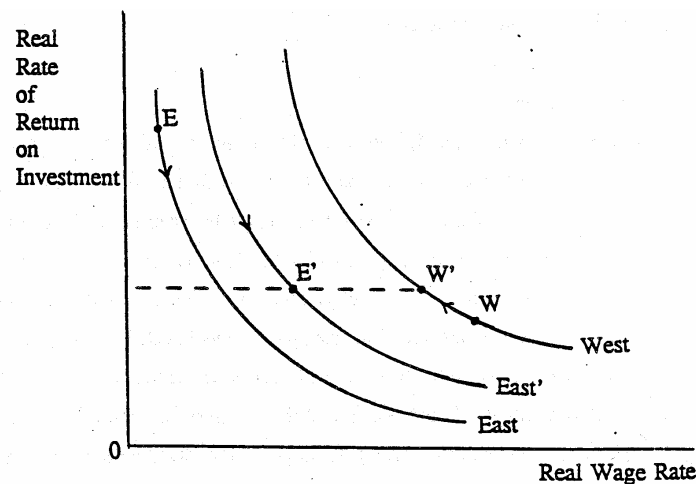
### 3. Transition process and progress

In this section we present a model of the transition process and examine the actual progress that TE have made during the past decade.

#### 3.1. A model of transition

The transition process, involving as it does the restructuring of the economy, the inflow of FDI, international trade, and migration, can be visualized with the aid of figure 1. The lower factor-price frontier (curve) in figure 1 shows the trade-off between the real rate of return on capital and the real wage rate in TE as compared with the higher factor-price frontier or trade-off curve for the West because of the lower level of economic efficiency in TE after decades of communism and non-market allocations. For example, in the Czech Republic, Hungary, and Poland, productivity is estimated to be from 20 to 40 percent below that of Greece, Portugal and Spain. It is much lower for the Baltic States and the transition economies of South-Eastern Europe. With a lower capital-labour ratio ( $K/L$ ), TE might be initially at point E, showing a higher rate of return of capital but a much lower real wage than Western Europe (point W). The higher rate of return on capital in Central Europe will attract capital from the West. This not only lowers the rate of return on capital and increases the real wages of labour in TE (i.e., point E moves down the trade-off curve) but it also shifts the entire TE factor-price frontier or trade-off curve upward because foreign capital (which embodies new and more efficient technologies) increases economic efficiency in TE.

Figure 1: Restructuring in transition economies:  
FDI, labor productivity, trade and migration



On the other hand, the West moves up its unchanged trade-off curve (but by very little, since the economy of the West is so much larger than that TE). The process will continue until the rate of return to capital is the same in TE and in the West (point E' and W', respectively, in the figure). The problem, however, is that at E' and W', real wages in the West are still much higher than in TE, thus leaving a strong stimulus for labor migrations to the West. The only way for real wages in TE to become equal to those in the West is if all the less productive capital in TE is scrapped and replaced with capital as productive as in the West and all other economic inefficiencies in TE are removed. Such convergence of wages may take several decades to occur. Migratory pressures, however, would be significantly reduced if sufficient employment opportunities were created in the meantime in TE, even if wide differences in real wage between TE and Western Europe remain. International trade operates in the same way as FDI in reducing real Western-TE wage differentials and stimulating efficiency improvements (i.e., causing upward shifts in the trade-off curve) in TE. That is, according to the Heckscher-Ohlin theory, the export of labor-intensive commodities (in which TE seem to have a comparative advantage) increases the relative demand for labor in TE (just like an inflow of capital from the West) and

thus reduces real wage differences and the pressure of TE labor to migrate to the West. Thus, large scale capital inflows from the West and free access of TE products in Western markets are complementary and reinforce each other in reducing Western-TE wage differentials and the pressure for migration to Western Europe.

To be noted is that even though capital is relatively scarce in TE, inefficiencies could be so pervasive (as for example, in Bulgaria or Rumania) as to result in a lower rate of return on capital in these countries than in the West. A perverse capital movement from TE could then occur, which would increase rather than reduce real wage differentials. On the other hand, in those transition economies such as the Czech Republic, Hungary and Poland where the process of restructuring is further along but returns on capital are not much higher than in the West, only a very small amount of capital inflow would take place and this would have negligible effects on reducing TE-Western European real wage differentials and migratory pressures.

Even if the rate of return on capital were much larger in TE than in Western Europe, this could still fail to attract large capital inflows to TE if Western investors are not convinced that economic restructuring will be aggressively pursued in the future or if they are unsure of political stability in TE. This may be one explanation for the relatively small flow of capital from the West in the transition economies of South-Eastern Europe since the collapse of communism (see the last column of table 4.) Potential investors could be adopting a low-risk, wait-and-see attitude and postpone investing until many others do. This slows down the process of wage convergence with Western Europe and keep migration pressure strong.

Even with large scale Western investments in transition economies and free access to Western markets, it will take many more years for real wage differentials to be significantly reduced. In 1993, the European Bank for Reconstruction and Development (EBRD) estimated that it would take 35 years for living standards in most TE to reach half those of developed countries, and so pressure to migrate to the West is likely to persist for a long time to come. Some labor migration from TE may in fact be beneficial to Western Europe in view of the zero or even negative growth rates and aging of their native labor forces. The problem is that under present conditions of high structural unemployment it is economically difficult and politically dangerous for Western Europe to absorb a large influx of labor from TE. But by avoiding short-term absorption costs by strictly limiting

labor migration from TE, Western European countries may be foregoing the long-term benefits that labor migration from the TE would provide (and at the same time slow down the restructuring process in TE).

### **3.2. Transition progress**

With the above theoretical background in mind, we can now examine the progress that TE have made in restructuring their economies during the past decade. The first column of table 5 shows that from 55 percent to 80 percent of the economy has been privatized in TE. This percentage is highest for the Czech Republic and Hungary and smallest for Slovenia and the FYR of Macedonia. Large-scale privatization is highest in the Czech Republic, Hungary, the Slovak Republic and Estonia, but it is smaller than small-scale privatization, which has reached standards of performance similar to those in advanced industrial nations. On the other hand, governance and enterprise restructuring has not proceeded as much. Table 5B shows that the foreign trade and the foreign exchange systems have been fully restructured and now have standards of performance of the advanced industrial nations. On the other hand, progress in price liberalization, competition policy, banking and interest liberalization, and securities markets and non-bank financial institutions have not proceeded as far. On a scale from zero to 100, they are at between 50% and 75% of the level in the advanced industrial nations (closer to 75% in the TE of Central Europe and the Baltic States and closer to the 50% mark in the TE of South-Eastern Europe). Thus, except for small-scale privatization and foreign trade and exchange systems, TE (including the more advanced ones in Central Europe) still have a great deal of restructuring to undertake before they are ready for admission into the European Union.

Table 5: Transition progress in Central Europe, Baltic States and South-Eastern Europe transition economies, 1999

	private sector % of GDP	large-scale privatization	Enterprises small-scale privatization	governance & enterprise restructuring
<u>Central Europe:</u>				
Czech Republic	80	4	4+	3
Hungary	80	4	4+	3+
Poland	65	3+	4+	3
Croatia	60	3	4+	3-
Slovak Republic	75	4	4+	3
Slovenia	55	3+	4+	3-
<u>Baltic States:</u>				
Estonia	75	4	4+	3
Latvia	65	3	4	3-
Lithuania	70	3	4+	3-
<u>South-Eastern Europe:</u>				
Albania	75	2	4	2
Bulgaria	60	3	3+	2+
FYR Macedonia	55	3	4	2
Romania	60	3-	4-	2

Legend: 1 = Little progress (i.e., less than 25 percent, except for large-scale privatization, where percent is close to zero);  
2 = Good progress (i.e., about 50 percent, less than 25 percent for large scale);  
3 = Substantial progress (i.e., about 75 percent; more than 25 percent for large scale);  
4 = Standards of performance almost equal to that in industrial nations;  
4+=Standards of performance of advanced industrial nations.

Source: EBRD, Transition Report 1999.

#### 4. Relative structure and international competitiveness of transition economies

In order to place the degree of restructuring that has take place in TE in the proper perspective and get an indication of how much farther it must proceed before they are ready for admission into the EU, we compare the relative structure and international competitiveness of the Czech Republic, Hungary and Poland (the most advanced of the TE) with those of Greece, Portugal and Spain (the least advanced members of the EU).

Table 6 shows that the most advanced Central European TE have average per capita incomes about 42 percent lower than for the three least advanced EU members. As a percentage of GDP, their gross domestic investment (GDI) is higher, but so are their government deficit (GB) and current account (CA) deficit, which, however, remain entirely sustainable. With a much lower per capita incomes, however, TE would contribute much less than they would benefit from EU resources, especially EU regional funds, and this is one serious objection to the early admission of even the most advanced TE of Central Europe into the EU.

Table 6: Structural comparison of the Czech Republic, Hungary and Poland, With Spain, Portugal and Greece in 1998

Country	PPP GDP/Capita (\$)	GDI (% of GDP)	GB* (% of GDP)	CA* (% of GDP)
Czech Republic	12,479	34.0	-2.4	-1.9
Hungary	10,202	27.0	-4.6	-4.8
Poland	7,658	24.0	-2.5	-5.0
Average	10,113	28.3	-3.2	-3.9
Spain	16,060	21.0	-2.3	-0.2
Portugal	14,380	24.0	-2.2	-6.7
Greece	13,010	19.0	-2.5	-3.0
Average	14,483	21.3	-2.3	-3.3

\* OECD data differ somewhat from EBRD data.

Legend: GDI = Gross domestic investment; GB = Government balance; CA = Current account

Source: EBRD, Transition Report 1999 and World Bank, World Development Report 1999/2000.

Table 7 presents data on the international productivity of the Hungary, the Czech Republic and Poland in relation to that of Greece, Portugal and Spain, as calculated by the Institute for Management Development in 1999. Column (1) of table 7 shows that the average overall productivity index of Hungary, the Czech Republic and Poland (henceforth HCP) is 53 (on a scale from 0 to 100) as compared with an average of 63 for Greece, Portugal and Spain (henceforth GPS), or about 19 percent lower. The overall average productivity ranking for the 47 countries for which the index was calculated places HCP in the 37<sup>th</sup> place, as compared with the average 27<sup>th</sup> place for GPS, or about 27 percent lower.

Table 7: International competitiveness ranking of Hungary, Czech Republic and Poland; relative to Spain, Portugal and Greece in 1999 (overall productivity index from 0 to 100; other rankings from 1 to 47)

Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Hungary	64	26	17	17	26	28	26	30	27	26
Czech Rep.	48	41	44	35	42	42	32	45	41	34
Poland	47	44	37	45	44	37	38	44	43	38
Average	53	37	33	32	37	36	32	40	37	33
Spain	69	23	24	14	13	14	22	23	26	22
Portugal	63	28	21	19	25	21	27	34	38	25
Greece	57	31	25	32	36	31	35	31	31	30
Average	63	27	23	22	25	22	28	29	32	26

Legend:

- (1) Overall Productivity Index (1-100)
- (2) Overall Ranking (1-47)
- (3) Domestic Economic Strength (Macroeconomic Conditions)
- (4) Internationalization (Openness)
- (5) Government (Policies Conducive to Competitiveness)
- (6) Finance (Efficiency of Capital Markets)
- (7) Infrastructure (Availability and Quality)
- (8) Management (Level of Managerial Skills)
- (9) Science and Technology (Scientific and Technology Capacity)
- (10) Labor Quality (Availability and Qualifications of Human Resources)

Source: IMD, *The World Competitiveness Yearbook 1999*.

Columns (3) to (10) of table 7 then give the ranking for the two groups of nations in each of the 8 indices that were used to calculate the overall index given in column (1). These are domestic economic strength, internationalization, government, finance, infrastructure, management, science and technology, and labor quality. The table shows that only in infrastructure (column 7) and science and technology (column 9), HCP score reasonably well (being, respectively, on the average 13 percent and 14 percent lower than GPS). In the other six indices, they are on the average between 21 and 39 percent or more below GPS. These data are useful because they indicate the areas in which HCP need to make major improvements and the degree of improvement that they need to make before they are ready for admission into the EU.

## **5. International trade theory, trade restructuring and the revealed comparative advantage of transaction economies**

This section presents a model of trade restructuring during transition and then examines the actual restructuring that actually took place in TE's international trade during the past decade, as well as the change that has taken place in their revealed comparative advantage.

### **5.1. A model of trade restructuring during transition**

At the present stage of industrial development in TE, intra-industry trade is minimal and so the main stimulus for growth must come from inter-industry trade with the West based on differences in resource endowments. Differences in relative resource endowments are largest between Western and TE rather than among TE themselves. As a result, while some beneficial market-based trade can certainly take place among TE, by far the largest benefits are likely to result from trade with the West. In short, the hotly debated question that took place after the fall of the Berlin wall as to how much TE should trade among themselves or with Western Europe was a false choice. TE should trade as much as market principles allow – without concern of whether this is intra-TE or TE-Western European trade. The fact that TE have a very similar industrial structure and factor endowment bases and are all trying to restructure their economies along the same lines only means that market forces lead to much more trade with the West than among themselves (OECD, 1994; Rosati, 1992; Salvatore, 1992, 1993, 2000; Van Brabant). This can be seen by examining the figure 2.



Figure 2: Czech Republic specialization in machinery

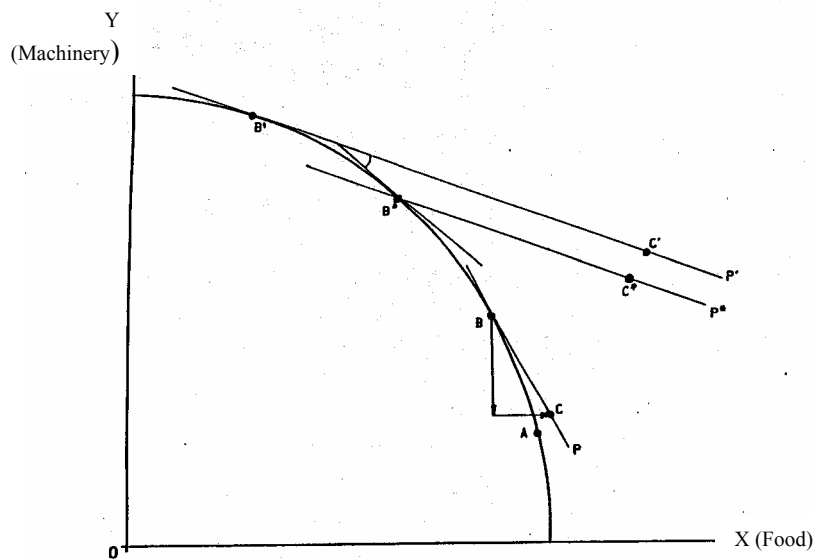


Figure 2 shows the case of the Czech Republic. In the figure, A is the point of production and consumption in the Czech Republic under autarky (i.e., without any trade). With free trade with other TE only, the Czech Republic (as the most industrialized of the TE) is likely to specialize in the production of manufactured goods (machinery) and move to point B in production. By then exchanging some manufactured goods for agricultural products (food) with other TE, the Czech Republic is able to reach a point such as C (on the trade consumption frontier shown by line P), which is above and to the right of (and therefore superior to) autarky point A. However, since the Czech Republic has a similar economic structure and resource endowment as other TE, the gains from trade resulting from exporting manufactured goods in exchange for agricultural products (shown by point C with trade as compared with autarky point A) are not very large.

On the other hand, opening up trade with Western Europe would lead the Czech Republic to specialize much more in the production of manufactured goods (shown in the figure by a movement from point A to point B') than was the case with trade with other TE only because of the much greater difference in resource endowments between the Czech Republic and

Western Europe than between the Czech Republic and other TE. By then trading much more with Western Europe, it could consume at a point such as C' (on the free-trade consumption frontier given by line P'), which shows very large gains from trade. If Western Europe imposed some export restrictions on Czech manufactured exports, the Czech Republic would specialize only up to a point such as B\* and trade along P\* (since it collects the rents from the export restrictions) and consume at a point such as C\* which, though below C' (the consumption point with free trade with Western Europe) is much higher than point C (with free trade only with other Western European countries). Only if the West imposed very high trade restrictions on Czech exports, would trade with other TE possibly prove more beneficial to the Czech Republic than trade with the West. But from figure 2, we can see that this is quite unlikely.

Be that as it may, the conclusion from the above analysis is that there was and is no reason for TE to abandon or neglect trade among themselves, but to engage in trade both with other TE and with the West on the same market basis. That much greater gains from trade result from trade with the West does not mean that TE should reject the smaller (additional) gains that would come from also trading among themselves on the basis of the same market principles as for their trade with the West. Thus, the long and often acrimonious debate that took place in the years immediately after the fall of the Berlin wall on whether TE should have abandoned its traditional trade links and concentrate on trading only with the West was, to say the least, a waste of time, had government official applied standard international trade theory.

## **5.2. Trade restructuring and the revealed comparative advantage of transition economies**

Table 8 shows that the share of trade of TE with non-TE ranged from 55 percent to 85 percent in 1998 and it increased from 1993 for seven of the 13 countries. The six countries for which the share on non-TE trade declined from 1993 to 1998 (Poland, Croatia, Latvia, Lithuania, Bulgaria and Romania) are the ones that may had overstressed trade with the West to the neglect of trade with other TE during the first part of the 1990s and then redressed the balance from 1993 to 1998. Be that as it may, there was a major restructuring of TE's trade from other TE to the West since the collapse of the Berlin wall. Although precise data are not available it seems that the share of TE trade with the West was only

about 10-15 percent a decade ago (except for Romania where it was substantial even in the late 1980s).

Table 8: Share of trade with non-transition economies (TE) and share of trade to GDP of Central Europe, Baltic States and South-Eastern Europe transition economies, 1993 and 1999 (percent)

	Share of trade with Non-TE		Share of trade in GDP
	1993	1998	1998
<u>Central Europe:</u>			
Czech Republic	66.1	77.0	49.0
Hungary	80.9	83.8	45.6
Poland	86.5	82.5	24.7
Croatia	73.4	72.1	30.6
Slovak Republic	39.3	62.0	58.0
Slovenia	76.0	79.0	48.5
<u>Baltic States:</u>			
Estonia	68.7	71.8	62.5
Latvia	76.4	65.7	40.3
Lithuania	74.6	54.8	44.2
<u>South-Eastern Europe:</u>			
Albania	na	85.1	17.3
Bulgaria	74.8	64.8	40.8
FYR Macedonia	na	65.1	49.2
Romania	84.6	79.9	25.2

Source: IMF, Direction of Trade Yearbook, 1999 and April 2000.

Table 8 also shows the share of trade in GDP for TE in 1998. According to the well-known proposition of international trade, the share of trade in GDP is lower for larger countries such as Poland and Romania than for the other smaller TE, but it is still higher for Poland and Romania than for Spain (21.9%) and higher for the other smaller TE than for Greece (16.0%) and Portugal (29.9%). Only Albania seems to have a lower share of trade in GDP than predicted, but this is very likely due to being the poorest TE.

Table 9: Revealed comparative advantage (RCA) , trend an main exports of central Europe, Baltic States, and south-eastern Europe transition economies, 1993-1997

Sectors	Agriculture		Resources		Capital		Labour		Skills		Main export commodity groups
	RCA	Trend	RCA	Trend	RCA	Trend	RCA	Trend	RCA	Trend	
<b>Central Europe</b>		↘		↘		↗	(+)	↘	(-)	↗	
Croatia	(-)		(+)		(-)		(+)		(-)	↗	Clothing (24%), footwear (9%)
Czech Republic	(-)	↘		↘		↗			(-)	↗	Vehicles (12%), electrical machinery (9%)
Hungary	(+)	↘	(-)	↘	(-)	↗		↘	(+)	↑	Electrical (12%), power machinery (12%)
Poland	(+)	↘	(+)	↘	(-)	↗	(+)		(-)	↗	Clothing (11%), vehicles (8%)
Slovak Republic	(-)		(-)	↗	(+)	↗	(+)		(-)		Iron & steel (13%), vehicles (12%)
Slovenia	(-)		(-)			↗	(+)	↘			Vehicles (13%), electrical machinery (10%)
<b>Baltic states</b>	(-)	↘	(+)	↘	(-)			↑	(-)	↗	
Estonia	(-)	↘	(+)		(-)	↘		↘	(-)	↑	Oil (23%), wood (14%)
Latvia	(-)	↘	(+)	↘	(-)			↗	(-)		Oil (41%), wood (23%)
Lithuania	(-)		(+)	↓	(-)	↘	(+)	↑	(-)		Clothing (23%), oil (10%)
<b>South-eastern Europe</b>	(-)	↘			(-)	↗	(+)		(-)		
Albania	(-)	↘	(+)	↘	(-)	↘	(+)	↗	(-)	↗	Clothing (28%), footwear (22%)
Bosnia and Herzegovina	(-)	↓	(+)	↑	(-)	↓	(+)	↗	(-)	↘	Clothing (28%), footwear (22%)
Bulgaria	(+)	↘	(-)		(+)	↗		↘	(-)	↘	Clothing (18%), non-ferrous metals (11%)
FYR Macedonia		↘				↗	(+)	↘	(-)		Clothing (34%), iron & steel (20%)
Romania		↗					(+)	↘	(-)		Clothing (30%), iron & steel (10%)

Note:  $RCA_i = (ES_i - IS_i) / (ES_i + IS_i)$  for sector  $i$ ; where ES is export share and IS is import share in each commodity group. The SITC-2 digit commodity groups are:

Agriculture: 0, 1, 4, 22, 29; Natural resources: 21, 24, 26-28, 32-35, 63, 66, 68 (wood, oil, gas, electricity, coal, stone, non-ferrous metals, skins and furs, and textile fibers); Capital-intensive: 23, 25, 51-53, 55-59, 63, 67, 69-71, 73, 74, 78, 79 (paper, chemicals, rubber, plastic, ferrous metals, transport and industrial machinery); Labor-intensive: 26, 60, 61, 65, 77, 80-85, 89 (textiles, clothes, footwear, other); Skill-intensive: 54, 72, 75, 76, 87, 88.

Source: EBRD, Transition Report, 1999.

Table 9 shows the revealed comparative advantage of TE in 1997 (the most recent data available) and how it changed between 1993 and 1997 in agriculture, resource-based products, and in capital-intensive products (such as steel and automobiles), labor-intensive products (such as clothing), and skill-intensive products (such as high-tech products). The table shows that only Hungary, Poland and Romania have a comparative advantage in agriculture and only in Romania this has increased from 1993 to 1997. All TE except Hungary, Slovenia, and Bulgaria have a comparative advantage in resource-based products but all faced a decline in their comparative advantage in these products, except for Bosnia-Herzegovina. Only the Slovak Republic and Bulgaria seem to have a comparative advantage in capital-intensive commodities and this increased from 1993 to 1997. All the other countries have a comparative disadvantage in capital-intensive commodities, but this has declined in all countries, except in Estonia, Lithuania, Albania, and Bosnia-Herzegovina. As expected all TE have a comparative advantage in labor-intensive commodities based on their relative low wages, but in all their comparative advantage has declined, except for Latvia, Lithuania, Albania, and Bosnia-Herzegovina. Finally, all TE except Hungary have a comparative disadvantage in skill-intensive products, but for most TE their comparative disadvantage has decreased from 1993 to 1997.

The last column of table 9 shows the two principal exports of the nation and the percentage of the total exports of the nation that they represent. The principal export is clothing for Croatia, Poland, Lithuania, and all the countries of South-Eastern Europe. Thus, except for the Czech Republic (where the principal export is vehicles), Hungary (electrical products), the Slovak Republic (iron and steel) and Estonia and Latvia (oil), TE face significant trade restrictions from Europe and other Western countries aimed at protecting domestic jobs and substantial competition from other emerging markets, especially China. Thus, most TE face a difficult trade situation. One possible way to overcome this situation is to establish joint ventures with Western countries, especially EU countries, and specialize in the more labor-intensive aspects of the production of clothing (the same as the United States does with Mexico) and in this way ensure employment and markets in the EU. Of course, in the long run, these countries should enter other more advanced products and thus exploit to the fullest their comparative advantage in labor-intensive commodities and strive to develop a comparative advantage in more skill-intensive products.

The comparative advantage that Central European countries have in some manufactured products is based to a large extent on their relatively well-

trained, educated and cheap labor force. Real wages in TE are currently much lower than in the West. TE, however, cannot at present fully exploit their comparative advantage because of obsolete capital equipment, backward technology, and inefficient managerial skills. Even if domestic sources of capital were available, technological backwardness and lack of modern managerial skills still represent a serious stumbling block to the successful restructuring of their economies along market lines and prevents their comparative advantage from becoming entirely evident and fully exploited. TE also need access to Western markets to be able to sell their manufactured goods. But the very high structural unemployment rates now prevailing in most of Europe, is another reason for the delay in the admission of TE into the EU.

Taking advantage of their well-trained, educated and cheap labor, TE could initially specialize in the production of and export parts and components (i.e., intermediate products) and the assembly of high-quality manufactured goods at low cost for the Western European market, before moving to a more diversified and complex manufacturing base. This is the most promising way for TE to stimulate the process of economic restructuring and become quickly integrated into the world economy. This was the strategy followed by the Newly industrializing Economies or NIEs (South Korea, Taiwan, Hong Kong, Singapore, etc.) for rapid growth. TE could then replace the NIEs in their dealings with the EU. This type of initial growth strategy is also likely to minimize EU protection against TE exports and smooth and speed up the process of admission of TE into the EU.

TE would also do very well not to neglect their agriculture. This does not mean that they can be expected to specialize in the production of and export agricultural products since their comparative advantage does not generally lie in agriculture. Furthermore, with most countries or areas (particularly the EU) still heavily protecting their agriculture, specialization in agricultural products for export does not seem to be feasible on a large scale for TE. TE, however, should privatize and rationalize their agriculture as rapidly as possible and place it on a fully market basis. Once again, the choice is not so much between industry or agriculture but the pursuit of all the production in each sector that can be justified on market conditions. In the end, Poland and Hungary are likely to end up with a relatively larger agricultural sector than the Czech Republic in accordance with their greater natural-resource base, but they would still have a relatively smaller agricultural sector than most other TE.

## 6. Exchange rate arrangements

Table 10 presents the current exchange rate arrangements of TE. From the table we see that TE have many different exchange arrangements, ranging from currency boards (or rigidly fixed exchange rates to a foreign currency) to independent floating, and different monetary policy framework, from IMF-supported programs to inflation targeting. The question then arises as to the best exchange rate system in preparation for admission into the EU. Here, however, TE face the dilemma of achieving simultaneously stable exchange rates and stable prices, as required for admission into the EU. Specifically, with fixed exchange rates and high productivity growth, TE will not be able to contain price increases to 2 percent but may instead face inflation in the range of 3-5% per year. Although these rates of inflation are not excessive, they violate the nominal inflation convergence criterion required for ultimate admission into the EU. On the other hand, if they allow their exchange rates to appreciate (as a reflection of their strong productivity growth – as postulated by the Balassa-Samuelson effect), TE will violate the stability-of-exchange rate criterion for admission.

Table 10: Exchange rate arrangements and monetary policy framework of Central Europe, Baltic States and South-Eastern Europe transition economies, May 2000

	exchange rate arrangements	monetary policy framework
<u>Central Europe:</u>		
Czech Republic	managed floating	inflation targeting
Hungary	crawling peg	exchange rate anchor
Poland	managed floating	inflation targeting
Croatia	managed floating	IMF-supported program
Slovak Republic	managed floating	monitors various indicators
Slovenia	managed floating	monetary aggregate target
<u>Baltic States:</u>		
Estonia	currency board (€)	exchange rate anchor
Latvia	fixed peg against SDR	exchange rate anchor
Lithuania	currency board (US Dollar)	exchange rate anchor
<u>South-Eastern Europe:</u>		
Albania	independent floating	IMF-supported program
Bulgaria	currency board (€)	IMF-supported program
FYR Macedonia	fixed peg against €	IMF-supported program
Romania	managed floating	IMF-supported program

Source: IMF, International Financial Statistics, May 2000.

The Balassa-Samuelson effect refers to the pressure on the non-tradable-goods prices to rise when the prices of tradable goods are not allowed to fall (as it occurs if the domestic currency is not allowed to appreciate) when the productivity in tradable goods rises rapidly (a feature of economies undergoing a productivity catch-up to advanced-economy levels). To be pointed out, however, is that the Balassa-Samuelson price increases are not symptoms of macroeconomic imbalance and are required to preserve microeconomic equilibrium, and so there would be justification for the EU to relax either the price or exchange rate convergence criterion for admission for the TE that face this dilemma.

More generally, a fixed exchange rate system appears to be a natural anchor for open economies that are converging rapidly with a major currency bloc. On the other hand, exchange rate pegs are open to the criticisms that they heighten market pressures in a world of liberalized international capital flows because they can be viewed by the markets as a safe one-way bet and attacked – exactly as it happened in the financial crisis in South-East-Asia emerging market crisis of the mid-1997. Concerns about the vulnerability of pegs have led to the adoption of a



currency board in Estonia, Lithuania and Bulgaria, and led to interest in early "euroization" in some TE. These regimes, however, have drawbacks for economies in rapid transformation because they allow limited room for banking support, and eliminate a key safety valve in the event of financial shocks.

As an alternative to currency boards or euroization is inflation targeting, as in the Czech Republic and Poland. One fundamental issue is whether inflation targeting, on the road to EU accession, will prove less vulnerable than pegs to speculative pressures. Although many observers believe pegs are exceptionally demanding on policy makers, they also recognize that inflation targeting regimes present the serious dilemma at times of large potential capital inflows of abandoning the inflation target or allowing a real appreciation of the nation's currency, which could lead to an unsustainable current account deterioration.

Given these uncertainties, some have advocated hybrid regimes of crawling pegs and inflation targeting in the range of 3 to 5 percent. But these violate both the stable-exchange-rate and the inflation criteria for participating in the euro. Here, however, it is important to keep in mind that the requirements for joining the EU (the Copenhagen criteria) are different from the Maastricht and Stability Pact criteria for joining the euro area. The Copenhagen criteria include, among others, the existence of a functioning market economy able to meet EU competitive pressures and able to sustain the obligations of membership. This means that the most advanced TE may satisfy the Copenhagen criteria for admission into the EU before being able to meet the more stringent Maastricht and Stability Pact criteria for participating into the euro. That would leave the problem of reconciling exchange rate and price stability in TE.

## 7. Conclusions

After a decade of restructuring, most transition economies have yet to reach the GDP they had before the collapse of communism and conquered inflation only during the past few years. By 1998, the PPP GDP/capita was only 51.0 percent of the EU15 for Central European TE, 32.6 percent for the Baltic States and 22.1 for the South-Eastern European TE. Although the overstrengthening of industry that had characterized the communist period had declined significantly by 1998,

it was still excessive in most TE. Gross domestic investment as a percentage of GDP was similar to other developing countries with similar level of per capita incomes, government deficits and the external debt seems sustainable, but current account deficits seem excessive, except for the Czech Republic and Slovenia, in view of the limited inflow of foreign capital (especially FDI) into these economies.

A model of economic restructuring shows how the inflow of FDI shifts E's factor-ratio curves upward while lowering the rate of return on capital and increasing wages. From 55 percent to 80 percent of the economy of TE has now been privatized. Small firms and foreign trade and exchange systems have achieved the standards of performance of advanced industrial nations in TE, but large-scale privatization, price liberalization, competition policy, banking and interest liberalization, and securities markets and non-bank financial institutions are only between 50% and 75% of the level in the advanced industrial nations (closer to 75% in Central Europe and the Baltic States and closer to the 50% mark in the TE of South-Eastern Europe). Thus, TE still have a great deal of restructuring to undertake before they are ready for admission into the EU.

The most advanced Central European TE (the Czech Republic, Hungary and Poland) have average per capita incomes about 42 percent lower than for the three least advanced EU members Greece, Portugal and Spain). As a percentage of GDP, their gross domestic investment is higher, but so are their government deficit and current account deficit (which, however, remain entirely sustainable). Their international competitiveness is between 20 and 30 percent lower than that of the least advanced EU members. With a much lower per capita incomes and competitiveness, TE would contribute much less than they would benefit from EU resources, especially EU regional funds, and this is one serious obstacle to the early admission of even the most advanced TE of Central Europe into the EU.

The hotly debated question that took place after the fall of the Berlin wall as to how much TE should trade among themselves or with Western Europe was a false choice. Trade theory clearly shows that TE should trade as much as market principles allow – without concern of whether this is intra-TE or TE-Western European trade. Although precise data are not available, it seems that the share of TE trade with the West increased from about 10-15 percent a decade ago to between 55 percent to 85

percent today. TE now engage in international trade as much or more than other market economies of similar size and level of economic development. Most TE have a comparative advantage in labor-intensive commodities, especially clothing, except for the Czech Republic (where the principal export is vehicles), Hungary (electrical products), the Slovak Republic (iron and steel) and Estonia and Latvia (oil).

TE have many different exchange arrangements, ranging from currency boards to independent floating, and different monetary policy frameworks, from IMF-supported programs to inflation targeting. TE, however, face the dilemma of targeting the exchange-rate or inflation and may not be able to achieve both as required for participating in the euro. A pragmatic solution would be to have a crawling peg and inflation targeting in the range of 3-5 percent. This means that TE may qualify for admission into the EU before being able to join the euro.

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## **NARROWING THE STRUCTURAL GAP: STRUCTURAL CHANGE IN THE TRANSITION ECONOMIES, 1989 TO 1999**

Michael Landesmann

### **Introduction**

One should start a paper on "structural change" in candidate countries with a discussion, or at least a definition, of what one means by structural change. For the purpose of this paper I shall refer to structural change in two ways:

- changes in compositional structures (of output, employment, exports, etc.)
- changes in behaviour: we can think of this as changes in the ways how different variables relate to each other, such as output-employment relationships or FDI-import/export dynamic, etc.

The issue of structural change is, of course, of great relevance to candidate countries as fundamental "regime changes", particularly the systemic changes which transformed the basic principles of allocation decisions, as well as dramatic changes in external economic relationships (from a largely autarkic CMEA bloc towards external liberalization) induced structural changes in the above two senses. Furthermore, there are a number of relationships which attract the economists' interest in "structural change":

- the relationship between "economic structure" and the level of economic development
- "economic structure" as an indicator of a country's position in the international division of labour
- "structural change" as an indication of an economy's dynamism or lack of dynamism (and, in the case of transition economies, of the speed and direction of its transformation towards a well-functioning market economy)

We shall refer to all the above issues, although mostly not in a rigorous manner, in the following sections of this paper which point to some of the important structural features in candidate countries and their

developments over the past decade. The analysis in this paper is restricted to a sub-sample of transition economies, namely the countries of Central and Eastern Europe (CEECs) – with the exception of the Baltic countries – which are currently also candidate countries for EU accession. While it would be interesting to extend the analysis to a wider range of transition economies, we were restricted by the use of a disaggregated database which allows reliable cross-country comparative analysis of patterns of structural change.<sup>1</sup> Furthermore, we shall only deal with a subset of issues which come under heading of "structural change": the focus of the analysis will be on changes in the structures of production, employment and in the positions of CEECs in the European division of labour, i.e. on the CEECs' international specialization. We shall leave out important topics such as institutional change, changes in the geographic pattern of economic activity, micro-/firm-level changes and changes in income- and wealth-distribution. All these are essential issues in a fuller analysis of structural change in transition economies, but they cannot all be squeezed into one overview.

The structure of the paper is as follows: section 1 presents the broad patterns of sectoral change, i.e. the processes of deagrarization, deindustrialization and tertiarization which have taken place since the beginning of transition. Section 2 looks at the broad picture of developments in employment levels, participation rates and unemployment. Section 3 reviews some of the evidence on industrial restructuring and shows some interesting inter-country and inter-industry differences in this respect. Section 4 examines whether we can detect patterns of convergence in structure with different groups of EU economies. Section 5 reviews the developments of inter-industry and intra-industry specialization of CEECs in international trade with the EU. Section 6 reports the results of an econometric analysis of patterns of industry-level catching-up; the first part (6.1.) of this section deals with catching-up in productivity levels and wage rates, the second part (6.2.) with catching-up in product quality (measured by export unit values at a very detailed product level). Section 7 refers to the role which FDI plays in industrial restructuring and in the processes of industrial specialization of CEE economies. Section 8 summarises some of the main results and concludes with some remarks on the impact that

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<sup>1</sup> The database upon which the analysis in this paper mostly relies on is: The Vienna Institute for International Economic Studies Industrial Database (WIIW-IDB).

EU accession might have on patterns of structural transformation and further East-West European integration.

### **1. Broad patterns of structural change: Deindustrialization – tertiarization – de-(and re-)agrarization**

In this section we review shortly the patterns of structural change which took place in the CEECs at the broad sectoral level.

Figures 1 and 2 show the evolution over the period 1989 to 1998 of the shares of the three classical sectors (agriculture, industry, services) in value added and employment respectively; figure 2 also allows a comparison of the sectoral composition between the CEECs and two groups of EU countries, the "EU North" (composed of Belgium, France, Germany, UK) and the "EU South" (composed of Greece, Portugal, Spain). We can observe the following tendencies:

#### *De- and re-agrarization*

While there was a tendency in most of the CEECs to reduce the size of the agricultural sector, there are exceptions to this: in some economies the share of the labour force in agriculture (and in Romania even the absolute number) has increased; this is true for Bulgaria and Romania, while for all the other CEECs there are losses in the shares (and dramatic losses in absolute numbers) of agricultural employment. Interestingly, the economies with the larger agricultural sectors (Poland, Bulgaria, Romania) had smaller percentage declines (or even increases) in the employment shares of this sector, than the countries which started off with a smaller agricultural sector (Czech and Slovak Republics, Hungary, Slovenia). Hence, regarding the "primary sector", the transition brought about processes both of "deagrarization" as well as – in some countries – of "reagrarization". The second type of pattern should be considered a transitory phenomenon, resulting from the severe employment crisis in the industrial sector (especially in countries such as Bulgaria and Romania) and – so far – limited absorption capacity in the services sector. There are also interesting discrepancies in the movements of value added shares and employment shares in agriculture: In value added, the shares of the agricultural sectors are declining in the most recent period also in those economies in which there were previously signs of "reagrarization" (Bulgaria and Romania); this trend



supports the view that the phenomenon reflects mostly the dramatic overall jobs crisis in these countries.

#### *Deindustrialization*

Broadly, one can speak of a general process of "deindustrialization" with falling absolute employment levels in the industrial sectors (comprising manufacturing, mining, water and electricity supply, construction). In share terms, however, there are some interesting exceptions to the general decline of employment in the industrial sector. In Hungary the employment shares of the industrial sector have recovered after the initial drop at the beginning of the transition and value added shares have risen in Hungary and the Czech Republic and stabilized in Slovenia. In relation to both the EU North and the EU South, some of the CEECs maintain, also at the end of the first decade of transition, a high share of manufacturing/industry in both value added and employment (for employment shares see figure 1). There are differences in value added and employment shares: the Czech Republic and Slovenia, followed by the Slovak Republic and Hungary are the countries with the highest employment shares in industry, while the Czech Republic, Slovenia and Romania, followed by Poland are the countries with the highest shares in value added. These differences reflect, of course, differences in relative sectoral productivity levels, e.g. the extremely low productivity level in Romanian agriculture would push up industry's share in value added in spite of its own low level of productivity. The levelling off of relative employment losses in manufacturing in some of the CEECs (such as Hungary and Poland) and persistence of manufacturing's relatively high value added shares could be an indication of the attractiveness of some of the CEECs as locations for some of Europe's industries within the context of an overall European division of labour. We shall return to this issue in later sections of this paper.

Figure 1: Comparison of CEECs' employment structures in 1989, 1993 and 1998 and employment structures in EU-north and EU-south in 1997

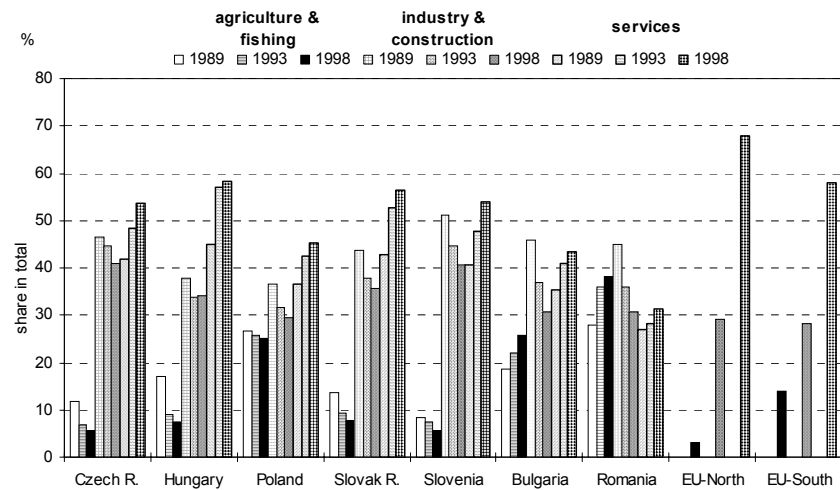
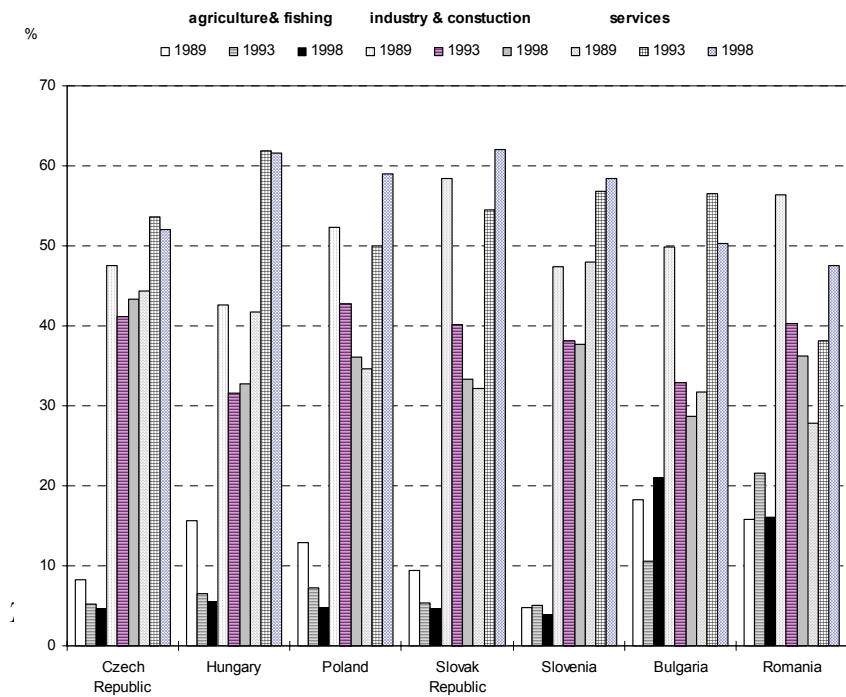


Figure 2: Comparison of CEECs value added structures in 1989, 1993 and 1998



As regards the "tertiary sector", there are clear signs of a catching-up process of the CEECs in the relative size of this sector (although, just as in the West, the changes are partially due to statistical reclassifications and sourcing out of service activities previously undertaken within the other sectors). Again, the relative increase of the importance of the services sector in the CEECs over the last decade has not necessarily been in line with the size of the initial gap (relative to the Western European employment structure). Thus, countries such as Hungary, Slovenia, Slovakia and the Czech Republic experienced very substantial increases in the shares of the services sector, while countries such as Romania, Bulgaria and Poland where the initial shares of the services sector in overall employment were relatively low, experienced rather modest share increases. In absolute terms, the employment gains in the services sector were far from sufficient to compensate for the employment losses in the other two sectors.

## **2. Employment, participation rates and unemployment**

Structural shifts as well as the overall macroeconomic developments since the beginning of the transition fundamentally affected overall employment levels, participation rates and unemployment. Overall employment drops since the beginning of the transition were very substantial in the CEECs (see figure 3). As one can see, the employment reductions were concentrated in some countries (Hungary, Poland) in the early phases of the transition, 1990-93, while in other economies, such as Romania and the Slovak Republic, substantial overall employment declines took place also in periods after 1993. The GDP growth – employment growth relationship (see table 1) reveals big changes between the periods 1990-93 and 1993-99 and also great diversity across countries in terms of relative GDP growth and the responsiveness of employment to GDP growth.

Figure 3: Employment trends in CEECs (1989 = 100)

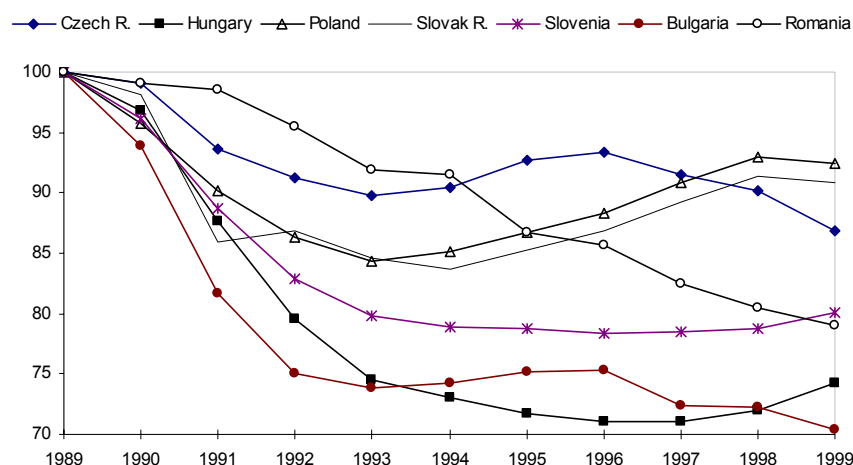


Table 1: GDP and employment growth 1990-1999 (cumulated growth in %)

	GDP			Employment		
	1990-93	1994-99	1990-99	1990-93	1994-99	1990-99
Czech Republic	-13.1	9.6	-4.7	-10.3	-3.2	-13.1
Hungary	-18.1	21.3	-0.7	-26.8	-0.4	-27.1
Poland	-12.4	39.0	21.7	-15.7	9.6	-7.6
Slovak Republic	-25.0	34.0	0.5	-15.4	0.7	-14.9
Slovenia	-15.6	29.2	9.1	-20.1	0.3	-19.8
Bulgaria	-26.7	-7.2	-32.0	-26.2	-4.7	-29.6
Romania	-23.9	-0.5	-24.3	-8.1	-14.0	-21.0

Source: WIIW Database incorporating national statistics.

The large cumulative employment drop in the CEE region is reflected in falling labour force participation rates in all CEECs since the beginning of the transition.<sup>2</sup> A comparison between the transition countries covered here and the EU-15 shows that, despite considerable falls in the initial period of transition, participation rates are higher than the EU average (68%) in the Czech Republic, Slovakia and Romania, similar to the EU-15 level in Poland, and lower than in the EU in Hungary and Bulgaria. Employment rates (total number of employed relative to the population aged 15-64) also showed a wide range, from close to 70% in Romania and the Czech Republic (in 1998) to 54% in Hungary (see

<sup>2</sup> See Vidovic (2000).

table 2). A comparison of employment rates in CEECs and the EU in 1998 shows that the average CEE-7 rate stood at 62.7%, slightly higher than the EU average of 61%. The gender gap in employment rates remained smaller in the CEECs compared to most countries in the EU.

Unemployment rates reveal moves to rates between 7% and 15% in the CEECs (by LFS statistics) by the year 1999 which reflect the development patterns of employment levels on the one hand and of the labour force (particularly of participation rates) on the other. The Czech "unemployment miracle" which lasted until 1996 has evaporated. The slight falls of the unemployment rates in the mid-1990s in most countries of the region and their deterioration in the late 1990s reflected, first, higher GDP growth in the region and, more recently, a slow-down (after 1999 positive growth is recorded again). Unemployment rates across the region have reached a range not dissimilar to the EU in the 1990s and reflect now more strongly GDP growth patterns.

Table 2: Unemployment rates and employment rates 1996, 1998  
(according to Labor Force Survey)

	Unemploy- ment rates		Employment rates					
	1996	1998	1996			1998		
	total	total	total	men	women	total	men	women
Czech Republic	3.9	6.5	69.5	77.8	61.3	67.6	76.0	59.2
Hungary	9.9	7.8	53.0	60.6	45.8	54.2	61.1	47.5
Poland	12.3	10.6	60.4	67.3	53.7	60.8	68.0	53.8
Slovak Republic	11.3	12.5	62.1	69.6	54.7	60.3	66.9	53.7
Slovenia	7.3	7.9	63.0	67.4	58.7	65.1	69.5	60.5
Bulgaria	13.6	14.1	55.3	59.2	51.4	54.2	58.3	50.2
Romania	6.7	6.3	71.3	78.4	64.3	70.8	77.3	64.3
EU – 15	10.8	10.0	60.3	70.4	50.2	61.1	71.1	51.2

Source: Eurostat: Central European countries' employment and labour market review, Employment in Europe 1999.

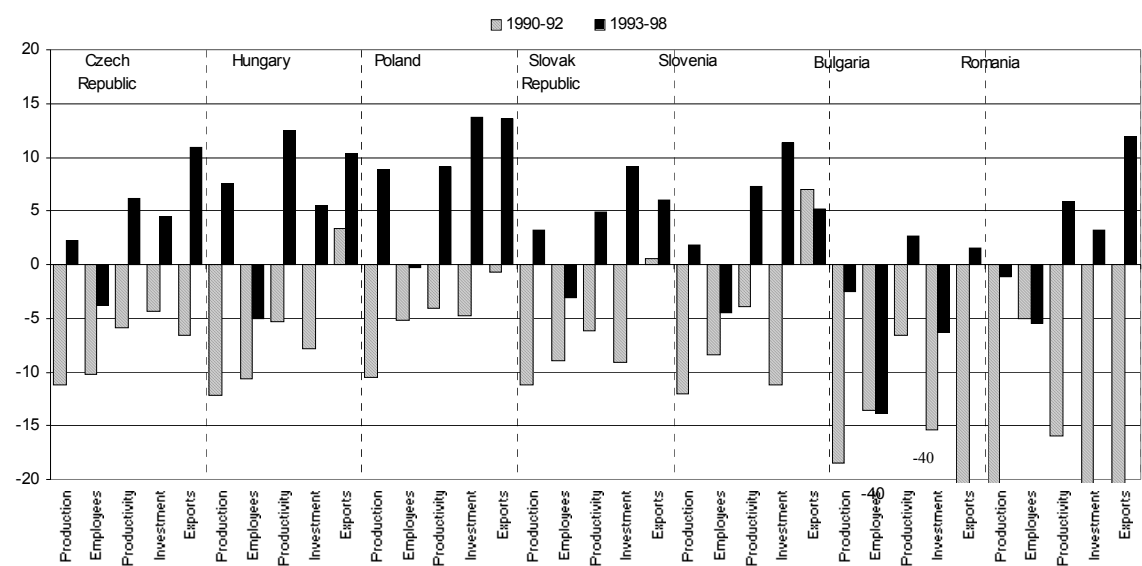
### 3. Patterns of industrial restructuring

We shall now concentrate on features of the process of restructuring which took place in the industrial (or manufacturing) sector and examine the developments over two phases: the phase immediately after the beginning of the transition (1990-93) and the phase after that (1993-1998).

Figure 4 depicts annual growth rates of production, employment, (labour) productivity, investment, and exports in the industrial sectors of the CEE-7. It shows clearly the features of the two distinct developmental phases since the beginning of the transformation: deep "transformational recessions" followed by economic recoveries in the CEE-5 (with, however, growth interruptions which the annual time series indicate) while there was still a negative trend growth rate of production for the EE-2 (Bulgaria and Romania).

Over the more recent period 1993-98, patterns across the CEECs continued to differ: the strongest resumption of industrial production could be observed in Poland and Hungary, while (labour) productivity growth was highest in Hungary (where production growth went along with continued employment declines), followed by Poland (with high output growth and nearly stable employment levels); productivity growth was more moderate in the Czech Republic, Slovakia and Slovenia where more moderate trend growth rates of output went along with less labour shake-out from industry compared to Hungary. The EE-2 continued to be characterized by declining industrial production, and even sharper contraction of employment (particularly in Bulgaria) which led to moderate increases in productivity levels and a sharp slump in industrial investment; overall export performance remained disappointing in Bulgaria, while the Romanian experience was more successful on these accounts.

Figure 4: Industrial production, employees, productivity, investment and exports average annual growth rate in %, 1990-92 and 1993-98



**Note:** Growth rates for production, investment and productivity are calculated from constant price data; for exports from current USD price

In the features of the growth profiles of the two periods we can detect some of the important peculiarities of the transition processes in CEECs:

- There is evidence for non-market conforming behaviour particularly in the first period, and for the "laggards" also in the second period: e.g. substantial labour hoarding in the face of declining output, or investment declining less than output; however, the evidence for such behaviour (at this macro-level) is much less evident over the second period.
- The diversity of performance across the CEE economies remains very pronounced also over the second period, evidenced in the first place by the difference in performance between the CEE-5 and the EE-2 group; but also within the CEE-5 group we can perceive sharply differing trend growth rates in productivity, investment and export performance. The fast trend growth rates in productivity and high export growth rates in some of them (productivity growth being high in Hungary and Poland, export growth in Hungary, Poland and the Czech Republic) does provide some evidence of a move towards "active restructuring", i.e. of a change in behavioural responses by enterprises moving actively into new markets, upgrading the composition and quality of their products (see sections 5 and 6 below) and restructuring their production processes.

Differences in patterns of catching up and the development of cost competitiveness can be observed from figure 5 where wage rate growth (at current exchange rates) and productivity levels have been plotted in relation to the Austrian levels (Austrian levels have been kept constant to avoid taking in wage and exchange rate movements on the Austrian side as well) over the period 1991-98. We can see the superior Hungarian and Polish performances leading to improving or stationary relative labour unit costs in these two countries, while in the other CEE-5 (Czech and Slovak Republics, Slovenia) the relationship between wage growth and productivity growth was such that relative labour unit costs rose. Wage growth (at current exchange rates) in Bulgaria and Romania was very low so that moderate productivity growth led to relatively stable labour unit cost positions of these two economies.



*Patterns of catching up at the branch level*

Next, we look at branch patterns of productivity, wage and unit labour cost growth. A cross-industry analysis shows that wage rate growth is less dispersed than productivity growth (see Havlik/Landesmann, 2000) so that cross-industry differences in (labour) productivity growth also show up in relative labour unit cost movements, i.e. the industries with above average productivity growth also improve their relative position in relative labour unit costs.

We shall return to this issue when discussing the scope for the dynamics of CEE economies in the structures of comparative advantage within the overall European economy in section 6 of this paper.

For the moment we just want to point to some interesting patterns in the catching-up processes of a select group of industries. Figure 6 shows such patterns for 5 industries (at the NACE 2-digit level), namely textiles (DB), leather (DC), machinery (DK), electrical goods (DL), and transport equipment (DM)<sup>3</sup>. It shows the evolution of wage and productivity levels and of unit labour costs relative to Austria over the period 1991 to 1998. Productivity levels are expressed at constant prices for 1996 (with output levels compared at PPP rates); wage levels are compared at current exchange rates.<sup>4</sup>

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<sup>3</sup> For reasons of space only three countries are singled out; further information can be obtained from the author.

<sup>4</sup> For a more detailed discussion of the methodology used and further results based on industry-level PPP rates, see Havlik/Landesmann (2000).

Figure 5: Total manufacturing: wages (ECU), productivity (PPP) and unit labour costs (ECU); Austria 1996=100

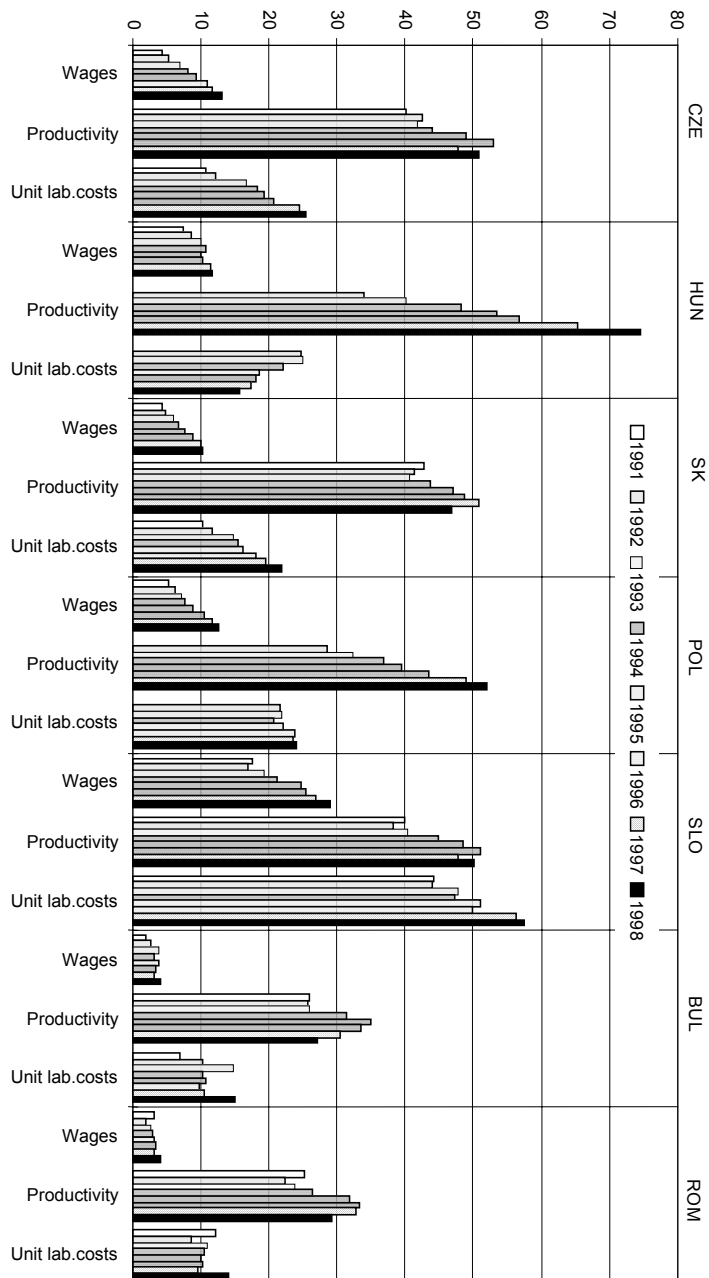
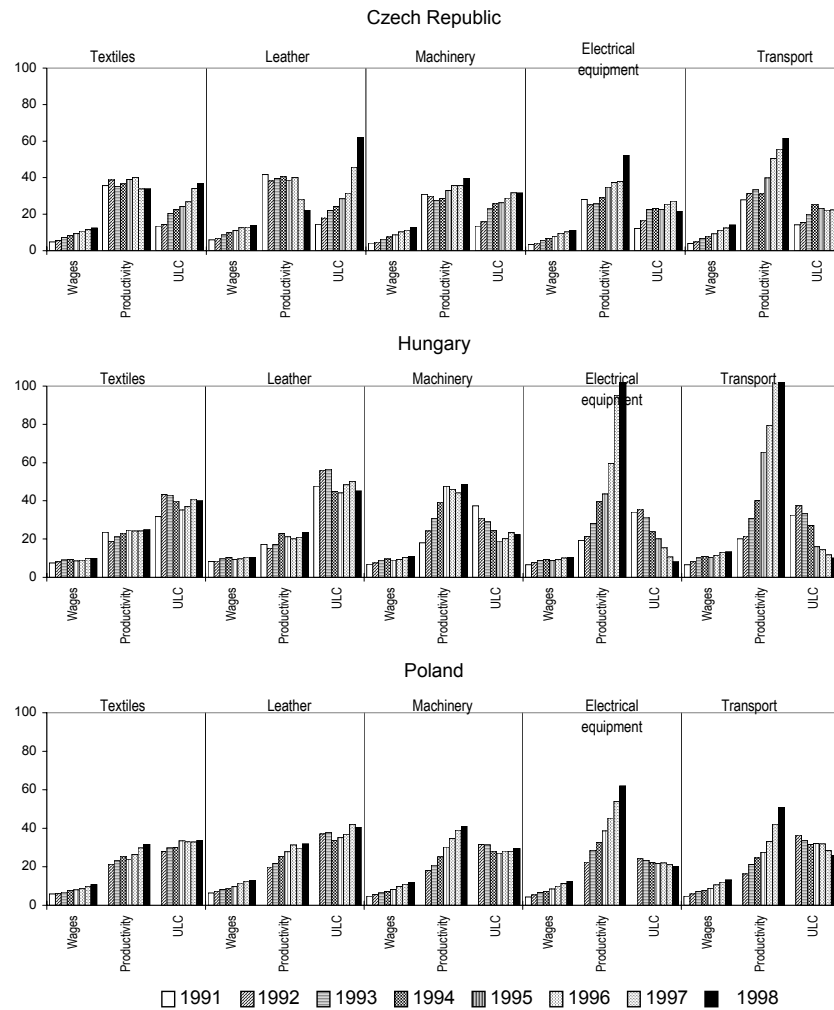


Figure 6: Dynamics of wages, productivity and unit labour costs in CEECs, 1991-98, relative to Austria (1996=100)



As we can see there are quite large differences if one looks at individual branches. Without going into detail and describing the different trajectories for each country and industry we only want to emphasize some general patterns. In most CEECs the productivity levels of the five industries (relative to Austria) have initially been rather higher in the "low-tech" sectors (textiles, clothing, footwear and leather products). Looking now at the evolution over time, the general pattern is that

catching-up is stronger and in some cases much stronger in the "medium/high-tech" (machinery, electrical equipment, transport) than in the "low-tech" sectors. In the low-tech branches, relative productivity growth is either stagnant or pretty low. Wage catching-up, on the other hand, is very similar across branches, which means that there is a wage drift between industries and that the countries depicted are gaining comparative (unit cost) advantages in the medium-/high-tech industries. This can also be seen by looking at the ULCs, which in most countries are rising much faster in the low-tech than in the medium-/high-tech industries. We shall return to a discussion of this issue in section 6 of the paper.

Next we divide the 14 NACE 2 digit industries into three subgroups<sup>5</sup>: a low-tech group (including DA (food products, beverages, and tobacco; letters refer to NACE codes), DB (textiles and textile products), and DC (leather and leather products)); a medium/high-tech group (including DK (machinery and equipment), DL (electrical and optical equipment) and DM (transport equipment)), and a resource- (and scale-)intensive group (including DD (wood and wood products), DF (coke, refined petroleum products and nuclear fuel), DG (chemicals, chemical products and man-made fibres), and DI (other non-metallic mineral products)). We refer to table 3 for initial gaps and growth rates (more precisely: per annum rates of decline in the gap) in the productivity levels and wage rates of the three industrial groupings across the whole country sample (i.e. the CEE-7) over the period 1991-97.

Table 3: Average initial gap and growth rate for industry groups

	low-tech		resource-intensive		high-tech	
	productivity	wages	productivity	wages	productivity	wages
Gap (in %)	38.2	33.7	44.6	29.2	34.3	27.4
Growth rate (in %)	3.5	4.9	7.0	7.8	16.1	7.9

Note: Gap is defined as: level of a variable (productivity, wage rate) in CEECs in 1991 x 100 divided by the level of that variable in Austria in 1991. Growth rate refers to the per annum rate of decline (in %) of the Gap over the period 1991-97.

As regards productivity catching-up, the high-tech industries experienced the highest average growth rate (16% p.a.) and, compared to the resource-intensive industries, show a rather high initial gap. The low-tech industries have an initial gap comparable to the high-tech

<sup>5</sup> The following calculations are taken from Stehrer et al. (1999).

industries, but a very low growth rate in the closure of the gap for the branches within this group (4% p.a.). The resource-intensive industries show the lowest initial gap on average and a relatively high growth rate in the closure of the gap (7% p.a.).

Table 3 also allows us to make some comparisons between productivity and wage catching-up across the three industrial groupings. (Note, however, that wages are in this calculation expressed in current PPP's and productivity levels at constant prices; thus the absolute values for the growth rates are not comparable, but the relative structure across branches is interesting):

The initial gap in labour productivity levels is highest in the medium-/high-tech industries and lowest in the resource-intensive industries, with the low-tech sectors lying in between. The initial gap of wages is higher than that of productivity levels in all three groups and much more similar across industries. This pattern is quite different if one looks at the growth rates of these two variables. Productivity growth is by far the highest on average in the medium-/high-tech sectors, medium in the resource-intensive industries and lowest in the low-tech sectors. But the growth rates in wages are much more similar across these industry groups, almost the same in the medium-/high-tech and resource-intensive industries, and a little bit lower in the low-tech industries. In the low-tech and resource-intensive industries the wage growth rate is higher than the productivity growth rate; in the medium-/high-tech industry the productivity growth rate is much higher than wage growth. Thus, whereas the comparative cost advantage in 1991 was in the resource based industries for the CEECs, this pattern may have changed. The CEECs are gaining comparative cost advantages in the "medium-/higher-tech" sectors and losing comparative cost advantages in the "low-tech" industries.

Let us draw some conclusions from our analysis of catching-up patterns at the disaggregated level:

The overall pattern is that the CEE-5 are catching up in productivity levels relatively faster in the technologically more sophisticated industries than in the low-tech industries. We shall report in section 6 some econometric results obtained for a wider range of catching-up economies which also shows this pattern. How do we explain such a pattern? Without going into a full discussion at this stage, we know that

there is the general hypothesis from the "convergence" growth literature that countries lagging further behind at a starting point of such a convergence process are catching up faster. Applying this idea at the level of industries, this would indicate that the rate of closure of a productivity gap can be higher in those industries in which the initial gaps (and hence the "learning potential") would be higher. Other factors which could further substantiate the analysis are the impact of FDI across branches, industry-specific skill endowments and different learning curves across industries. A second important result is that the catching-up of wages is much more similar across branches within the countries. Although the statistical database for the CEECs is rather small, this pattern emerges quite clearly (see also the more general results reported in section 6.1.). The overall result of this general pattern is that, due to the uneven industrial pattern of catching up in productivity levels across industries and, on the other hand, the wage drift across industrial branches, the CEECs as catching-up countries have the potential to increasingly gain comparative advantages in the technologically more sophisticated industries.

#### 4. Convergence in structures?

A theme which occupied researchers at the Vienna Institute for International Economic Studies (WIIW) for quite a while is the question whether there is a "convergence in structures" or whether there are specialization processes in production and employment between the CEECs and the EU economies. In this research we looked at indicators which provide a summary information on the similarity (or distance) between the industrial structures of different countries or country groupings. Table 4 gives some information concerning the calculated indicators for structural similarity of output shares in manufacturing industries (the underlying database used for calculating these summary indicators are two-digit NACE industrial statistics). We distinguished two groups of reference countries with whom CEEC countries have been compared: A group of EU northern countries (composed of Belgium, France, Germany, UK) and a group of EU southern countries (composed of Greece, Portugal, Spain).

Table 4: Comparison of individual CEECs' industrial (output) structures with various groups of West European countries <sup>1)</sup>

	1989	1990	1991	1992	1992	1993	1994	1995	1996	1997	1998
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Structural deviation indicator (S) <sup>2)</sup>												
EU-advanced (Belgium, France, Germany, United Kingdom) <sup>3)</sup>												
Hungary	3.08	3.79	4.98	5.79 <sup>4)</sup>	5.92	5.00	4.59	3.93	3.89	5.04	7.31	
Poland	4.63	4 <sup>4)</sup>	4.83	5.89	5.67	5.51	5.34	5.01	4.87	4.49	4.40	
Czech Rep. <sup>5)</sup>	4.65	4.71	4.34	.	3.45	3.49	3.51	3.57	3.21	3.10	2.79	
Slovak Rep. <sup>5)</sup>	3.55	3.46	4.08	.	4.10	4.00	4.20	3.90	3.08	3.21	3.34	
Slovenia	2.18	2.03	1.85	.	2.17	2.07	1.87	1.71	1.53	1.65	1.52	
Bulgaria	4.06	5.10	5.56	.	6.15	4.97	4.46	4.49	4.98	4.55	4.62	
Romania <sup>6)</sup>	4.32	4.50	4.98	.	5.57	4.27	4.01	3.40	3.67	4.40	n.a.	
EU-South (Greece, Portugal, Spain) <sup>3)</sup>												
Hungary	3.49	3.21	3.36	3.84 <sup>4)</sup>	3.86	3.16	3.10	3.02	3.58	6.18	8.35	
Poland	3.12	4 <sup>4)</sup>	2.48	3.19	2.78	2.64	2.55	2.55	2.57	2.46	2.54	
Czech Rep. <sup>5)</sup>	6.65	6.59	4.42	.	4.20	4.09	4.17	4.66	4.67	4.98	5.22	
Slovak Rep. <sup>5)</sup>	4.81	4.38	4.10	.	4.36	4.96	5.70	6.35	5.92	6.29	6.73	
Slovenia	5.88	5.27	4.81	.	4.93	4.73	5.10	5.25	4.90	4.90	5.14	
Bulgaria	2.96	2.76	3.15	.	3.47	2.67	3.14	3.75	4.44	4.28	3.36	
Romania <sup>6)</sup>	2.84	2.63	2.36	.	2.81	2.37	3.64	3.54	3.04	3.60	n.a.	
Structural deviation indicator (S) between selected West European countries												
		1992									1992	
Germany/France		2.77		EU-North / EU-South							4.60	
Germany/UK		2.75		Portugal / Germany							6.95	
UK/France		2.48		Spain / Germany							5.25	

Notes:

1) Based on 2-digit level NACE rev.1 data for output (at constant prices)

2) See following formula: 
$$S = \sqrt{\sum_k (sh_k^x - sh_k^y)^2 \cdot (sh_k^y / 100)}$$

x = individual CEEC compared

y = individual West-European country or region compared

k = individual industry

sh<sub>k</sub><sup>y</sup> = share of industry k in total output at constant prices of country y (in %)sh<sub>k</sub><sup>x</sup> = share of industry k in total output at constant prices of country x (in %)

3) For EU-North and EU-South, the reference year is 1992 throughout; the regions were calculated as the unweighted arithmetic mean of the country structures.

4) Comparable 2-digit NACE data were available from 1990 onwards only; the figures have been aggregated from ISIC-statistics by WIIW.

5) Until 1993, the Czech resp. Slovak part of former Czechoslovakia.

6) As Romania production shares at constant prices do not seem reliable after 1993, from 1994 onwards shares at current prices were used for comparison with the EU instead. (1997 was the last year available.)

Source: compiled from the WIIW Industrial Database.

Broadly we can see the following:

- There is a clear difference across CEECs in their respective similarities or dissimilarities to the EU northern and EU southern group. The countries closest in the structure of manufacturing

industry to the EU northern group are Slovenia and the Czech Republic followed by the Slovak Republic. The countries closest to the southern EU reference group are Poland, Bulgaria and Romania. The distance to the southern EU reference group is quite large for the other CEECs.

- As regards developments over time we can see that there was a general convergence in structures between the CEE-5 and the northern EU reference group over the period 1992 to 1998 (with the exception of Hungary over the last two years which results mostly from the sharp increase in the share of electrical and optical equipment). Bulgaria and Romania seem to occupy a stationary position in their distance with respect to the EU northern reference group.

Detailed information with respect to structural comparisons for the two years 1993 and 1998 between the CEECs and the two EU reference groups can be obtained from table 5. (in the case of output shares these have been calculated in this table for the CEECs at current prices with the EU structures shown for 1996). We can see substantial structural differences between the EU northern and EU southern industrial structures in manufacturing: the stronger representation of food products, as well as of the more labour-intensive branches of textiles and leather products and the raw material based wood products and non-metallic mineral products in the EU southern countries, while chemicals and all the engineering products as well as transport equipment with its supplier industries (rubber and plastics) are more strongly represented in the northern EU industrial structures. In the CEECs, we can see a strong representation of some of the CEECs in food products (Bulgaria, Poland, Romania, while there was a strong decline of the importance of that industry in Hungary), of wood and wood products in some of the economies with a lot of forests (Poland, Slovakia, Slovenia) and paper and paper products as a wood derivative.



Table 5: Production and employment structure

		PRODUCTION STRUCTURE (current prices)																	
		BULGARIA		CZECH REPUBLIC		HUNGARY		POLAND		ROMANIA		SLOVAK REPUBLIC		SLOVENIA		AUSTRIA		EU-N (3)	
		1993	1998	1993	1998	1993	1998	1993	1998	1993	1997	1993	1998	1993	1997	1993	1998	1996	1996
D	Manufacturing total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
DA	Food products; beverages and tobacco	25.2	24.8	19.4	17.1	28.1	18.9	27.3	24.6	23.6	21.9	17.9	14.7	15.4	15.4	17.5	12.5	15.3	22.9
DB	Textiles and textile products	6.6	6.8	6.3	4.6	5.3	3.7	7.2	5.6	8.2	6.3	5.3	4.3	8.4	7.1	5.1	3.7	3.6	9.6
DC	Leather and leather products	1.7	1.4	2.1	0.7	1.3	0.8	1.4	1.0	1.9	1.6	2.1	1.0	3.0	1.9	0.9	0.8	0.5	2.7
DD	Wood and wood products	2.6	1.2	2.0	2.4	1.6	1.4	2.8	3.5	2.1	2.2	1.8	3.3	3.7	3.3	3.0	4.6	1.4	2.8
DE	Pulp, paper & paper products; publishin	3.0	3.9	3.8	4.6	5.1	4.0	4.4	6.0	2.9	2.6	5.5	6.0	6.3	7.5	7.5	8.4	7.5	6.4
DF	Coke, refined petroleum products & nuc	10.1	11.3	6.0	2.5	9.4	5.8	8.6	3.9	10.2	10.5	9.2	5.9	1.2	1.0	3.2	4.6	5.2	7.0
DG	Chemicals, chemical products and man	8.6	10.0	6.7	6.4	10.9	8.0	7.0	6.9	8.8	9.1	9.3	6.8	10.6	10.5	8.4	6.5	10.6	8.8
DH	Rubber and plastic products	2.6	2.6	2.5	4.1	2.9	3.5	3.3	4.3	2.7	2.1	3.8	3.5	4.6	4.2	2.9	3.9	4.1	3.4
DI	Other non-metallic mineral products	4.2	4.8	5.4	5.9	4.0	3.2	4.4	4.9	3.4	5.3	4.9	5.0	4.6	4.7	6.0	5.1	3.1	6.1
DJ	Basic metals and fabricated metal prod	12.5	12.0	17.6	18.4	10.8	9.3	11.6	11.8	13.3	17.9	19.0	17.7	12.3	11.5	13.4	14.4	10.7	10.4
DK	Machinery and equipment n.e.c.	6.4	12.4	9.4	9.3	6.0	4.8	6.3	6.3	7.3	5.9	8.5	7.2	7.8	10.0	9.0	10.5	10.6	3.6
DL	Electrical and optical equipment	5.4	4.4	4.9	7.3	7.2	19.5	5.5	7.0	7.4	4.9	5.3	7.9	8.2	9.1	12.8	12.7	10.6	5.9
DM	Transport equipment	4.3	3.2	10.6	13.0	5.4	15.7	6.8	9.7	5.1	6.4	4.6	13.9	9.5	9.2	6.1	8.2	14.1	7.9
DN	Manufacturing n.e.c.	6.7	1.3	3.2	3.7	1.9	1.3	3.4	4.5	3.0	3.3	2.8	3.0	4.5	4.7	4.2	4.2	2.6	2.3
		EMPLOYMENT STRUCTURE																	
		BULGARIA		CZECH REPUBLIC		HUNGARY		POLAND		ROMANIA		SLOVAK REPUBLIC		SLOVENIA		AUSTRIA		EU-N (3)	
		1993	1998	1993	1998	1993	1998	1993	1998	1993	1998	1993	1998	1993	1998	1993	1998	1996	1996
D	Manufacturing total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
DA	Food products; beverages and tobacco	10.7	16.2	9.3	12.0	20.7	18.1	17.7	18.6	10.1	12.6	10.9	11.6	7.5	9.1	11.3	11.6	11.2	17.2
DB	Textiles and textile products	13.5	18.3	11.0	9.9	14.4	15.4	14.9	13.8	18.3	18.7	11.7	11.3	17.3	15.0	7.9	5.6	6.4	19.2
DC	Leather and leather products	2.8	3.6	2.8	2.1	4.1	3.5	3.0	2.3	3.7	3.8	4.9	3.4	4.4	3.6	1.4	1.2	1.0	4.4
DD	Wood and wood products	3.4	2.2	1.9	3.1	2.4	2.2	3.5	4.3	3.1	4.0	3.1	4.9	4.9	4.8	2.8	5.7	1.9	3.7
DE	Pulp, paper & paper products; publishin	2.3	3.6	3.6	3.8	4.7	3.5	3.5	4.4	2.5	2.5	4.9	5.2	5.9	6.3	7.3	7.2	8.4	6.2
DF	Coke, refined petroleum products & nuc	1.8	1.9	1.5	0.3	2.8	2.3	0.9	0.8	1.4	1.6	1.6	1.0	0.2	0.1	0.7	0.5	0.4	0.8
DG	Chemicals, chemical products and man	6.0	6.4	4.7	3.8	6.6	5.8	5.0	4.7	5.8	5.3	6.2	4.9	4.5	5.4	6.3	4.5	7.4	5.5
DH	Rubber and plastic products	2.7	3.2	2.6	4.1	2.7	3.9	2.9	3.9	2.1	2.1	2.8	3.1	3.7	4.8	3.6	4.6	5.5	3.5
DI	Other non-metallic mineral products	4.9	5.1	6.1	6.2	4.7	4.7	6.2	5.9	5.3	5.6	6.2	5.8	4.7	4.9	6.1	5.7	3.7	7.3
DJ	Basic metals and fabricated metal prod	10.6	5.5	17.4	17.2	10.6	8.9	11.4	11.8	12.2	11.7	11.5	14.9	15.0	14.0	15.8	16.2	13.0	11.1
DK	Machinery and equipment n.e.c.	13.9	21.0	16.6	13.9	8.8	8.1	11.5	9.5	15.1	12.8	17.1	13.7	9.6	10.2	10.4	12.2	12.4	4.5
DL	Electrical and optical equipment	8.6	6.5	8.4	9.9	9.4	14.3	6.7	6.4	5.4	4.6	8.5	10.2	11.0	11.2	14.3	12.3	12.6	5.3
DM	Transport equipment	6.7	3.2	9.2	8.0	4.5	6.1	7.9	7.1	8.5	8.3	6.1	5.2	6.2	4.5	5.0	5.6	12.0	6.3
DN	Manufacturing n.e.c.	12.1	3.2	5.0	5.7	3.5	3.1	4.9	6.5	6.6	6.3	4.5	4.8	5.1	6.1	7.0	7.1	4.1	4.9





There is also a strong inherited position of basic metals and of machinery in some of the CEECs. Striking are the new, strong specializations of some CEECs in transport equipment (Hungary, Czech and Slovak Republics) and the remarkable strength of Hungary in electrical equipment (including electronics). The diversity and also dynamic in evolving specializations of some of the CEECs is apparent and also the "in-between" position between the EU northern and EU southern economies as regards patterns of industrial specialization (in labour-intensive and resource-based industries, on the one hand, and capital-, technology- and skill-intensive-industries, on the other; this will be further examined in the following section using trade statistics).

## **5. Trade specialization**

### **5.1. Patterns of trade specialization with the EU: inter-industry specialization**

In the following we refer to research concerning the pattern of trade specialization of CEECs (see past WIIW research in this area using a similar methodology: Landesmann, 1996, Havlik, 1999). In this research we analysed the factor intensities of trade flows between the CEECs and the EU.<sup>6</sup> The methodology used analysed the representation of the 10-, 20-, 30- most x-factor-intensive industries (where x stands respectively for labour, capital, R&D, skill, and energy) out of the full sample of 3-digit NACE industries in the CEECs export structures;

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<sup>6</sup> The EU-12 rather than the EU-15 grouping was used to provide a consistent time series going back to 1989.

Table 6: RCA values in trade with the EU(12) of the 30 most x-factor intensive industries

	Factor intensity											
	Czech Rep.	Hungary	Poland	Slovakia	Slovenia	Romania	Bulgaria	Greece	Portugal	Spain	Ireland	Turkey
Capital intensity												
1989		-0.19	0.06			0.62	-0.43					
1993	-0.11	-0.37	-0.23	0.22	-0.24	-0.36	-0.28	-0.57	-0.41	-0.07	0.29	-0.40
1998	-0.13	0.16	-0.27	0.11	-0.13	-0.23	0.13	-0.63	-0.28	-0.06	0.19	-0.32
Labour intensity												
1989		0.13	0.17			0.64	-0.40					
1993	0.03	0.16	0.26	0.18	0.33	0.38	0.12	-0.16	0.28	-0.20	-0.05	0.33
1998	0.00	-0.14	0.00	0.10	0.09	0.42	0.27	-0.39	0.13	-0.16	-0.07	0.27
R&D intensity												
1989		-0.59	-0.54				-0.84					
1993	-0.45	-0.42	-0.54	-0.60	-0.16	-0.72	-0.64	-0.86	-0.50	-0.14	0.19	-0.81
1998	-0.14	0.04	-0.47	-0.08	-0.09	-0.62	-0.58	-0.87	-0.35	-0.13	0.13	-0.60
Skill intensity												
1989		-0.54	-0.54				-0.77					
1993	-0.46	-0.38	-0.53	-0.38	-0.05	-0.60	-0.54	-0.82	-0.40	-0.33	0.22	-0.76
1998	-0.24	-0.12	-0.48	-0.28	-0.11	-0.55	-0.49	-0.83	-0.33	-0.30	0.21	-0.53
Energy intensity												
1-30												
1989		-0.15	0.09			0.49	-0.49					
1993	0.07	-0.18	-0.06	0.37	-0.01	-0.15	-0.01	-0.52	-0.19	-0.15	-0.12	-0.47
1998	-0.05	-0.20	-0.21	0.10	-0.19	-0.07	0.25	-0.54	-0.19	-0.16	-0.22	-0.21





these were compared to total EU import structures or the export structures of other EU trading partners.<sup>7</sup> Also the revealed comparative advantage indicators (RCA) were calculated for these groups of x-factor intensive groups of industries (see table 6 for these values of the 30 x-factor intensive branches)<sup>8</sup>.

We summarize here the results from the factor intensity analysis of CEEC trade flows in relation to other importers to the EU (including EU countries trading in EU markets):

- The CEECs started in 1989 with a trade specialisation profile to the EU which would be typical for a less developed economy trading with more developed economies: their representation in the labour-intensive industrial branches was above average, in the capital-, R&D- and skill-intensive branches below average (particularly in the latter two), while their representation in energy-intensive branches was, except for Hungary, above-average which reflects the heritage of cheap energy supplies within the CMEA in the CEECs industrial export structure.
- Over time, important changes took place in the CEECs export structure vis-à-vis overall EU imports and in their RCAs (see table 6 for the latter) in these different categories of industries. The most remarkable change took place in Hungary: from sizeable deficits in its exports (relative to total EU imports) in the areas of capital-,

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<sup>7</sup> The factor intensities of the different 3-digit NACE industries have been compiled from EU sources; they have been previously used in Landesmann (1996) and Havlik (1999) where also the caveats with respect to these measures are discussed. The factor intensity definitions are the following ones: capital intensity has been measured as cumulative (5 year) investment flows per employee, labour intensity as employees/output, R&D intensity as cumulative R&D flows (5years) per employee, skill intensity as non-production workers/total labour force and energy-intensity as energy inputs in total inputs.

Some of these indicators (such as R&D) were not always available at the 3-digit level; in this case the 2-digit information has been applied to all the 3-digit NACE industries belonging to the 2-digit industry.

<sup>8</sup> RCAs of an industry are defined as:  $(X_i - M_i)/(X_i + M_i)$  where  $X_i$  and  $M_i$  refer to exports and imports of industry  $i$  (to/from the EU) respectively. We refer in the following also to export structure comparisons for which we omit to present the corresponding figures for lack of space; they are available upon request.



R&D- and skill-intensive industries, it either completely eroded these deficits to zero or even achieved surpluses relative to the overall EU import structure. This pattern is followed in a much less spectacular manner in Poland and the Czech Republic where deficits in the representation of skill-, R&D- and capital-intensive branches have been reduced. For these economies and also for the Slovak Republic the relatively strong presence of energy-intensive branches has been substantially reduced while this has not at all been the case with Romanian and Bulgarian exports to the EU (particularly in the latter case, dependence upon energy-intensive exports to the EU has increased markedly). Also the picture with respect to labour-intensive industries is remarkably different in the cases of Romania and Bulgaria, on the one hand, and the CEE-5 on the other. The dependence upon labour intensive export products has increased markedly in the case of the EE-2 while it has declined strongly in the case of the CEE-5 who show no longer any positive specialization in this direction.

- Lastly, we turn to the CEECs' position in their trade structure with the EU in relation to specific other lower income economies, particularly the Southern EU economies, but also Turkey and Ireland (which underwent a remarkable catching-up process). The comparisons can be seen in table 6 for the revealed comparative advantage indicators (RCAs) . We can see the following:
  - With the exception of the EE-2 the CEECs show (by 1998) a much lower representation of labour intensive industries in the export structure to the EU than do Greece, Portugal and Turkey; their export structure is more in line with that of Spain in this respect.
  - The same could be said with respect to the representation of R&D- and skill- intensive branches in their exports to the EU: Most CEECs – again with the exception of the EE-2 – have reduced their sizeable deficits here relative to the EU overall import structure, which brings them more in line with the more advanced of the Southern EU economies rather than with the less advanced ones.
  - Particularly remarkable are the developments of Hungary's trading structure with the EU. Given the degree of inter-industry branch specialization of this data set we observe features of Hungary's export structure and RCA performance which are close to Ireland's performance. This is an economy whose

trading structure has similarly been shaped by the very strong involvement of FDI in its industrial development.

## 5.2. Patterns of trade specialization with the EU: vertical product differentiation and product quality catching-up

The pattern of inter-industry trade specialization or erosion of such specialization should not distract from another dimension in which substantial differentiation across producers can be observed in international trade. I refer here to "vertical product differentiation" in international trade, an area in which substantial recent research has been undertaken (see Burgstaller/Landesmann, 1999, Jansen/Landesmann, 1999, Fontagné/Freudenberg, 1997, Aiginger, 2000, etc.). Vertical product differentiation refers to a situation in which producers are differentiated by the "quality" of the product variant which they sell as compared to "horizontal product differentiation" in which different consumers might prefer one variant over another, but in which no agreed quality ranking across products exists.

The measure used in our own analysis of "quality differentiation" is the unit price charged for a very narrowly defined product (at the 8-digit CN product level of international trade statistics) in the same – i.e. EU – market. At the 3-digit level the following "price/quality gap" measure has been compiled:

For each industry the full (8-digit CN) product level information was used to construct an industry-level (weighted) price gap indicator for country c's exports to the EU, which was arrived at as:

$$Q_j^c = \sum_{i \in I(j)} (p_i^c / p^{EU}_i) \cdot \chi_i^c$$

where

$p_i^c$  is the price (per kg) at which country c sells exports of the product item i on EU markets (which refers here to the EU 12 market),

$p^{EU}_i$  is the average price of product item i in total EU 12 imports and

$\chi_i^c$  is the share of product item i in country c's exports to the EU 12 market, i.e.

$$\chi_i^c = x_i^c / \sum_{i \in I(j)} x_i^c$$

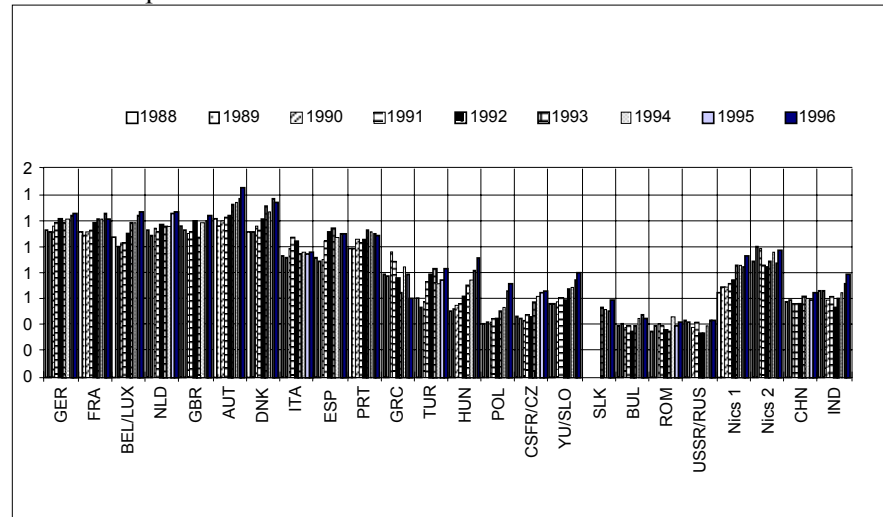
with  $\sum \chi_i^c = 1, i \in I(j)$

where  $x_i^c$  is the export value of product  $i$  for country  $c$  and  
 $I(j)$  is the set of product items  $i$  belonging to (3-digit NACE)  
industry  $j$ .

In the following, we present some selective evidence for the positions of CEECs in the vertically differentiated structure of EU trade (for a fuller set of results see Burgstaller and Landesmann, 1999).

In figure 7 we can see the export price ("product quality") hierarchies as they reveal themselves for a select group of engineering industries (all engineering products except for transport equipment) over the period 1988 to 1996. The graph reveals a clear picture of a hierarchy in which the "Northern EU" countries occupy the top positions in the export unit values which their engineering products fetch on EU markets, followed by the Southern EU countries, with two groups of Asian NICs (the "four tigers" as NICs1 and a second group composed of Thailand, Malaysia, Philippines, Indonesia as NICs2) selling at similar price levels as Greece, followed by China and India. The starting point in 1988-91 for CEECs was characterized by extremely low (current ECU) export prices which their engineering products could fetch on EU markets, but after that we can see clearly rapid upward movements for the group of the CEE-5 in narrowing the "price/quality gap" of their export products. There is no evidence of a narrowing of this gap for EE-2, Slovakia and Russia. They remain the "lowest price/quality" suppliers on EU markets. Amongst the CEE-5, the Hungarian performance is again particularly impressive.

Figure 7: Price gap measures for engineering industries (EU 12 = 1), exports to EU



We shall present some econometric evidence for the speed of "price/quality" convergence of CEECs' export products for a number of different sectors in section 6.2.

## 6. Some conjectures on the dynamics of comparative advantage

In this section we shall summarize the results of a recent study (see Stehrer/Landesmann/Burgstaller, 2000) which attempted to analyse the dynamics of catching-up at the industrial level.

We report the results of the estimation of a simple (standard) model of "convergence/catching-up" at the level of individual industries and show that the estimates of convergence parameters point in the direction of an interesting dynamics of comparative advantage for catching-up economies which might explain the pattern observed for some of the CEECs (see also sections 3 and 4b of the paper). A model of this type has been widely estimated at the level of aggregate economies, but seldom at the level of individual industries upon which the following analysis will focus.

As the time series for the CEECs are rather short for the period after the transition, and especially after the first impact of the transformational recession, it is nearly impossible to estimate a catching-up model for the CEECs after say 1993. We therefore try to look at the historical experiences of a larger group of catching-up economies (comprising Southern EU economies, and a set of Asian and Latin American economies) to obtain some estimates concerning the "structural dynamics of catching-up" which serves as a background to evaluate the industry-level developments we observe in CEECs (see section 3).

We shall first present some results concerning catching-up patterns in productivity levels and wage rates, the variables which have been referred to in section 3 of this paper, and we shall then report the results of a convergence analysis for the variable introduced in section 5.2., namely export unit values, which we have interpreted as an indicator for product quality.

Let us first sketch a simple modelling approach to convergence/catching-up:

We define the productivity, wage or product quality gap as

$$G_t^c = \ln(v_t^c/v_t^L) = \ln(v_t^c) - \ln(v_t^L) \quad (1)$$

where  $v$  denotes the considered variables (OUTPROD, VALPROD, WAGEMP or QUALITY)<sup>9</sup>,  $C$  is the country index,  $L$  stands for a leader or lead group, and  $t$  represents time. The long run motion of the productivity (either for OUTPROD or VALPROD) or wage or quality gap  $G$  is estimated by OLS regression on a constant and a time trend  $t$ .

$$G_t^c = \alpha_0 + \Phi^c t + \varepsilon \quad (2)$$

This estimator uses the whole time series information on  $G^c t$  and not just the first and last point. Thus the OLS estimator is robust with respect to short term effects of shocks and cycles.  $\Phi^c$  denotes the growth rate of

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<sup>9</sup> OUTPROD and VALPROD refer respectively to output per employee and value added per employee, WAGEMP for wages per employee, QUALITY for the export unit price variable defined in section 5.2.

the gap in country  $c$  over the period. The last step is to regress the growth rate on the initial technology gap:

$$\Phi^c = \beta_0 + \beta_1^c G_0^c + \varepsilon \quad (3)$$

Similarly, Barro/Sala-i-Martin (1997) present a model of catching up to the technology leader, where the growth rate of output per worker in the catching-up country depends on the growth rate of the leading country, the gap, and the steady-state level of the gap.<sup>10,11</sup>

### 6.1. Productivity and wage catching-up

Table 7 reports the results of regression (3) for the three variables estimated over a wide range of countries excluding the CEECs (see Stehrer/Landesmann/Burgstaller, 1999, for details).

All coefficients have the expected negative sign, i.e. showing evidence for convergence, and are significant at least at the 5% level. The speed of convergence of the technology gap can be computed from the estimated coefficients  $\beta_1$ . A coefficient of 0.024 (such as the one estimated for productivity level catching-up) implies that 2.4% of the gap vanishes in one year. The average half life – i.e. the time period necessary to reduce the initial gap by one half – would then be  $\ln(0.5)/\beta_1 = \ln(0.5)/(-0.024) \sim 28$  years. The coefficient for wage convergence is much lower,  $\beta_1 = -0.016$ , and thus predicts a half life time of about 43 years. But this effect is mainly due to the inclusion of the NIC2 country group. Running the regression without this group gives a coefficient of -0.026 and a  $R^2$  of 0.76.

<sup>10</sup> Barro/Sala-i-Martin (1995) propose to run non-linear least squares regressions of the form  $\Phi = \beta_0 + [(1 - \exp(\beta_1 T)/T)G_0] + \varepsilon$  to average over the time span. The results are very similar to the linear regressions and thus we report only the latter ones.

<sup>11</sup> Verspagen (1992) proposes a non-linear form of equation (3), namely:

$$\Phi^c = \beta_0 + \beta_1 P + \beta_2 G_0^c \exp^{\beta_3 (G_0^c/E)} + \varepsilon \quad (3a)$$

$\beta_1$  estimates the effect of an exogenous rate of knowledge growth in the backward country (proxied for example by patent data, R&D expenditures, etc. and represented by variable  $P$  in 3a). The third term introduces a non-linear relationship between the initial gap and a parameter  $E$  measuring endowment with human capital, education, infrastructure, etc.

Table 7: Cross-country regression<sup>1)</sup>: total manufacturing – 300

	OUTPROD	VALPROD	WAGEMP
Coeff.	-0.024	-0.018	-0.016
t-value	-4.940	-3.575	-4.171
Std.Dev.	0.005	0.005	0.004
R squ.	0.449	0.299	0.367
R squ. Adj.	0.430	0.275	0.346
F-value	24.410	12.780	17.400

1) Estimated over the period 1965-95 for a large country dataset comprising all the OECD countries and a group of Asian and Latin American economies; the dataset was compiled from UNIDO statistics.

#### *Catching up at the disaggregated/industrial level*

After looking at the convergence patterns at the aggregate manufacturing level, we now present evidence on the convergence patterns at a more disaggregated level (3-digit ISIC, rev. 2) to show differences between higher-tech and lower tech sectors. In this section we only include two typical low-tech sectors (textiles ISIC321 and wearing apparel ISIC322) and two typical high- or medium-tech sectors (non-electrical machinery ISIC381 and electrical machinery ISIC383).

We use the same methodology introduced above and compare the two sectors with regard to their prospects and performance of convergence and catching-up.

Table 8 presents the results of the cross-country analysis of convergence patterns (equation 3) at the industrial 3-digit level for the four industries.

Again, all the coefficients have a negative sign and are significant thus indicating convergence. Further, the coefficients for the productivity measures (OUTPROD and VALPROD) are higher than the coefficients for wages (WAGEMP). The striking difference is if one compares the two types of sectors. The coefficients for the two low-tech sectors (textiles and wearing apparel) are much lower than for the medium-/high-tech sectors. The half time of convergence in the low-tech sectors is 27 years in textiles and about 46 years in wearing apparel, whereas the half time in non-electrical machinery and in electrical machinery is about 20 years. (One has to keep in mind, though, that not all differences in coefficients are statistically significant.) This indicates faster convergence in the higher-tech sectors. On the other hand, the coefficients for wage catching-up are quite similar across the sectors, which indicates again that a wage drift exists, as discussed above.

Hence, catching-up countries are losing comparative advantages in the low-tech sectors. The two main results can be summarized as follows: First, the two medium-/high-tech sectors (non-electric machinery ISIC382 and electrical machinery, ISIC383) show higher coefficients for the productivity variables OUTPROD and VALPROD (although not statistically different from the other sectors in most cases) than the other two sectors, which indicates faster catching up in these sectors. Second, the estimated coefficient for the wage variable WAGEMP is very similar in all sectors with a minimum of 0.15 and a maximum of 0.22.

Table 8: Results of cross-country regressions – selected industries <sup>1)</sup>

	OUTPROD	VALPROD	WAGEMP
<b>Textiles 321</b>			
Coeff.	-0.025	-0.024	-0.017
t-value	-5.131	-3.707	-3.697
Std.Dev.	0.005	0.006	0.005
R squ.	0.467	0.314	0.336
R squ. Adj.	0.450	0.291	0.311
F-value	26.330	13.740	13.670
<b>Wearing apparel 322</b>			
Coeff.	-0.015	-0.016	-0.018
t-value	-1.624	-2.638	-4.466
Std.Dev.	0.009	0.006	0.004
R squ.	0.081	0.188	0.408
R squ. Adj.	0.050	0.161	0.387
F-value	2.634	6.960	19.950
<b>Machinery (except electric) 382</b>			
Coeff.	-0.035	-0.030	-0.018
t-value	-5.440	-5.557	-4.799
Std.Dev.	0.006	0.005	0.004
R squ.	0.505	0.516	0.451
R squ. Adj.	0.488	0.499	0.432
F-value	29.600	30.880	23.030
<b>Machinery electric 383</b>			
Coeff.	-0.033	-0.029	-0.016
t-value	-5.190	-3.898	-3.832
Std.Dev.	0.006	0.008	0.004
R squ.	0.473	0.336	0.336
R squ. Adj.	0.456	0.314	0.313
F-value	26.930	15.190	14.690

1) Estimated over the period 1965-95.



*The dynamics of comparative advantage*

Let us briefly summarize the results obtained and their relevance for interpreting the observations we made with respect to industry level productivity, wage and labour unit cost movements in CEECs in section 3. The econometric analysis revealed the following features:

- At a disaggregated level, we observed a wider diversity in productivity catching-up across industries than in wage catching-up which we interpret as evidence for a wage-drift.
- In the sample as a whole, we found that the estimated productivity catching-up parameters were higher in the "medium-/high-tech" industries than in the "low-tech" industries, while the estimated wage catching-up parameters were more uniform.

The above results have important implications for potential switchovers in the "comparative advantage" positions of catching-up economies from "low-" to "medium- to high-tech" branches even when the absolute productivity (and wage) gap is still high. We elaborate these comparative advantage dynamics in some detail in Landesmann/Stehrer (2000).

**6.2. Product quality catching-up by CEE producers in EU markets**

We shall now report some of the econometric results obtained from applying the same convergence/catching up model to export unit values which, as discussed in section 5.2., are interpreted as "product quality" indicators.

We start again with estimates for a large sample of countries.<sup>12</sup> The indicator was calculated for each year from 1977 up to 1996 except for 1980-82 because data were lacking. We interpolated values for these years assuming constant growth rates. The specific industries (ISIC classification) are 321 (textiles), 322 (wearing apparel), 323 (here leather products and footwear are subsumed), 382 (mechanical engineering), 383 (electrical engineering) and 385 (professional goods).

We had to name a "price/quality leader" to whom convergence shall be examined throughout this study since actual price leadership can be

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<sup>12</sup> The country sample is wider than the one used for the productivity and wage catching-up analysis above. It includes again the Southern EU economies and a wider range of Asian and Latin American economies.

changing with industry and time. We decided that a group of countries comprising the six core EU countries (Germany, France, Italy, Belgium, the Netherlands and the United Kingdom) and the USA should play this role (referred to as USAEUN).

*Cross-country industry-level regressions on quality catching-up*

We tried to account for differences in convergence between industries by dividing the sample into two groups of industries (engineering comprising ISIC industries 382, 383, 385 and textiles, clothing and leather products comprising ISIC industries 321, 322, 323) and into country groups. From 1993 on, the country groups consist of Hungary, Poland, Czech Republic, Slovenia, Slovak Republic and the Baltic countries (CEECW) and Bulgaria, Romania, Russia, Ukraine and the rest of the CIS nations (CEECE). Unfortunately, the number of industries and years here is too small to dig deeper into differences across countries and country groups.

The results, of linear regressions, are given in table 9<sup>13</sup>. The first case comprises 18 countries from the above-mentioned groups. With linear regressions, the  $\beta$ -coefficients are negative and significant. The average half life can be calculated as  $\ln(0.5)/\beta_1$ , resulting in approximately 33 years when looking at the equation including all of the six industries. Convergence is found to occur faster in the textiles, clothing and leather products industries. The panel regressions show a similar picture. Both models, fixed and random effects, are given and can be technically discriminated by LM and Hausman tests.

In a next step, only the seven CEECs (Hungary, Poland, Czech Republic, Slovenia, Bulgaria, Romania and Russia) are in the sample with data starting in 1991. The estimated parameter for convergence speed is now much higher leading to an average half life of about 10 years (when covering all six industries). Again, the process is faster for textiles etc., and  $\beta_1$  is insignificant for the engineering industries potentially because of a delayed and slow closure of the gap for some countries within the CEECE group especially for industries 382 and 385. This is confirmed by a highly significant estimate of  $\beta_1$  of -0.094

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<sup>13</sup> To save space the results from panel regressions are not presented. These are included in Stehrer/Landesmann/Burgstall and available under [www.wiiw.ac.at](http://www.wiiw.ac.at).

(resulting in a half life of 7.37 years!) in the linear regression which includes only the four "Western" CEECs.

When looking at the period after 1993, it is possible to include more CEE countries (Slovakia, the group of Baltic countries, the Ukraine and a "Rest of CIS"-group); the estimated parameter rises to -0.149 (estimated average half life is 4.65 years!) in the linear regression including all industries. But now the closure of the gap in export prices seems to be somewhat faster for the engineering industries. Again, the more "Western" CEE countries seem to be able to reduce their gap faster (see the estimates for only the six countries).

These high values obtained for the convergence parameter from the regressions for the CEECs (with those from the panel regressions which are even higher than the ones obtained from linear regressions) may stem from a nonlinear relationship between the gap and the speed of convergence which we did not incorporate here. The implication of such a nonlinearity would be a slowing down of the convergence speed in the following years.

Some of the results given here are not too reliable in a statistical sense because of the low numbers of degrees of freedom in some of the panel estimations.

In conclusion: The analysis of catching-up processes in export prices as indicators of product quality complements well the analysis of productivity levels and of wage rates conducted in sections 3 and 6.1. We found generally significant (econometric) evidence for convergence processes in export prices across a wide range of international suppliers. Interestingly, while the estimated catching-up parameters for the wide sample of suppliers to EU markets including those from Southern Europe, South America and South and South-East Asia over the long estimation period 1977-1996 were bigger for the (more labour-intensive) branches textiles, clothing and leather products than for the technologically more sophisticated engineering branches, the opposite was the case for the parameters estimated for the Central and Eastern European countries over the shorter period 1991-96 and even more so for the group of "Western" CEECs. Hence our conclusion in section 6.1. concerning the potential for relatively fast catching-up processes in the (technologically) more advanced engineering branches in the case of

Table 9: Regression results (price gap variables)  
country group, methode and time period as indicated

**18 countries: Southern EU, South America, Southeast Asia, China, India**

LINEAR REGRESSION

<b>Total (6 industries)</b>		<b>Textile industries</b>		<b>Engineering industries</b>	
coefficient	-0.021	coefficient	-0.036	coefficient	-0.016
s. d.	0.005	s. d.	0.008	s. d.	0.007
t-value	-4.339 ***	t-value	-4.642 ***	t-value	-2.338 **
R sq.	0.152	R sq.	0.293	R sq.	0.097
R sq. adj.	0.144	R sq. adj.	0.279	R sq. adj.	0.079
F-value	18.830 ***	F-value	21.540 ***	F-value	5.470 **
obs.	107	obs.	54	obs.	53

**7 countries: Hungary, Czech Rep., Poland, Slovenia, Bulgaria, Romania, Russia; since 1991**

LINEAR REGRESSION

<b>Total (6 industries)</b>		<b>Textile industries</b>		<b>Engineering industries</b>	
coefficient	-0.068	coefficient	-0.064	coefficient	-0.052
s. d.	0.023	s. d.	0.023	s. d.	0.055
t-value	-2.969 ***	t-value	-2.770 **	t-value	-0.940
R sq.	0.181	R sq.	0.288	R sq.	0.045
R sq. adj.	0.160	R sq. adj.	0.250	R sq. adj.	-0.006
F-value	8.810 ***	F-value	7.670 **	F-value	0.880
obs.	42	obs.	21	obs.	21

**11 countries: Hungary, Czech Rep., Poland, Slovenia, Bulgaria, Romania, Russia, Slovakia, Baltic countries, Ukraine, Rest of GUS; since 1993**

LINEAR REGRESSION

<b>Total (6 industries)</b>		<b>Textile industries</b>		<b>Engineering industries</b>	
coefficient	-0.149	coefficient	-0.133	coefficient	-0.164
s. d.	0.024	s. d.	0.027	s. d.	0.045
t-value	-6.316 ***	t-value	-4.929 ***	t-value	-3.617 ***
R sq.	0.384	R sq.	0.439	R sq.	0.297
R sq. adj.	0.374	R sq. adj.	0.421	R sq. adj.	0.274
F-value	39.890 ***	F-value	24.300 ***	F-value	13.090 ***
obs.	66	obs.	33	obs.	33

**6 countries: Hungary, Czech Rep., Poland, Slovenia, Slovakia, Baltic countries; since 1993**

LINEAR REGRESSION

<b>Total (6 industries)</b>		<b>Textile industries</b>		<b>Engineering industries</b>	
coefficient	-0.193	coefficient	-0.180	coefficient	-0.208
s. d.	0.024	s. d.	0.042	s. d.	0.038
t-value	-8.100 ***	t-value	-4.267 ***	t-value	-5.491 ***
R sq.	0.659	R sq.	0.532	R sq.	0.653
R sq. adj.	0.649	R sq. adj.	0.503	R sq. adj.	0.632
F-value	65.600 ***	F-value	18.210 ***	F-value	30.150 ***
obs.	36	obs.	18	obs.	18

\*\*\* significant at the 1 % level

\*\* significant at the 5 % level

\* significant at the 10 % level

the more advanced group of CEECs is also confirmed here by our analysis of the catching-up processes in export prices as indicators for product quality.

## 7. FDI involvement by branch

FDI involvement in the candidate countries has attracted a lot of attention both in research as well as in policy discussion. The topic is also a very important one for the subject matter of this paper, as most research has shown that FDI acts as a very important agent of change in transition economies. In fact, most of the company level analysis available (see e.g. Carlin et al., 1997, 1999) indicates that it provides the indispensable change of governance structure needed for "active restructuring". The research material available in this area is vast and I shall restrict myself to a few select points:

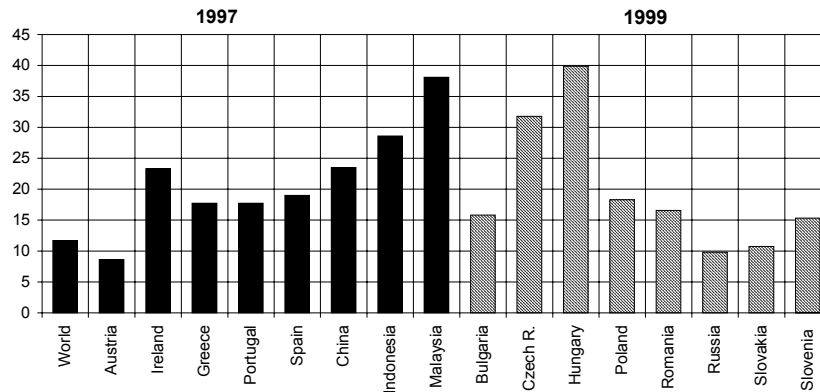
- Those CEECs which were able to attract substantial FDI have positioned themselves amongst those economies internationally with the strongest FDI presence in their economies.
- It can be shown that firms with foreign ownership involvement (FIEs) are more capital-intensive and invest more, show higher productivity levels and are more export-oriented than the domestically owned enterprises (DCs).
- While there are a wide range of motives for foreign capital to get involved in different branches (domestic market orientation, export base, strategic actions to obtain early entry advantages vis-à-vis competitors, etc.) there is no sign that FDI in CEECs is mostly oriented towards labour-intensive, low-skill, or domestic market-oriented manufacturing branches.

We shall now proceed to present some supportive material for the above points.

Figure 8 shows the relevance of FDI in CEECs. It gives the value of the FDI stock in relation to GDP. We also present such values for a range of non-CEE economies some of which have over the 1990s been amongst the largest FDI receivers globally (in relation to the size of their economies). We can see that some of the CEECs have joined some of the lead nations internationally to receive FDI; this is remarkable since this stock had to be accumulated over a much shorter period of

time in the CEECs (which, before the transition started in 1990, were hardly open to FDI at all) than was the case for the comparative group of economies.

Figure 8: FDI stock as a percentage of gross domestic product



Source: WIIW database compiled from UNCTAD statistics

However, we also clearly see the unevenness of the FDI presence across CEECs, a fact which is well known and does not need to be discussed here further. An examination of the time pattern of FDI flows also reveals, among other things, the sequencing of the privatization processes and when or whether the participation in the privatization processes were opened up to foreigners. This, of course, also affects the distribution of FDI across sectors and branches (see below).

Table 10: Share of foreign investment enterprises (FIEs) by main indicators of manufacturing companies, 1996, 1997, per cent

	Equity capital	Employment	Investments	Sales/output	Export sales
Czech Republic <sup>1</sup>	21.5 <sup>2</sup>	13.1	33.5	22.6	.
Czech R. 1997 <sup>3</sup>	.	16.0	31.2	26.3	42.0
Hungary	67.4 <sup>4</sup>	36.1	82.5	61.4	77.5
Hungary 1997	71.8 <sup>4</sup>	42.8	79.8 <sup>5</sup>	66.7	75.4
Poland <sup>6</sup>	30.4	15	43.1	30.3	33.8
Slovakia <sup>3</sup>	19.4	13.0	24.7	21.6	.
Slovenia	15.6	10.1	20.3	19.6	25.8

*Notes:* 1) Companies with 100 and more employees. 2) Own capital. 3) companies with 25 and more employees. 4) Nominal capital in cash. 5) Compared to the whole industry; corresponding figure for 1996: 68.6%; 6) Corporate sector.

*Source:* Hunya (1998b); Poland: Durka et al. (1998); 1997 data for the Czech Republic: Zemplerová (1998); Hungary 1997:CSO (1999), Foreign Direct investment in Hungary, 1996-1997.

Table 11: Most significant FIE industries by output/sales, 1996, per cent

Czech Republic			Hungary		
	(1)	(2)		(1)	(2)
DM Transport equipment	55.0	28.0	DF Coke, Petroleum	99.2	15.6
DI Non-metallic minerals	45.6	11.0	DK Transport equipment	84.1	10.2
DH Rubber, plastic	43.8	5.9	DA Food, beverages, tobacco	51.1	20.9
DL Electrical, optical equipment	30.7	8.7	DL Electrical, optical equipment	65.1	12.7
DN Manufacturing n.e.c.	28.2	4.2	DG Chemicals	78.7	11.8
DA Food, beverages, tobacco	24.7	18.8	DE Paper, publishing	71.6	7.2
D Total manufacturing/together	22.6	76.6	D Total manufacturing	61.4	78.4

Table 11 (continued):

Slovenia			Slovak Republic		
	(1)	(2)		(1)	(2)
DM Transport equipment	82.3	40.3	DM Transport equipment	61.4	26.3
DK Machinery, equipment	21.3	9.7	DL Electrical, optical	37.0	9.5
n.e.c.			equipment		
DL Electrical, optical	20.1	9.5	DE Paper, printing, publ.	25.6	7.9
equipment					
DE Pulp, paper, printing	19.8	8.5	DB Textile and textile	18.9	3.3
			products		
DG Chemicals	17.4	9.0	DK Machinery, equipment	17.2	6.8
			n.e.c.		
DH Rubber, plastic	15.9	3.8	DA Food, beverages,	16.5	12.2
			tobacco		
D Total manufacturing	21.1	80.8	D Total manufacturing	21.6	66.0

(1) FIEs' share in total output/sales of the industry (penetration)

(2) Share of industry in total manufacturing FIE output/sale (specialization)

Source: Hunya (1998b).

Next, we report some performance measures of FIEs in relation to general performance<sup>14</sup>. Table 10 presents the shares of FIEs in the manufacturing sectors of the CEE-5 in relation to a number of variables (equity capital, employment, investment, sales or output, exports).

We can clearly see that FIEs are more strongly represented in sales or output than in employment; hence the levels of (labour) productivity are higher than the manufacturing average. They are more strongly represented in investments than in either sales or employment; hence their investment/sales and investment/employee ratios – i.e. their investment intensities – are higher than the national average and so are the capital intensities as measured by assets per employee. Finally, their export shares are higher than their sales/output shares; hence they are more export-intensive than the national manufacturing firms in total. This shows some of the features of and the role which FIEs play in the CEE economies.

<sup>14</sup> We rely here on research by Gábor Hunya who compiled within an ACE research network a database on FIEs from company level balance sheets (see e.g. Hunya, 1999). FIEs are defined as companies with some degree of foreign ownership involvement. This broad definition is less restrictive than it seems at first sight, as foreign ownership means in most cases a decisive influence on the governance structure.



As to the last point to be discussed in this section: table 11 shows the distribution of FIEs across manufacturing branches and picks out those branches in four of the CEECs in which they are most heavily involved. The table does not include Poland or the EE-2. For the given economies, it shows that FIE involvement is strong in a number of capital-intensive, skill-intensive and export-intensive industries (particularly, transport equipment and electrical and optical equipment) although domestic market-oriented industries are also represented (such as food, beverages, tobacco) and some natural resource-intensive ones (pulp and paper in Slovenia, non-metallic minerals in the Czech Republic). The distribution of FIEs across branches gives an additional indication of "revealed comparative advantage" of CEE economies which is complementary to the analysis of trade flows (analysed in section 5 above). For reasons of space we shall not elaborate this point in this paper.

Further research should build on the comparisons referred to above between FIEs and DCs. It would need to go deeper into the analysis of the possible development of "dual structures" in the CEECs between the FIE and the DC sectors and whether performance indicators converge or diverge between them over time. Little detailed research is available so far on this question as well as on "spillovers" between FIEs and DCs in a wider sense (i.e. not only in the same sectors but also across sectors) and on the nature of these spillovers (sub-contracting and supplier networks, human capital and knowledge transfers, etc.)

## **8. Structural change in central and eastern Europe, EU accession and the further course of east-west European integration: concluding remarks**

We start this concluding section with a summary of some of the principal results which emerge from the analysis in this paper.

- There is evidence of dramatic processes of de-agrarization, de-industrialization and tertiarization which have taken place in the CEECs since 1989; the re-agrarization observed in some of the economies (Bulgaria, Romania) is judged to be a transitory phenomenon, reflecting the dramatic jobs crisis resulting from job losses in manufacturing and the slow development of tertiary job opportunities in these economies.

- There were dramatic (and possibly irreversible) declines in overall employment levels and employment rates, as well as changes in gender-specific participation rates.
- Industrial restructuring since 1989 clearly proceeded over a number of phases with differences revealed across the CEE economies: the most successful of the candidate countries experienced, like the others, a dramatic transformation crisis in the first phase 1989-1992, followed by the beginnings of a sustained growth period (Poland). Others experienced secondary transformation crises (Hungary in the mid-1990s, Czech and Slovak Republics in the late 1990s), and they seem to emerge now onto a sustained growth path. Other CEECs are still likely to undergo further transformation crises.
- The pattern of industrial restructuring shows a lot of diversity across CEECs: The degree to which productivity increases are achieved through output growth or employment loss (or both), the degree to which output growth is strongly driven by exports or domestic demand, the degree to which wage growth lags behind or exceeds productivity growth and thus affects cost competitiveness, etc., are all examples of such diversity. We also pointed to an interesting pattern of relative catching-up across industrial branches, which is not only typical for the more successful CEECs, but reflects the available experience of a wide range of catching-up economies: Productivity catching-up is high in the medium- to higher-tech industries (such as engineering), while wage catching-up is more evenly spread across branches. As a result, the successfully catching-up economies are gaining competitive advantages in the medium- to higher-tech industries and losing the competitive advantages in low wage, labour-intensive branches.
- The analysis of trade flows with the EU showed again a lot of differentiation across the CEECs: As a starting point in 1989, the CEECs showed a general trade profile with the EU which would be typical for a less developed trading partner. Exports from the CEECs were mostly in the areas of labour-intensive and energy-intensive (due to the legacy of cheap oil supplies from the Soviet Union) products; there were substantial deficits in R&D-, skill- and – to a lesser extent – in capital-intensive branches. Over time, however, the more advanced of the CEECs managed to change their trade specialization profile relative to the EU: large specialization disadvantages in R&D-, skill- and capital-intensive areas declined significantly, while specialization in labour-intensive branches got substantially reduced. The star performer in this respect is Hungary,

but also in the Czech Republic and Slovenia this change in trade specialisation can be observed; the CEE-2 (Bulgaria and Romania) on the other hand, seem to be stuck in the specialisation profile typical for less developed economies; Poland occupies an in-between position.

- In parallel with the change in the pattern of inter-industry trade specialization, there were also substantial changes in the positions of CEE producers in the quality of products they produce and export (i.e. in their position in "vertically differentiated" intra-industry trade). The CEE economies started off in 1989/90 at the very low quality end of the product spectrum. Econometric estimates show, however, a very fast catching-up process in export unit values for the CEE-5 over the period 1989-96. Again, the CEE-2 (and Russia) lag far behind in this respect.
- Finally, as in many other studies, the important role of FDI was pointed out in developing a segment of economic activity which has an above-average investment propensity, productivity growth and export intensity. We also showed that FDI did not necessarily tend towards low wage, labour-intensive branches in countries belonging to the CEE-5 group.

We now conclude with some remarks on the impact of EU accession of some of the candidate countries on the further processes of structural transformation in CEECs and on patterns of East-West European integration.

East-West European economic integration has proceeded at a very rapid rate since the beginning of the transition in 1989. It has led to a dramatic process of trade integration and substantial FDI flows which (together with other forms of cross-border corporate activities, such as outward processing trade, OPT) have paved the way to important production linkages between sites in Central and Eastern Europe and those in Western Europe. At least at the start of the transition, there were also substantial population and labour flows between CEE and the EU and, with EU accession, these are expected to increase again. Hence we can speak of three forms of integration:

- through product markets via increased trade flows,
- through capital markets via FDI flows and other forms of cross-border firm activities,
- directly through labour markets via the international/inter-regional mobility of labour.

There are interesting issues involved in the extent to which these three different channels through which East-West European integration proceeds complement or substitute for one another. There is a large theoretical literature which analyses under which circumstances one or the other is the case (see e.g. Markusen, 1983). This issue is important to be able to evaluate to which extent full accession to the EU – which implies full liberalization of relationships on all these three channels – will affect the structures of East-West European integration as against the current situation in which integration proceeds almost solely through the first two channels which are mostly, but not fully, liberalized, while the third channel is very highly restricted. Even concerning the first two channels, full membership of the EU implies a further regime change as it implies: full membership of the Single Market arrangements, a dismantling of border controls, complete liberalization of access by member firms to each others' markets, the adoption of EU competition policy rules, of the Common External Trade Policy, etc. This amounts to a much higher degree of liberalization of economic relationships between the CEECs and the EU and will have a further impact upon the patterns of integration and specialization in Europe.

The increased integration between the acceding countries and the EU will also affect the countries which are lagging in the accession process. There is a discussion amongst economists as to whether the sequential process by which EU accession will most likely proceed will have negative or positive effects on the "laggards", the "left-outs" and the "stay-outs" (on this issue, see the contributions in Landesmann/Rosati, 2000). The issue here is whether the ease of access to EU markets, the increased attractiveness for FDI, the speeding up of convergence in macro- and microeconomic policies and in the legislative process of the "first-rounders" will increase further the gaps between them and the other transition countries or whether the movement of the EU borders to the east will yield the benefits of contiguity and of spillovers also to those countries which do not have the prospects to join the EU in the short- or even medium-term.

The enormous diversity ("West-East-Gefälle") in the development patterns of the different CEECs emerged clearly in almost every section of the paper, with very dynamic patterns of catching-up being observed for some of the CEE countries bordering with the EU and sluggishness in structural (including behavioural) transformation of the countries

further east. The fate of this differentiation process is closely linked to the issue discussed above on whether EU accession of a first group of candidate countries will further increase the gap to the other CEE economies and, furthermore, whether patterns of structural change and specialization get cemented ("hysteretic effects") or will gradually follow the developmental patterns observed for the more advanced transition economies. Economists can at this stage not forecast which of these two scenarios is likely to emerge.

It is clear that structural change (just as the transition process itself) has quantitative as well as qualitative aspects to it. The quantitative aspects (such as evidenced by the analysis of "convergence in structures" or of purely quantitative measures of productivity level catching-up) do convey the outward symptoms of differences in developmental levels, of catching-up or lack of catching-up and convergence in structural or behavioural terms. However, there is a qualitative side to the transformation and the catching-up processes which would require a deeper analysis of the interaction between institutional change and behavioural change, of the transformation of organizational structures at the micro-economic level, of the complicated interface between political, economic and cultural change which is at the root of why transformation processes take one course or another, of why development takes place or is stalling, why the conditions for EU accession can be fulfilled within a particular time horizon in some CEECs and not in others. It is clear that our understanding of the qualitative side of transformation and developmental processes is far less advanced than of the quantitative side and the analysis provided in this paper is testimony to this. Nonetheless, the description and systematic assessment of "symptoms" is a necessary component of a proper diagnosis.

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## **WHICH REFORMS WILL BE NECESSARY FOLLOWING EASTERN ENLARGEMENT?**

Alfred Steinherr

### **1. Introduction**

The American press is conveying the impression that Europe is stuck in lethargy due to bureaucracy, inflexible regulations and political disunity. The fact that Europe has created new structures and institutions like no other region in the world over the past 15 years, i.e. a continental market with its own currency, is being overlooked here. The completion of the internal market and monetary union, bringing along free movement of capital and an integrated financial market, German unity, the expansion of the Union from 12 to 15 member countries, the preparation for Eastern Enlargement: Europe as Prometheus unbound? The extent of these successes becomes clear if we take the decade-long discussion about the repeal of the Glass-Steagall-Act in the USA as a comparison. Whether Nafta, Mercosur or Asean: all regional projects outside Europe are on a much more modest scale.

Europe has achieved great things, yet no one disputes that fact that the EU is in need of reform. The Community has so far not managed to carry out the institutional reforms necessary in order to increase its effectiveness. This has been evident recently at the Amsterdam Summit, where the decisions reached did not nearly live up to expectations. Another inter-governmental conference will be held in the year 2000, hopefully with more encouraging results.

A medium-sized company that has developed into an international concern must change its organisational and decision-making structure. It has to continually ask itself what its core activities consist of and concentrate on them. The EC must put itself to the same test.

In the following I will not go into the reforms that can be expected, but concentrate on normative considerations. If the goal is attractive enough, ways will be found to achieve it.

### **2. The particular features of Eastern Enlargement**



Eastern Enlargement does not throw up any new theoretical questions for the theory of economic integration. A particular factor is the large gap between the different stages of development of the Community and the accession candidate countries. The Community overcame this difficulty in individual cases with the entry of Ireland in 1973, Greece in 1981 and Spain/Portugal in 1985. The challenge of Eastern Enlargement lies in the fact that there are almost 20 countries waiting to join.

The EU-15 is a prosperous Community, although it contains many differences. What kind of Community would an EU-25 or an EU-30 be? Would it be possible to manage its heterogeneous nature? What point would there be in a "Community"?

Beyond institutional reform, Eastern Enlargement raises questions about the process of European unification. What goals for the achievement of integration are being set in the economic field and what tasks are being taken up? Is what is being done on the EU level in harmony with what the integration process as an economic rationality is based on?

Eastern Enlargement feeds the debate about reform because the stage of economic development of all Eastern European entry candidate countries clearly lies under that of the EU-15, which would have a negative effect on the EU's economic cost-benefit calculations as a result. This is mainly due to the fact that the movement of goods and services between the EU and the entry countries has now already been extensively liberalised and the movement of capital is only subject to a few restrictions. The benefit for the EU-15 is insignificant. The costs are admittedly limited in relation to the GDP of the EU but they could be considerable in relation to the EU budget, as almost all the entry candidate countries will be net receivers, not to mention the increasing inefficiency within an already over-taxed institutional context.

The budgetary costs will be mainly caused by the large difference in affluence between the EU-15 and the entry countries and are concentrated on two Community policies: the Common Agricultural Policy (CAP) and structural assistance. The EU budget would have to be increased by almost 100% in the case of a simple expansion of current EU policies. The new members would receive up to 30% of their GDP annually in the form of EU transfer payments (Gros/Steinherr, 1995).

EU membership is not only attractive to the entry candidate countries for reasons that can be measured in terms of net financial transfers. It will accelerate the process of political and economic reform and immediately guarantees the states a secure legal and institutional EU framework and full and equal political co-determination on all EU committees. Even without transfer payments membership would be attractive and this should be taken into account in the EU expansion strategy.

The theory of integration works on the assumption that those countries with economic development lying furthest beneath the EU level can expect to profit the most from integration, even if this brings with it relatively high structural adjustment costs. Therefore it was more difficult for Italy, for example, to achieve the conditions required for acceptance to economic and monetary union than it was for Germany. At the same time these efforts were greatly rewarded through an increase in price stability, lower interest rates and the acquisition of an international currency. In spite of this, the EC invented compensation payments for the structural adjustment with every step towards integration. We see the need for reform in this area, too.

The EU borders existing today have arisen from a dynamic political process, and political considerations also dominate in the question of Eastern Enlargement, as the schedule and establishing of the circle of candidates shows. The EU, however, did attempt to lay down "objective" accession criteria with the Copenhagen criteria. Nonetheless, it is already clear that the expansion will not depend on the complete fulfilment of these criteria. A compromise between what is politically desirable – the accession of as many countries as possible as quickly as possible and what is economically possible (taking into account the weaknesses in reform of the EU and the entry candidates) will be sought, using exception regulations and extended deadlines.

### **3. Integration goals and tasks**

The Community of States has succeeded in growing from a customs union to an economic and monetary union within a period of 40 years. Integrated markets and the European currency area create excellent conditions for dynamic growth accompanied by stable prices. This potential, however, can only be fully exploited if market processes can

be developed and political decisions adapted to suit the requirements of the global economy.

The promotion of balanced economic development was only very vaguely addressed in the founding treaties and there was no talk of a possible distribution of income between member countries or regions. Gradually, the EC introduced policies for political reasons in order to level out incomes between regions and countries (Bollen, 1997): in 1975 the Regional Development Fund, following the entry of Great Britain, Ireland and Denmark; in 1988 the structural funds were doubled with expansion to the south and the internal market programme; 1992 saw a further doubling: the creation of a cohesion fund in 1993 was one of the concessions set out in the Maastricht Treaty<sup>1</sup>, made to Spain, Portugal, Ireland and Greece to facilitate their preparation for monetary union. Finally, the strengthening of economic and social cohesion was explicitly taken up in the Maastricht Treaty as one of the goals of the EU.

The distribution of income between countries and regions via long-term transfer payments – as happened in the nation states – cannot and should not be achieved via the EU budget. They should neither take place in the form of an EU-wide levelling out of finances, as is repeatedly demanded on the occasion of the introduction of the euro, nor in the current form of the structural funds. The national budgets or the automatic stabilising mechanisms on the level of the member states already ensure at least the same degree of stabilisation as the US budget – an argument (e.g. see Giovannini, 1992) that is widely gaining acceptance.

The contribution that the structural funds make towards regional convergence has not yet been confirmed. It is not only the fact that comparable regions receiving comparable support sums are developing in completely different ways that gives rise to considerable doubt as to their effectiveness. Even the EU commission came to the conclusion during an evaluation of the internal market programme that the structural funds available make no significant contribution to the convergence of the regions (European Economy, 1996)<sup>2</sup>. The numerous

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<sup>1</sup> The means available for structural funds were quadrupled over the course of 10 years: an increase from 6.4 million € in 1988 EU12 to 28.6 million € EU15; (statement of current prices; European Commission).

<sup>2</sup> "...taking into account differences between Member States, the speed of

problems already conceptionally involved in the structural funds policies can be summarised as follows: the call for additionality that obliges the receiver countries to co-financing leads to a mainly undesirable increase in public debt and to a distortion of its structure<sup>3</sup>; the narrow fencing off of areas sometimes provokes absurd distortions in allocation; and a dominant role of the national or regional and local authorities renders a guarantee that the funds are being put to good use impossible (Hooge, 1996).

Besides, a subvention policy with no time limit has not yet helped any country to obtain more efficient structures. The distribution of income in the EU has always been justified by the fact that the adjusting of structurally disadvantaged countries or regions to suit the Community market is difficult and costly. Here the fact that the potential profit is the greatest for these countries is forgotten (see above).

Risk-sharing in order to overcome asymmetric shocks<sup>4</sup> and financial assistance with a strict time limit for the putting into action of EU policies are tenable. In the case of long-term assistance for the sustaining of industrial branches that have lost their international competitiveness (e.g. steel) there is great danger that this assistance could hinder structural adjustment and present an obstacle to development in the medium term.

Many problems could be avoided – in the EU, at the expansion negotiations and on the side of the entry candidate countries – if the structural funds were to be replaced by credit (at market conditions) (if nothing else is possible with interest subsidies). This task could be taken over by the EIB, which has experience in financing investment projects.

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*convergence of the regions is broadly similar. The question here is to what extent convergence is due to the Single Market Programme or to structural funds support ... Econometric analysis shows that variances in structural fund spending per capita did not have a significant effect on regional growth variations" (European Economy, 1996, no. 4, p. 11).*

<sup>3</sup> The disadvantages involved in transfer of finances are known from the literature.

<sup>4</sup> At any rate the probability of an asymmetric shock in European economic and monetary union is decreasing (European Economy, no. 44, 1990 and no. 53, 1993).

The fact that the great increase of structural funds available is mainly politically-motivated becomes even clearer if we analyse the Agenda 2000 i.e. the EU's response to the financial and political challenge of expansion. An unchanged framework of expenditure of 1.27% of the EU's GDP has been established for the years 2000-2006 in order not to overtax the current EU member countries (also politically). A ceiling of 4% of the GDP per member country should limit the influx of structural funds available. The structural funds should continue to make up a good third of the EU budget (0.46% of the EU's GDP). Leeway for expenditure on agriculture is restricted with these constraints. As the inclusion of the new member countries in the price support system of the CAP will automatically lead to an increase in income for the agricultural sector in the countries joining the EU, the new members will have to miss out on the direct payments. In the medium term it is also hoped on the side of the EU that, in harmony with the progress made at the WTO negotiations, intervention prices will sink further, direct payment will increase, that there will be altogether lower expenditure on agriculture and that at some point the reform will be successful enough to make a uniform conversion of the CAP possible in an extended EU.

The Agenda 2000 clearly shows that the basic economic principles of the cohesion policy the funds should be for the benefit of those regions with the lowest income – will be turned upside down if this is politically possible. The decisions arrived at in Berlin regarding the Agenda 2000 predict that the present member states will receive around five times as much in structural assistance between 2000 and 2006 as the new member states (213.010 billion € against 46.860 billion €, Official journal of the European Communities, 1999)<sup>5</sup>. In connection with Eastern Enlargement the EU is obviously only aiming at allocative goals because it does not consider a redistribution financially viable. The EU has admitted that its structural policy is full of contradictions and not economically justifiable. The Agenda 2000 is evidence that Eastern Enlargement brings about the necessity for long overdue reforms that should be taken much further from an economic point of view. A drastic

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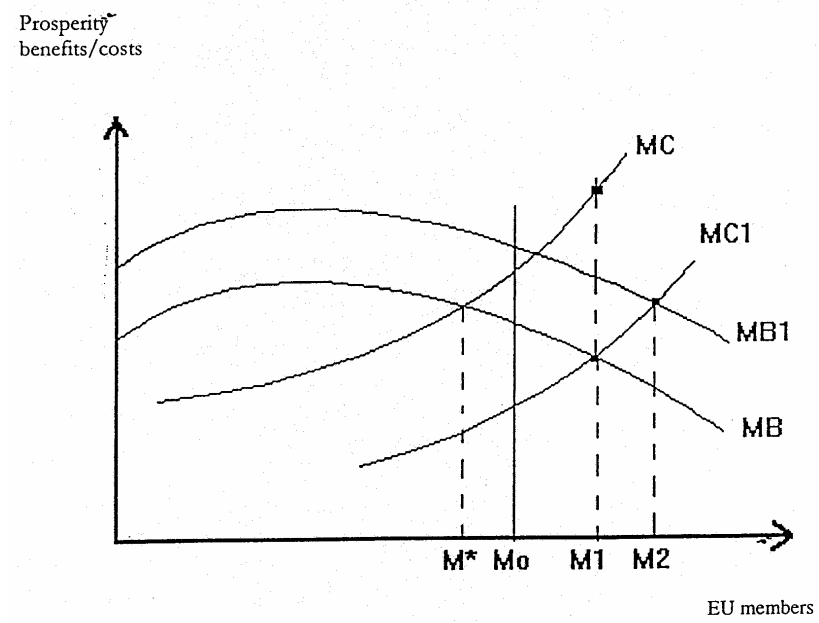
<sup>5</sup> The financial forecasts go by the assumption that the first accessions will take place in 2002.

reduction of structural funds available is just as necessary as a radical reform of the CAP.

Through the dismantling of the CAP and the structural funds it would also become clearer to a wider public that the EU does not derive the justification for its existence from the distribution of income within the framework of the EU budget. The existence of a community justifies itself through a gain in prosperity, which ensures an integrated economic area, connected via a uniform legal framework with a supranational jurisdiction and the long-term goal of political integration. In preparing itself for economic and monetary union the EU has turned more and more away from dirigiste market regulations. The historical burden of staunchly defended market regulations at the beginning of the EU should be, consequently, dismantled. The EU would emerge from this process stronger and less afflicted by internal conflict. A clearer definition and conversion of the integration goals of the EU could increase acceptance of the union, both inside and outside the Community.

These arguments will be clarified in figure 1. The vertical axis measures the costs and benefits of integration. It is assumed that the marginal costs will increase with the number of member countries, but the marginal utility will decrease after a certain number of members (see Gros/Steinherr, 1995, pp. 507-509, for a more detailed description). The optimal EU membership  $M^*$  is smaller than  $M^0$  (the EU-15) regarding certain institutional tasks. This supposition that the EU-15 have already exceeded the optimal size for the Union is based on the fact that e.g. some member countries either do not want to take part in monetary union (their cost-benefit analysis turned out negatively) or are not allowed to take part (the cost-benefit analysis of the Community turned out negatively). An additional enlargement can only be economically justified under these conditions if either the marginal benefits (MB) can be shifted upwards through reform or the marginal costs (MC) shifted downwards. Both require reforms in the entry candidate countries and the community.

Figure 1:



#### 4. Allocation of tasks

The distribution of tasks between the various decision-making levels in the EU should be reexamined in many areas. The allocation and perception of areas of competence for regulation functions, expenses and taxation, or the harmonising of the tax system can often not be justified from an economic point of view. The basic principles of fiscal federalism are, however, only partially applicable in connection with the EU (Walsh/Petchey, 1993<sup>6</sup>). Nonetheless, literature on fiscal federalism provides a good starting point for rationalising the competence distribution in the EU.

Tasks not connected with national spillover effects or increasing returns to scale should in principle not be introduced at EU level. From this point of view European research policy, for example, is completely over-sized. Does it make sense to operate a policy for the support of smaller and medium-sized companies at EU level? Must there be uniform hunting rights all over Europe? Even in areas that the EU should be dealing with enthusiasm often runs ahead of common sense. Tax harmonisation makes sense where the tax-payer or the tax basis is mobile, but harmonisation also for non-tradable goods? And why should competition in this area only do harm? Regulatory and tax competition can provide a useful balance to market-unfriendly political tendencies. In the same way, heterogeneous regional preferences speak for a minimum in harmonisation at EU level.

It makes no sense for tasks transferred to the Community to be carried out unchanged in the member countries. This is demonstrated in development policy, where national development policy shaped by national interests and traditions often contradicts community policy. In

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<sup>6</sup> The literature on fiscal federalism mainly deals with the question which tasks should be assumed by a central government and the rest de-centralised. In connection with the EU, on the other hand, the question arises as to why tasks recognised by the member countries or their regional or local area bodies should be introduced at EU level when the central level has no comparable efficient decision-making structures and preferences within the EU are often very heterogeneous. Problems to do with co-ordination, questions of administrative efficiency, signalling and mobility costs play a significantly different role in many cases than in discussions on de-centralising as they are usually carried out in connection with nation states. (Walsh/Petchey, 1993).



other areas, such as competitiveness policy, representatives of national interests still refuse to recognise the fact that the European market is the only relevant market.

## **5. Decision-making and organisational structure**

The overdue reform of the decision-making and organisational structure of the EU likewise takes place in the area of conflict between national interests and Community interests. The organisational form of the EU is a compromise that does not claim to be ideal. However, the more the EU expands, the more difficult the organisational and decision-making process becomes. There is an urgent need for the reduction of the official languages to one working language (in the EIB it is two). Translation procedures occupy one third of the staff in the EU and the results often require the original to be consulted anyway. For this reason translations, when required, should be dealt with by the national administration.

The current discussion about the desirable simplification of the decision-making structure is going in the right direction: a reduction of the Commission combined with a change in the vote weighting in the Council; more majority decisions at Council level. The number of Commissioners however, should be greatly reduced: large member countries should be able to put forward a Commissioner, smaller countries should form voting rights groups and nominate a Commissioner on the rotation principle. The EIB can serve as a model. It is important that these reforms are also accompanied by a thorough internal re-organisation of the Commission: further strengthening of the Commission, no more "national hereditary houses" in the general management, rotation duties, changes in recruitment policy.

Every radical reform is naturally hindered by the lack of readiness of the member countries to accept a federal structure – a situation that has no solution. A radical strengthening of Community interests at the expense of national interests in the EU decision-making process could go in a direction that, incidentally, the EU Commission has also addressed under explicit reference to Eastern Enlargement (European Economy, 1993): that of replacing the Commission with a genuine European government, elected by Parliament instead of the member states. A substantial strengthening of the political role and legitimacy of the

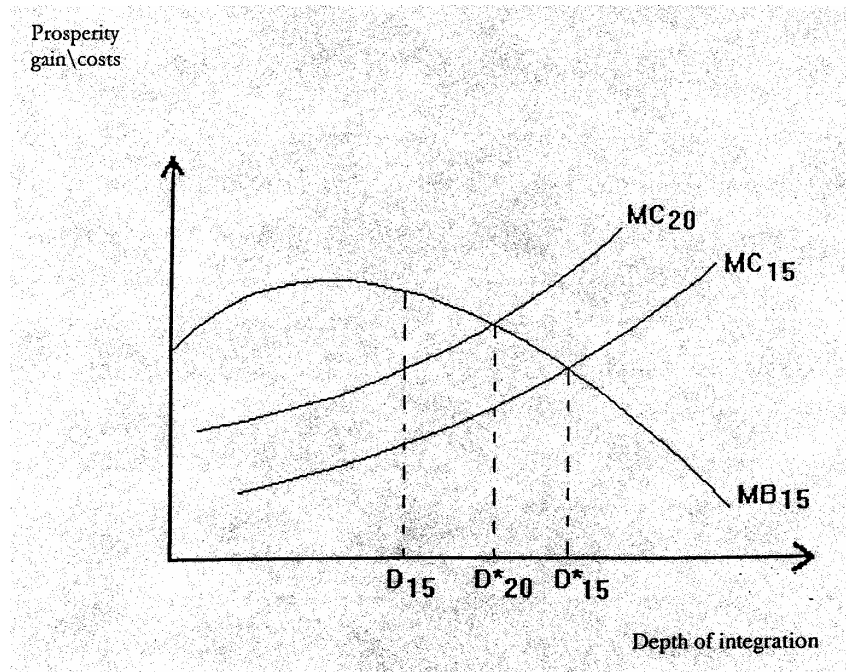
European Parliament should naturally precede this. The inter-governmental body that the Council of Ministers represents today and which the citizens wish to see in an extended and also heterogeneous Europe could also be represented through the creation of a second chamber (chamber of senators) in the European Parliament.

## 6. The ideal extension of the EU

Although this question will, in the first place, be decided from a political standpoint, it is helpful to give it economic sense, too. The answer is usually sought on the level of the entry candidate countries and the Copenhagen criteria, on the basis of which the "readiness for accession" of the candidates is evaluated. Although this dimension is important, in my opinion the answer to the question regarding the ideal geographical extension of the EU depends primarily on the tasks and organisation of the EU. The ideal expansion of a free trade zone is the world. Geographical restrictions for the EU must therefore derive from additional steps towards deepening and tasks – this against the background of the principle that the *acquis communautaire* is to be accepted in all member countries (which is not always ideal for latecomers). The ideal size of the EU shrinks the more responsibility it takes on. The other way round: if restricting the re-distribution function and dismantling the CAP are successful, the ideal dimensions would be greatly extended. Progress towards fiscal federalism as well as a more efficient decision-making and organisational structure would increase the expansion potential of the EU even more.

In figure 2 the horizontal axis measures the extent (depth) of integration e.g. with or without monetary union. Deepening of integration requires compromises, i.e. expenses. The MC15 curve represents the marginal costs for the EU-15; the MC20 curve the costs for a community extended to 20 members. The gain in prosperity as a result of monetary union with an additional 5 Eastern European countries is expected to be insignificant. This increases greatly in the unchanged MB15 curve. The ideal depth of integration consequently decreases from  $D^*15$  to  $D^*20$ . If the existing integration, as taken in figure 2, is at  $D15$ , there will still be the need for integration. However, if  $D15$  falls to the right of  $D20$ , the danger of internal conflict will arise.

Figure 2:



## 7. Conclusion

Eastern Enlargement requires a reconsidering of integration goals and a restricting to the core tasks set down in economic and monetary union with the simultaneous revision of the CAP and structural assistance, a settling of tasks and a basic reform of the decision-making and organisational structure of the EU institutions. The more successful the EU is in reforming itself in this direction, the more success we can expect from Eastern Enlargement. The "readiness for accession" of the candidate countries is the other side of the coin, even if the EU also has to provide the most important contribution itself. Efficient expansion negotiations require precisely formulated entry criteria – the Copenhagen criteria do not go far enough here. The test, whether they will be fulfilled by the candidate countries or not, should proceed via as transparent a process as possible.

Besides the accession of Russia, the Ukraine and Turkey, the membership of no single European country would present the Community with a task that could not be overcome. The problem lies in

the large number of structurally weak accession candidates that are not politically established and have little purchasing power. How efficient would a Community containing not only central European countries, but also the small Baltic states, the medium-sized south-eastern European countries, the numerous successor countries of Yugoslavia, Albania and two Mediterranean island countries be? In addition, something that nobody wants to think too much about: what about Russia, the Ukraine and Turkey?

Is the theory that the nature, the style and the effectiveness of the Community would not suffer under a more than marginal Eastern Enlargement really credible? Would the integration process really not be impaired by Enlargement? Difficulties cannot be overcome with "variable speeds" without having a negative effect on the way the Community holds together.

The starting points for a strategy of Eastern Enlargement suggested in this paper are the following (the larger the enlargement is, the more they should be observed):

- Eastern Enlargement can be justified politically, but it brings the Community no significant economic gain;
- Far-reaching reforms in the Community are vital for an efficient extended Community;
- However, the enlargement will make a further deepening of the Community more difficult and limit the equal participation of all member countries in deepening steps already carried out to an increasingly smaller circle. The development of the Community to a federal Europe would be slowed down by a "large" Eastern Enlargement, if not made impossible;
- The costs and risks are also considerable. In order to reduce these and to not provoke unfundable redistribution claims at the same time, the EU should confine entry to countries whose GDP per capita at purchasing power parity does not deviate from the EU average by more than 30%. This, above all, because political and structural indicators correlate positively with GDP.

The best way to help the entry candidates would be with a set of "club membership rules" that are as clear as possible and which would eliminate any suspicion of discrimination. The positioning in the queue to join would be given a clear direction and could follow a self-chosen timetable. This would give the decision-makers in the entry candidate

countries greater support and increased international credibility in putting the reforms into practice. According to me, this would be an acceptable expansion strategy for the Balkan countries as well as for Turkey, even with accession conditions ranging from the demanding to the hard.

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## THE ROLE OF TIME IN EU ENLARGEMENT

Fritz Breuss

### 1. Introduction

The Enlargement debate in the EU and in the Central and Eastern European countries (CEECs) centers on different priorities. "The earlier the better" seems to be the maxim in the east. In the west a cautious attitude towards enlargement is prevalent. It is no wonder that the approaches differ. Integrating rich with poor countries is never an easy business as the example of NAFTA shows. The rich suspect an abandonment of their privileged position whereas the poor hope for an improvement of their unsatisfactory situation. In contrast to NAFTA, however, the EU enlargement project differs in many other respects. The CEECs carry a long communist era's legacy. They started only a decade ago to introduce democracies of western standards and to transform their economies from planned to market-oriented systems. Therefore the European Council on its Copenhagen meeting in June 1993 formulated the famous three "Copenhagen criteria" (political standards of the EU concerning human rights and protection of minorities; a functioning market economy; acceptance of the acquis communautaire of the EU and the final goals of the EU, i.e. EMU and political union). An EU accession is only possible if these criteria are fulfilled. Besides the difficulty in evaluating the fulfilment of the criteria, they are a practical political instrument in delaying enlargement at any moment in time.

After the Helsinki summit of the European Council in December 1999 the priorities were clearly shifted towards integration of 10 CEECs plus Cyprus and Malta. Turkey got the status of an applicant country. The EU itself has to reform its institutions (Council, Commission, European Parliament) in order to be able to handle a larger number of members. This task should be completed in 2000 (Treaty of Nice). After the ratification procedure the Union should be ready for enlargement in 2003. At present, the EU deals with two groups of applicant countries: with the "Luxembourg group" (Czech Republic, Estonia, Hungary, Poland, Slovenia and Cyprus) concrete negotiations have already started in October 1998; with the "Helsinki group" (Bulgaria, Latvia, Lithuania, Rumania, Slovak Republic and Malta) negotiations have started in

January 2000. Whether the negotiations end with an accession of all 10 CEECs (plus Cyprus and Malta) at once, or whether there will be a sequence of accessions with the more mature countries first and the countries adjusting only slowly to the Copenhagen criteria second is an open question. Furthermore the exact date when the first CEECs will enter the EU has not been defined yet. So the enlargement game is open.

The major purpose of this contribution is to tackle the question whether there are more gains from a rapid or a delayed EU enlargement. Or to put it differently: how can the factor time be quantified when evaluating integration effects. Second, it tries to answer the question which region will gain or lose from a speedy enlargement and in which respect. For this purpose a simple enlargement model is constructed for the two regions EU-15 and CEEC-10 (neglecting Cyprus and Malta) with the major ingredients of integration. Then simulations with this calibrated model will show which role time may play in the process of integrating the CEECs into the EU.

## **2. A simple model of EU enlargement**

There are many models around to evaluate integration effects in general and those of EU enlargement in particular (for a survey, see Breuss, 1999): single and multi-country (world) models and in each case macro models and computable general equilibrium (CGE) models. Each model has advantages and disadvantages. Neither model is able to catch all theoretically thinkable effects of regional integration, nor are the simulation models able to "correctly" quantify the wide variety of integration effects, simply because the EU enlargement is a unique future challenge. Therefore it is no wonder that the results differ according to the method and model used. However, there is a consensus in the conclusions of all hitherto done simulation experiments: the applicant countries (CEECs) in general can expect to gain more welfare than the EU.

For our exercise a simple model is constructed which covers most of the integration effects expected in connection with EU enlargement. The model is highly aggregated and only deals with volume effects. Price effects are neglected. Likewise, it makes no difference in this model (which does not include money) whether the CEECs, when becoming full members of the EU are participating in EMU or not. The model

variables are first calibrated to its starting values in the year 2000 and then used to construct a baseline scenario (without EU integration) up to the year 2020. The data mainly stem from Eurostat. The model covers trade effects, effects of factor movements (FDIs from west to east and migration from east to west) as well as the budgetary burden of enlargement for the EU and the transfer benefits for the CEECs. The model supplies results for GDP as well as welfare and indirectly it also tells to which degree a convergence of CEECs income per capita will take place during integration.

The enlargement model starts with Cobb-Douglas production functions for both regions (EU-15 and CEEC-10; see equations (1a) and (1b) in the appendix). Real GDP is explained by the inputs capital and population as well as total factor productivity (TFP) as a residual. As an additional factor exports of both regions to the respective other region enter into the production function. As externalities, the exports contribute positively to GDP. Via this channel static trade effects are translated into dynamic integration effects (spill-overs of technological progress). Population is transformed into the production factor labour by multiplication with a 40% participation rate factor. For the baseline scenario it is assumed that real GDP will grow annually by 2 percent in the EU and by 5 percent in the CEECs from 2000 to 2020. The capital stock is approximated by using a constant capital-output ratio of two. Population growth for both regions is taken from United Nations long-run population scenarios which foresee a considerable decline in both regions for the future. This calibration procedure results in a TFP for the EU-15 which is  $2\frac{1}{4}$  higher than those in the CEEC-10. Due to a natural catching-up process this relationship will shrink to 1.4 until the year 2020. Measured by real GDP the EU-15 is ten times larger than the CEEC-10, EU's population is only  $3\frac{1}{2}$  times that of CEEC-10 in the year 2000.

The capital stocks (equations (2a) and (2b) in the appendix) are generated by multiplying GDP by a constant capital-output ratio of two. They are reduced (increased) in the EU-15 (CEEK-10) by FDI flows from the EU to the CEECs by half of its size. The transfers from the EU budget to the poor CEECs are partly (by half of its value) used to build up capital (infrastructure) in the CEECs, but in turn reduce the potential of building up capital in the EU (transfers are costs for the EU member states).



FDI flows from the EU to the CEECs (equation (3) in the appendix) are growing with CEEC's GDP at a factor of 0.01. Similar to the reasoning by Baldwin/Francois/Portes (1997) it is assumed that the participation in the single market of the EU will reduce the risk to invest in the CEECs and may therefore contribute to building up the capital stock and lastly GDP. We take this risk factor into account with 0.002 of CEEC's GDP. Starting with FDI's of the EU amounting to 8 billion € in 2000 a complete elimination of this risk factor would increase by 1.6 billion € which is 20 percent of the initial level of FDIs.

Whereas the relatively high rental price of capital and the low wages attract capital from the west (FDIs) the huge income difference between east and west (CEEK's real GDP per capital in PPP was only 1/3 of that in the EU-15 in the year 2000) will induce migration of population from the east to the west. This model is calibrated to the most recent estimates by DIW (2000), a study conducted on behalf of the European Commission. Total migration (equation (5) in the appendix) consists of a baseline stream of migrants without EU accession of the CEECs plus migration due to the full freedom for persons to move within the single market right from the beginning of EU accession. This will result in a migration of 1.1 million persons from the CEECs to the EU-15 in the year 2002. But with convergence of income per capita over time this additional flow of migrants (compared to a scenario without the full freedom) will diminish from an annual increase of 336.000 in 2002 down to 42.000 in the year 2020 (DIW, 2000, p. 324). In equation (4) we could also simulate a reduced flow of migration when temporary arrangements delay the complete implementation of the freedom of movement of persons with EU accession. In our simulations we do not use this opportunity. In addition migration is mitigated over time by the catching-up of CEEK's GDP per capita.

Population is driven by natural factors of birth and death and by net migration. By the latter factor population increases in the EU and hence potentially fuels GDP, whereas it reduces population in the CEEK-10 and thereby also production potentials (see equations (6a) and (6b) in the appendix).

The traditional integration effects are caught with foreign trade (trade creation and trade diversion). Here we only concentrate on trade relations between the two integration blocks. Real exports from the EU to the CEECs (equation (7) in the appendix) are explained by an income

effect – relating exports to CEEC's GDP – and by a policy variable representing trade costs. We assume that trade costs amount to around 5 percent of trade in both directions. This means for EU's exports trade costs of 0.05 percent of EU's GDP. EU's real imports from the CEEC-10 are explained by the same pattern as the exports (see equation (8) in the appendix). Trade costs for the CEECs' amount to 0.4 percent of their GDP. At the beginning the EU has a trade surplus of 22 billion € in real terms (see equation (9) in the appendix). The exports of the EU to the CEECs are the imports of the CEECs from the EU. The imports of the EU from the CEECs are equivalent to the exports of the CEECs to the EU.

Finally, we consider the not unimportant – and heavily debated – feature in EU enlargement, namely the question of the costs. According to the Agenda 2000, agreed upon at a special European Council summit in Berlin in March 1999 the gross costs of enlargement amount to 80 billion € over the financial horizon 2000-2006. If one deducts around 20 billion € as own resources which the applicant countries will have to pay into the EU budget (with an upper limit of 1.27 percent of GDP) as is the duty of each EU member state, then the cumulated costs of enlargement over the period 2000-2006 will amount to 60 billion Euro. This is equivalent to 0.15 to 0.2 percent of EU-15's GDP (see Breuss, 1999, p. 8). However these cost calculations are only due for the "Luxembourg group" of 5 CEECs and Cyprus. In our case we deal with CEEC-10. Measured by absolute GDP the "Luxembourg group" makes up 69 percent and the "Helsinki group" 31 percent of total CEEC-10 (excluding Cyprus and Malta). Taking into account the group of CEEC-10 one can approximate the annual costs of enlargement by around 0.3 percent of EU-15's GDP. This value is used to calibrate the costs of enlargement in percent of EU's GDP (see equation (10) in the appendix). The costs of enlargement decline over time as the CEECs will gradually catch-up with their income to those of the EU and hence will be less eligible for the full range of structural funds money. Total costs of EU enlargement are then calculated starting from the pre-accession costs for preparation of EU membership of around 3 billion € per year plus the enlargement costs due to the integration the CEECs into the CAP and the regional policy of the EU (see equation (11) in the appendix).

Finally, the model shows that integration will lead to a speedier convergence of the CEEC's GDP per capita to that of the EU (see the equations (12) and (13) in the appendix).

### **3. Who gains and who loses from a rapid enlargement?**

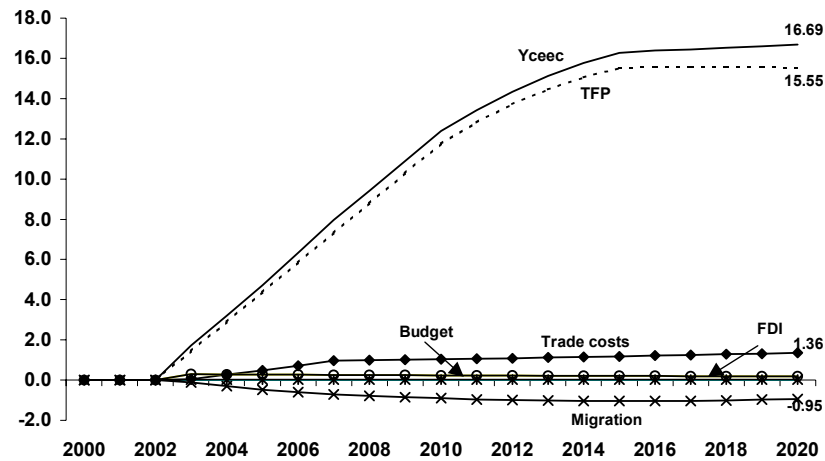
In evaluating which role time will play in the enlargement game, two different scenarios are simulated. First, it is assumed that CEEC-10 enter the EU as full members in the year 2003. Second, this region will be fully integrated into the EU only in the year 2008. In both scenarios the simulations run up to the year 2020.

In each case we can identify five integration effects:

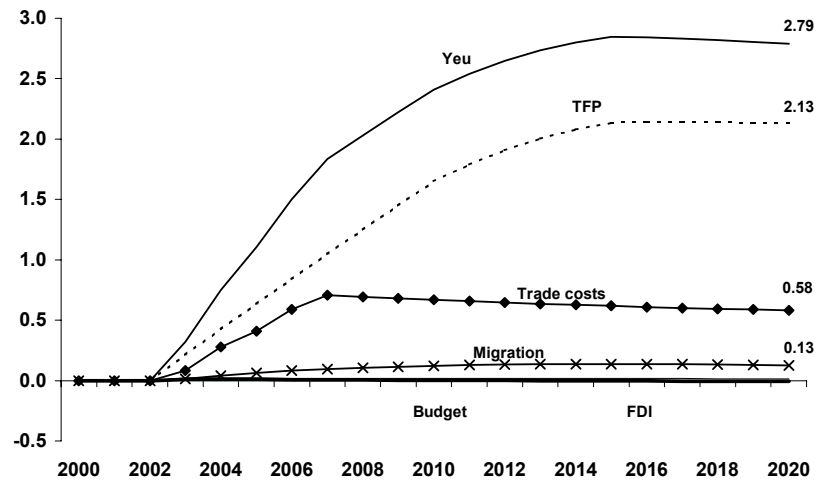
- (1) Trade creation effects through the elimination of trade costs
- (2) Direct growth effects via an increase of TFP in the CEECs
- (3) FDI effects on growth
- (4) Migration effects on population and growth
- (5) Budgetary effects (costs of enlargement for the EU and benefits for the CEECs)

This adds up to total GDP effects. In addition we can also calculate a simple welfare measure by assuming that the income effect is generated by GDP plus net-transfers out of the EU budget.

**Figure 1: EU Enlargement in 2003: GDP Effects and its components for CEEC-10**  
(Cumulative deviations from baseline in %)



**Figure 2: EU Enlargement in 2003: GDP Effects and its components for EU-15**  
(Cumulative deviations from baseline in %)



*Integration effects of an EU enlargement in 2003*

First, we discuss the results of an EU accession of the CEEC-10 in the year 2003:

Ad (1) *Trade creation*: It is assumed that trade costs are eliminated gradually (within three years after accession). This results in a long-run GDP effect of cumulated 1.4 percent in the CEEC-10 and of 0.6 percent in EU-15 (see figures 1 and 2). The simulation runs over 18 years (from 2003 to 2020). The annual integration effects of reducing trade costs are very modest (0.08 percent in the CEECs and only 0.03 percent in EU-15). The asymmetric start in the year 2003 (the EU has a trade surplus in trade with the CEECs) leads to a continuous increase in the surplus in absolute values. However, expressed in percent of GDP it only increases up to the year 2006. Afterwards the surplus in percent of GDP declines. In the end the surplus is smaller than in the baseline scenario.

Ad (2): *Direct growth effects*: Many researchers have assumed that taking part in EU's single market will result in a push in total factor productivity in order to be able to withstand the competitive pressure of the incumbents of the EU. Taking such arguments into account we assume that TFP in the CEEC-10 will increase by roughly one percentage point per year when entering into the EU. However, this increase has been calibrated with decreasing returns over time. As can be seen from figure 1 the assumption of an exogenous increase of TFP in the CEECs is the most important single contributor to GDP growth. Over a 18 years period the GDP effects due to TFP increase amount to 15.6 percentage points (or 0.9 percentage points per year) in the CEEC-10. Via spill-over effects this single cause will result in a cumulated increase of GDP of 2.1 percentage points in the EU over the period of 18 years (or 0.12 percent per year). In their simulations in the case of the less conservative scenario Baldwin/Francois/Portes (1997) came to similar results for the long-run real income increase in the CEECs but lower income increases for the EU. However, the increase of CEECs' GDP in the long-run of similar two-digit dimensions is fueled in their model via the channel of more capital accumulation (after the elimination of risk premia for foreign investors).

Ad (3) *FDI effects on growth*: FDIs have complicated implications for growth and trade. The literature has not reached a consensus to what degree FDIs will contribute to capital accumulation in the host country (and possible reduce it in the sender country) and hence which influence

FDI flows will have on GDP in the end. Similarly, it is not easy to decide whether FDI and trade are related in a substitutive or in a complementary way. For our purpose we assumed that there is a direct link between FDI and capital accumulation (decumulation) in the CEECs (in the EU) and hence via the production function also on GDP growth. Indirectly, higher GDP growth also attracts more imports. In our context more FDI flows from the EU to the CEECs also increase exports from the EU to the CEECs. In contrast to the extreme results by Baldwin/Francois/Portes (1997) the GDP effects of FDI flows after integration (which is modelled by eliminating the risk premia for investing in the CEECs) are very modest (see the figures 1 and 2). In the long-run FDI will increase by 4 billion €. But their implications on GDP growth are only 0.02 percentage points in the CEECs and zero in the EU-15.

Ad (4) *Migration*: Politically the hottest potato in the enlargement debate is the case of migration. In particular in the border countries Germany and Austria the fear is great that their labour markets could be disturbed dramatically by an influx of foreign labour. On the other hand serious estimates come to the conclusion that immediately granting free movement of persons when entering the EU will not lead to massive migration from east to west (DIW, 2000). If one takes into account that in the long-run the population of EU-15 will decline (over the period 2003 to 2020 by around 14 million persons) than one would need an equivalent amount of immigrants in order to keep the standard of living and be able to sustain the social security system. In our simulations – taking into account the DIW estimates of migration – EU accession of the CEEC-10 result in a long-run migration stream of 17.7 million persons. According to our model specification this implies an increase of the growth potential in the EU-15 by 0.1 percentage points in the long-run and would cause a decrease of one percentage point in the CEEC-10.

Ad (5) *Budgetary effects*: The costs of enlargement are welfare improving for the CEECs and welfare reducing for the EU-15. The direct GDP effect is 0.2 percentage points in the CEECs in the long-run but negligible in the EU-15. The costs of enlargement, however, play a role when evaluating the welfare effects.

Overall, the cumulated GDP effects of an EU enlargement in the year 2003 are high in the CEEC-10 (+16.7 percentage points over 18 years, which is +0.9 percent per year) and relatively low in the EU-15 (+2.8

percentage points and +0.16 percent respectively). Measuring welfare as the total income effect (GDP plus income from net-transfers out of the EU budget) the CEECs even gain more than measured solely by GDP. However, the EU-15 – because enlargement causes costs – will gain less in welfare than in GDP (see table 1, third and fourth column).

Table 1: Gains and losses from an early EU enlargement

		Integration effects of EU enlargement in 2003		Additional gains/losses: EU accession in 2003-2008	
		EU15 (cumulated over 2003-2020)	CEEC10 (cumulated over 2003-2020)	EU15 (cumulated over 2003-2020)	CEEC10 (cumulated over 2003-2020)
Trade effects (exports-imports)	billion €	355	-355	115	-115
(in % of GDP)	%	0.17	-1.24	0.60	-0.40
TFP effects (TFPceec/TFPeu)	% p.a.	-	0.60	-	0.10
FDI flows from EU15 to CEEC10	billion €	-86	86	-21	21
(in % of GDP)	%	0.04	0.30	0.07	0.01
Migration from CEEC10 to EU15	in 1000	17800	-17800	6200	-6200
(average per year)	in 1000	990	-990	295	-295
(in % of population)	%	0.28	1.02	0.08	0.30
Budgetary costs (gains)	billion €	-521	521	-126	126
(in % of GDP)	%	-0.25	1.82	-0.06	0.44
<b>GDP effects</b>	billion €	<b>4148</b>	<b>3394</b>	<b>1424</b>	<b>1066</b>
(in % of GDP)	%	2.80	16.70	0.70	3.70
Welfare effects	billion €	3627	3915	1298	1192
(in % of GDP)	%	2.50	18.20	0.63	4.17

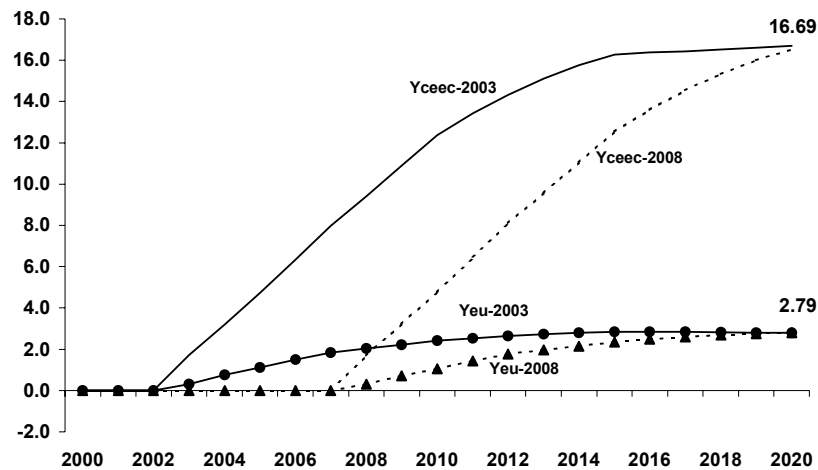
*Gainers and losers from an early EU enlargement?*

The major question is whether an early enlargement will result in higher gains than a delayed enlargement (see figures 3 and 4 and table 1).

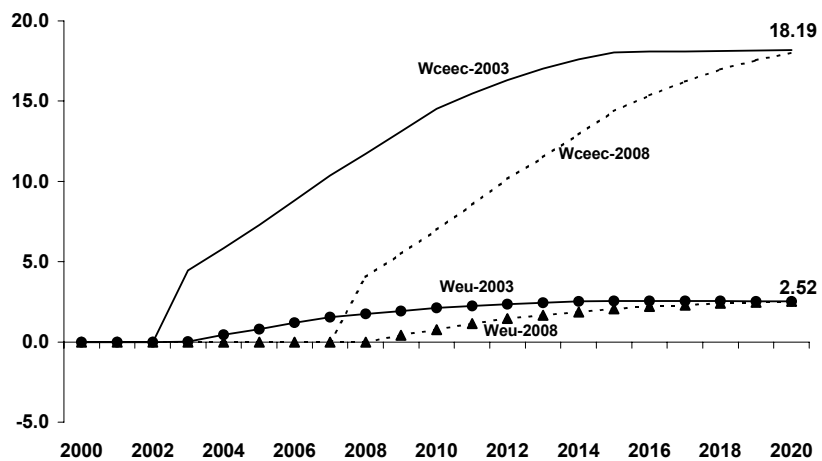
Due to the specification of our model, in general an early enlargement results in higher GDP effects than a later enlargement. Thus, time is money! The gains are measured as the difference between the integration effects of enlarging in 2003 and those of enlarging the EU in 2008 (see table 1, fifth and sixth column). The EU gains more net-trade (115 billion €). The gains of the EU are the losses of the CEECs. The earlier start in pushing TFP in the CEECs results in a lead in productivity increase. In the long-run – due to the decreasing returns assumption – relative TFP (CEEC/EU) converges in the year 2020. In

the meantime, however, a lead of five percentage points is possible in the case of an earlier integration of the CEECs.

**Figure 3: EU Enlargement in 2003 or in 2008: GDP Effects for EU-15 and CEEC-10**  
(Cumulative deviations from baseline in %)



**Figure 4: EU Enlargement in 2003 or in 2008: Welfare Effects for EU-15 and CEEC-10**  
(Cumulative deviations from baseline in %)



As far as FDI flows are concerned the CEECs will get more when entering the EU earlier. This may be counted as gain for the CEECs and



loss for the EU. But indirectly, also the EU would gain from more opportunities to invest in the east. An early enlargement with full freedom for the movement of persons would result in more migration from east to west by around 6 million persons over the period of 18 years. Economically, this would be a gain for the EU and a loss for the CEECs. In one respect the EU probably would favour a delayed enlargement. This is the case of the costs of enlargement. If enlargement takes place in 2008, the costs will be lower for the EU by some 126 billion € over the 18 years period. Equivalently, this would result in income losses in the CEECs. Overall, both regions will gain more GDP when the enlargement would start earlier. However, due to the lower cost burden, a later enlargement would increase the welfare gains in the EU and reduce it in the CEECs.

#### **4. Conclusions**

Time plays a role in different respects in the enlargement game. An early EU enlargement would give way to build up more capital and hence GDP. It would, however, initiate the expected migration wave earlier with the consequence of loss of growth potential in the east and an improvement in the west. Seen from the costs side a later enlargement would be preferred by the EU but not by the CEECs. The former would save income, the latter would get transfers out of the EU budget only later. All in all, an early enlargement would help to bring the poor CEECs more rapidly to the EU standards. Convergence of total factor productivity and GDP per capita would be accelerated by an enlargement as soon as possible. In the long run this would help to facilitate the process of integration of the east with the west which is not easy, anyhow.

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## 6. Appendix: A simple model of EU enlargement

### *Production functions*

$$(1a) \quad \text{EU-15} \quad Y_{EU} = TFP_{EU} K_{EU}^{\alpha} (\lambda POP_{EU})^{\beta} X_{EU-CEECE}^{\gamma}$$

with  $\alpha + \beta + \gamma = 1$

$$(1b) \quad \text{CEECE-10} \quad Y_{CEECE} = TFP_{CEECE} K_{EU}^{\alpha} (\lambda POP_{CEECE})^{\beta} M_{EU-CEECE}^{\gamma}$$

with  $\alpha + \beta + \gamma = 1$

### *Capital stocks*

$$(2a) \quad \text{EU-15} \quad K_{EU} = \text{Const}_{EU} + \kappa Y_{EU} - \sigma FDI_{EU-CEECE} - \tau EUB_{EU-CEECE}$$

$$(2b) \quad \text{CEECE-10} \quad K_{CEECE} = \text{Const}_{CEECE} + \kappa Y_{CEECE} + \sigma FDI_{EU-CEECE} + \tau EUB_{EU-CEECE}$$

### *Net Foreign direct investment (FDI) flows from EU-15 to CEECE-10*

$$(3) \quad \text{EU-15/CEECE-10} \quad FDI_{EU-CEECE} = \text{Const}_{FDI} + \mu Y_{CEECE} - \text{Risk} Y_{CEECE}$$

### *Migration from CEECE-10 to EU-15*

$$(4) \quad \text{CEECE-10/EU-15} \quad MIG_{CEECE-EU} = \text{Const}_{MIG} \text{Politics} + \rho(YB_{EU} - YB_{CEECE})$$

$$(5) \quad \text{CEECE-10/EU-15} \quad MIG_{\text{total}}_{CEECE-EU} = MIG_{\text{base}} + MIG_{CEECE-EU}$$

### *Population*

$$(6a) \quad \text{EU-15} \quad POP_{EU} = POP_{\text{base-EU}} + MIG_{CEECE-EU}$$

$$(6b) \quad \text{CEECE-10} \quad POP_{CEECE} = POP_{\text{base-CEECE}} - MIG_{CEECE-EU}$$

*Exports from EU-15 to CEEC-10*

$$(7) \quad \text{EU-15/CEEC-10} \quad X_{EU-CEEC} = \eta Y_{CEEC} - TC_{CEEC} Y_{EU}$$

*Imports of EU-15 from CEEC-10*

$$(8) \quad \text{EU-15/CEEC-10} \quad M_{EU-CEEC} = \theta Y_{EU} - TC_{EU} Y_{CEEC}$$

*Trade balance of EU-15 in trade with CEEC-10*

$$(9) \quad \text{EU-15/CEEC-10} \quad TB_{EU-CEEC} = X_{EU-CEEC} - M_{EU-CEEC}$$

*EU budget costs of Enlargement*

Costs of enlargement in % of EU-GDP:

$$(10) \quad \text{EU-15/CEEC-10} \quad T_{EU} = T_{base} - \varepsilon(Y_{CEEC} - Y_{base-CEEC})$$

Costs of enlargement (billion €):

$$(11) \quad \text{EU-15/CEEC-10} \quad EUB_{EU-CEEC} = EUB_{base} + T_{EU} Y_{EU}$$

*Convergence of GDP per capita*

$$(12a) \quad \text{EU-15} \quad YB_{EU} = (Y_{EU} 1000000) / POP_{EU}$$

$$(12b) \quad \text{CEEC-10} \quad YB_{CEEC} = (Y_{CEEC} 1000000) / POP_{CEEC}$$

$$(13) \quad \text{CEEC-10/EU-15} \quad YB_{relat} = YB_{CEEC} / YB_{EU}$$

*Variables*

$Y$  = real GDP (billion €),  $YB$  = real GDP per capita (€),  $YB_{relat}$  = relative real GDP per capita (CEEC/EU),  $TFP$  = total factor productivity,  $K$  = capital stock (billion €),  $POP$  = Population (in 1.000 persons),  $X$  = real exports (EU-15 to CEEC-10, billion €),  $M$  = real imports (EU-15 from CEEC-10, billion €),  $TB$  = trade balance of EU-15 in trade with CEEC-10 (billion €),  $FDI$  = foreign direct investment flows from EU-15 to CEEC-10 (billion €),  $MIG$  = additional migration from CEEC-10 to EU-15 (in 1.000 persons) after EU accession,  $T$  = costs of EU enlargement in % of EU-GDP,  $EUB$  = costs of EU enlargement (billion €).

*Policy instruments*

$TC$  = trade costs (in % GDP),  $Risk$  = risk premia for FDI in CEEC-10,  $Politics$  = migration politics (transitional arrangements for the free movement of persons),  $T$  = costs of EU enlargement (here endogenous). The suffixes  $EU(CEE C)$  stand for EU-15 and CEEC-10 respectively.

*Parameters*

$\alpha, \beta, \gamma$  = production function elasticities;  $\lambda$  = participation rate;  $\kappa$  = capital-output ratio;  $\sigma$  = capital-augmenting effect of FDI in CEECs;  $\tau$  = capital-augmenting effect of EU budget transfers due to enlargement costs;  $\mu$  = income elasticity of FDIs with respect to CEEC's GDP;  $\eta$  = income elasticity of EU's exports to CEEC-10 with respect to CEEC's GDP;  $\theta$  = income elasticity of EU's imports (CEE C's exports to EU-15) from CEEC-10 with respect to EU's GDP;  $\rho$  = effect of income difference between EU-15 and CEEC-10 on migration;  $MIG_{base}$  = baseline migration without EU accession of CEEC-10;  $\varepsilon$  = enlargement cost dampening effect due to an increase of CEEC's GDP;  $Const$  = constants.

## **TRADE PROTECTION IN FIVE EU MEMBER CANDIDATE COUNTRIES BY EXCHANGE RATE ADJUSTMENT, CUSTOMS TARIFFS AND NON-TARIFF MEASURES<sup>1</sup>**

Gerhard Fink

### **1. Introduction**

Current account deficits indicate that the domestic economy cannot keep up with competitive pressure by foreign enterprises. If there are current account deficits foreign competitors can more easily sell on the domestic markets than domestic firms abroad. In financial analyses we often find the argument that a high current account deficit due to borrowing for financing vital investment is likely to be more sustainable than deficits generated by too large consumption. It is also assumed that foreign direct investment, i.e. long term capital commitment, also makes current account deficits sustainable in the long run. However, both features indicate weak competitiveness of domestic firms. In case of deficits due to excess investment domestic firms producing investment goods are not competitive to keep up with foreign suppliers of investment goods.

In addition, long term foreign direct investment is changing the ownership structure within the national economy, foreign corporations gain an increasing share in the domestic economy. Thus, growing current account deficits are a strong indicator for a decline in competitiveness. While domestic firms are losing, foreign firms are gaining in strength. This is raising desires to promote competitiveness of the domestic industry and to constrain the competitive power of foreigners. Current account deficits contribute to the emergence of restrictive trading practices (Salvatore 1987, 19).

There are numerous measures possible at the macro-, meso- and micro-level to influence the balance of competitiveness between domestic and foreign firms. Each measure has mostly a direct effect either on prices or quantities but also indirect effects on quantities or prices. Each measure also has an effect on the distribution of income and wealth, on

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<sup>1</sup> I thank Christian Mantler for research support, Fritz Breuss and Dominick Salvatore for helpful comments.

productivity and on creation of net value added in the domestic economy (Salvatore 1996, 1998). Basically we can distinguish between three sets of measures: adjustment of the foreign exchange rate; introduction of a customs tariff; and non-tariff trade barriers.

Depreciating the currency has certain disadvantages from a government's perspective. Nominally stable currencies have a strong prestige effect for governments. As can be observed in most Central European countries governments are willing to sacrifice export industry in order to enjoy this prestige effect at least for some time. Of course, linked to currency depreciation is also an additional direct inflationary push as with every depreciation imports become more expensive and contribute to price increases in the domestic economy. In fact, this inflationary push cannot be avoided when other trade restricting measures are applied. In case of non-tariff barriers the effect works indirectly. As quantities are restricted and demand remains unchanged prices go up, too, but possibly with a time lag.

In this setting governments are in search of new protectionist measures (except currency depreciation) to get relieve in competitive pressure for industries or corporations which are close to political power centers (Salvatore 1987), e.g. CEECs could have referred to the GATT/WTO exemption of "infant industry" protection (at least for some time). However, there is a strong preference to set at least temporary measures like surcharges on imports or additional import taxes and to take selective measures. Due to the global scenario (WTO membership) and the Europe Agreements there remain four fields in which measures are taken:

- regional discrimination: There is a tendency to implement relatively high third country tariffs. However, these tariffs meet countervailing political pressure by strong trading partners.
- sectoral discrimination: There is a wide differentiation of tariffs by products.
- implementation of non-tariff administrative barriers (which also meet countervailing political pressures by trading partners, but at least work for some time).
- measures in other fields e.g. to fight fraud, which have restrictive effects on trade.

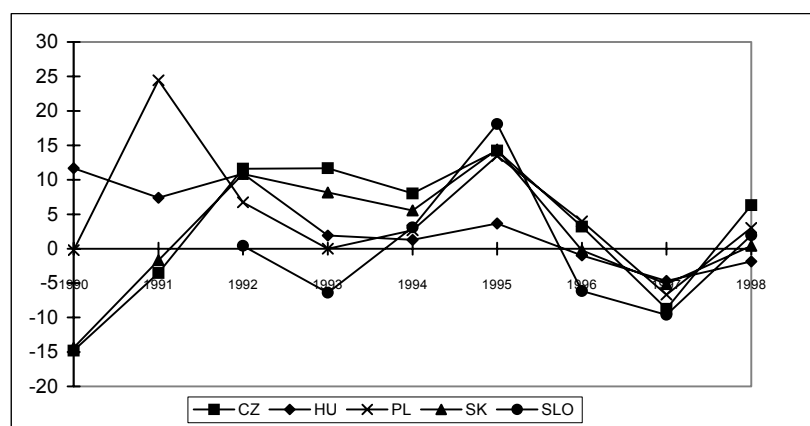
In this paper exchange rate policies, customs tariffs and non-tariff protection by more developed Central European EU member candidates are analysed: Czech Republic, Hungary, Poland, Slovakia, Slovenia.

## **2. Exchange rate policy**

Exchange rate policies in the five countries under investigation changed twice during the 1990s. In the first years after the collapse of communism some countries were inclined to use exchange rate undervaluation as a stabilization anchor and also to protect the domestic economy. In a second period from 1992-1995 there was a tendency of real currency appreciation and in 1996 and 1997 exchange rate policies converged towards adjustment according to purchasing power parity change.

In 1990 the annual real currency appreciation/depreciation ranged between +11.7% (Hungary) and -14.8% (Czech Republic), in 1993 between +11.7% (Czech Republic) and -6.4% in Slovenia, and in 1997 between -4.7% (Hungary) and -9.6% in Slovenia. As in the second half of the 1990s current account deficits became more difficult to finance the gap between maximum and minimum currency appreciation/depreciation development became narrower. We note increasing convergence of exchange rate policies in the five countries. Exchange rate changes were much more in line with changes in the purchasing power parity (Figure 1).

Figure 1: Purchasing power parity gap 1990-1998  
Implicit real currency appreciation/depreciation in per cent of previous year



Source: Fink (1999) update with Economic Survey of Europe, UN/ECE 1999/3

The cumulative effects of real currency appreciation and depreciation during 1990-1998 indicate that firms of four countries had to cope with higher competitive pressure in 1998 than in 1990. Slovenia is the exception. We find a small cumulative real currency depreciation (Table 1).

On a country basis it is interesting to compare the cumulated real appreciation/depreciation effects with current account balances. Hungary, Poland and Slovenia initially started with undervalued currencies and recorded a current account surplus in 1990. The Czech Republic undervalued its currency in 1991. Slovenian exchange rate policy remained very much in line with changes in purchasing power parity. Thus, Slovenia rather recorded small surpluses than deficits on current account. The other four countries appreciated their currencies in real terms with the effect that after 1993 current account balances deteriorated and finally were highly negative in 1996-8. This indicates that under the given exchange rate policy competitiveness of firms in these countries declined. Political pressure for more protection may have increased in the Czech Republic, Hungary, Poland and Slovakia (Table 1).



Table 1: Purchasing power parity gap and current account balances of 5 EU member candidate countries 1990-1998

	1990	1991	1992	1993	1994	1995	1996	1997	1998
<b>Implicit real currency appreciation/depreciation in % per year</b>									
Czech Rep.	-14.8	-3.5	11.6	11.7	8.0	14.2	3.2	-8.7	6.3
Hungary	11.7	7.4	10.9	1.9	1.3	3.7	-1.0	-4.7	-1.8
Poland	-0.2	24.5	6.7	0.0	2.7	13.5	4.0	-6.7	3.0
Slovakia	-14.4	-1.7	10.9	8.2	5.5	14.4	-0.2	-5.1	0.4
Slovenia	-	-	0.4	-6.4	3.1	18.1	-6.2	-9.6	2.0
Cumulative effect since 1990									
Czech Rep.	-14.8	-17.8	-8.3	2.4	10.6	26.3	30.4	19.0	26.5
Hungary	11.7	19.9	33.0	35.5	37.2	42.3	40.9	34.3	31.8
Poland	-0.2	24.2	32.5	32.5	36.1	54.4	60.5	49.8	54.3
Slovakia	-14.4	-15.8	-6.7	0.9	6.5	21.9	21.6	15.3	15.8
Slovenia	-	-	0.4	-6.0	-3.1	14.4	7.4	-2.9	-1.0
<b>Current account balances in million dollars</b>									
Czech Rep.	-122	1708	-456	456	-787	-1369	-4292	-3211	-1059
Hungary	127	267	324	-3455	-3911	-2480	-1678	-981	-2298
Poland	716	-1359	-269	-2868	677	5310	-1371	-4312	-6858
Slovakia	-767	-786	173	-601	665	391	-2098	-1952	-2059
Slovenia	518	129	978	191	600	-23	39	37	-4
Sum of 5	-472	616	750	-6277	-2758	1829	-9400	-10419	-12278

Notes: Poland - change in definition in 1995, 7935 million dollars were added as non-classified current account transactions; Slovenia - without transactions with former Yugoslavia in 1990 and 1991.

Source: Fink (1999) update with Economic Survey of Europe, UN/ECE 1999/3

The aggregated current account of the region (five countries) is indicating significant loss in competitiveness, which was statistically only cushioned by a "definition change" in the current account of Poland in 1995 when an extra non-classified amount of almost 8 billion dollars was added as revenue of Poland.

From this brief analysis we can conclude that exchange rate policies increased competitive pressure in four of the five central European member candidate countries. Thus, we have to assume that other instruments (tariff and non-tariff barriers) played an important and possibly increasing role as measures to avoid dramatic deterioration in the current account.

### 3. Customs tariffs

In 1996 when in the CE-10 competitive pressure by foreign firms was strongest the Czech Republic, Hungary, Poland and Slovakia, applied average tariffs between 8 and slightly more than 10%. Slovenia's average customs tariff was 29%. This level is to be compared with the European Union tariffs with an unweighted average of 7.2% (Table 2).

Table 2: An overview of Central European tariffs (in percent)

	MFN tariff, unweighted averages				Output-weighted tariff averages <sup>b</sup>
	All goods	Processed food sectors	Manu-facturing <sup>a</sup>	Sensitive sectors	
Czech Republic	8.0	19.0	5.9	7.2	-
Hungary	10.0	10.4	10.1	10.9	10.2
Poland	10.3	18.3	8.4	9.0	21.2
Slovakia	10.0	22.3	7.6	9.6	10.3
Slovenia	29.0	28.9	24.8	24.7	-
<b>For comparison:</b>					
EU	7.2	16.0	6.6	8.1	-

Source: P. Messerlin, "The MFN and preferential trade policies of the CECs: Singapore and Geneva are on the shortest road to Brussels", PHARE Programme, mimeo, Institut d'Etudes Politiques (Paris), 1996, table 4, for the first four Columns: UNIDO industrial production database; Messerlin's calculations

<sup>a</sup> Only non-sensitive sectors

<sup>b</sup> Output-weighted tariffs, for 3 digit-ISC industrial sectors

ECE/UN, Economic Bulletin for Europe, Vol. 48 (1996), p. 86.

When looking at tariffs by three digit ISIC classification there were relatively large differences between the maximum tariff applied in the Central European countries and by the European Union in 1996. Only in the case of the Czech Republic for about 75% of the ISIC three digit items differences could be found which were smaller than 5 percentage points. In almost 25% of all commodity positions differences in customs tariffs were larger than 5% and for 2% of the positions differences were more than 12%. In case of Poland and Slovakia, differences in customs tariffs were significantly larger. E.g. Poland in more than  $\frac{3}{4}$  of all commodity positions applied customs tariffs which were more than 5 percentage points higher than in the European Union. In trade relations with the rest of the world, which includes trade relations with the United States, Poland applied higher tariffs than the European Union, between 5 and 12% higher tariffs than the European Union in 84.4% of the

commodity groups, and customs tariffs more than 12% higher than the European Union in 2.8% of the commodity groups

The five member candidate countries tended to impose relatively high customs tariffs in third country relations while at the same time aiming at free trade in industrial goods with the European Union in the framework of the European Agreements. In addition, the Central European countries among themselves applied different customs tariffs in 45.8% of the commodity groups. Although in the WTO and CEFTA framework tariffs will become lower the given customs tariff structure may lead to significant trade diversion in the process of accession to the European Union. Given the size of the differences in customs tariffs one may even expect that a one step adjustment to the European Union tariff level may lead to crises in individual sectors of the economies of the candidate countries (UN/ECE 1996).

#### **4. Non tariff barriers in the five EU member candidate countries**

The UNCTAD Coding System of Trade Control Measures (UNCTAD 1994) distinguishes 7 types of non-tariff measures for trade protection: para-tariff measures, price control measures, finance measures, automatic licensing measures, quantity control measures, monopolistic measures, and technical measures. It has become customary to consider as protectionist measures also "measures concerning production" like state aid, tax allowances, public procurement, and exemptions from tariffs, as they may constitute an element of unfair competition, giving advantage to local producers over foreign exporters.

The European Union (Market Access Sectoral and Trade Barriers Database 1998a-e, and 1999a-e), the US State Department (Country Commercial Guide 1998a-e, 1999a-e) and the Austrian Chamber of Commerce (Andrecs 1997) are collecting reports from firms affected by these measures.

Poland seemingly is the country which makes most widespread use of non-tariff measures (39 measures, i.e. one third of the reported measures), followed by the Czech Republic, Hungary, and Slovakia (each about 20% of the cases). Slovenia which reports rather balanced

current account applies significantly less non-tariff measures than the other four countries.

Technical measures figure prominently with about 48 of the reported measures (40%), followed by quantity controls (24), para-tariff measures (23) and measures concerning production (15 cases). Only two cases of finance measures are reported. Price control measures are apparently not applied by (not reported about) these five countries. Monopolistic measures (2) are only applied by Poland.

A broad range of non-tariff barriers (about 30% of the identified measures) is affecting trade with all goods or goods from more than one sector, as e.g. import deposits, special billing rules or discriminating certification requirements. Industry specific measures affect in all five countries food, tobacco, and (mostly alcoholic) beverages (36 measures identified). Protection of the automotive industry is strong in the Czech Republic, Hungary and Poland (14 measures) which are supporting local production by foreign direct investors with discriminating measures against imports of used cars, in particular. Protection of the chemical sector (including pharmaceuticals) is relatively strong in Hungary, Poland and Slovakia. Only 7 industry specific measures are reported against imports of textiles and 4 in machinery and equipment. In these fields the Czech Republic applies 5 out of 11 reported measures.

## **5. Technical barriers to trade**

Technical certification of products is a useful instrument for consumer information and protection. Standardization of technical products can help to reduce production cost of industry by reducing the number of technical variants. International production norms secure the comparability of a broad range of internationally produced technical equipment. However, beyond these obvious advantages of technical norms and product certification there is a threat that certification requirements will be used as an administrative barrier to imports.

As it turned out to be very difficult to harmonize the certification requirements within the European Union an appropriate solution seemed to be found by the concept of mutual recognition. Nevertheless there were and still are numerous cases of non recognition which impede the "common market" despite the path breaking European court rulings in

the Dassonville case in 1974 and the Cassis de Dijon case in 1978 (Griller 1990, Nentwich 1994, 52).

The problem was also dealt with in the framework of the Uruguay Round. *"Under Art. 2 (2.1, 2.2 and 2.7) of the new Agreement on Technical Barriers to Trade the [WTO] members shall ensure that in respect of technical regulations, 'products imported from the territory of any member shall be accorded treatment no less favorable than that accorded to like products of national origin and to like products originating in any other country'. Technical regulations must not create 'unnecessary obstacles to international trade'. 'Members shall give positive consideration to accepting as equivalent technical regulations of other Members, even if these regulations differ from their own, provided they are satisfied that these regulations adequately fulfil the objectives of their own regulations. These obligations do not seem to include a (directly effective and strict) principle of mutual recognition, but rather an obligation to assess the equivalence of regulations."* (Griller 1995, 301-2).

In the application of technical norms and standards and the related certification procedures Central European member candidates are not only constrained by their membership to the WTO, but also by the Association Agreements with the European Union ("Europe Agreements"). On the one hand the agreements imply that the member candidates set up rules and procedures equivalent to those applied within the European Union. As a precondition for mutual recognition of norms and standards among EU countries and member candidates at the time of accession, at latest. On the other hand it is expected that the member candidate countries do not impose any new trade restricting measure.

During 1994-97 when systems of mandatory quality control and certification were introduced by the member candidates on a wide range of consumer and industrial products the new rules turned out to be highly protectionist in Poland, in the Czech and the Slovak Republic. Although reported as a single measure there is a strong effect on a broad range of products and sectors. Neither the EU principle of "mutual recognition" nor the weaker WTO principle of "positive consideration of equivalent technical regulations" are applied.

Quite often the respective law does not specify clear rules of certification. In addition, rules were applied to discriminate foreign producers and importers. In many instances access to certification was

and still is different for local producers and importers. E.g. foreigners can get certification only at a limited number of authorized institutions, certificates for importers expire within relatively short periods of time or are valid only for individual import shipments, and charges for certification of foreign products are prohibitively high.

#### *Czech Republic*

Under Act 22/1997, introduced in September 1997, the Czech Republic applies a system of mandatory quality control and certification on a wide range of consumer and industrial products and sectors. The system appears to have been introduced on health and consumer protection grounds. The law specifies neither the list of products to be tested nor the quality criteria or the technical requirements. Certification procedures appear to be long (between 1 to 6 weeks) and very costly (reportedly up to 120.000 DM per year in certain sectors). These costs have to be paid by the importer or the producer.

#### *Poland*

Since 1994, Poland has applied a system of obligatory certification ("B" mark certificate for *bezpieczenstwo*, "safety" in Polish) on more than 1.400 industrial products (especially in the following sectors: steel, chemicals, pottery and ceramics, paper, electrical appliances and automobiles). The certification procedures were long (between 3 and 7 month) and costly (from several hundred to several thousand Zloty) and had to be complete for each type of product creating significant market access problems (EU 1999b: Non-Tariff Barriers).

In 1995 the Polish Council for certification eased the negative effects of this legislation. Products are allowed to be brought on the market after registration and are not required any more to wait for testing results. The initial legislation ruled that firms selling goods without the mark are obligated to pay fines amounting to 100% of the value of the good sold (USSD 1999b: Trade Regulations and Standards; USTR 1999b).

The European Commission has undertaken a series of demarches seeking to remedy this situation, leading to a draft agreement on a Protocol in 1997 ("European Conformity Assessment Agreement"). After initial progress, however, the reform process stopped due to the adoption of a new Polish Constitution, and subsequent changes in the competence of the national implementation bodies. In order to carry out the necessary reforms, the Polish Government has established an inter ministerial task force, which changes some parts in the Polish

certification law. Nevertheless there are still considerable technical barriers to trade (EU 1999b: Non-Tariff Barriers).

#### *Slovak Republic*

The testing and certification system introduced by Slovakia in 1995, which applies to a large range of industrial products (i.e. foodstuffs, kitchen devices, medicines, electrical equipment, engineering products, agricultural machinery, plastics, paints, polishes, cosmetics, sporting goods etc.) was foreseen as a temporary measure pending alignment of Slovak legislation with Community Directives. Despite repeated promises to align to the "new approach" of voluntary certification practiced in the EU, the Slovak Government has not yet adopted the relevant framework legislation. Furthermore, the Slovak Republic has continued to introduce a number of pre-market testing and mandatory certification procedures on a wide product range. Especially as of 1997 technical trade barriers started to be applied on a wider scale, which took the form of veterinary and phyto-quarantine measures and requirements on certification of imported goods (EU 1999d: Non-Tariff Barriers; USSD 1999d: Chapter VI).

## **6. Labeling requirements**

Another set of discriminating technical measures refers to labeling requirements. In many instances additional information is required which is not needed or applicable in the country of origin (e.g. the name of the importer of a respective shipment) or the use of other than the local language is restricted.

#### *Czech Republic*

EU exporters as well as certain member states of the EU report that certificates for food products are not valid for all regions of the Czech Republic and that certification procedures are lengthy (3 - 6 month). Sweets are subject to specific local labeling requirements. EU exporters face problems in exporting agricultural food products which contain additives forbidden in the Czech Republic, but authorized in the EU (EU 1999c: Non-Tariff Barriers; Andrecs 1997: Beilage 3).

A European Producers Association has raised the issue of Czech definition and labeling requirements for whisky which have negatively affected their exports. The Commission has urged the Czech authorities

to amend their legislation on definition and labeling requirements to bring it into line with that of the EU. The Czechs stated that an amendment to the relevant decree is under preparation. Full compatibility will be reached by the end of 2000 (EU 1999c: Non-Tariff Barriers).

According to Decree 132/1996 all consumer information on product labels has to be exclusively in Czech language. Therefore the expression "100% Cotton" is not legal although internationally comprehensible (Andres 1997: Beilage 3).

#### *Hungary*

The European Commission and the American Government received complaints from exporters concerning the requirements of the new Hungarian Act 97/155 on consumer protection:

The act lays down in §§ 9, 10 and 12 that the merchandise can be only commercialized in case there is a well readable, clear and unambiguous information for the customer which might go beyond the EU directives on textiles like the name and address of the manufacturer or distributor, technical specifications other than fiber content, the size and quantity level, use of energy. The Commission is examining this issue (EU 1999a: Non-Tariff Barriers).

The label of food products must give the following information: net quantity, name/address of producer or importer, consumption expiration date, recommended storage temperature, listing of ingredients additives, energy content and approval symbols from the OETI and KERMI (Commercial Quality Testing Institute) (compare HUN-04-81-22) (USSD 1999a: CH VI Trade Regulations and Standards).

The label of cosmetics should indicate: product denomination, function, handling (precautionary) instructions, production date, utilization expiration date, quantity of product, producer/importer information. There are additionally specific marking and labeling requirements for human and animal pharmaceuticals (USSD 1999a: CH VI Trade Regulations and Standards)

Industry associations report that there are local labeling requirements for sweets in Hungary. Detailed information, however, is not available (EU 1999a: Non-Tariff Barriers).

#### *Slovak Republic*

Slovak legislation imposes for all foodstuff labeling that mentions the date of production and the expiry date for consumption. Other countries'



legislation envisages such dates only for food items sensitive from a microbiological point of view. In addition, Slovak legislation imposes for foreign products an indication of their origin, whereas in the EU the indication of origin is only required when its omission would lead the buyer into error about the real origin of the products. The Slovak legislation forces producers to use different labels for this little market (EU 1999d: Non-Tariff Barriers).

#### *Slovenia*

According to the Slovene law on standardization, all products have to be labeled (producer, importer, description of the product, quantity etc.) in Slovene language. This labeling is checked at the border. Thus the foreign producer has to carry out labeling. This leads to problems in case one producer has more than one importer in Slovenia: The importer named on the declaration forms has to correspond with the importer named on the label. This requires the producers to make special wrappings or labels for every single importer (Andrecs 1997: Beilage 3). According to Regulation 36/78 relating to quality certification for imported textiles, each single consignment of imported textile products needs to be checked by an institute agreed on by the National Standardization and Measurement Office. Product components and the product's compliance with Slovenian labeling requirements are checked. Responsible for quality controls are two Slovenian Textiles Institutes. There are no similar obligations in the EU concerning certification. Such a control lasts approximately 2 weeks and costs approximately 50 € per consignment (EU 1999e: Non-Tariff Barriers; Andrecs 1997: Beilage 3).

## **7. Breakdown by industry and country**

While product certification and labeling requirements quite often affect a wide range of sectors there are also numerous sector specific measures. Most of them are concentrated on agriculture and food, with emphasis on liquors with high alcohol content. Poland, however, does not apply such measures.

The automotive industry is protected with industry specific technical measures by the Czech Republic and Poland.

Industry specific measures are also taken in chemical industry in four of the five countries under consideration (not in Slovenia), textile industry (not in Poland), machinery and equipment (not in Poland and Slovenia).

Judging by the number of measures and the fact that no complaints have been reported about the certification procedures applied by Slovenia the conclusion is that Slovenia is the least protectionist country among the five member candidates under investigation. Slovenia is also the only country which keeps its exchange rate in line with purchasing power parity and does not run large current account deficits.

## **8. Summary and conclusions**

There is a clear distinction to be made between Slovenia and the other four EU member candidate countries. Slovenia keeps exchange rates much more in line with purchasing power parity change and applies non-tariff measures to a much lesser extent than the other four countries.

Five central European member candidates aimed at undervalued currencies in the first or second year of economic transition and achieved current account surpluses. (In case of Czechoslovakia the total aggregate was positive, too, as the surplus achieved by the Czech lands was larger than the deficit of Slovakia in 1991). With the exception of Slovenia during 1992-1995 exchange rates became increasingly overvalued and were rather supporting importers and restraining exporters. A high protection level by customs tariffs could not be maintained as, due to Europe Agreements (free trade with the EU to be established within 10 years) and WTO commitments customs tariffs were losing in significance as a protectionist measure although third

country tariffs in numerous cases remained relatively higher as e.g. EU third country tariffs.

As current accounts deteriorated more and more temporary measures (import taxes, import deposits) and numerous administrative barriers (mandatory product certification, labeling, packaging rules, etc.) were created. Since administrative barriers and temporary measures meet resistance by powerful trading partners (EU and USA in particular) these countries are increasingly under pressure to phase out such measures and to set up transparent and acceptable rules.

Under this pressure exchange rate policy was regaining in importance to protect domestic industries from foreign competition. During 1996-1998 exchange rate adjustments of Czech Republic, Hungary, Poland and Slovakia converged much closer to purchasing power parity change as in the early transition period.

As their current account deficits deteriorated during the 1990s the Czech Republic, Hungary, Poland, and the Slovak Republic implemented more and more non-tariff barriers to trade. 30% of reported non-tariff measures are of general nature and affecting more than one industry. Otherwise measures are mostly concentrated on alcoholic beverages, tobacco products, food (these three together 30% of measures), chemicals, pharmaceutical products, cars and components.

Technical barriers to trade play an increasing role in trade protection of three Central European EU member candidate countries: approximately 40% of the non-tariff measures reported are technical measures which in the Czech Republic, in Poland and the Slovak Republic apply to a wide range of products. These measures are in contradiction with the obligations of these countries as WTO members and also as signatories of the Association Agreements with the European Union.

As these countries want to become members of EU in a not too distant future most of the present obstacles to trade will have to be dismantled. Exchange rate policies of the EU member candidate countries should not be guided by a purely financial view of sustainability of current account deficits. Exchange rate policies should aim at balanced current account and permit to implement export led growth strategies.

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## **THE EIB'S POSSIBILITIES TO PARTICIPATE IN INFRASTRUCTURAL INVESTMENTS**

Ewald Nowotny

### **1. What is the EIB?**

The EIB is a tool for financing investments promoting and furthering the European Union's major policies, maintaining in particular a high level of financing to strengthen the Union's economic and social fabric and preparing the candidate countries for EU membership.

EIB financing may cover a wide range of investments within regional development, communications, energy and environment as well as human capital (health and education sectors) and competitiveness of European industry.

The main product is loan financing, both by means of direct loans and also global loans, which are extended to national financing institutions for channelling onwards to smaller investments. In addition, the EIB can invest in venture capital funds thereby providing innovative and fast-growing small and medium-sized companies with risk capital.

Loans signed 1999 amounted to 31.8 billion €. Of this total, 4 billion € went for investment outside the Union. More than half of lending outside the EU, or 2.4 billion €, was extended to the Central and Eastern European candidate countries and Cyprus to promote the integration of these countries into the Union.

Why do states, municipalities and companies turn to the Luxembourg-based European Investment Bank, for financing? Mainly because the EIB as the financing institution of the EU, and thus owned by its member states, can offer long-term loans at a favourable price. Maturities are up to 12 years in the industrial sector and 20 years or even more for infrastructure projects. The EIB has due to the strength and commitment of its shareholders and the good quality of its loan portfolio the highest possible credit rating - AAA. This enables the Bank to borrow on the international capital markets at the finest terms, which the EIB passes on in the lending conditions.

The EIB's shareholders, the EU Member States, reconfirmed their support for the Bank's activities by increasing its subscribed capital to 100 billion € from 1 January 1999, lifting the lending ceiling to 250

billion € and thus enabling the Bank to continue to develop the scope of its activities.

## **2. EIB and infrastructure investment**

In 1999, close to 60% or 10,3 billion € of total individual loans provided within the Union, went to finance communications infrastructure - telecommunications, rail transport, roads and motorways, air transport and fixed links, such as the Great Belt and Oresund bridges.

The priorities for the EIB remain Trans-European networks and the environment, focusing in particular on qualitative adaptations and on continued close co-operation with the banking sector and national authorities. The development of EIB lending will therefore concentrate on those projects where the added value of the Bank will be clearly assessed. Major opportunities within this context are northern transport corridors and the support to local authorities investment programmes, especially in the case of localisation in the northern, less developed areas.

The EU Summit in Cologne in 1999 stressed that *"European infrastructure is to be further improved by Trans-European Networks – in particular, the priority projects in the transport field as well as the development of projects in telecommunications and information technology to improve innovation and competition – with assistance provided by the EIB"*. The EU Summit in Lisbon underlined the need for the EU *"to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion"*. The Summit welcomed the contribution the EIB had said it was ready to make in the areas of human capital (education and health sectors), SMEs and entrepreneurship, research & development, networks in the information technology and telecom sectors and innovation.

In Spring 2000, the EIB's Board of Governors, that is the Finance Ministers of the Member countries, approved a proposal by the Bank and its Board of Directors – the so-called "Innovation 2000 Initiative". The EIB will dedicate a lending programme of 12 to 15 billion € over the next 3 years for the above mentioned priority areas and make another billion euros available for venture capital operations for SMEs.

The first billion € within the Bank's "SME Window" were established as a response to the Amsterdam EU Summit on Growth and Employment in 1997.

The Cologne Summit also recognised the growing role of the EIB in assisting countries, preparing to join the Union. Also in this respect particular attention will be given to projects in key EU policy objective sectors: communications, energy and the environment, industry and SMEs plus, as far as possible, health and education.

During the last five years, EIB lending to these countries totalled 8.4 billion € with some 2.4 billion € for each of the last two years. The Bank now has at its disposal some 17 billion € to be allocated for loan financing in the candidate countries during the next three to five years. The EIB is the biggest source of international finance for projects in Central and Eastern Europe.

### **3. EIB and the northern dimension**

One of the aims of the Northern Dimension is to emphasise the importance of Northern Europe and its advantages for EU development in the long term. The aim also includes supporting the enlargement of the EU and its co-operation with Russia.

The EIB has, up to now, no mandate to operate in Russia. However the Bank follows with interest the prospects of selected projects in the environmental sector of great benefit for the Baltic Sea (i.e. St Petersburg Waste Water), and in the energy sector (i.e. the Nordic Gas Grid). For specific projects, where there is an additional EU interest and where adequate securities may be obtained (Member States or prime banks), the possibility exists for the EIB to engage itself in financing operations, given the unanimous support of its Board of Governors (i.e. EU Finance Ministers) under Art. 18 of the Bank's Statute. In its decision of 1 December 1999 the Council of the European Union expressed its readiness to investigate, sometime in 2002-2003, the possibility of extending the Community guarantee to the European Investment Bank to cover, among other possible countries, Russia, once the necessary conditions in these countries are met, in particular in relation to the presence of a stable working market economy in



accordance with the IMF programmes, which will, in turn, make EIB lending in these countries under the usual sound economic and financial conditions feasible. Should these circumstances be met and the Council suggest including Russia into the future set of mandates, the Bank is prepared to examine this possibility and the conditions attached to it with its governing boards.

Whereas the definition of the policies and instruments required for the implementation of Northern Dimension pertain to the European Council, the EU Commission and Member States, at the operational level the EIB has developed its own plan of action:

- by maintaining closer contacts with the national authorities involved and the EU institutions in order to maximise the synergies between its financing, the EU programmes and the action of international financial institutions (EBRD, World Bank, NIB) and local banks,
- by channelling its loans to projects where EIB financing is the most appropriate because of its very long maturity, size, currencies and interest rates,
- by providing promoters with the added value resulting from the technical and financial expertise it has acquired over 40 years of activity,
- by supporting the reinforcement of basic infrastructures in Baltic countries and Poland as well as their process of transformation towards market economies.

A key factor in the EIB's action has been the consideration that the creation and modernisation of the infrastructure needed for better communications between Northern Europe, the rest of the Union and the applicant Central and Eastern European countries were a precondition for a sound and sustainable economic development of the Union as a whole. For this reason by far the most important EIB financing has been concentrated on:

- Nordic Triangle: on a total of 2.4 billion € granted to infrastructure projects included in the Nordic Triangle, the Oresund link between Copenhagen and Malmö was by its size (1.2 billion €) one of the largest loans ever provided by the EIB. The action in favour of Nordic Triangle projects was completed by the loans granted to the E 4 and E 6 motorways connecting Stockholm and Helsingborg and Malmö with the Norwegian border. Still in the road sector, the EIB participated in Finland in the financing of different sections of the East West E 18 motorway and the North South E 12 motorway,

linking respectively the southern road axis of Finland with Russian borders and providing faster and safe access to the European network, and the Finnish Northern regions.

- The main projects financed in the rail sector were, in Sweden the modernisation of the rail line between Malmö and Göteborg, and, in Finland the financing of different sections along the corridor Turku – Russian border with the overall aim of improving the EU's access to St. Petersburg through Finland.
- TENs: financing provided to TENs projects under the EIB TEN window amounted to 2.8 billion €, with again a large scale financing to the Great Belt Link (1.9 billion €) and a number of loans covering airports (Copenhagen, Helsinki), ports (Göteborg, Århus), power networks, roads and railways.

The Nordic triangle and TENs projects absorbed around 40% of the EIB lending to Nordic and Baltic States.

In line with the priorities set out in the Accession Partnership Agreements signed between the European Union and the Pre-Accession Countries, including Estonia, Latvia, Lithuania and Poland, further EIB support will be directed towards the upgrading of the countries basic infrastructure. Particular attention will be paid to the investments in the environment and transport, energy, telecommunications and health and education infrastructure. Support to SMEs and small infrastructure will be channelled through global loans.

The Bank is paying special attention to the development of the communications links between the countries concerned and the Member States. One of the priorities will be support to TEN Corridors, including further upgrading of the Via Baltica route (TEN Corridor 1) between Helsinki and Warsaw. The Bank is also following with interest the Baltic Ring energy sector initiatives, with particular emphasis on interconnection links and rationalisation of energy production/distribution.

The EIB is strongly committed to facilitating Pre-Accession Countries' further integration into the EU. The financial envelopes in place would allow the Bank to further expand and deepen its current activity in the candidate countries and allow the future Members to benefit from the valuable experience the Bank has gained from previous enlargements. The Bank, based on its recent experience from operations in Estonia,

Latvia, Lithuania, Poland and in the other countries in the region, as well as from its active involvement in previous enlargements of the EU, expects to be a valuable partner for the Pre-Accession Countries both during the present pre-accession phase and after membership.

Of great importance in the EU's overall pre-accession strategy towards Pre-Accession Countries is maximising complementarity and synergies between the various EU instruments. In connection with this, the Bank will seek to combine EU grant finance sources such as PHARE and ISPA. Co-financing possibilities with other international financial institutions, particularly the Nordic Investment Bank (NIB) and the Nordic Environment Finance Corporation (NEFCO), which are both active in the region, but also with bilateral sources of finance, will continue to be explored, as appropriate.

The examples of EIB financing in the Northern countries mentioned and more precisely in the northern parts of these countries, underline the Bank's commitment to support regional development, which is its main task. The EIB must, in co-operation with the national and regional authorities, seek to step up gradually its activities in these sparsely populated regions in support of projects that will encourage economic development.



**EXCHANGE RATE REGIME  
IN CENTRAL AND EASTERN EUROPE**

## **EXCHANGE RATE ARRANGEMENTS IN CENTRAL AND EASTERN EUROPE**

Robert A. Mundell

After World War II, the war-torn countries of Europe were primarily engaged in economic stabilisation, and it was natural that they would attempt to meet that task by making their economies converge to the international monetary system that was being developed.

The Bretton Woods arrangements were drafted in the spirit of the gold standard, which became the predominant element of the post-war system. It was then natural for the countries of Europe – not just Eastern Europe, but all countries of Europe, at least outside the Soviet zone – to move to a system of fixed exchange rates and to gradually eliminate capital controls.

The emergence of the international monetary system and advances in the convertibility of the national currencies gave European economies a kind of signpost for economic policy: Once you fix the exchange rate to the world system, all other aspects of policy fall into place. Monetary policy becomes, or should become, automatic otherwise a country gets into trouble. In the long run, fiscal balance is also imperative, as countries with big deficits most likely run into speculative difficulties and their currencies will be in trouble. This system of more or less fixed exchange rates served the post-world war II world quite well.

With the end of the cold war in 1989/90, the international monetary system disappeared. Already in the 1970s, it had been changed into a system with flexible exchange rates with no link to gold any more. This was gradually developing, and this avoided the chaos that would have resulted from suddenly freeing all exchange rates. Imagine a system of flexible exchange rates for some 200 countries in the world, with all countries more or less of the same size: this would mean complete chaos. Actually, no chaos emerged because the configuration of powers, economies and transaction areas was very skewed. There was a dominant currency, the US dollar. The dollar gave much coherence to the world currency system in the 1970s, and still to some extent in the 1980.

As a consequence of this change, the role of the international monetary authorities, in particular that of the IMF, has greatly changed. Immediately after world war II, it was easy for the IMF to follow a coherent policy. In a way, fixing the exchange rate substitutes for using monetary policy instruments. The inflation rate will anyway be determined in the currency area the country is part of. But in the 1990s, when the powers of the international monetary authorities were spread between the IMF, the World Bank, the EBRD and the OECD, they found themselves in a no-man's land of economic policy. They acted eclectic, did not really know what to do, and there was no coherence to the system.

In the 1990s, the countries of Eastern and Central Europe dropped into a great depression in which, with very few exceptions, still are. Only now two or three of them have returned to higher growth rates and higher output levels – according to the way we measure it – than they had in 1989.<sup>1</sup>

The important fact is that the 10-year transition experiment was a debacle. The depression, measured in terms of per capita output compared to the 1989 level (if we believe in those figures), was much greater than in the great depression in the 1930s.

Part of the reason has probably been the policy prescriptions and the lack of coherence of monetary policy. Nearly all reforming countries went through long bouts of inflation, which destroyed their credit mechanisms. In case of hyperinflation, as one of the countries experienced, no efficient investment system seemed feasible. In the latter part of the 90s they gradually returned to stability, but there was still no coherence to their policies.

Another important change, also associated with the cold war, was the development and advent of the euro and the euro area. The euro makes a big difference to the countries of Central and Eastern Europe. It represents a very clear-cut system at least compared with the rather loose ERM system. Eleven currencies have locked their exchange rates, and the euro instantly has become the number two currency in the world. It comprises a big currency area, which has the prospect – if Britain and

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<sup>1</sup> Of course, there are lots of arguments why these figures may not be completely realistic.

some other countries join – of becoming as big as the dollar area. Taking into account that 13 African countries are already locked into the euro area, plus the one or the other pre-in country, as well as the 13 more CEE countries that have been invited to apply for EU membership, then all in all about 41 countries will participate in the euro system. Another 10 countries in Northern Africa and the Middle East and maybe other Eastern European countries may want to lock their currencies in. By 2010, some 50 to 60 countries might be part of the euro area. Thus, one can imagine that the euro area will be of the same order of magnitude as the dollar area, maybe even somewhat bigger. Meanwhile of course the dollar area is going to expand into Latin America, and there may also be a yen area forming, or some other currency areas in Asia. But the pure existence of the euro gives important impulses to the development of the international monetary system.

Now, for the reforming countries of Central and Eastern Europe the question is what the best way would be to conduct their monetary policies to approach EU membership. I think in terms of the monetary policies of the transition countries, without exception, the best way of achieving convergence is fixing the exchange rates of their currencies to the euro and letting that become the monetary policy of the country. Let's for a moment use the term "currency board", although it does not have to be a currency board proper. Currency boards are an extreme form of fixing the exchange rates. On the other hand, pegged exchange rates are the worst of all systems. A pegged exchange rate means that a country intervenes in the foreign exchange market to stabilise the exchange rate, but at the same time wants to maintain an independent monetary policy. In contrast to this, a fixed exchange rate serves as a monetary rule.

There is no point in asking the question: "Which currency regime should be preferred – fixed or flexible exchange rates?", because fixed exchange rates represent a monetary rule, and flexible exchange rates do not. Quite contrary to that: flexible exchange rates are equivalent to removing a monetary rule.

Fixed exchange rates should only be compared with another monetary rule. It is perfectly legitimate and logical to say: Let's compare fixed exchange rates or exchange rate targeting with inflation targeting or monetary targeting. These are three monetary rules, but such comparison does by no means address the question of fixed versus



flexible exchange rates. With monetary targeting a country must have a floating rate, with inflation targeting it must have a floating rate, with fixed exchange rate targets it has to let the other goals go. A country can at a time pursue only one of these goals.

Now anyway, when talking about fixed exchange rates or currency boards I really mean an exchange rate system of the kind that Austria had vis-à-vis the Mark for two decades and the kind that Holland had and most of the time Belgium had against the Mark. In practice one advantage of such an inter-currency area with almost fixed exchange rates is that there is no big speculation about it. Speculative capital movements are absent unless there is the suspicion that one of the countries is going to change its monetary policy.

So the main point is that any "fix" has to fulfil two criteria: it has to be credible and it should not further expectations that policies are going to change. Here look at the example of the currency board of Argentina or Hong Kong. These currency boards ran into trouble in one or two points in time. Hong Kong has had a currency board with the US dollar at an exchange rate of 7.8 Hong Kong dollars since 1983 when John Green established that currency board. It worked famously successfully until 1997. That currency board was run by three commercial banks. The government was not involved in it, and the board was perfectly successful with no speculation about the exchange rate. But when the British set up the Hong Kong Monetary Authority several changes in policy precluded it from accumulating credibility: it switched, e.g. from buying and selling foreign assets to support the stock markets or something like that. As a consequence, speculation started. As soon as policy is changed, the country loses credibility. They only re-established their credibility when they stopped changing the exchange rate. The key message therefore is that policy has to be credible. Only a credible monetary policy yields the benefits of low interest rates and low inflation rates in the long run.

The Maastricht Treaty requires member countries to have independent central banks. Now the implications of that in Europe are interesting. Let's explore this by a few examples. First of all, what did it mean for Luxembourg. Luxembourg has had a monetary union with Belgium since the 1920s. Luxembourg francs circulate in that area but there aren't too many of them. A monetary institute cared for monetary

policy. Suddenly Luxembourg had to upgrade its monetary institute to a central bank which, however, was never contested.

What would the independency rule mean for other countries, let's say, for Estonia? Estonia fixed the crown to the DM in 1992 and has kept that policy since. What does it mean for a country that has a currency board and the unique policy of having a requirement of 125% reserves, or an extra of 25%, to act in lieu of the lender of last resort for some additional protection.

Why does Estonia need – its currency fixed to the DM and now to the euro – to have an independent central bank? A currency board, or a central bank, that is following a really automatic policy can be classified as independent, although it avails of zero options. There is no degree of freedom and therefore there is no independent judgement. It is never the central bank, even if it is independent, that is the authority to control the exchange rate. It is rather the government that controls the exchange rate. On the way to the EU a lot of countries have taken this route and have set up an independent central bank. Then for a while they practised something like inflation targeting. I think this is the slow way to reach convergence. It is a very inexact and a very difficult way: We all know how difficult it is for the European Central Bank to judge whether they should expand or contract, raise or lower interest rates, and how difficult it is for the Open Market Committee in the US to make a decision. Why should every single country make decisions with officials who do not have experience comparable to that of the staff of the ECB or of the Federal Reserve System. If they would fix the exchange rate that would require just a single decision. I am not saying that fixing the exchange rate is an easy decision. It has to be done properly, and the rules and the mechanism have to be set up with respect to the currency board. But once this system is in place the fixed costs are paid and monetary policy becomes automatic. That automatically also drives convergence in all ways.

Let's suppose that the central bank chooses the exchange rate "correctly", fixes it and commits itself to buy and sell euros for local currency at that fixed rate. What will happen? That is exactly the position that the countries of the euro area are in now. They have only very limited degrees of freedom in their basic policies. What will determine the supply of money in such a country? If a country grows rapidly, it will need more money. As it grows, the demand for money will increase, expenditures will be a little bit less than income, and there

will be a bit of an inflow or outflow of capital (i.e., the country will import the money it needs). That is how Hong Kong has been successful all way though since 1983 and how other currency boards for long periods of time were successful. Once the country has got through that currency board stage, then convergence to the EMU zone is very easy. All the work has been done. The only thing that is needed now is to replace the national currency with the Euro. When countries fix the exchange rate credibly by currency board or alternative mechanisms, as a rule the Central Bank interest rate – if it is credible – comes quickly down. The interest payments on the public debt go down and reduce the budgetary burden. What then is only left is to balance the budget. If that becomes credible, a lot of these countries which have not had developed capital markets will quickly establish capital markets. There is some leeway then for expanding the public debt.

Should EU countries be allowed to have whatever monetary policies they want to have or should they be subject to the conditions that the other members of the EU have. When Britain got a derogation, this was a very special case. Denmark may be viewed as another special case. But why should all the 13 applicant countries all be special cases. Especially for the smaller economies applying now for EU membership, it seems much more efficient for them to conduct their monetary and fiscal policies under fixed rates than under floating rates. It would lead them in the right direction towards stabilising their economies.

In this context the issue of the "holy trinity" comes up again: Can a country follow an independent monetary policy with fixed exchange rates and in the face of free capital movements? Some people attribute this issue to Padoa-Schioppa, and I was really surprised when I read an article by Milton Friedman where he attributed this holy trinity to Keynes. The issue is, you cannot have fixed exchange rates and an independent monetary policy. Forget about free capital movements, free goods movements, and anything else. It is irrelevant to it. You can choose between fixed exchange rates and an independent monetary policy. That is exactly what Keynes said. I went back to look very carefully at the passage that Friedman was quoting and he misquoted Keynes. I think we should stop talking about the "holy trinity". We may talk about the "holy duality", then we are in a Zoroastrian world in which trinities do not exist.

I am not saying that a country should fix the exchange rate in a currency board when the conditions are not right for it. If a country has a big budget deficit and has to use the inflation tax to finance it, then it cannot stabilise the currency and the country should not be part of the European Union. The European Union should accept only countries that have achieved their convergence with respect to inflation targets and have been inside the ERM.

The route to go for the accession countries is the following: They cannot fix their exchange rates immediately, but will first have to stabilise the macroeconomic situation of their economies. If a country fixes the exchange rate when the inflation rate is 10%, 15%, or 20% – as it might be in one or the other of these countries – the establishment of a rigid currency board will automatically drive down the inflation rate and thus disinflate the economy. Almost inevitably, the exchange rate will be overshooting. In addition, stabilisation will lead to bank problems. It is not the currency boards per se that causes bank crises, but stabilisation initiated by an institution. Stabilisation by a currency board and fixing the exchange rate will usually cause a bank crisis because banks are not able to cope with disinflation. Disinflation raises the expected real interest rate, creates sudden weakness in the bank assets, which may be followed by a run on banks. But currency boards themselves or fixed exchange rate systems should not directly be associated with bank crisis.

Anyway, there is also a legal question involved that as far as I know, has not been answered yet. Will the accession countries to the EU be required to be part of EMU or not? It is not clear from the arrangements of the Maastricht Treaty because at that time the EMU did not exist, so it was not part of it. In my opinion, the accession countries should be required to join the EMU. It would be a terrible thing to have another 13 or 15 countries coming in with flexible exchange rates. Really I do believe you cannot have a common market when you have fluctuating exchange rates in an area. This would be ridiculous.

One of the great advantages of joining the EU for the Central and Eastern European countries, that are poor relative to the countries in Europe now, are very large transfers. The resulting benefit for them should have a quid pro quo in the form of convergence of their economies and the required tough political decisions. The best way to achieve this is certainly by a fixed exchange rate arrangement, which is also the final criteria of entry into the EMU area. I put it in the form of a

quid pro quo, but it is like telling a country they should move towards freer trade. I think the country will benefit from being suddenly part of the euro area. Suddenly they have a first-class currency. They give up currencies that are useless, destroyed by inflationary policies in the past. They are getting something very important, they are getting something that will give them capital markets and an efficient monetary and financial system.

To sum up, the formation of the euro area will present an attractive new option for countries in Central and Eastern Europe and elsewhere. The size and long run promise of stability will make it an attractive anchor for neighboring countries, none of whom are likely to achieve comparable stability on their own. Most of the countries of Central and Eastern Europe that are candidates or potential candidates for joining the European Union will see it in their interest to fix their exchange rates – perhaps through some variant of a currency board – as a prelude to euroization.

## **WHAT MONETARY REGIME FOR ACCESSION COUNTRIES?**

Jürgen von Hagen

The prospect of accession to the European Union raises the question of what kind of monetary regime is most appropriate for the transition countries of Central and Eastern Europe. This choice has to be made in view of a number of constraints. The first is that countries joining the European Union will have to liberalize their capital accounts both for capital flows from and to other the incumbent European Union member states and for capital flows to and from other countries and regions. Second, the accession countries should choose a monetary regime that provides macroeconomic stability despite large and lasting differentials in the growth rates between these countries and the incumbent European Union countries. This is necessary to reduce the large gap in per capita incomes between the current and the prospective new members of the Union. Third, the monetary regime should be a credible one, avoiding frequent disruptions or changes in regimes.

Obviously, these three conditions speak strongly against conventional fixed exchange rate regimes for the accession countries. The exchange rate crises of the 1990s have reminded us of the fact that fixed exchange regimes combined with a high degree of capital mobility are extremely fragile. To maintain credibility, central banks could often be forced to raise interest rates to very high levels, thus disrupting growth. This experience has lead an increasing number of countries to turn away from fixed exchange rate regimes and adopt one of two alternatives instead.

The first alternative is a currency board. Under this approach, the exchange rate is fixed completely by legal mandate that ties the growth of the money supply to the inflow of foreign exchange reserves. In theory, this resolves all credibility problems. In practice, as we have seen in the cases of Argentina and Estonia, credibility problems may remain for quite a long time, keeping interest rates at high levels. Furthermore, the case of Argentina has shown that the usefulness of a currency board depends critically on economic developments in neighboring states competing in the same export markets. Since the accession countries all compete jointly in the product markets of the

incumbent European Union member states, any one of them that adopts a currency board could face dire hardship after a strong devaluation by another country of the region. This possibility of a severe economic disruption following a devaluation of a neighboring state would also make countries adopting a currency board less attractive for foreign investors.

The second reason why a currency board is inappropriate for accession countries is that the process of real economic convergence to the current European Union members is likely to come with a strong real appreciation of their currencies, the so-called Samuelson-Balassa effect. With a completely fixed exchange rate, the real appreciation can only come through inflation rates above those of the European Union. This would contradict the goal of macroeconomic stability and at the same time the conditions for entering the European Monetary Union at a later stage.

In his speech at this seminar, Professor Mundell argued in favor of immediate euroization of the accession economies. The main difference between this and a currency board with the euro as reference currency is that the governments would forego revenue from money creation. It is possible of course, as Professor Mundell argues at the seminar, that running a central bank is so costly, that seignorage will not cover the costs. Yet, most central banks make profits, so that euroization would imply a loss of resources for the governments.

The other alternative is floating exchange rates. This is indeed the solution many countries in the region have adopted in recent years. The main difficulty there is to maintain a stable and credible nominal anchor for monetary policy. Experience shows that this can be achieved by means of monetary targets or inflation targets. Such a regime poses no contradiction to a large degree of capital mobility and it can accommodate large and lasting growth differentials with low inflation rates.

An important argument in support of euroization, mentioned also by Professor Mundell, is that the accession states will have to adopt the euro upon accession, anyway. Much as the merit of this argument is questionable, it is certainly much weaker now that Denmark has voted against the euro. The Danish referendum signals that the European Union will not be the same as the European Monetary Union for the

foreseeable future. Thus, accession without adopting the euro is a real option now. The accession countries will think carefully about what is the best monetary regime accommodating rapid economic growth, modernization free movement of productive factors. It is unlikely that euroization or currency boards will be the answer.



## **EXCHANGE RATE ARRANGEMENTS IN CENTRAL AND EASTERN EUROPE – COMMENTS**

Laszlo Halpern

Accession countries aim at becoming full members of the European Union, monetary union included. That will bring about all the expected benefits what a successful integration can offer to its member states. The end of the road of the integration process from the viewpoint of Mundell's paper is clear, the legal currency will be the common currency: the euro. Its exchange rate belongs to the competence of the European Central Bank (ECB) with all the institutional support from the European System of Central Banks (ESCB). The present situation with respect to the exchange rate arrangements in Central and Eastern Europe covers all the spectrum from a fixed-currency board type arrangement to a purely floating exchange rate regimes. As it is observed, the middle of the spectrum includes decreasing number of countries, that is, there is a clear tendency of polarization due to recent crises and increasing mobility of capital. There is no clear preference in favor of any exchange rate regimes, countries tend to choose between more flexible or more rigid exchange rate regimes with comparable frequency. There are two questions related to the topic of the paper, first, how these different exchange rate regimes will converge toward monetary integration, and second, whether the best way along this road is to fix as early as a country can, as it is suggested in the paper.

Accession countries are free to choose their exchange rate regime, both extremes are compatible with all the criteria of accession conditions, while countries should be able to meet the Copenhagen criteria. All the EU official documents and statements assert that accession countries cannot join EU and EMU in the same time. Entering EU new member countries are assuming all the legal constraints, the *acquis communautaire*, the obligation to join EMU. It is implicit in this procedure that countries far away from being able to meet the Maastricht criteria will not be eligible for EU accession.

The next step in the integration process is to join ERM II as a necessary prelude to test the ability to cope with all the challenges the economy has to face. ERM II prescribes a fixed central parity – what can be adjusted by revaluation of the central parity – and a wide band around

the central parity. During this phase of integration EU institutions (especially ECB) are actively participating and take responsibility in relevant questions of common interest.

In principle ERM II is not compatible with currency board, but in this respect considerations raised in the paper may lead to different outcome as further experience will be available with respect to the functioning of ESCB. It is also clear that early unilateral euroization is now regarded as a violation of the Treaty. However, one can easily foresee developments what may modify this firm position, namely, bilateral dollarization backed by agreement on seigniorage revenue may get momentum and EU may support euroization in less developed countries.

There are, however, other issues what may have impact on the choice of exchange rate strategies. The EMU is evolving and looking for answers to its own challenges. Inflation differentials within EMU are now much larger than expected and views are quite divided whether they call for action. Inflation is larger in countries growing faster. Any fiscal stringency would have negative effect on growth. In some countries this faster growth is accompanied with sound fiscal position making fiscal action unnecessary.

Accession countries are in different phase of their real and nominal convergence. Most of them are now growing faster than EU average and successful in fighting inflation. Their medium term perspective requires a credible exchange rate strategy what is able to incorporate real appreciation due to faster growth and leads to further disinflation.

Small countries with sufficient flexibility in their labor and capital markets can achieve it by choosing currency boards. As recent experience during crises has showed countries with pegged exchange rates were obliged to seek greater exchange rate flexibility. This demonstrates that during pre-accession stage different exchange rate regimes can respond to different needs without endangering the final objective of these countries.

## THE COSTS AND BENEFITS OF EURO-ISOLATION IN CENTRAL-EASTERN EUROPE BEFORE OR INSTEAD OF EMU MEMBERSHIP

D. Mario Nuti<sup>1</sup>

### 1. Introduction

The current simultaneous EU enlargement and monetary unification are about to create an unprecedented economic segmentation in Europe. Previous instances of enlargement and deepening treated equally old members among themselves and, subject to short-lived transition arrangements, old and new members. Countries were either in or out of the EC; any other diversification pre-existed and was not actually generated by the progress and pattern of European integration.

Membership of the European Monetary Union (EMU) is an integral part of the *acquis communautaire*, which new and old members alike are committed to implement – subject to three qualifications (see Temprano-Arroyo/R.A. Feldman, 1999):

- 1) possible "derogations", such as those negotiated by the UK and Denmark, which at present no new member is expected to request, let alone necessarily obtain if they did;
- 2) before joining EMU, at least two year successful participation in the Exchange Rate Mechanism<sup>2</sup>, which Sweden has failed to implement to date;

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<sup>1</sup> Earlier drafts of this paper were presented at the Sixth Dubrovnik Economic Conference, on "Exchange Rate and Financial Vulnerability in Emerging Markets", 29-30 June 2000; and at the 12<sup>th</sup> Annual Meeting of the Society for the Advancement of Socio-Economics, London School of Economics, 7-10 July 2000, Panel on "The Economic Impact of Exclusion from EU and EMU". Acknowledgements are due to Vincent Koen, Jacek Rostowski and Milica Uvalic, as well as participants in both Conferences, for useful comments and suggestions. Financial support from the ESRC Programme "One Europe or Several?", Project n. L213 25 2003, is gratefully acknowledged.

<sup>2</sup> The ERM to which the Maastricht Treaty referred was replaced from 1.1.1999 by ERM II, including criteria such as the development of market integration, current-account balance, monitoring of unit labour costs and

- 3) before examination of a country's application to join EMU, achievement of the other Maastricht Treaty standards for monetary and financial convergence, in terms of public debt and deficit, inflation and interest rates<sup>3</sup>; failure to achieve these standards delayed Greece membership of EMU until the Lisbon summit of June 2000.

Europe, therefore, even if all new members opted to join EMU at the earliest possible date (and a fortiori if they did not), in the European Union's transition to a fully integrated and enlarged Monetary Union is going to be segmented into at least four groups:

- members of both EU and EMU (at present 12 including Greece);
- members of the EU which are either excluded (Greece until recently) or self-excluded from EMU (UK and Denmark; Sweden), soon to be joined by the next batch of new members for at least their first two years ERM participation after accession (unless a record of exchange rate stability was treated as equivalent to ERM, see below);
- 10 applicant countries from central Europe already engaged or soon to be engaged in detailed accession negotiations: Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic and Slovenia; plus Cyprus and Malta and, more recently, Turkey, followed – or perhaps overtaken, for instance in the possible case of Croatia – by other countries from south-eastern Europe. All these countries' admission to EU is subject to economic and political conditions and will be staggered over time beginning not earlier than 2003-4;

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other price indices.

<sup>3</sup> More precisely, in addition to two year ERM II membership: 1) an average rate of inflation over a period of one year before the examination, not exceeding the average of the three best performing member states by more than 1.5 percentage points; 2) an average nominal long-term interest rate on government bonds, also over a period of one year before the examination, not exceeding by more than two percentage points the average of the three best performing member states in terms of price stability; 3) a government deficit of at most 3% of GDP and 4) a government debt of at most 60% of GDP – unless the ratio for both deficit and/or debt is close to the reference values and either has already declined substantially or exceeds the reference value only temporarily.

- the rest of Europe and of the FSU, excluded from EMU at least for the foreseeable future.

Union and Euroland enlargement is going to have – in the words of ECB President Wim Duisenberg – *"deep and wide-ranging consequences"* for the ECB (The Economist, 29-1-2000; see also Bekx 1998).

Before EMU membership or, for the excluded or self-excluded, instead of EMU membership, there are two possible and, most important, unilateral ways for countries to secure a closer monetary integration with the EMU area if they wish:

The first is the adoption of a currency board managing a domestic currency linked to the euro or (until 2002 when euro coins and banknotes will first appear) to any of the EMU-member currencies; for the sake of convenience and of psychological impact the currency – whatever it is called – could also be scaled so as to make its unit equivalent to one Euro, at no extra cost.

The second, more drastic alternative is the official adoption of the euro or, until it has a bodily existence, of any of the EMU-member currencies – plausibly the DM – as the exclusive or primary domestic means of payment, which in many countries is facilitated by already existent unofficial DM-isation or dollarisation.

This paper seeks to identify the theoretical and empirical issues involved in these options, and to evaluate euroisation costs and benefits for both accession candidates and the EU and its member states, drawing policy conclusions which should be relevant also for EU outsiders.

## **2. Euroisation to date**

Both a currency board and domestic currency replacement can be regarded as forms of euroisation (by analogy with the more euphonic dollarisation, on which see Calvo 1999, IMF 1999, US Senate JEC 1999, Berg/Borensztein 2000). The currency board is euroisation in a broad sense, while the use of the actual euro or other EMU area means of payment are euroisation in a strict sense – though both falling short of the full-fledged euroisation obtained through full EMU membership.

Currency boards with links to the DM or the euro already exist in Estonia (8 kroons = 1 DM, i.e. EEK 15.6466=1 €), Bulgaria (with the lev in 1997 originally tied to the DM then in 1999 re-pegged to the Euro, which is the same thing, BGL 1.95583=1 €) and Bosnia, with the "Convertible Mark" equivalent to the DM. Lithuania has a currency board linked to the US dollar (from 1994, 4 litas = 1 US\$; see Korhonen 1999, 2000). Any currency whose exchange rate is irrevocably tied to a currency, the DM, which in turn is irrevocably fixed to the euro, obviously is already indirectly pegged to the euro. Thus these countries could, like Bulgaria, switch from a link to the DM to a link to the euro (as they would have to do anyway in mid-2002 when the DM is totally replaced by the euro) at a stroke. This could be followed by a redenomination of their domestic currency so as to equal one euro, opening the possibility even to beat the ECB at printing the first euro denominated banknotes. Indeed Estonia has put forward precisely such a proposal for implementation in 2001 already before its accession (OECD, 2000). A working group was set up by Premier Mart Laar to analyse the issue further; according to the vice-president of the Estonian Central Bank, Mr Peter Lohmus, the main issue for Estonia is ensuring the *"smoothest, least volatile way into the euro system"*, but no new issues could possibly arise that do not arise already under the currency board regime.

The euro is also the reference currency for the exchange rate pegs in the Czech Republic, Slovakia and Slovenia (on the extremely diversified exchange rate regimes in the transition, see Nuti 1996a, Backe' 1999; Lavra 1997). Poland, Hungary and Romania are only partially linked to the euro (the first two respectively at 55% and 70% only), the residual still being represented by the US\$ (see Nuti, 2000a).

The Lithuanian currency board link to the US\$ justifies the much lower degree of euro-optimism there (see Korhonen 1996); the same considerations apply to any other country which has succeeded in maintaining a fixed exchange rate in relation to a reference hard currency other than the euro or an EMU member currency, such as Latvia's lat (since 1994, an informal peg to the SDR has been maintained, at 0.8 lats=1SDR, +/- 1%).

It can be argued that an EMU candidate that has experienced a period of pre-accession euroisation in either form – currency board or currency replacement by an EMU currency – should have the two-year ERM II membership requirement shortened or even waived. Indeed the same

treatment may be plausibly requested by any other country that has maintained an exchange rate stability comparable to that of ERM II in the run up to accession. The Latvian Lat, for instance, having maintained its peg to the SDR in spite of the August 1998 Russian crisis and its significant impact on all Baltic economies, also deserves to have its two years waiting time significantly shortened; Latvia's foreign minister Indulis Berzins has announced that his country hopes to join the euro-zone as early as 2003. Neither enlargement nor successful unilateral euroisation were being contemplated when the Maastricht Treaty was being negotiated – hence the case for relaxing the two-year ERM II membership, though not automatic, is exceptionally strong.

Informal DM-isation already exists on a large scale in Eastern Europe and the FSU, though often dominated by (informal) dollarisation. In 1995 the German Bundesbank estimated that about 30% to 40% of all DM notes and coins in circulation were held abroad (Seitz 1995), which compares with a Federal Reserve estimate of 40%-60% for the US dollar (corresponding to \$192-288bn, Feige et al., 2000). Montenegro has formally adopted the DM as a dual legal tender next to the Yugoslav dinar; the DM is de facto the domestic currency in Kosovo. Any DM-ised country would eventually – in 2002 – become strictly Euro-ised.

Proposals for an extension of the currency board regime have been put forward for other EU accession candidates, e.g. by Mundell (1998), Gros (1999), CEPS (1999; for a similar plan for Argentina see Hanke and Schuler 1999; for a cautionary comment on such proposals see Daviddi 1999). Bratkowski/Rostowski (2000) recommend an early official replacement of the Polish zloty by euro.

### **3. Advantages of euroisation**

By and large the prevailing view, both in economic literature and in policy circles, is that euroisation has immediate, and dominant, positive net advantages, especially in transition countries where government institutions lack the credibility and track record needed to successfully adopt alternative exchange rate regimes and the monetary policies necessary to back them.

An argument for dollar- or euroisation is the national governments' ability to overcome their inability otherwise to borrow internationally in their domestic currency (Hausmann, 1999, 2000). Euro-/dollar-isation

also avoids both the volatility and inflationary bias of floating rates, and the vulnerability to speculative crises of fixed rates that are not irrevocably fixed (see Mundell 2000). Even successful regimes of fixed exchange rate can be made vulnerable by their own success, as they attract capital inflows which lead to real revaluation undermining competitiveness; at some point those flows can be easily, suddenly and massively reversed. Irrevocably fixed rates, unlike pegs subject to intermittent adjustments, do not encourage speculation – as demonstrated by the experience of EMU members since May 1998 as opposed to the September 1992 ERM crisis and its abandonment by the UK and Italy (a difference neglected by Larrain/Sachs, 1999, in their feeble rehearsal of arguments against dollarisation).

In addition, the benefits of euroisation, as in the case of monetary unification, are:

- lower transaction costs, precisely as for the EMU members;
- greater economic integration, through both greater trade and greater foreign direct investment, especially if euroisation is accompanied by mutual trade liberalisation or possibly a free trade area without the considerable restrictions still impeding trade with present European Associates candidates for accession (see section 9 below);
- probably lower basic interest rates in comparable units than otherwise would be the case (though interest rates are invariably higher than in the reference country, for they are subject to risk premia for any individual country or borrower), in the case of a currency board; maybe even lower interest rates for domestic currency replacement by actual euros.

Finally, euroisation would involve automatic, self-regulating adjustments in money supply, which in both cases – currency board and currency replacement – would be determined by trends in domestically held foreign assets, expanding for a balance of payments surplus and contracting at times of deficits, as it is supposed to happen under a gold standard.

Unlike partial, unofficial euro- or dollar-isation, total and official currency replacement would not complicate the choice of intermediate targets of monetary policy by introducing a dual currency component in the money supply, and would not impress the shocks of exchange rate adjustments on producers and financial institutions.



Initially, euroisation might be accompanied by a degree of under-valuation of the old currency with respect to the euro; this weakness may be compounded by an initial weakness of the euro with respect to other hard currencies (as in 1999-2000). Under-valuation might be a blessing in disguise for the viewpoint of competitiveness and employment (though not for inflation; see below).

#### **4. Possible disadvantages: differences from EMU membership**

While it is perfectly possible that euroisation forms should yield the expected net advantages, this should not be by any means a foregone conclusion. It is not just a question of a possible rejection of euroisation on grounds of national pride, with countries temporarily or permanently excluded from EMU hanging on to a domestic currency as a symbol of national sovereignty. Whether forms of euroisation can be successful is an empirical question, depending on the relative strength of accompanying disadvantages. In fact the local adoption of the euro as domestic currency – whether as a banknote or as a backing for domestic banknotes – is not at all the same thing as being a member of EMU.

There are distinct disadvantages associated with the operation of a currency board with respect to EMU membership (see Nuti et al., 1995, 1997).

- 1) A currency board regime needs initial endowment with sufficient foreign exchange reserves to back the entire currency in circulation (whether new or unchanged) at the permanently fixed exchange rate pre-selected by the government. Estonia benefited from the return of 11 tonnes of gold which had been sent to the West before 1940; Lithuania also benefited from the return of 6 tonnes of gold as well as purchases from the IMF (OECD 2000). Other countries might be less fortunate: Bratkowski and Rostowski claim that Poland (with US\$ 26bn, i.e. twice the reserves necessary to back or replace the domestic currency), the Czech Republic and Slovenia certainly could afford euroisation, while Slovakia and Hungary are classed as "possible".

Gros (1999) suggests that the resources necessary to introduce a currency board (which he estimates at \$269mn for the Former

Yugoslav republics, probably an under-estimate) could be borrowed, but this would undermine credibility and lead to expectations that the exchange rate would not be permanent but would only last as long as the loan would last and be renewed. The arrangement would be indistinguishable from an ordinary fixed exchange rate regime subject to occasional adjustments. Instead reserves must be instantly and permanently available against possible requests for conversion, therefore a currency board cannot be run on borrowed money – unless, as in Bulgaria, finance is being provided only partly by Bretton Woods institutions, and on a long term basis, in which case foreign lending amounts to assistance and really might as well take the form not of a loan but a gift.

- 2) Loss of seigniorage – the revenue obtained from issuing domestic currency: Such loss is sometimes under-estimated (for instance Bratkowski/Rostowski, 2000, neglect the loss of likely increases in seigniorage after shedding the domestic currency) but it can also be over-played (e.g. by Larrain/Sachs 1999). In the currency board case this loss could be offset at least partly by interest earned on reserves. Also, seigniorage sharing arrangement could be agreed with the ECB (Calvo 1999, Daviddi 1999); such an arrangement is contemplated for dollarised countries by the International Monetary Stability Act of 2000, introduced in the US Senate by the Chairman of the Joint Economic Committee Senator Connie Mack. According to Larry Summers *"In the long term, finding ways of bribing people to dollarise, or at least give back the extra currency that is earned when dollarisation takes place, ought to be an international priority ..."* (Quoted in US-Senate Joint Economic Committee, 1999): the same argument would apply to euroisation.
- 3) Lack of a lender of last resort, which would involve a considerable degree of financial fragility, particularly serious in the early stages of transition. The International Monetary Stability Act cited above specifically states that *"The Federal Reserve System has no obligation to act as a lender of last resort to the financial systems of dollarised countries"* (Section 2.b). The mythical advantage of a currency board is that the domestic currency is "fully backed" by foreign exchange (e.g. see The Economist 29-1-2000). Thus the board could only lend as a last resort only any excess reserves it might have over and above what is required to back the domestic currency; such reserves would be substantial in Poland but nowhere else in the area.

Unfortunately all that is backed up by foreign exchange is primary money, i.e. M0, whereas in a currency crisis there is absolutely nothing to prevent the public from wishing to convert into foreign exchange more than M0, up to their entire liquid assets, i.e. anything up to M2. In this case limits would have to be introduced – whether de facto or de jure – on the convertibility of bank money into cash, thus re-instating a monetary segmentation which was one of the typical features of the old-style centrally planned economy. In a "normal" monetary economy this occurrence is prevented – short of a total melt-down – by the national Central Bank acting as a lender of last resort, in principle standing-by to provide unlimited liquidity at a penal interest rate against good quality securities.

It follows that either the country has an arrangement for the ECB to act as lender of last resort – which would expose ECB and ultimately the euro to an intolerable risk for countries not constrained to Maastricht Treaty parameters of fiscal and monetary convergence – or the ECB does not act as lender of last resort in the Euro-ised country, in which case its financial system will be particularly fragile, and a financial crisis would take the form of a premium for DM/euro cash over DM/euro bank money. Stand-by arrangements by private banks taking on a lender of last resort function (Calvo, 1999) may have limited effect. Banks could be bankrupted as a result, not for straight insolvency, which might be regarded as a necessary and even desirable development, but for sheer illiquidity artificially created by the currency board rules of monetary issue. The problem would be aggravated by the fact that the ECB could not take on any responsibility for the supervision of financial institutions in euro-ised countries (a provision to that effect is included in the US International Monetary Stability Act for the Federal Reserve System).

- 4) Impossibility of eliminating entirely the risk of a parity change – whether under a currency board regime or even currency replacement (Larrain/Sachs 1999 regard this as irreversible, while Bratkowski/Rostowski 2000 contemplate the a possible reversal). By linking its domestic currency to a more credible currency a government – contrary to what is widely believed – cannot acquire the other currency's credibility; government policy credibility will be the product of its own and the other currency's credibility (in other words, the strength of a chain cannot be greater than that of its weakest link). Currency replacement, say, with DMs might give rise to a DM scarcity unless interest rates were raised (or aggregate

- demand otherwise lowered) enough to match demand for and supply of cash.
- 5) The transformation of current account deficits arising in a domestic currency at the risk of currency crises into regional under-development risks in a single currency area, especially without the provisions for transfers from the EU budgets which would only benefit EU members. Bratkowski/Rostowski (2000) see the rise of current account deficits as the inevitable consequence of consumption-smoothing in countries experiencing or expecting growth acceleration, and regard the elimination of currency crises risk as a major benefit of euroisation. Even if this benefit was so obtained, it would be matched by the risk of regional under-development instead, which may be potentially more difficult to deal with, and span over a longer run, than a temporary currency crisis.

## 5. Possible disadvantages: unsuitability of any peg to the euro

In addition to the disadvantages due to euroisation falling short of full EMU membership, there is the possible unsuitability of the euro as a pegging currency in any form. Namely:

- 1) The euro may not be the preferred currency in the country's invoicing practices in foreign trade. Settlement practices are often regarded as relevant but they are immaterial. For instance, Helmut Aancans, head of monetary policy at the Latvian central bank, is quoted as saying that "*Our structure of settlement currencies reflects the SDR basket ... When the euro goes down the dollar goes up and there is no net instability*" (FT 16 February 2000). But such stability only obtains if the SDR is the currency in which contracts are denominated. The Lithuanian Lita, pegged to the US dollar, has appreciated instead in real terms with respect to other currencies used in its pricing and invoicing, thus incurring a large scale current account deficit. "*Trade in Euros is not as big as trade in dollars*" (Lithuanian CB deputy governor Arvidas Krejzde, FT 16/2/00), but 40% of their foreign trade is with the EU and appreciation is therefore a non-negligible problem.
- 2) Moreover, a number of countries have raised a very large part of their external debt in US dollar: in 1997 the share of dollar-denominated external debt was 77.9% in the Czech Republic, 75.1%

in Bulgaria, 61.6% in Lithuania, 46% in Poland, against DM shares respectively of 4.7%, 4.7%, 6.2%, 9.9%, (Deutsche Bank Research, 2000). For such countries any euro devaluation with respect to the dollar, such as it has occurred in the first eighteen months of euro's life in 1999-2000, would raise the domestic burden of foreign debt service; a significant re-denomination of external debt would have to accompany their euroisation.

- 3) Inflationary implications of any fixed peg to the euro (i.e. even short of a currency board) to the long term real exchange rate revaluation which has been observed and can be expected in all transition economies. Real revaluation is usually associated with the so-called Harrod-Balassa-Samuelson effect, of faster productivity in tradables driving up wages and prices in non-tradables, but this effect can easily be overplayed: after all, tradables are both inputs in non-tradable goods, and substitutes for non-tradables. Regardless of this effect, or in addition to it, any exchange rate (whether fixed or floating) at which convertibility is introduced in inflationary and troubled times is bound to be undervalued in real terms. For a fixed nominal exchange rate, real revaluation can only be achieved through a positive inflationary differential with respect to the peg currency. Far from aiding the control of inflation, in such circumstances a fixed exchange rate regime can turn into an inexorable inflationary machine. The necessary real revaluation could be only be achieved without inflation through a nominal revaluation.

Of course a real revaluation can be inconsistent with the parallel commitments to price stability and nominal exchange rate stability within the bounds of the Maastricht criteria, and unilateral euroisation can be seen (Bratkowski/Rostowski, 2000) as a way to evade those bounds. However the very broad fluctuation margins envisaged by ERM II ( $\pm 15\%$ ) and the applicability of the Maastricht inflation limits only in the run up to EMU membership – for just one year before examination – should still leave large enough scope to accommodate the necessary real revaluation without violating the Maastricht criteria for price and nominal exchange rate stability.

- 4) More generally, unsuitability of the monetary policy pursued by the ECB to the fundamentals of the countries undertaking euroisation. Apart from providing liquidity to euro-ised countries against foreign exchange, the ECB would have no obligation to consider their particular needs; just as, in the International Monetary Stability Act

quoted above, it is stated that "*the Federal Reserve System has no obligation to consider the economic conditions of dollarised countries when formulating or implementing monetary policy*" (Section 2.b). De Grauwe/Aksoy (1997, see also De Grauwe/Lavra 1997) investigate whether Central European countries are part of a European optimum currency area (as theorised by Mundell in his classic 1961 article) and conclude that they are not.

Of course the stabilisation needs of transition economies may not leave much margin for an independent monetary policy, which is totally lost for any fixed exchange rate regime, but the instant abatement of inflation may not necessarily be the best policy, as confirmed by the dominant success of the Polish economy which for all the talk of shock therapy has been dis-inflated at an excruciatingly gradual rate. Moreover, all central eastern European transition economy are facing extremely challenging issues of social welfare reform, on a greater scale than the rest of Europe (see Nuti et al., 2000). Before worrying about convergence, many transition regions such as Serbia or Kosovo would have to worry about reconstruction (IMF and World Bank, 1999). Also, the experience of Bosnia, where the DM continues to circulate as a parallel currency (though to a rapidly diminishing extent), shows that even the adoption of a currency board can be ineffective unless it is preceded by extensive economic and political reforms.

All the arguments in this section make a case not against unilateral euroisation per se but, more generally, against early membership of EMU. However, seeing that the main, indeed the only point of unilateral euroisation is that of replicating the effects of joining EMU earlier than otherwise possible, these are also arguments against unilateral euroisation.

## **6. Costs and benefits for ECB and the EMU members**

Euroisation of countries outside EMU would also involve advantages and disadvantages for the ECB and for EMU members (on the mutual impact of EU and transition economies, see Nuti 1994, 1996b). The main advantage would be seigniorage, net of the possible net cost of ECB sterilisation of the currency board country's euro bonds and deposits if their effects on euro monetary expansion are judged to be excessive. An additional advantage would be avoiding the compli-

cations generated by the growth in ECB governing council's membership following EMU enlargement (which otherwise would require complex solutions such as the drawing of constituencies, rotation, or outright exclusions). The main disadvantage would be the risk of a monetary expansion in the currency board country generated by its accumulation of non-euro assets, if it was sufficiently threatening to induce some loss of ECB control over the monetary mass of euros and euro-substitutes; in view of the small size of the accession economies, however, this is a remote possibility.

Euroisation in the strict sense of currency replacement would have similar implications for the euro-ised country, except that its introduction would probably be partial and spontaneous at the end of a hyper-inflation process, its legalisation the only form of necessary administrative sanction; loss of seigniorage (unless it was shared out by the ECB) would be unmitigated; all the other drawbacks of a currency board would apply. For the ECB and the EMU area, the risk of monetary expansion originating outside would be much less likely for outright currency replacement than in the currency board case, because the ECB would retain control over primary euro-supply.





Table 1: EMU convergence criteria: Central and East European accession candidates in comparison (January 2000).

	Inflation rate, % p.a.			Gvt. Balance, % of GDP			Gvt. Debt, % of GDP			Long-term interest rates on government bonds	Exchange rate regime 1 January 2000
	1997	1998 <sup>1)</sup>	1999 <sup>2)</sup>	1997	1998 <sup>1)</sup>	1999 <sup>2)</sup>	1996	1997	1998 <sup>1)</sup>		
<b>Ref. Value</b>	<b>2.7</b>	<b>2.1</b>	<b>2.0</b>	<b>-3.0</b>	<b>-3.0</b>	<b>-3.0</b>	<b>60.0</b>	<b>60.0</b>	<b>60.0</b>	<b>6.77 (10Y)</b>	<b>ERM II</b>
BG	1.082	22.3	2.0	-3.0	1.0	n.a.	n.a	n.a	n.a	n.a	currency board (€)
CZ	8.5	10.7	2.5	-1.2	-1.5	-3.8	9.9	10.3	10.7	7.01 (5Y)	flexible
EE	11.2	8.2	3.3	2.2	-0.3	-3.0	6.9	5.6	4.6	n.a	currency board (€)
HU	18.3	14.3	9.0	-4.5	-4.8	-4.3	71.5	62.9	59.8	9.17 (10Y)	peg (€)
LT	8.9	5.1	1.6	-1.8	-5.8	-7.0	n.a	n.a	n.a	n.a	currency board (€)
LV	8.4	4.7	2.2	0.1	-0.8	-3.8	n.a	n.a	n.a	n.a	peg (SDR)
PL	14.9	11.8	7.0	-1.3	-1.2	-3.0	51.1	46.3	41.0	10.15 (10Y)	peg (€/USD basket)
RO	154.8	59.2	45.0	-3.6	-3.1	-5.0	24.3	26.1	26.4	n.a	flexible
SI	8.4	8.0	7.5	-1.7	-1.4	-1.0	23.2	23.5	24.0	n.a	flexible
SK	6.1	6.7	10.6	-4.4	-5.8	-3.2	n.a.	n.a	n.a.	n.a.	flexible

n.a. = not available, 1)Expected, 2) Forecast

Source: EBRD, DBR. From: Deutsche Bank Research, Euro Watch n. 82, February 2000.

Table 2: Progress in transition in Central and Eastern Europe, the Baltic states and the CIS

		Enterprises			Markets and trade			Financial institutions	
	private sector share in % of GDP, mid- 1999 (EBRD estimate) *	large-scale privatisation	small-scale privatisation	Governance & enterprise restructuring	Price liberali- sation	Trade & foreign exchange system	Competition policy	Banking reform & interest rate liberalisation	Securities markets & non-bank financial institutions
Albania	75	2	4	2	3	4	2	2	2-
Armenia	60	3	3+	2	3	4	2	2+	2
Azerbaijan	45	2-	3	2	3	3+	1	2	2-
Belarus	20	1	2	1	2-	1	2	1	2
Bosnia & Herzegovina	35	2	2	2-	3	3-	1	2+	1
Bulgaria	60	3	3+	2+	3	4+	2	3-	2
Croatia	60	3	4+	3-	3	4	2	3	2+
Czech Republic	80	4	4+	3	3	4+	3	3+	3
Estonia	75	4	4+	3	3	4	3-	4-	3
FYR Macedonia	55	3	4	2	3	4	1	3	2-
Georgia	60	3+	4	2	3	4	2	2+	1
Hungary	80	4	4+	3+	3+	4+	3	4	3+
Kazakhstan	55	3	4	2	3	3	2	2+	2
Kyrgyzstan	60	3	4	2	3	4	2	2+	2
Latvia	65	3	4	3-	3	4+	3-	3	2+
Lithuania	70	3	4+	3-	3	4	2+	3	3-
Moldova	45	3	3+	2	3	4	2	2+	2
Poland	65	3+	4+	3	3+	4+	3	3+	3+
Romania	60	3-	4-	2	3	4	2	3-	2

Table 2 (continued):

		Enterprises			Markets and trade			Financial institutions	
	private sector share in % of GDP, mid- 1999 (EBRD estimate) *	large-scale privatisation	small-scale privatisation	Governance & enterprise restructuring	Price liberali- sation	Trade & foreign exchange system	Competition policy	Banking reform & interest rate liberalisation	Securities markets & non-bank financial institutions
Slovak Republic	75	4	4+	3	3	4+	3	3-	2+
Slovenia	55	3+	4+	3-	3	4+	2	3+	3
Tajikistan	30	2+	3	2-	3	3-	1	1	1
Turkmenistan	25	2-	2	2-	2	1	1	1	1
Ukraine	55	2+	3+	2	3	3	2	2	2
Uzbekistan	45	3-	3	2	2	1	2	2-	2

\* The "private sector shares" of GDP represent rough EBRD estimates, based on available statistics from both official (government) sources and unofficial sources. The underlying concept of private sector value added includes income generated by the activity of private registered companies as well as by private entities engaged in informal activity in those cases where reliable information on informal activity is available. Here the term "private companies" refers to all enterprises in which a majority of the shares are owned by private individuals or entities. The roughness of the EBRD estimates reflects data limitations, particularly with respect to the scale of informal activity. The EBRD estimates may in some cases differ markedly from available data from official sources on the contribution to GDP made by the "private sector" or by the "non-state sector". This is in most cases because the definition of the EBRD concept differs from that of the official estimates. Specifically for the CIS countries, official data in most cases refer to value added in the "non-state sector", a broad concept which incorporates collective farms as well as companies in which only a minority stake has been privatised.

Source: EBRD Transition Report 1999, November, London



Legend (Table 2):**Large-scale privatisation**

- 1 Little private ownership.
- 2 Comprehensive scheme almost ready for implementation; some sales completed.
- 3 More than 25 per cent of large-scale enterprise assets in private hands or in the process of being privatised (with the process having reached a stage at which the state has effectively ceded its ownership rights), but possibly with major unresolved issues regarding corporate governance.
- 4 More than 50 per cent of state-owned enterprise and farm assets in private ownership and significant progress on corporate governance of these enterprises.

**Small-scale privatisation**

- 2 Substantial share privatised.
- 3 Nearly comprehensive programme implemented.
- 4 Complete privatisation of small companies with tradable ownership rights.
- 4+ Standards and performance typical of advanced industrial economies: no state ownership of small enterprises; effective tradability of land.

**Governance & enterprise restructuring**

- 1 Soft budget constraints (lax credit and subsidy policies weakening financial discipline at the enterprise level); few other reforms to promote corporate governance.
- 2 Moderately tight credit and subsidy policy but weak enforcement of bankruptcy legislation and little action taken to strengthen competition and corporate governance.
- 3 Significant and sustained actions to harden budget constraints and to promote corporate governance effectively (e.g. through privatisation combined with tight credit and subsidy policies and/or enforcement of bankruptcy legislation).

**Price liberalisation**

- 2 Price controls for several important product categories, state procurement at non-market prices remains substantial.
- 3 Substantial progress on price liberalisation: state procurement at non-market prices largely phased out.

**Trade & foreign exchange system**

- 1 Widespread import and/or export controls or very limited legitimate access to foreign exchange.
- 2 Some liberalisation of import and/or export controls; almost full current account convertibility in principle but with a foreign exchange regime that is not fully transparent (possibly with multiple exchange rates).
- 3 Removal of almost all quantitative and administrative import and export restrictions; almost full current account convertibility.
- 4 Removal of all quantitative and administrative import and export restrictions (apart from agriculture) and all significant export tariffs; insignificant direct involvement in exports and imports by ministries and state-owned trading companies; no major non-uniformity of custom duties for non-agricultural goods and services; full current account convertibility.
- 4+ Standards and performance norms of advanced industrial economies: removal of most tariff barriers; WTO membership.

Legend (Table 2) – continued:**Competition policy**

- 1 No competition legislation or institutions.
- 2 Competition policy legislation and institutions set up; some reduction of entry restrictions or enforcement action on dominant firms.
- 3 Some enforcement actions to reduce abuse of market power and to promote a competitive environment, including break-ups of dominant conglomerates; substantial reduction of entry restrictions.

**Banking reform & interest rate liberalisation**

- 1 Little progress beyond establishment of a two-tier system.
- 2 Significant liberalisation of interest rates and credit allocation; limited use of direct credit or interest rate liberalisation ceilings.
- 3 Substantial progress in establishment of bank solvency and of a framework for prudential supervision and regulation; full interest rate liberalisation with little preferential access to cheap refinancing; significant lending to private enterprises and significant presence of private banks.
- 4 Significant movement of banking laws and regulation towards BIS standards; well-functioning banking competition and effective prudential supervision; significant term lending to private enterprises; substantial financial deepening.

**Securities markets & non-bank financial institutions**

- 1 Little progress.
- 2 Formation of securities exchanges, market-makers and brokers; some trading in government paper and/or securities; rudimentary legal and regulatory framework for the issuance and trading of securities.
- 3 Substantial issuance of securities by private enterprises; establishment of independent share registries, secure clearance and settlement procedures, and some protection of minority shareholders; emergence of non-bank financial institutions (e.g. investment funds, private insurance and pension funds, leasing companies) and associated regulatory framework.

## 7. Convergence?

A great deal of attention has been given both to financial and monetary convergence as represented by the Maastricht criteria (Table 1), and to the progress of systemic transition as exemplified by the EBRD scoreboard in the Transition Reports of 1994-1999 (Table 2). On both counts the picture is encouraging, at least for the front-runners lined up for accession, but also very misleading. The share of government deficit and debt in GDP are below or near the Maastricht parameters; inflation and interest rates are much higher but still within striking distance in most cases; the transition progress recorded by the EBRD, especially in privatisation and foreign trade, is impressive. But Maastricht criteria ignore essential and worrying features of transition economies such as quasi-fiscal deficits and debt, due to public contingent commitments,

extra-budgetary funds, hidden subsidies; they also ignore non-performing loans in the balance sheets of state banks, or the low share of credit to the private sector, the low capitalisation and/or low liquidity of financial markets throughout transition economies, as well as the extraordinary volatility of their rates of return (see EBRD, 2000). Once quasi-fiscal items are taken into account, even seemingly virtuous candidates such as the Czech Republic lose much of their attraction (see Drabek, 2000). The share of credit to the private sector appears to be inversely related to the share of bad loans (EBRD, 1997). Transition economies seem to have either low market capitalisation or low ratio of value traded to market capitalisation (i.e. illiquidity) of their stock markets – e.g. respectively 2.6 and 36.3 per cent of GDP in Romania, 39.7 and 3.9 per cent in Russia – or both, e.g. 5.8 and 7.6 per cent in Bulgaria and 6.2 and 11.6 per cent in Latvia (EBRD, 2000).

The EBRD indicators suffer from an over-optimistic bias, not least because of the adoption of scores ranging from 1 to 4+ instead of starting from zero, which therefore credit even transition non-starters with an achievement of over 20% of the road to a full-fledged market economy (see Nuti, 2000b). They also neglect any notion of minimum requisites for a country to operate as a market economy, or of possible weights to be attached to their different indicators, or of the relative difficulty of making progress at different points of their scores and in different fields. Real convergence of transition economies – apart from their almost instant convergence to EU unemployment average and variance, not requested by any treaty but promptly achieved already in the early 1990s – appears to be a much slower and more protracted process than anticipated (see Kolodko, 2000; see also Salvatore, 2000).

These considerations invite greater caution in assessing the progress of new members' convergence to single European Union standard – and therefore in evaluating the net advantages to be obtained from both their membership of the EMU and from possible EMU membership surrogates.

## 8. Improved trade access versus monetary integration

The primary purpose of monetary integration, and of euroisation as its earlier substitute, is that of promoting the economic integration of central-eastern European countries with the EU. This purpose could be achieved, to a much greater extent than it is being achieved under current arrangements, simply by the EU unilaterally removing or at any rate reducing residual trade barriers with those countries, such as those of CAP, quotas for lower duty trade as in textiles, impositions of "voluntary" as in the case of steel, anti-dumping provisions, and other measures of contingent protection in case of "injury" or "likely injury" to national producers. The European Association Agreements signed with all accession candidates envisaged the creation of a free trade area in ten years, in two stages, with the immediate removal of quantitative restrictions and the gradual abatement of import tariffs at a faster rate (but from a higher level) in the EU, but the process – speeded up by only six months after the momentous Copenhagen summit that paved the way to Eastern Enlargement – is still incomplete and residual barriers, though falling, are still a significant impediment to trade. Meanwhile European Union members have turned their trade balance with the ten accession candidates from a deficit of 2 billion Ecu in 1989 to a steadily increasing surplus up to over 21 billion Ecu in 1998.

The EU surplus occurs with every single one of the ten countries; it originates primarily in manufacturing products, especially for investment and intermediate goods, but it arises even for food and beverages – with the exception of Hungary – and for labour intensive products – with the exception of the Czech Republic, Romania and to a smaller extent Bulgaria (see Smith, 2000).

In these circumstances there is no justification for the European Union to resist by means of artificial barriers a higher volume of imports from central-eastern European countries – whether or not they are accession candidates. The relative impact of EU trade opening on these countries can be gauged by reference to the well known asymmetry in the importance of mutual trade turnover, amounting to 3-4% of total trade for the EU and around 60% for central-eastern Europe. Greater trade access granted by the EU could be matched by parallel, automatic or conditional reduction of remaining barriers to EU exports in central-eastern European countries, such as import surcharges and other, mostly retaliatory restrictions. Greater central-eastern European net exports



would not only speed up real convergence but also alleviate social problems and – last but not least – presumably reduce labour migration pressures to the EU.

The two ways to intensify economic integration – monetary unification or euroisation, and the removal of residual trade barriers – are not at all in conflict with each other, and could be pursued simultaneously, mutually enhancing their effectiveness. Indeed, they could be pursued and implemented even before accession. It is simply inappropriate – for the EU and accession candidates alike – to place almost exclusive emphasis on enlargement and monetary unification neglecting at the same time the existing, immediate opportunities for deeper and faster trade integration.

## 9. Conclusions

To a visitor from outer space the arrangements of the present EMU area and those of the wider euro-area enlarged to include strict euroisation and/or euro-backed local currency would be absolutely indistinguishable. But there would be an immensely important difference, in the different role of the ECB, which in a strictly euroised country would not act as a central bank. Namely, the ECB would not be a lender of last resort; it would act – by definition – as an institute of issue but would not have any responsibility towards a euroised non-EMU member country in deciding its monetary or exchange rate policy.

Ultimately the net balance of costs and benefits, both for the euroised country and for euroland and its members, is an empirical question depending on the degree of monetary, real, and institutional convergence already achieved before euroisation and its subsequent progress; initial endowment of currency reserves; initial currency of choice for invoicing and payment practices in foreign trade; the size and denomination of foreign debt; the already existing degree of utilisation of foreign exchange in the domestic economy; international credibility of domestic monetary institutions; the degree of co-operation between domestic and European institutions, both political and monetary.

Current trends in financial and monetary convergence, and even more so in institutional and real convergence, are probably over-optimistically evaluated by observers and officials. Positive net advantages may well

derive from euroisation but should not be taken for granted. Meanwhile, the unexploited potential for greater economic integration through greater trade access to EU markets should not be neglected.

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## **EXCHANGE RATE SYSTEMS AND FINANCIAL STABILITY: SOME GENERAL CONSIDERATIONS**

Wolfgang File

### **1. The role of financial markets in ensuring stable macroeconomic development**

Efficient financial markets are an essential requirement for a high level of employment, for adequate economic growth, for price stability. This is undisputed. What is disputed is whether the market system satisfies this requirement automatically and free of charge. Yes it does, say fellow economists arguing solely on the basis of neoclassical equilibrium theory, firmly entrenched behind their dogma of constantly infallible price signals from unregulated markets given the rational forming of expectations by economic agents. Others contest such automatism. For if the expectations of economic agents are heterogeneous, if the forming pattern changes, if elements of adaptive or extrapolative forming are occasionally identified, expectations will sometimes be determined by a single dominant issue rather than by all the information relevant to evaluation; information will be ignored; information uncertainties will increase to an extent where information fails to trigger appropriate transactions; the markets in a macroeconomic system will be linked at least intermittently by quantitative restrictions instead of by allocation-optimising relative price shifts, hence placing exclusively private-interest optimisation endeavours into a risky and thus not precisely known conjunction with results that are not fully informative; all this will trigger sequences of prices and yields in financial markets resulting in misdirected macroeconomic trends.

We must then say goodbye to the idea that financial markets steered solely by private striving to optimise potential yields will consistently produce results that are also efficient in macroeconomic terms. There is no longer any justification for the reliance on consistently correct price signals, given unrestricted price formation, that has hitherto been the basis for deregulation on financial markets if the financial markets fail to process information efficiently. Configurations of interest rates, exchange rates and wage rates that are necessary to achieve non-inflationary growth at a high level of employment can be established only by chance if economic policy accepts price movements in financial

markets even when such acceptance sows the seeds of undesirable macroeconomic trends. If distortions in financial markets are also attributable to threatened changes in assets values having been caused by forgoing economic policy measures with the aim of checking interest and exchange rate fluctuations as well as to the reduction of institutional provisions, then these causes must be targeted in order to limit misdirected financial market trends. Only then will financial markets be able to fulfil their intended function, namely that of internationally reconciling planned investments with planned savings, guiding capital to the places where it will contribute most effectively to non-inflationary growth and maximising world-wide prosperity. The international financial system should advance rather than impede the international division of labour oriented to economic fundamentals.

Interest and exchange rate movements should reflect and not determine international factor allocation. Greater stability in financial markets and international capital movements presupposes steady price developments in foreign exchange markets geared to monetary and real economic fundamentals. If exchange rate volatility increases and exchange rate trends depart from fundamental factors, the foreign exchange market can become the source of misdirected macroeconomic trends, can trigger external and internal imbalances, can contribute to recession and unemployment of boom and inflation and in the final analysis can severely damage a country's financial system.

A retrospective look at the financial market crisis of countries in south-east Asia since 1997 can show what effects massive exchange rate shifts between the currencies of major industrial economies can have on the stability of a country's financial system (Eichengreen 1999). The financial crisis was preceded by a substantial move into deficit in the current accounts of these countries since 1993, financed by dollar loans from commercial banks, principally those in industrial economies. But the financial market crisis was triggered by the abrupt appreciation of the U.S. dollar (UNCTAD 1998, 58).

To give an example: In mid-1995 a Korean exporter supplying goods to Germany in the value of DM 20.000 realised a yield of \$ 14.400. Two years later this export yield had declined to \$ 11.100 for the sole reason that the dollar had appreciated against the D-Mark. Korea's foreign debt turned into a debt overload. Thus the ability of a country to service a foreign debt denominated in dollars is determined less by the rate of

exchange between the dollar and its own currency than by the rate of exchange between the dollar and the currencies in which that country realises export yields.

The intention is neither to disregard nor to play down the economic policy errors and omissions on the part of Korea and other tiger economies in the run-up to the financial market crisis. But it must be acknowledged that there can be no stability in global financial and foreign exchange markets unless monetary relations between the major currency areas of the world are placed on a more stable footing.

## **2. Requirements for financial market stability**

### **2.1. Microeconomic requirements**

The recent financial market crises in south-east-Asia, Russia and Brazil have dramatically underscored the potential threat from instability in national financial markets and international financial relations. Financial market crises lead to sudden impoverishment of broad sectors of the population and undermine the political and social foundations in the countries concerned. Moreover, market globalisation means that regional financial market crises develop world-wide impact.

Thus a central task is to identify and to eliminate structural weaknesses in national financial markets and international financial relations. In particular, the aim must be to adapt the institutional framework to conditions in globalised financial markets. Reform efforts are at present concentrated in the following areas:

- Improving the transparency of national economic and monetary policy, of the policy of international organisations (in particular of the IMF and World Bank) and of the activities of the private sector (corporate governance, accounting).
- Intensifying the supervision of financial markets at national and international level: building up reliable supervisory structures for the national financial markets in emerging and transition economies and closer cooperation between national and international supervisory authorities.
- Continuing the liberalisation of capital movements hand in hand with the creation of stable national financial sectors and the concomitant supervisory structures.

- Improving crisis management, among others by involving the private sector at an early stage.
- Strengthening the role of the financial institutions: ensuring that they work together effectively and that they are capable of taking action, inter alia by providing them with adequate funding.
- Institutional reforms to strengthen the international financial institutions, in particular in view of their role as global fora for discussion.

It should be noted that until recently many of these reforms were still being rejected as representative of outmoded ways of thinking because trust was placed in principle in the efficiency of market allocation. It has now been generally accepted that there is no automatic guarantee of liberalisation having an impact conducive to stable economic growth.

The need for reform along these lines is uncontested. Progress has been made in these fields in the past few years, and further measures are soon to be implemented. But it has also become apparent in the course of past years that such structural reforms are not sufficient to ensure the stability of financial markets. Microeconomic reforms are not capable in themselves of eliminating systemic risks that are generated and nourished by strongly and indeterminably volatile interest and exchange rates. Therefore the indispensable structural reforms of the financial architecture must be backed up by a stable macroeconomic framework adapted to the liberal environment of international economic relations. This is doubtless the point that marks the parting of the ways.

## **2.2. Macroeconomic requirements**

One view is that economic activity and growth are a reaction to real exogenous shocks reflected both in price and yield changes in financial markets and in non-monetary adjustments. There is no scope for policy measures. If all financial market prices and yields are fully flexible and correctly reflect all relevant determinants currently obtaining and expected to obtain in the future, there can be no misdirected trends in the financial markets on the one hand, and on the other financial relationships cannot give rise to any effects resulting in misdirected macroeconomic developments.



The conclusion drawn from this is that efficient results cannot be improved by economic policy measures, financial markets should be left to themselves and regulations should be eliminated, because only then will the prosperity-optimising allocative function of the financial markets take full effect. Thus far the one way of looking at the issue.

Another view refers to the growing inherent dynamism of the financial markets, to the decoupling of the financial from the non-monetary sector, to price trends in financial markets that cannot be explained on the basis of generally accepted economic theory. Hence it is assumed that financial markets are susceptible to speculative excesses and by extension to price and yield movements causing economic distortion - current account imbalances, recessions with rising unemployment, cyclical booms accompanied by inflationary growth.

Both interpretations are founded on what are, in themselves, consistent concepts drawing non-contradictory conclusions from given data. But this alone is not sufficient to serve as orientation for an economic policy solution. It must always be asked whether theoretical concepts are capable of reflecting reality. The evidence is disillusioning, as far as the reliance on consistently correct price signals from deregulated financial markets with fully flexible price formation is concerned.

For decades, the point of reference in the study of financial investment had been the capital market model, stipulating that investors build efficient portfolios on the opportunity line. This provides diversification benefits and reduces the relevant risk. Of the aggregate risk, only the systematic risk component plays a part after diversification. Accordingly, systematic risks are the central factors accounting for observed divergences in returns from different securities. In theory, high-risk securities compensate investors by affording higher risk premiums on the risk-free component; low-risk securities compensate only with small premiums. These interactions were held to be assured.

The empirical evidence looks different. Fama/French found in 1992 that in the normal case the risk parameters, how ever they were measured, displayed no statistically significant interaction with differences in returns. With this, the entire concept collapses. It was further found that in exceptional instances there is a statistically significant risk-return link, though in a direction contrary to that postulated in the theory: high-risk instruments have a small return (growth stocks), while low-risk

instruments have a high return (value stocks). It may be concluded from this that no instrument is on the securities market line. This implies that several central assumptions of the capital market model must be invalid (Haugen 1995; Cochrane 1999). Experts in financial investment are therefore agreed that the crucial assumption of the information-efficiency of securities markets must be relinquished (Haugen 1996).

Empirical studies on the efficiency of the dollar exchange market in Germany point in the same direction (Filc 1997, Frömmel/Menkhoff 1999). The results clash with the supposition of constantly rational forming of expectations on the part of economic agents as the keystone in the concept of information-efficient markets.

All this gives reason to refrain from regarding as set in stone, as it were, the permanent efficiency of deregulated, speculative competitive-bidding markets, such as foreign exchange and bond markets. But if there is justifiable reason to doubt the information efficiency of financial markets, even greater reserve should be entertained with regard to the contribution that price formation in financial markets governed solely by private-interest optimisation endeavours can make towards promoting employment and economic growth with stable prices.

In non-informative efficient markets there are multitudes of asymmetrical situations blocking profitable transactions. Institutional designs are needed if partial or total market failure in securities transactions is to be avoided. The purpose of such designs is to bridge information asymmetries. However, inefficiency requires design considerations not only for securities but for organisations and for the institutional embedding of trading in financial markets as well. This also holds in particular for foreign exchange markets as interface between monetary and non-monetary sectors and for the linkage between economic and currency areas.

Thus structural or microeconomic reforms alone are not enough to ensure stability in the financial markets and the international financial system. In particular, these microeconomic reforms are not a suitable means of eliminating or at least reducing systemic risks. A dependable, global macroeconomic framework is needed. The question is how to shape institutions and the macroeconomic policy mix in order to take account of the globalisation of markets and the resulting challenges.

Bank risks that spread to a banking system have both microeconomic causes and a macroeconomic dimension. Banking system crises are a manifestation of the past two decades. Up to the mid-seventies bank collapses occurred only as very isolated events. There were no instances at all of bank crises affecting entire banking systems. This phase of stability in banking systems is the outcome of a special historical constellation of stable macroeconomic conditions underlying the financial sector (Hellwig 1998). This includes exchange rates that can be approximately assessed as being geared to economic fundamentals. If these are lacking, misdirected trends in foreign exchange markets will trigger similar trends in other financial market segments, causing distortions throughout the economy. With the advance of globalisation, the impact may be felt world-wide.

### **3. The contribution of the international monetary system to a stable international financial architecture**

#### **3.1. The role of exchange rates for aggregate economic stability**

Exchange rate changes in response to economic policy measures that are not agreed between the countries in question and result in very unbalanced economic development constitute the free formation of prices as a consistent market reaction. But experience also reveals as misleading the belief that foreign exchange markets will constantly and as it were automatically lead to stable exchange rate patterns in line with fundamental factors. Given a high degree of uncertainty about the future course of the economy there have time and again been instances of erratic fluctuations or lengthy misalignment of exchange rates, especially when individual market participants made use of differing information or when information gave rise to ill-defined conclusions for price formation. Hence the possibility of exchange rates in future repeatedly following the principle of self-justifying expectations cannot be ruled out. This will result in misdirected trends affecting the economy as a whole, with other financial market sectors being drawn into the wake of the foreign exchange markets.

Therefore interest rates in a specific country may rocket or plunge dramatically in contrast to aggregate economic requirements and against the monetary policy course, given a fortuitous, damaging constellation of exchange rates, exchange rate expectations, international interest rate

differentials and quickly reversible changes in the assessment of the risk of exchange rate shifts. Hence it is an extremely risky undertaking in all circumstances to leave prices and returns in the financial markets in the hands of an "autopilot" designed to steer the world economy with complete reliability into the future. This holds true for interest movements as well, because central banks exert a fundamental influence on the entire range of interest in monetary markets by setting interest rates for the central bank money supply (Fild 1998 b, 110 ff.). Scarcely any need to take action is perceived as far as price movements in foreign exchange markets are concerned, presumably because it is realised that monetary policy solo flights are destined to fail.

The major industrial economies, however, must not shirk their joint responsibility to adopt countermeasures in response to perceptible, severely misdirected trends in foreign exchange markets both in their own best interests and as a requirement of global economic stability. This is at the core of a system of "managed exchange rate flexibility" that has been under discussion in several countries, Germany among them, for some time now.

### **3.2. The system of "managed exchange rate flexibility"**

#### ***3.2.1. For reference: Cyclically neutral exchange rate movements not affecting capital transactions***

Where countries have approximately equal levels of economic growth, exchange rate trends should be geared to international inflation differentials which in turn reflect the interest rate differentials between currency areas. Real exchange rates will then be constant, nominal exchange rate movements will offset differences in the yield from financial assets and exchange rate movements in the foreign exchange markets will be cyclically neutral (in relation to current transactions with other countries, to economic growth, employment and the rate of inflation) and will not affect capital transactions. In this case, price movements are systematically geared to underlying fundamentals without generating exchange rate risks. Exchange rate shifts then reflect the optimum international allocation of goods and capital.

Accordingly, exchange rate trends decoupled from international inflation and interest differentials will become a disruptive factor for progress towards macroeconomic objectives in individual countries and

for the world economy. They generate tension that can subsequently lead to abrupt price adjustments in foreign exchange markets and overshooting exchange rates. Welfare losses are the outcome.

Trends in the European Monetary System (EMS) up to the currency crisis in the summer of 1992 may be cited as an example. The last preceding general realignment of central rates in the EMS had been made in early 1987. The impact of the single European market and plans for the completion of European Monetary Union caused the spread of an exchange rate illusion. It was thought that transition to a common European currency could be effected at the prevailing central rates despite the fact that price and cost trends still differed substantially as between the countries at the centre of the EMS, which had long enjoyed virtual price stability, and those on the periphery. In the course of time, an appreciable real depreciation of the D-Mark developed within the EMS matching a real appreciation of the currencies of other countries, for instance Italy, Spain and the United Kingdom. International current transactions displayed a text-book response: record surpluses in Germany's foreign trade, especially with European Union countries, increasing current account deficits and appreciable loss of growth in those countries opposing the realignment of central rates despite diminishing ability to compete on prices.

In the summer of 1992 the exchange rate illusion faded away. This was followed by a series of central rate realignments in the EMS and by the withdrawal of the lira and the pound sterling from the exchange rate mechanism, preceded initially by severe and overshooting devaluations of both currencies. The necessary adaptation of the exchange rate structure of European currencies was quickly followed by adjustments in the countries' external positions, with the current account of Italy moving from a deficit of 2.5% of GDP in 1992 to a surplus of 0.9% in 1993 and that of Great Britain from a deficit of 1.7% in 1992 to a surplus of 0.3% in 1994. This example shows that with an approximately equal level of economic growth, exchange rates should follow a trend set by international price and cost differentials. In this case, real exchange rates will be virtually constant, international current transactions will be determined by the underlying economic fundamentals and exchange rates and their movements will have no effect on the ability of businesses in different countries to compete at international level.

In a rather longer-term perspective, exchange rate movements must also be approximately in line with international interest rate differentials. Given the globalisation of international financial relations and the almost complete liberalisation of capital transactions, substantial divergences in yields from similar financial assets of different countries with equal debtor ratings cannot be permanently upheld. If capital is perfectly mobile, international interest rate differentials are fully offset by matching shifts in exchange rate expectations, which determine exchange rate movements. In such case it is immaterial whether financial assets are purchased in a high-interest or low-interest country because the expected rates of yield adjusted to take account of exchange rate movements are the same. Time-limited deviations from this norm can occur only in the case of an exchange rate illusion, i.e. the conviction that given exchange rates will be maintained. Once the exchange rate illusion vanishes, the subsequent exchange rate adjustments will be all the more drastic.

There are examples of this as well. Since the early nineties it was possible on purchasing South Korean financial assets and taking account of shifts in the exchange rate of the won against the dollar to achieve yields far in excess of those obtainable from investment in other national markets. In this way it was possible for the rapidly growing current deficits to be financed without the need for devaluation of the won. This illusion vanished on reorientation of expectations as to exchange rate movements, leading to a drastic and overshooting devaluation of the won. High interest rates to finance a rising current account deficit, as in the case of South Korea, are an acceptable means only when they go hand in hand with appropriate, credible domestic measures to reduce internal and/or external imbalances. If these measures are lacking, the exchange rate illusion will sooner or later be dispelled by a sober evaluation of facts and turbulence on foreign exchange and financial markets will be the result (Furmann/Stiglitz 1998, 72 ff.). Developments in Brazil from 1998 on provide a further example of these interrelationships.

Thus in a somewhat longer-term perspective and given approximate cyclical consistency, exchange rate trends should follow the course set by international price increase differentials as also reflected by international exchange rate differentials.

### ***3.2.2. The machinery of the system***

This calls for a suitable institutional design. It should aim to prevent excessive volatility and different forms of exchange rate misalignment. There are two starting-points. Firstly, consideration should be given to the possible effects of central bank interest policy measures on exchange rate movements. There is a need for international discussion here. Secondly, operators in foreign exchange markets should be afforded guidance on the price trends in foreign exchange markets that are in line with the aggregate economic environment in the major currency areas. This could be undertaken by the finance ministers and central bank governors of G 7 countries, possibly with support from international institutions such as the IMF. This body should collect, evaluate and publicly interpret information relevant to exchange rates, in other words it should assume the role of an information broker. Thus the Financial Stability Forum launched in February 1999 at the meeting of finance ministers and central bank governors of G 7 countries, the function of which is to monitor the microstructure of international financial relations, should be backed up by a macrostructure forum.

In the event of abrupt changes in nominal or real exchange rates, this body should publicly comment on the course taken by exchange rates and, where necessary, explain what form the possible economic policy response could take. If there is a lack of clearly-defined pointers for the formation of market expectations, guidelines must be set to ensure that expectations remain stable. In particular, where the available information is indefinite, credible statements by an international body of high repute can provide essential guidance in shaping exchange rate expectations and stabilising foreign exchange markets. Moreover, it is important for this body to be assigned decision-taking powers on economic policy, as debate and the exchange of views cannot by themselves resolve any problems (Eatwell/Taylor 1999).

On this basis the system could be designed as follows:

- The current market rates of the currencies in the system should be taken as a starting-point in the initial phase. Upper and lower reference values are to be established around these rates which, while leaving adequate scope for the necessary alterations to exchange rates, would also trigger timely consultations between the participating countries.

- Moreover, reference values for real rates of exchange should be determined. The method of computing real exchange rate changes remains to be discussed. While different procedures of deflating exchange rates produce matching trend results (revaluation or devaluation in real terms), they also produce differing values (Deutsche Bundesbank 1998).
- The reference values for nominal and real exchange rates must be made public.
- The reference values should be reviewed at regular intervals, say every six months.
- When the lower or upper reference values are reached, compulsory consultations should lead the central banks and finance ministries of the participating countries, possibly with the involvement of international institutions, to a joint interpretation of exchange rate trends and if necessary to a joint strategy aiming to stabilise exchange rates. The interpretation and any economic policy measures regarded as practicable must be made public in order to provide guidance for and to steer the expectations of market participants.

One objection to this concept arises from the target zone debate of the mid-eighties. At that time, Williamson (1983) proceeded from the assumption that it was possible to define fundamental equilibrium exchange rates. The problem is that equilibria or disturbances of equilibria in monetary markets or in the foreign exchange market attain a comprehensible dimension only if their impact on other markets, above all product markets, on output and employment is taken into consideration.

The problem of defining equilibrium exchange rates, a problem admitting of no satisfactory solution, also arose in connection with the EMS. For this reason, the preceding day's rates were used when the EMS was put into effect, rather than equilibrium exchange rates determined on the basis of model calculations, because those rates were perceived as appropriate by the governments and monetary authorities of the participating countries. Thus the determination of reference rates in the foreign exchange market should be geared to a common perception of their appropriateness rather than to conceivable equilibrium exchange rates.



The procedure is similar to that by which central banks set money supply targets. When they went over to announcing such targets, central banks did not attempt first of all to determine the "equilibrium money supply" but defined an "appropriate" money supply that was then rolled forward using data on expected aggregate economic development for the period under review. "Soft" limits for monetary expansion were set around the central figure in the form of upper and lower limits to the envisaged money supply growth. It is not evident why the central bank procedure of setting money supply targets with the aim of stabilising financial systems has so often proved successful in the past, while a comparable procedure for determining practicable reference values for exchange rates is destined to fail.

### ***3.2.3. Economic policy measures***

Hence the most important element in a system of "managed exchange rate flexibility" is a compulsory consultation process between central banks and finance ministers of the G 7 countries. Other than with fixed exchange rate or target zone systems there are no strictly defined and binding economic policy measures to be taken in response to specific developments in foreign exchange markets. But in the event of acute volatility in foreign exchange markets and marked divergence from the entry rates the system should require readiness on the part of the world's major industrial economies to study the causes in detail and to submit a joint interpretation of the trends.

If the outcome of such analysis and interpretation is that current developments are justified on account of changes in the underlying fundamentals, for example currency appreciation in the wake of vigorous economic growth, this should be noted in the comments. Moreover, reference values could be adapted to take account of exchange rate trends.

But if the body of central bank governors and finance ministers reaches the conclusion that there are clear signs of currency misalignment in the foreign exchange markets, further steps will need to be taken in the monetary cooperation process.

- In some instances it may be sufficient to issue credible statements in order to talk down economically unwarranted trends in foreign exchange markets. This will be the case where the information

provided exerts selective influence on the expectations of market participants.

- In addition, it should be examined whether economic policy measures are considered appropriate to stabilise exchange rates without triggering other target infractions, and if so, what measures these should be (Filc 1998a, p. 35 ff.).
- In exceptional circumstances, the necessary measures should include, as ultima ratio, concerted interventions by central banks in foreign exchange markets, provided this does not jeopardise price stability. Both sterilised and non-sterilised interventions can give important signals influencing expectations of exchange rate changes, and by extension exchange rates themselves, whereas market interventions through the portfolio channel are likely to be of less significance for exchange rates.

Market globalisation as now established is to be reinforced and secured by international non-market institutions, hence by an adequate institutional design at international level. It may be debatable whether the proposed approach is sufficient to achieve the desired results. But it does point in the right direction, namely to reinforce the necessary structural and thus microeconomically-oriented reforms of the international financial architecture with a macroeconomic stabilisation policy more effectively coordinated between the world's major economic and currency areas and an institutional design at international level, in order to ensure that foreign exchange markets do not again become the source of misdirected economic trends. There is of course no royal road to this end, but progress must be made if future financial market crises are to be averted.

While this kind of institutional framework to enhance exchange rate stability is founded on the existing monetary policy cooperation between G 7 countries, it serves also to intensify such cooperation. In contrast to earlier phases of monetary policy cooperation, a mandatory consultation machinery between the three major currency areas on the basis of constant surveillance of exchange rate trends should be capable of averting any substantial exchange rate misalignment in its initial stages. Greater exchange rate stability between the "big three" is also essential for enhancing financial market stability in the emerging economies. Moreover, well-founded decisions on suitably stable currency regimes for these countries cannot be taken until the core area itself is sufficiently stable.

But there can be no disputing the fact that the international system is best served if each of the major players keeps its own house in order. Macroeconomic policy must accordingly be geared to attaining strong, employment-promoting growth while maintaining price stability. The USA and the EU are largely in agreement on this. The extent to which this consensus also applies to price movements in the foreign exchange markets is less evident. The introduction of the euro could prove a means of deepening transatlantic relations in this respect. To this end it must be acknowledged that the world economy is better served by policy cooperation between the major currency areas of the world than by a strategy of benign neglect of misalignments in foreign exchange markets.

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**THE EXPERIENCE WITH EXCHANGE RATE  
ADJUSTMENTS DURING TRANSFORMATION:  
THE CASE OF THE CZECH REPUBLIC**

Marie Vavrejnova

On the way to the EU the stabilization of exchange rate, the functioning banking sector, and the right regulation of fiscal balance is one complex of the main tasks that are to be solved. The experience of the Czech Republic demonstrates what kinds of difficulties can be met in determining the proper regime of exchange rate. It testifies that the exchange rate problems reflect on the one hand the problems of entire course of economic transformation both in macro- and microsphere, on the other hand the changes in external capital market situation.

As in other countries from the previous Soviet Union block, the Czech Republic had different exchange rates before 1990, which were created by administrative acts:

- commercial payments exchange rate (in 1989 15 Kcs/1 USD),
- non-commercial payments exchange rate (in 1989 approximately 12 Kcs/ 1USD),
- tourist exchange rate (in 1989 about 31.50 Kcs/1 USD).

Above this tourist exchange rate level a black market exchange rate reigned. In the beginning of 1990, the exchange rates of commercial and non- commercial payments were unified at the level of approximately 17 Kcs per 1 USD.

Two stages of crown devaluation took place at the end of 1990 within the framework of preparations for an important reform step, namely for the internal convertibility of the crown. First, the exchange rate of Kcs/USD was lowered by 54.5%, i.e. 24 Kcs/1 USD. Then, two months later, to the level of 28 Kcs/1 USD. Great discussions about the level of the devaluation rate took place among economists.

The crown devaluation created a favourable situation for exports in conditions when the soft eastern markets of Comecon collapsed and we had to enter the hard western markets. In addition, a twenty per cent import surcharge rate to protect the fragile domestic market was approved (it was abolished in 1992).

Many further circumstances of the transformation process, especially inflation as a consequence of price liberalization, the deep decline of GDP (during the first three years of transformation 60% on average) as a consequence of changing markets and the decreasing purchasing power of the population, influenced the economic development during the first three years of the transformation. Also, the influence of the split of Czechoslovakia must be mentioned. During the first three years, in the course of substantial geographical and commodity structural changes, the trade balance was positive. But, already since 1991, a long term cause of exports decline was a continuous real revaluation of the Czech currency (CZK). Under the conditions of a fixed nominal exchange rate the revaluation was caused by the inflation differential between the rate of inflation in the Czech Republic and in Western countries.

Year-to-year changes of the real exchange rate of the CZK to the currencies basket (DM 5%, USD 35%) were as follows (in %, December of the previous year = 100):

1990	1991	1992	1993	1994	1995	1996	1997	1998
-32.4	17.1	8.9	14.7	7.6	6.6	7.8	-8.6	18.4

This development gradually removed great advantages for exporters from the deep devaluation in 1990. Also, the decline of foreign demand in connection with the decline of boom in the country of our biggest trade partner – Germany, the share of which in the foreign trade turnover has gradually grown to present 40%, the deficit of the Czech trade balance began to grow. In 1996 it was not longer possible to cover the deficit with the positive results of services and capital account and the foreign currency reserves were decreased. At the end of 1996, the government adopted an export promotion policy and the export support became one of four priorities of the state budget for 1997. In the field of exchange rate policy, it was clear that it was not possible to keep the fixed nominal exchange rate introduced in 1990, and the Czech national bank (CNB) extended the fluctuational band along the central parity exchange rate to plus or minus 7.5%. Neither this measure nor other measures of export promoting policy and restrictive policy of CNB (increasing minimum obligatory bank reserves, augmenting interest

rates) helped and the currency crises in 1997 took place, followed by a stagnation and even recession of the economy in 1998.

The managed float rate was introduced ( from 27/5/1997), accompanied by nearly 9% of the CZK devaluation. The currency basket was abolished, and currency movements were coupled to DEM.

In 1998 the crown began to appreciate, which means the imports became cheaper and exports more difficult.

In 1999 the CNB continued to liberate the restrictive policy of currency, in conditions of low inflation rate: twice it lowered the obligatory minimum reserves, so that they are on a level near to the EU. Also, interest rates were lowered, and together with the growing interest rates abroad it led to the diminishing interest differential. The prevailing tendency was a mild appreciation of the CZK. But in the first quarter of 2000, a strong depreciation of the CZK in relation to USD took place, which was negatively affected, among others, by the price of oil and gas.

This was a very short overview of the exchange rate regime changes in the Czech Republic.

However, the hidden cause of growing current account deficit, and connected exchange rate problems, was the unfavorable situation in microsphere: the stagnation of labour productivity under conditions of rapid growing wages in state and partial state enterprises and banking sector, reflected the bad quality of their management which did not manage the restructuring process. Then, the poor regulation of capital market played its role. The connection between banks and their investment funds contributed to the support of bad working enterprises and lowered the transparency of ownership relations. In such conditions, also the low unemployment rate became more and more the indicator of delay in the process of restructuring. (And this is also one of the reasons, why in the last period the unemployment rate began to grow, due to quicker restructuring, especially in North Bohemian and North Moravian regions).

No doubt that such mistakes and little care of microsphere in general, slowed down the development of transformation. To rectify the situation is the precondition for standing macroeconomic development.

What are the main lessons, which follow, in my opinion, from our experience?

- The deep devaluation of the crown in the beginning of the transformation was a good measure which indisputably supported the quick changes in geographical structure of the foreign trade, keeping its sufficient volumes and positive balance. Foreign trade was one of factors which influenced the economic situation in a positive way during the difficult first transition years.
- The fixed exchange rate, which was introduced in 1990 and kept to May 1997 was changed into a floating rate too late and also the export promoting measures, and the lowering of interest rates and minimum obligatory reserves of banks were introduced all too late. There was not enough discussion, or willingness by politicians and different groups of economists to make clear the needs of the economy in time.
- In transition economies the situation changes very quickly and it is very difficult to find the right time for changes in economic policy. Therefore, it is not only the question what measures to choose and introduce, but also when.
- Because everything is changing, it is not possible to precisely separate the influence of individual components on the whole, in our case, the influence of the exchange rate regime on foreign trade results and vice versa, and also the influence of external and internal factors. All of the known factors and their role must be analyzed to discover the causes of the difficulties.
- Especially difficult is (and really was) to find under quickly changing conditions the right rate of restriction of monetary policy not to hinder the economic activities, but to stimulate them. There were (and are) different meanings for this problem in the Czech Republic. A great effort of different groups of responsible people should be put in, to find the right common way out for a concrete time and situation.
- It is not sufficient to take care only of the macroeconomic indicators. They themselves reflect reliably the situation in microsphere whose development is in certain moments dominant for the stable macroeconomic development both in short and long term period.



## **FRAGMENTATION OF THE VALUE ADDED CHAIN**

## **EASTERN ENLARGEMENT AND THE EVOLVING GLOBAL ECONOMY**

Sven W. Arndt

### **1. Introduction**

The proposed entry of a new member into a preferential trade arrangement is viewed by many insiders as a mixed blessing. On the plus side is the reduction of trade barriers on exports to the entrant's markets, but that sense of gain is attenuated by concerns about added competition from imports. Even when overall welfare is expected to increase, there is the usual distributional conflict between the interests of winners and losers. The prospective Eastern Enlargement of the European Union (EU) certainly gives rise to considerations of this sort.

There is, however, much less to fear – and to gain – than would have been the case prior to implementation of the association agreements between the EU and the countries in question. Those agreements have cleared away a variety of trade barriers across a broad range of industries, with the well-known exception, of course, of the so-called sensitive sectors. Completion of the Uruguay Round, too, helped reduce barriers and led to markets around the globe that are more open than before. These accomplishments diminish the gains (and pains) to be expected from further liberalisation, albeit much more so with respect to trade in goods than in services.

It is perhaps too restrictive to see the proposed enlargement as mere orthodox preferential trade liberalisation. At the optimistic end, its potential may be closer to a merger operation that facilitates the integration across national frontiers of economic activities and thus raises productivity and competitiveness in more than the directly affected export industries. Such a merger presents opportunities for the more efficient allocation of productive resources throughout the enlarged region, particularly if it succeeds in fostering cross-border sourcing of parts and components and in integrating production across national frontiers.

The welfare effects of enlargement depend on whether the arrangement is mainly one of traditional trade liberalisation, in which entrants join the customs union, or whether it accomplishes the integration of the

Eastern countries into the network of EU economic activities and thereby draws them more fully into the internal market.

This paper explores the main features of the latter perspective. Section 2 sketches some relevant recent developments in the world economy. Section 3 sets out the conceptual framework in the context of a preferential trade agreement. Section 4 draws some implications and concludes.

## **2. Recent developments**

Traditionally, the analysis of preferential trade areas has focused on trade liberalisation and then mostly on liberalisation of trade in final products. This is especially true of the more theoretical literature, where comparative advantage is measured at the level of national industries engaged in trading final goods. Trade in intermediate products has, of course, been studied by economists, but it has not played a significant role in the analysis of preferential trade arrangements. Policy analysts have been more aware of the importance of trade in intermediate goods, but the possibilities inherent in integrated production systems have not received the attention they deserve.

In recent years, cost-saving innovations in transactions, communications, and transportation technologies, as well as the gradual reduction around the globe of policy-based barriers to trade and investment, have facilitated the greater integration of economic activities across national frontiers. The recent wave of cross-border corporate mergers is one consequence of these developments. Among other beneficiaries have been offshore procurement of intermediate products, offshore production of parts and components, and offshore assembly.

In this new world, goods entering international trade contain parts and components from all over the globe, with imported final products full of exported components and exported final products equally full of imported components. As a result, the "national" identity of products becomes increasingly blurred and the "Made In ..." label loses its meaning. In North America, for example, components "Made in the USA" are a significant part of the automobiles imported from Mexico into the United States. In the bilateral trade between the two countries,

the value of motor vehicle parts shipped to Mexico is around 50 percent of the value of motor vehicles imported from Mexico.

These cross-border relations may occur at arms length, as in the interaction between Austria's auto-parts suppliers to Germany's auto makers, or as part of the internationally integrated operations of multinationals, as in the aforementioned motor vehicle example from North America. Full coordination implies a degree of integration that is deeper and more complex than arms-length cross-border procurement. It places a greater burden on a company's financial and organisational resources and is thus more likely to involve multinationals.

In addition to the extent of cross-border procurement, the type of part and component that is procured abroad matters. It is important to distinguish trade in intermediate products that have become standardised and are used in a variety of applications from trade in specialised, custom-made parts and components. The former tend to be bought and sold in markets at prices that are determined by the interaction of supply and demand. The characteristics and specifications of such intermediate products are standardised and well-established and competition on the basis of comparative advantage determines the pattern of trade much as it does in the markets for final goods.

On the other hand, customised parts and components cannot in general be expected to be traded in organised markets. They are made to order with specifications that are product-specific and thus have no ready alternative uses. Hence, their offshore procurement or production places greater demands on cross-border coordination of product design and product development, on finance, quality control, and other pertinent considerations. Offshore sourcing of this type is often preceded by flows of foreign direct investment and technology transfer. For it to flourish, not only trade must be liberalised, but foreign direct investment as well. Furthermore, since this type of cross-border coordination often involves the on-site presence of foreign service professionals, liberalisation of trade in services is another essential prerequisite.

Of course, the operation in one country of manufacturing and service companies headquartered in another is in itself not a new phenomenon. Multinationals have been producing all over the world for decades – in industries ranging from automobiles to electronics to pharmaceuticals to tourism services. But when the traditional multinational went abroad its

objective was to produce final products or services for sale mainly in the country or region in which production was taking place.

The new multinational, on the other hand, obtains parts and components in many countries, sometimes at arms length, sometimes from its own affiliates, bringing everything together for assembly in still other locations. Final assembly may or may not take place in the country in which the company is headquartered. In North America, Boeing assembles airliners in the U.S. with parts made all over the world, while General Motors assembles cars in Mexico with parts that come mainly from outside.

The modern multinational thus manages a complex network of economic activities, that are strung out all over the globe and that require an extensive system of service links (Jones/Kierzkowski, 1990). This holds not only for firms in goods-producing industries, but for suppliers of services as well. The major U.S. airlines, for example, now perform relatively labour-intensive operations like reservations, bookkeeping, and accounting at offshore locations in countries with abundant supplies of inexpensive labour.

Thus, an important element in any assessment of the costs and benefits of enlargement are the opportunities it offers for the cross-border dispersion of economic activity and the effect of this dispersion on competitiveness in the broadest sense. This perspective expands the issue beyond the traditional question raised at the outset, namely, by how much will EU exports to and imports from the new members change as a consequence of enlargement?

It is, of course, to be expected, that the competitiveness of EU exporters will improve in the new markets relative to non-members, because non-members will have to pay prevailing EU tariffs. But will competitiveness be enhanced in terms that go beyond specific export industries? Will EU producers who do not export to the Eastern entrants and who are not directly threatened by imports from those entrants be better able to compete in the home market against imports from third parties as a result of the integration of the Eastern countries into the EU economy? Will they become more competitive in world markets as a result?

As just noted, the narrower definition of competitive improvement, which is the focus of received customs union theory, is simply the result of preferential tariff treatment of EU products in Eastern markets. Improving competitiveness in the more comprehensive sense, on the other hand, requires efficiency-raising changes in the overall organisation of production in the enlarged European Union. Like the success of a corporate merger, it is predicated on the effective absorption and integration of the new entrants into the EU economy .

Thus, if enlargement leads to efficiency-enhancing, cost-reducing reorganisation of production in the region, then the competitiveness of final goods from the EU relative to those made by global rivals will be enhanced. The welfare effects of this deeper integration may be expected to be important, relative to those of traditional customs union analysis.

The expected improvement in competitiveness flows in part from the additional degree of specialisation, which is now pushed beyond final products into the realm of component activities, and in part from enlarged opportunities for the exploitation of scale economies at the level of component production. The next section presents a non-rigorous discussion of the basic conceptual framework.

### **3. The gains from component specialisation and production sharing**

Trade is welfare-enhancing because it facilitates specialisation. Specialisation improves the efficiency of resource use by allowing producers to focus on what they do best. This principle has not only allowed analysts to understand and explain the beneficial effects of international trade, but it has been an important guide to post-war trade policy and trade negotiations.

The basic idea is that countries should specialize in the making of products which use intensively the productive resources with which they are relatively well endowed and leave to others the making of products which require resources with which they are not well endowed. There is no inherent reason why this principle should not apply to production decisions involving parts and components. What is required to push international specialisation to the level of components is that production

processes be capable of "fragmentation" and geographic and functional dispersion, that factor intensity vary across components, and that technical and policy-based barriers to cross-border cooperation be absent.

Most products are made up of large numbers of parts, but those parts do not necessarily have to be produced in proximity of each other. The mix of resources required to make parts varies widely. Some parts and components tend to be relatively skill-intensive, others relatively capital-intensive, and still others are relative heavy users of standard production labour. Hence, the "factor-intensity" of a product made up of several components is some weighted average of the factor-intensities of those components. A firm's competitiveness in marketing a particular product thus depends on the weighted average of its competitiveness in making the various components. If the firm lacks competitiveness in a key component, its overall ability to compete will suffer. One way to improve product competitiveness, therefore, is to abandon production of the disadvantaged components in favour of procurement from lower-cost sources.

Thus, if components are subject to different input requirements (that is, to different factor intensities), and if across countries there exist differences in skills and resource endowments, then matching the locus of production to the efficiency of available productive resources would be expected to raise competitiveness and hence welfare.

As such, this idea is hardly new, given that outsourcing of parts and components has been around for a long time. What is relatively new is the spread of the phenomenon to cross-border applications. This development has been facilitated by the gradual reduction of barriers to international trade and investment and by cost-cutting innovations in transportation and telecommunications technologies. It is, today, far easier and less costly than it has ever been to manage global production networks and to coordinate production across long distances.

This form of intra-product specialisation has been shown theoretically to raise output and employment in industries in which it takes place (Arndt, 1997, 1998; Jones/Kierzkowski, 2000). It has also been shown to raise wages across a wide range of situations. It has been shown to be welfare-enhancing when it takes place in conditions of free trade or in the context of preferential trade arrangements, but its welfare effects are

ambiguous when it takes place in the presence of MFN tariff structures (Arndt, 2000).

The basic intuition is simply that when producers make use of offshore sourcing of components to reduce end-product costs, those cost-savings either generate new profit opportunities at given world prices of end-products or allow producers to offer their end-products at lower prices and thus increase market share. In either case, industry output and employment tend to rise.

The existence of overall welfare gains does not, of course, imply that those gains will be uniformly distributed and that there will be no losers. Workers producing the components which are moved to cross-border sourcing or production will lose their jobs and this will create burdens of adjustment and change. But the predicted overall expansion of the industry implies that new jobs are created within the industry, which may ease the cost of adjustment.

At the empirical level, there are many well-known examples of cross-border production integration. In North America's automobile sector, intra-industry trade has taken place in parts as well as final products. Such cross-border integration has a long history between the U.S. and Canada and it has in more recent years been of growing importance in trade between the United States and Mexico.

In other industries as well, maquiladora operators in Northern Mexico import capital- and skill-intensive components from the United States for labour-intensive assembly in Mexico. In Europe, the relationship between Austrian parts suppliers and German auto makers represents a well-established example of cross-border intra-product specialisation. In both Europe and North America, aircraft makers bring together parts and components made all over the world for capital- and skill-intensive assembly at home.

From the point of view of the EU's Eastern Enlargement the essential idea is quite straightforward: if EU producers of final products can reduce costs by sourcing or producing certain parts and components in Eastern regions, then doing so will increase their overall competitiveness in markets for end products. Analogous considerations apply to improving the competitiveness of firms in the acceding countries.



As already noted, the gains to be expected from traditional sources of trade liberalisation are likely to be quite modest. The overall welfare effect of Eastern Enlargement will depend on the extent to which it facilitates reorganization of production in the EU and its new members. Given the relative size of the EU, this effect is bound to be more important for the entrants than the EU as a unit. For any individual current member of the EU, and for Austria in particular, cross-border economic integration may offer some firms and industries non-trivial opportunities to reduce costs by shifting production of selected components or by relocating assembly to the new entrants. In a system of cross-border production-sharing Austria is likely to possess comparative advantage in design, engineering, analysis, skill-intensive components, etc., but to face disadvantages in operations that require large inputs of production labour.

In addition to differences in resource endowments as sources of competitiveness, improved opportunities to exploit scale economies may bring cost savings. Consider the following hypothetical example. When two countries both produce two products in their entirety, neither may have production runs long enough to capture scale economies. When the two countries engage in component specialisation, with one of them producing all of some components and the other all of the remaining components, production runs in component manufacture will be longer and thus offer greater access to scale economies.

It is clear that cross-border integration of production is a more demanding scenario and represents a deeper form of integration than trade liberalisation of the traditional variety. Companies must now manage relations with foreign suppliers and, in the case of cross-border production, managements must solve more complicated problems of coordination and control. There is no doubt that multinational companies (MNCs) have an important role to play here.

This is especially true whenever foreign production must be preceded by foreign investment, as is typically the case when the prospective partner operates in a developing country. The *maquiladora* operations of multinationals in northern Mexico absorb large quantities of investment (FDI) not only from the United States, but from Japan and other countries. Similarly, the large manufacturing base which Hong Kong firms have established in the Pearl River Delta required massive

amounts of capital and technology transfer. Analogous comments apply to the Irish electronics industry.

The Eastern European countries are a slightly more mixed case. They are certainly better endowed with skilled workers and some useful capital appears to be in place, but it is also doubtless true that full exploitation of this new form of intra-industry trade based on intra-product specialisation will require significant transfers of capital and technology. Unlike Switzerland, Austria does not possess an abundance of multinationals. Austrian firms wishing to play in this game can resort to arms-length relationships with Eastern suppliers, or as suppliers to Eastern firms. Where investment is required, arms-length relations with third-party investors from the EU or outside may be appropriate. In other cases, however, some degree of capital-participation will be a better model.

When we think about the opportunities for intra-product specialisation and cross-border production offered by Eastern Enlargement, the dominant scenario probably is one which has Eastern countries supplying most current EU members with parts, components and assembly requiring abundant input of middle-range labour and engineering skills, but relatively moderate capital structures. Relocation of certain types of assembly from the EU to the new members is also likely to offer significant cost-saving opportunities.

For their part, the acceding countries need to think about the benefits of component specialisation relative to specialisation in complete products. That is, they, like many other countries around the world, need to think more about the costs and benefits of becoming part of a global production network and less about starting entire industries of their own.

On both sides, one objective will be to increase market share. That goal will often be easier to reach when it is initially pursued at the level of component specialisation. It requires less up-front investment and mastery of fewer skills and technologies and plays more fully into strength and comparative advantage. Since much of the competition which EU firms face, in both their own and third markets, comes from the United States, Japan, and other non-member countries, the benefits of cross-border production networks rise as they involve privileged relationships which cannot be matched by external rivals.

#### **4. Concluding remarks**

The Eastern Enlargement of the European Union comes at a time of significant change in the world economy. Joining the European Union is more than joining a customs union and it involves more than trade liberalisation. A key source of potential benefits resides in the cross-border integration of production. Inasmuch as the gains from more traditional trade integration have already been substantially exploited in all but the sensitive sectors and in services, it is in the area of production integration that the benefits of enlargement must be sought.

The trade patterns examined above represent a new form of intra-industry trade. Whereas the traditional model of intra-industry trade centered around the flow in opposite directions of different varieties of the same end-product, the present perspective allows for the possibility of final goods and some of their components moving in one direction, while the rest of their components move in the other direction.

In assessing the potential benefits of Eastern accession, it is useful to view it not only as expansion of the customs union, but as an operation akin to a corporate merger whose objective it is to integrate economic activity across national frontiers in order to improve efficiency throughout the expanded entity and thereby to increase its ability to compete more effectively in world markets.

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## **INTERNATIONAL FRAGMENTATION: A POLICY PERSPECTIVE<sup>1</sup>**

Wilhelm Kohler

### **1. Introduction**

The turn of the century has witnessed at least three dominant perceptions of change in a typical European economy. First, there is the demise of socialism in eastern Europe, followed by a rapid transformation of eastern European economies. Second, we observe an ever increasing obsession with a phenomenon dubbed economic globalization. And finally, there is the alleged emergence, originating in the US and fostered by rapid progress in information technology, of the "New Economy" as a whole new paradigm of how market economies might work.

Only the first of these phenomena is unquestioned in its existence, and fairly precise in its meaning. The second no doubt exists, but appears to have a somewhat unclear and arbitrary meaning, and there is much controversy regarding its effects. As to the third, many of us are in doubt on both, what it might mean, and whether it exists at all.

As always when we are uncertain about the existence and precise nature of a phenomenon, our views of, and attitudes towards, it are susceptible to manipulation, or at least to predispositions on the part of those who venture a description. Thus, globalization is sometimes described as a dreadful process which a) implies that our wages are set in Beijing<sup>2</sup>, which b) increasingly leads neighboring low-wage countries to chop slices off our domestic value added chain, c) exposes our domestic labor markets to floods of immigration from low wage countries, particularly from eastern Europe, which d) endangers cherished public goods, such as a clean environment and food safety, or health and labor standards, and which e) displaces our governments from the driver's seat regarding the course of economic policy.

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<sup>1</sup> A revised version of this paper will appear in the Journal of Policy Modeling.

<sup>2</sup> See the provocative title of Freeman (1995).

Economists who are believers in the free market would probably find clever responses to each of these points. They might, in turn, hold that a) our wages are primarily determined by our own productivity, that b) outsourcing of value added components is but a new and beneficial form of international division of labor, c) inward flows of factors (labor and capital) are typically associated with an overall welfare gain for the host country, albeit coupled with potentially controversial redistribution effects, that d) employing restrictive policies towards trade, migration, and investment are at most second-best policies to treat problems of the environment, health and social standards, and that e) enlightened governments may view international restrictions on domestic policy as a useful commitment device, and a welcome disciplinary measure vis à vis domestic interest politics.

These are but two extreme views. Can we take the easy route and simply hold that the truth lies somewhere in the middle? This would surely be unsatisfactory. We need to have a clearer understanding of the underlying phenomenon that may usefully be called globalization, instead of simply listing its alleged effects.

## **2. Is there a clear and useful meaning of "globalization"?**

Observers often take the empirical route, presenting impressive figures, usually focusing on world trade and investment flows, and intended to suggest that a new and powerful force is at work. But staring at detailed numbers, without a clear idea as to the phenomenon we are trying to look at, is a questionable exercise. Lacking such a clear idea, data may often be interpreted in rather different ways (see, for instance, Kleinknecht/ter Wengel, 1998). Or even worse, they may not be interpreted in any meaningful and disciplined way.

Instead of detailed numbers, I therefore propose that we venture cursory look at the broad lines of modern history, in order to obtain a first and very rough idea as to what may, or may not, usefully be associated with the term globalization. Temin (1999) observes that the notion of activities spanning the whole globe probably dates back to the 17th century when technological advances in shipbuilding lead European emperors to embark upon global exploration, conquest, and expansion. But while this may mark the beginning of global thinking, a modern day economist is sure to point out that such activities have very little to do

with what we now perceive as the essence of economic globalization. It took two more centuries, witnessing the formation of the modern nation-state, until we observe the first appearance of what, I would submit, is at the heart of economic globalization: The notion, and to a significant extent, also materialization of world-wide arbitrage on markets for certain goods and assets.

By arbitrage, we mean activities which exploit price differences with the final result that a good cannot command different prices at different locations for prolonged periods of time. The same can be said, *mutatis mutandis*, for the return yielded by assets traded at different locations. Note that such activities need not actually take place on a massive scale, in order to prevent such price differences from arising. Tradability is important, not actual trade. Similarly, it is the "*prospect of being arbitrated in a global economy*" (Rodrik, 1998) which worries people, more than the immediate appearance of foreign goods and services in domestic shops.

Hence, when turning to data we should focus on price differences that indicate the presence of arbitrage, or lack thereof, rather than the quantities actually traded. And it is on this account that the turn of the 19th-20th century marks the first period in history of economic globalization, comparable in broad terms to the level we observe today<sup>3</sup>. However, it took a further half-century until the word globalization made its first appearance (see Temin, 1999). This is surprising, because in the 1960s one could, by any conceivable standard, hardly speak of globalization. Quite to the contrary, after the First World War the world had seen a prolonged period of a globalization backlash (Williamson, 1998), from which it had not yet fully recovered in the 1960s.

Globalization is thus new only as a word, but not as a phenomenon. This begs the question of what is responsible for the fearful apprehension now associated with the phenomenon, and apparently absent in earlier periods of similar globalization? Three reasons, it seems to me, may be put forward. First, globalization now features new forms of internationalization that extend into realms of the economy long thought beyond the reach of international arbitrage. Second, globalization is now re-emerging after a long period of retreat to economic nationalism

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<sup>3</sup> See, for instance, Irwin (1996), Williamson (1996), Obstfeld (1998), and Temin (1999).

which was provoked by earlier globalization, and which had a devastating effect on the world economy. This latter aspect is particularly worrisome, as it raises the specter of a future and similarly devastating globalization backlash if we do not take care to prevent history from repeating itself. A crucial point of concern, then and now, is a significant degree of income inequality that coincides with globalization, and is therefore often perceived as being caused by it (see Williamson, 1998). The third point relates to policy. In a world where private activities are governed by world-wide arbitrage, the set of policy options that may be simultaneously, and independently, pursued by national governments is severely restricted. In a sense, the idea of arbitrage gets extended to the realm of policy. In principle, of course, this was no less true 100 years ago than it is today. However, the principle has now become a constraint which is much more severely binding, for the simple reason that modern governments want to do, and achieve, much more than in earlier times.

### **3. Fragmentation: A new form of globalization**

According to the traditional view of production and specialization, the principle of arbitrage is applied to a well defined value added process as a whole. The new feature of globalization which we term fragmentation now arises whenever arbitrage is applied to ever smaller slices of the value added process, instead of the value added process as whole. The extent to which the value added process is amenable to such separation is, of course, determined by technology. The extent to which it actually takes place across borders is governed by economic considerations, featuring in particular the costs of linking such separated slices towards effective supply of the final product, and the cost advantages arising from separation, say from carrying out individual fragments of value added offshore, as opposed to doing everything in an integrated way at home.

It is important that the significance of fragmentation is not limited to multinationals outsourcing certain services to their foreign subsidiaries. Much of it takes place at arms length, relying on contracts with independent firms. Obviously, a driving force behind fragmentation is a reduction in the costs of linking such fragments across borders, so as to guarantee a steady supply of the final product to the buyer. Advances in the communications technology, as well as a reduction in formal and



technical barriers to trade, are responsible for fragmentation to happen where it was economically unreasonable before (see Harris, 1993 and Jones/Kierzkowski, 2000). If such costs are higher for cross border links than for domestic links, as it is often argued, then there must be an offsetting cost advantage for producing individual fragments offshore. These can be due to superior technology, but also to an interplay between factor price differences and factor intensities of these fragments which may even compensate for a backward technology. And if costs of cross border trading and linking are progressively reduced, which for our purpose is the operational description of globalization, without at the same time also annihilating international differences in technology and factor prices, then an increase in fragmentation is the outcome.

Did this happen to an observable extent? One may try to crudely measure this by appropriately modifying the traditional measure of openness, trade in percent of GDP, so that merchandise trade is expressed in percent of merchandise value added. Feenstra (1998) observes that on this account trade has increased much more rapidly than if trade is expressed in percent of GDP. Table 1 compares these two measures for a few European and non-European economies. While trade as a percent of GDP did increase for all economies except Australia and the UK, trade in percent of merchandise value added has increased much more dramatically. This is, admittedly, a very indirect way of measuring the prevalence of the phenomenon of fragmentation. But it is at least "strongly consistent" with the view that the international division of labor has moved into the realm of value added processes. Additional evidence on the commodity composition of US-trade support this view (see Feenstra, 1998 and Irwin, 1996). Adding more direct, although partly anecdotal, evidence, such as the maquiladora example in the US-Mexican case, it is hard to avoid the overall conclusion that a convincing story of fragmentation does, indeed, become apparent from the data.

Table 1: Traditional trade versus fragmentation

Country	Trade in % of GDP			Trade in % of Value Added		
	1890	1990	%-change	1890	1990	%-change
Australia	15.7	13.4	-14.6	27.2	38.7	42.3
Canada	12.8	22.0	71.9	29.7	69.8	135.0
Denmark	24.0	24.3	1.3	47.4	85.9	81.2
France	14.2	17.1	20.4	18.5	53.5	189.2
Germany	15.9	24.0	50.9	22.7	57.8	154.6
Italy	9.7	15.9	63.9	14.4	43.9	204.9
Japan	5.1	8.4	64.7	10.2	18.9	85.3
Norway	21.8	28.8	32.1	46.2	74.8	61.9
Sweden	23.6	23.5	-0.4	42.5	73.1	72.0
United Kingdom	27.3	20.6	-24.5	61.5	62.8	2.1
United States	5.6	8.0	42.9	14.3	35.8	150.3

Source: Feenstra (1998).

Assuming that the existence of the phenomenon is unquestioned, what is its policy relevance? I shall restrict myself to two issues: a) factor prices and aggregate welfare, and b) the role that preferential trade arrangements play for fragmentation. It is important to be clear about the question asked. Specifically, the following questions need to be distinguished: 1) How does fragmentation affect the domestic distribution of income? 2) Does fragmentation enhance international factor price equalization? 3) How does it affect employment? 4) How does it affect aggregate welfare in the economies involved? And 5) Does fragmentation enforce the process of catching up by countries, such as the transition economies in the European context? Unfortunately, the answers to the first three questions are unclear and importantly dependent on the kind of model that one relies upon. The answers to questions 4 and 5 are likely to be in the affirmative, and less sensitive with respect to the model used, at least in the long run. I shall now try to shed some light on these issues, relying on abstract theoretical reasoning and using a simple graphical tool.

#### 4. Outsourcing: A trade off between cost savings and loss of employment?

Interest in fragmentation has arisen primarily from concern about a persistent decline of certain types of wage income relative to others, and relative to non-wage income. Factor price effects, therefore, seem of particular policy relevance. Unfortunately, however, robust results are hard to come by. Feenstra/Hanson (1996, 1997) argue that fragmen-

tation is responsible for an increase in the gap between high- and low-skilled labor. Arndt (1997, 1999) presents a counter-argument that fragmentation may just as well increase income of labor relative to capital in both Mexico and the US. Moreover, Deardorff (2000) and Jones/Kierzkowski (2000) argue that the incremental effect of fragmentation on international factor price equalization is ambiguous. Thus, the overall impression one obtains from this literature is that almost anything can happen regarding questions 1 and 2 above. Too much, it seems, depends on the details for these questions to be amenable to a theoretical treatment of reasonable generality.<sup>4</sup>

However, it should nonetheless be possible with some modeling effort to identify some of key channels and trade-offs involved. All models rely on assumptions, the art of modeling is choosing them in a well-guided and useful way. From a policy perspective, it is probably important to depart from the long run perspective and the full employment assumption that the literature has so far relied upon. I therefore assume that each industry relies on a given stock of sector specific capital stock which may be moved across the border in the process fragmentation, but which is useless in other industries, whether at home or abroad. By way of contrast, labor is mobile across sectors domestically, but immobile across national borders. In such a situation, capital owners earn a rent which is determined by the price of the commodity produced in a given industry and the prices that are charged for its inputs, including the ongoing wage rate. Depending on labor market frictions, labor may or may not be fully employed. Without going into the details of labor market imperfections, I will address the implications of possible unemployment in the context of international fragmentation.

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<sup>4</sup> A general treatment of the factor price effects encompassing the above mentioned special cases is presented in Kohler (2000).



fragmentation and outsourcing in very different degrees. We interpret the line  $V^1$  as a result of two different value-added-fragments which may be carried out separately, but which nonetheless depend on each other in that they derive their value only from being "assembled" towards the final product. Suppose, then, that  $V^1_1$  depicts the marginal value added of labor employed in fragment 1 of industry 1, while  $V^1_2$  depicts a similar schedule for fragment 2, with  $V^1$  the horizontal sum of the two. It is of vital importance to be clear about the precise meaning of these schedules. Specifically,  $V^1_1$  is the marginal value added of fragment 1 labor, given that the profit maximizing amount of labor, read off the line  $V^1_2$  for alternative wage rates, is employed in fragment 2, and given that the two fragments thus obtained are then "assembled" to a final product which is sold at the prevailing market price. Thus, total value added created in industry 1 is the sum of area  $A^1B^1L^1O^1$  (fragment 1) and area  $A^1_2BL^1L^1_1$  (fragment 2). Either of these areas, however, exists only in connection with the other.<sup>5</sup> Each fragment in an essential way derives its value from the existence of the other. We shall therefore call these areas the derived values of fragment 1 and 2, respectively.

Suppose now that due to some advance in transactions and communications technology, firms are actively seeking to take advantage of cheap foreign labor by outsourcing individual fragments. Let us assume for simplicity that for some reason no such outsourcing is possible for fragment 1.<sup>6</sup> Our aim here is thus not a full-fledged explanation of international fragmentation. Instead, we are interested in an account of its effect on the home country. With this in mind, suppose that there is a neighboring country, which for concreteness we now call an eastern European country, where the wage rate is  $w^E < w^*$ . Will home

<sup>5</sup> Conceivably, either fragment may also have further uses in other value added processes which we do not explicitly model here. However, if fragments are tradable, as we assume here, then the derived value added of any alternative use cannot exceed the respective area mentioned above, for otherwise profit maximizing firms would not use it in industry 1.

<sup>6</sup> Again, this is a matter of simplification. For the issue of outsourcing to arise, we must obviously preclude industry 1 leaving the home country altogether. A reasonable interpretation is that final assembly as well as production of fragment 1 rely on both, technological knowledge which is specific to firms presently residing in the home economy, and on some form of country-specific advantage, such as for instance the presence of specific infrastructure.

firms consider moving production of fragment 2 to the eastern country where they find cheaper foreign labor to produce fragment 2? If they do, we call it "outsourcing" of fragment 2. We first note that in this way it is possible to secure the derived value of fragment 2 at lower cost, the cost-advantage being  $B^1_1BDC$ . However, it is important to realize that domestic firms will only go for outsourcing, if they can appropriate at least some of this advantage for themselves. Several interpretations are possible. For the sake of a clear argument, we assume for now that fragmentation, if taking place at all, is carried out to full extent, meaning that all of fragment 2 formerly produced at home is now produced abroad. We shall return to partial fragmentation below. We must now make an important distinction.

1. If capital is immobile across national borders, then home firms may secure fragment 2 at arms length from foreign subcontractors who rely on foreign capital in production of this fragment.<sup>7</sup> The question, of course, arises how domestic firms may in this case appropriate the cost-advantage. In other words, if the foreign subcontractors produce a fragment worth  $A^1_2BL^1L^1_1$  to home firms, what prevents them from charging an amount equal to this value? Here, we must remember that under our assumptions this value derives exclusively from subsequent assembly with fragment 1. If a firm-specific and/or country-specific asset confers an effective "ownership advantage" to domestic firms,<sup>8</sup> then it seems reasonable that the home firms can appropriate at least some of this cost-advantage. For simplicity, we assume they can fully appropriate it. The result is that they obtain a fragment worth  $A^1_2BL^1L^1_1$  at a cost which is lower than this value by the amount  $B^1_1BDC$ .
2. If capital may be moved abroad, home firms, of course, have an incentive to guarantee appropriation of the cost-advantage by foreign direct investment. They would then use their capital to do what they did before, i.e., producing fragment 2, but using foreign labor receiving  $w^E$ , instead of domestic labor which would cost  $w^*$ . Fragmentation in this case is thus associated with foreign direct

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<sup>7</sup> We do not look at the foreign economy in any detail and simply assume that such capital is available in the required amount.

<sup>8</sup> Ownership advantage is a concept used in the theory of the multinational enterprise. It means that a firm has exclusive access to some asset, in our case fragment 1.

investment. We could now say that the capital invested abroad earns a higher rent than it did before when using domestic labor. But a preferable interpretation is that the implicit rent is equal to  $A^1_2BB^1_1$ , and that the fragment is shipped to the parent firm at a transfer price totalling  $A^1_2BL^1L^1_1-B^1_1BDC$ . Again, domestic firms obtain a fragment with derived value equal to  $A^1_2BL^1L^1_1$  at a cost which falls short of this value by the amount  $B^1_1BDC$ .

Whatever the interpretation, fragmentation confers an advantage to domestic firms similar to a price cut for some intermediate input that they use. This is the good news. However, the bad news is that the domestic economy loses employment. If all of fragment 2 is moved to the eastern country, then all of former fragment-2-employment,  $L^1-L^1_1$ , is lost. Moreover, in the case of immobile capital, domestic capital is similarly set idle. At first sight, this looks like a rather unattractive scenario for the home economy, as it raises the specter of losing a whole slice of industry-1-value-added to the neighboring country. Does this country need to worry?

## 5. Gain and pain: Overall welfare and redistribution

As regards overall welfare, the crucial question is whether the domestic resources released through outsourcing find alternative domestic employment where they create an output value which is equal to that of their previous use. In the case where outsourcing is coupled with foreign direct investment, the answer is in the affirmative regarding capital, since all domestic capital formerly employed in domestic production of fragment 2 is now employed in foreign production of the same fragment. The same does not necessarily hold true if outsourcing relies on foreign capital in which case domestic fragment-2-capital is indeed released from its former use. And similarly, it does not necessarily hold for domestic labor, which is set free in the amount  $L^1-L^1_1$  if full outsourcing takes place, whether coupled with foreign direct investment or without.

In its entirety, the immediate cost-savings effect from outsourcing,  $CB^1_1BD$ , will show up as an overall welfare gain for the home economy at large only if all of this domestic labor finds alternative use where it creates value added equal to its former income, measured by the rectangle  $(L^1-L^1_1)xw^*$ . Remember that  $CDL^1L^1_1$  is now income paid to

foreign labor. To the extent that this alternative value added is lower than  $(L^1 - L_1)xw^*$ , the welfare gain is reduced or may vanish altogether. Indeed, the gain may even turn to a welfare loss if this value added is sufficiently low.

There are two possible reasons why the alternative value added generated by domestic resources that are set free through outsourcing may fall short of  $(L^1 - L_1)xw^*$ . First, some of these resources may end up not being employed at all, due to some market imperfection. And secondly, if employed, they may be subject to the "law" of diminishing marginal returns. In the first case the overall welfare effect is clearly negative. One for one, each step of outsourcing would then generate domestic unemployment. It is still true that for every unit of labor released through outsourcing, the economy saves  $w^* - w^E$  on fragment 2, but at the same time it loses domestic income in the amount of  $BL^1$ . This obviously generates a welfare loss of  $DL^1$ . But this is surely a very bad assumption to rely upon for a reasonable policy view on outsourcing.

Let us, then, assume case 2 above. Under three additional assumptions, we may conclude that outsourcing has an unambiguously positive efficiency, or welfare, effect: 1) Outsourcing is a continuous process and not subject to any indivisibility. 2) Firm behavior is governed by profit maximization. 3) There are no market imperfections. These assumptions are by no means innocuous, but they nevertheless represent a useful benchmark case. The crucial point is that if they are met, then outsourcing will not be carried out to an arbitrary extent. Instead, firms will determine an optimal degree of outsourcing which will guarantee an efficiency gain for the economy at large. However, this gain is coupled with a redistribution effect at home. Hence we observe the familiar tension between efficiency and distribution. To quote Rodrik (1998): "*No pain, no gain*".

Once more, we look at figure 1. Consider alternative foreign wage rates, starting with  $w^*$ , i.e., an equal wage rate at home and abroad, and then continuously falling below  $w^*$ . As the foreign wage rate falls below  $w^*$ , home firms will want to move fragment-2-production to the foreign economy, in order to utilize this lower wage cost. Suppose that they do so by relying on foreign direct investment, thus using their own fragment-2-capital alongside foreign labor. The home economy loses fragment-2-employment through outsourcing, and there is excess supply of labor with an ensuing downward pressure on the wage rate. However,



the cost reduction on fragment 2 acts like a price cut for an intermediate input, and it therefore increases the marginal value added for fragment 1 which, together with fragment 2, goes into production of the final good. Profit maximizing firms will therefore increase labor demand for domestic fragment 1 production, sliding down the labor demand schedule  $V^1_1$  to  $\tilde{B}^1_1$ , as outsourcing takes them down to  $D^E$  along  $V^1_2$ . Notice, however, that as firms move on  $V^1_1$  the origin for  $V^1_2$  moves to the right. Notice also that demand for foreign labor in fragment-2-production increases beyond former domestic employment  $L^1-L^1_1$ , depending on the foreign wage rate in line with  $V^1_2$  (with origin  $L^1_1$ ). One may call the line segment of  $V^1_1$  starting at point  $B^1_1$  as the "cum outsourcing" labor demand curve of industry 1. For successively lower foreign wage rates, the cost advantage from outsourcing is increased which is mirrored by an increase in demand for domestic labor towards production of fragment 1.

At the same time, a falling wage rate increases labor demand in industry 2, moving along  $V^2$  to  $\tilde{B}^2$ . Combining this with "cum outsourcing" labor demand by industry 1, it is easy to see that for all domestic wage rates above  $w^E$  there will be domestic excess supply of labor. Suppose this causes the wage rate to fall right down to the foreign level  $w^E$ . At this point, the domestic industry 2 has increased its labor demand to  $0^2\tilde{L}^2$ , while industry 1 employs  $0^1\tilde{L}^1_1$ . One may now argue that there is still excess supply of labor in the amount of  $\tilde{L}^1_1\tilde{L}^2$ , but if the domestic wage rate falls further, then the whole cost-advantage of outsourcing will disappear at once. If it is possible to split fragment-2 between offshore production and domestic production, relying on split use – foreign direct investment and domestic use – of the specific domestic capital stock, then domestic firms will be indifferent between full outsourcing and partial outsourcing, meaning that they use  $\tilde{L}^1_1\tilde{L}^2$  of domestic labor (plus the required amount of capital) for domestic production of fragment 2, and producing the rest "offshore" with foreign labor input of  $CD^E - \tilde{L}^1_1\tilde{L}^2$  (plus the required amount of foreign direct investment).

In this latter case, there is a clear welfare gain from outsourcing. The opportunity cost of the former level of fragment 2 production is reduced by  $CB^1_1BD$ . Moreover, there is an additional outsourcing surplus equal to the triangle  $BDD^E$ , due to increased employment of foreign labor

which is paid its marginal contribution to value added. But this is partly offset by the falling marginal value product that domestic labor finds in its alternative domestic use, and which may be read off the line  $V^2$  from point B to point  $\tilde{D}$ , and line  $V^1_1$  from point  $B^1_1$  to point  $\tilde{B}^1_1$ . The aggregate welfare gain, therefore, is equal to the sum of the two triangles  $B^1_1 C \tilde{B}^1_1$  and  $B D^E \tilde{B}^2$ . This substantiates the argument indicated in the introduction that fragmentation is but a beneficial form of international division of labor. But, as with other forms of trade, the efficiency gain comes with a potentially troublesome redistributive effect. In the example of figure 1, domestic labor is arbitrated by cheap foreign labor and the possibility to rely on such labor for "offshore" production of fragment 2.

A natural question to ask is what might have precluded this kind of arbitrage before, and what has lead it to be a significant element of modern economic globalization. On a general level, we may refer to improvements in the technology of communication which makes it less costly to separate the value added process across national borders (see Harris, 1993 and Jones/Kierzkowski, 2000). In addition, a reduction in formal and technical barriers to trade may play a role, since a fragment which is produced abroad is often subject to such barriers when imported back to the home country for assembly to the final good. Turning back to figure 1, we may, for instance, envisage a situation where such transaction costs first annihilate the cost advantage of outsourcing afforded by the wage gap  $w^* - w^E$ , but are gradually reduced by a policy of integration and/or improved communications and transport technology, so that a fragmentation incentive arises. However, policies of integration, like the Eastern Enlargement of the EU, are also likely to narrow the international wage gap. More generally, while globalization may be associated with a world-wide increase in the gap between certain types of wage income, or between wage income and other incomes, it is likely to close the gap between wages earned for similar labor in adjacent countries. Only if this latter effect materializes at a lower pace, will the overall development be conducive towards international fragmentation.

It is important to realize that the redistributive effect need not necessarily be to the disadvantage of labor. The example so far portrayed by figure 1 is quite extreme in that labor is the only domestic factor which is effectively released through outsourcing. The assumption was that domestic fragment-2-capital, rather than being set

free, is moved across the border to work with foreign labor. Suppose, instead, that outsourcing takes place in an environment where no foreign direct investment is possible, or where firms for some other reason choose to use of foreign, rather than domestic, capital when producing fragment 2 "offshore". Then domestic capital is affected much like labor, and the outcome is much more favorable for labor. For instance, if capital is industry-specific but may nonetheless be used equally for different fragments, then the "cum outsourcing" labor demand curve exhibits a discrete jump at  $L^1_1$ , up to  $\bar{V}^1_1$ . The reason is that, with all industry-1 capital now available to support employment for fragment-1-production alone, all labor input  $L^1_1$  becomes more productive. It is quite clear that if "cum outsourcing" labor demand follows the line  $\bar{V}^1_1$ , the domestic wage will not fall all the way down to  $w^E$ . Not surprisingly, if domestic capital is released alongside labor, then outsourcing has a much less severe domestic wage effect. Outsourcing is thus more likely to be harmful for domestic labor if it is associated with direct investment than in the case of trade only in goods.

A final remark is in order regarding the low wage country. The above argument assumes that outsourcing may draw upon a completely elastic foreign labor supply at a wage rate  $w^E$ . This is a rather optimistic view. If labor in the eastern European country is likewise employed subject to diminishing marginal value added, then any additional demand arising from international fragmentation can only be met by bidding up eastern wages. This is good news if one is concerned with catching-up, but at the same time it implies that the welfare gain that western countries may reap from outsourcing is reduced. It does, however, also mean that the distributional effect within the western country is mitigated.

## **6. Fragmentation barriers: The role of preferential trading agreements**

Outsourcing has first caught economists' attention in the case of the maquiladoras appearing at the US-Mexican border as a result of NAFTA (see Arndt, 1997). In Europe, the fall of the "iron curtain" has generated a similar situation in that western European firms may find neighboring low wage countries as attractive targets for outsourcing. Indeed, there are reasons to believe that the European case of market integration is even more prone to fragmentation than the NAFTA. After

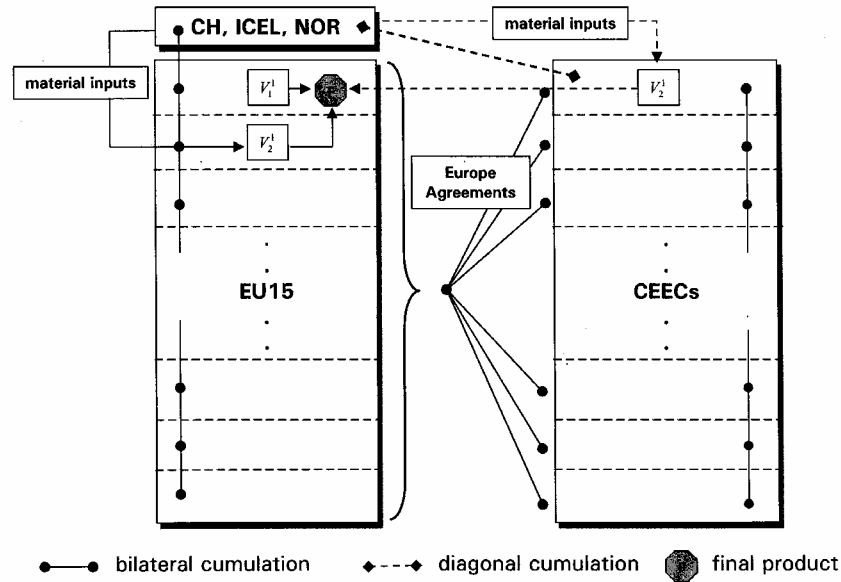
the Second World War, Europe has long been characterized by a complex system of independent rules of origin pertaining to its preferential trading blocs (EC and EFTA) and a host of bilateral association treaties. This system has undergone repeated change through new association agreements and changing membership constellations. Such rules of origin are inherently arbitrary and susceptible to protectionist abuse (see Bhagwati et al., 1998). Among other things, they promote local parts industries (see Komuro, 1997). It is to be expected, therefore, that an Eastern Enlargement of the EU, which does away with such rules for trade between incumbent member states and low wage new member countries, will enhance an efficient sourcing of inputs (see Anell et al., 1998).

A good case in point is the textiles industry where subcontracting has a long tradition. Typically, when a fragment of textile production is subcontracted to a foreign firm, this fragment will also require certain material inputs – for instance yarn, fibre or thread – in addition to foreign labor and capital. These materials may not always be available most cheaply in the subcontractor country, but may instead be imported from a third country. If the trading environment is characterized by preferential agreements, then the fragment may be denied preferential treatment when imported back to the outsourcing country, because the use of third country materials violates existing rules of origin.

To be more specific, this was of practical concern for Swiss suppliers of yarn and other textile materials when the EU15 had reached preferential trading agreements on a bilateral basis with several central and eastern European countries (CEECs), the so-called Europe Agreements. In the 1990s, textile fragments subcontracted across different EU15 countries and incorporating Swiss-made materials have obtained preferential treatment under existing EU-EFTA rules of origin. Such was often not the case, initially, for the same fragments when subcontracted to CEECs, because relying on Swiss-made materials has implied that an insufficient amount of original working or processing was applied to the fragment in the relevant CEEC. If preferential treatment was decisive, the result was that outsourcing either did not take place at all, or that the fragment itself has relied on an inefficient sourcing of material inputs. In either case the welfare gains identified above do not materialize to their full potential.

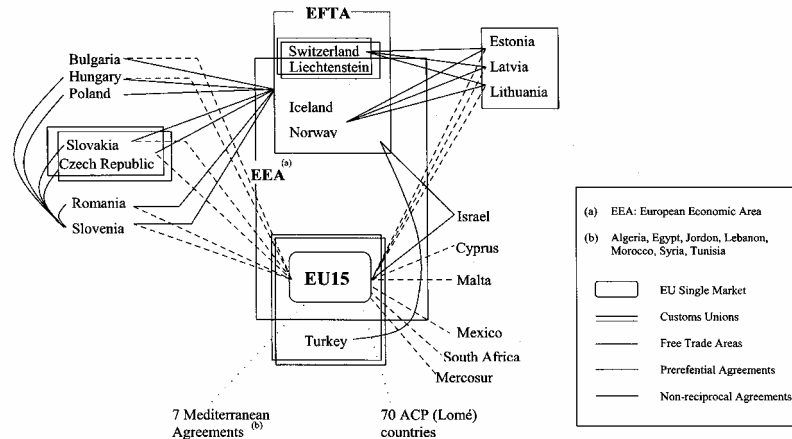
The EU has acknowledged this problem by implementing what is known as diagonal (or pan-European) cumulation through the so-called "Harmonized Protocol" in 1997 (see Komuro, 1997). This implies that the use of EFTA-made materials confers originating status to the fragment on the same footing with EU materials (bilateral cumulation). This point is illustrated by figure 2. An important message to be drawn from this figure is that any further trade agreement between the EU and other countries, say the Maghreb, Mexico, South Africa, or the Mercosur, will put the CEECs in a position similar to Switzerland prior to diagonal cumulation, unless the CEECs become full members. Incidentally, this may also be a crucial incentive for Switzerland to join the EU.

Figure 2: Fragmentation and European preferential trading agreements



I cannot indulge into detailed modeling here, but it is quite clear even from these cursory observations that the co-existence of several preferential trading arrangements entails significant fragmentation barriers. Cumulation provisions may be suitable instruments to avoid these barriers if perceived unwelcome because of their detrimental distortionary effects. But in addition to creating pure distortions, rules of origin are also costly to administer and susceptible to protective abuse. Hence, relying on bilateral or regional agreements plus subsequent cumulation protocols strikes one as a grossly inefficient strategy for international trade policy. To give a rough impression on just how inefficient the present situation is likely to be in this regard, we may briefly look at figure 3, which is adapted from Snape (1996). It depicts the bewildering multitude of existing trade agreements which Bhagwati has aptly likened to a spaghetti bowl (see Bhagwati et al., 1998).

Figure 3: Multiplicity of existing trade arrangements



Adapted from: **Richard H. Snape**, "Trade Discrimination – Yesterday's Problem?", *The Economic Record*, 1996

## 7. Conclusions

What can we learn from this analysis? I submit that the following general conclusions can be drawn. First, although outsourcing carries a rather direct flavor of the home economy losing some of its value added, there is a clear potential that this is associated with a welfare gain. It is somehow less obvious than for trade in final goods, but outsourcing of parts and components is an instance of potentially beneficial international division of labor.

As in many other cases, the efficiency gain comes with a pain in the form of a redistributive effect on incomes. There is no general rule to diagnose, let alone predict, how outsourcing affects wages and other forms of income. But it is possible to give precise meaning to the potential welfare gain, even in the presence of severe income redistribution. One may identify conditions under which the incomes lost in some parts of the economy are overcompensated in the aggregate by income gains in other parts. These conditions are far from innocuous and even if they are met, the redistributive effect may make the efficiency gain difficult to obtain for political or normative reasons.

Any unemployment which may arise from outsourcing due to the presence of market frictions partly offsets the above mentioned welfare gain. If all labor previously employed in the activity which has moved offshore ends up unemployed, then the direct effect of outsourcing on domestic welfare is clearly negative. However, if wages are flexible, some of the incipient unemployment is absorbed by additional employment in the remaining fragments of the outsourcing industry, and in other industries of the domestic economy.

The effect of outsourcing on international factor price differences is not clear-cut. I have touched upon this issue only in a rather cursory manner, but it transpires that one should not jump to quick conclusions arguing that outsourcing is conducive to international factor price equalization. Much detail that I have deliberately kept in the background above becomes relevant for this issue. Initial progress has been achieved by Deardorff (2000), but the question clearly needs further analysis.

Whether or not fragmentation is conducive to closing gaps between different countries' income levels, such as eastern and western European countries, is an altogether different question. As with factor price equalization, I have not explicitly dealt with this issue in the present paper. A few remarks are nonetheless warranted in closing. In principle, the level of real income per capita, or welfare, may rise in CEECs by the virtue of them receiving western outsourcing, even if their relative factor prices do not therewith approach those observed in the west. However, the specific conditions under which outsourcing occurs, in particular the firm-specific and country-specific advantages involved, are likely to be such that the potential efficiency gain will mostly be appropriated by the western country where outsourcing originates. At the same time, production of individual fragments in the east may be an effective vehicle of technology transfer, particularly if coupled with foreign direct investment.

The co-existence of several preferential trading agreements is a powerful barrier against fragmentation and outsourcing. This is a detrimental effect which existing theory, focusing on creation and diversion of trade in final goods, has not sufficiently acknowledged. Governments have tried to at least partly avoid the unwelcome effects of these barriers by complex cumulation provisions in the rules of origin pertaining to these preferential agreements, but this is an inherently inefficient way to deal with the problem. Indeed, it is hard to avoid the



general conclusion that the emergence of outsourcing and international fragmentation reinforce the case for a return to multilateralism, as opposed to regionalism as the driving paradigm of international trade policy.

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## **OUTSOURCING OF AUSTRIAN MANUFACTURING TO EASTERN COUNTRIES: EFFECTS ON PRODUCTIVITY AND THE LABOR MARKET**

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Yvonne Wolfmayr-Schnitzer

### **1. Introduction<sup>1</sup>**

Since the opening up of the East at the beginning of the nineties Austria witnessed a massive re-orientation of trade and a substantial increase of FDI both primarily to the neighboring transition countries. On the one hand, Austrian exporters gained access to new markets reachable at low transportation costs and relatively small trade barriers. Direct investing firms have been able to exploit first mover advantages (from the proximity and the special knowledge of the neighboring transition countries) and managed to gain – compared to the size of Austria – a prominent market position (see Stankovsky – Pfaffermayr, 1999). On the other hand, there are still huge differences in wages and productivity providing potentials for further specialisation. Above all, with the neighboring transition countries specialisation has developed beyond the conventional interindustry trade in end products. Now more and more firms, by splitting up their value added chain internationally, outsource part of their production lines and import intermediates that have formerly been sourced domestically. This process of vertical fragmentation of the production processes occurs both via increased imports of intermediates and via subsidiaries which export intermediates back to the Austrian headquarters (or assemble the product for direct exports to third countries, mainly the EU-market). Austrian FDI into these countries now seems more and more efficiency seeking rather than market oriented and contributes to the process of fragmentation of production.

From an economic policy perspective it is an open question whether Austria gains or loses from this process of international fragmentation of production and whether there are distributional consequences with

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<sup>1</sup> We wish to thank Wilhelm Kohler and Kurt Kratena for helpful comments and discussions. We also are grateful to Irene Langer and Gabriele Wellan for their assistance with the organisation of the database.

some groups gaining and others losing in terms of their wages and/or employment prospects. Additionally, since the process of fragmentation exploits comparative advantages more intensively a deep restructuring process in Austrian manufacturing has been initiated. Whereas some, mostly labor intensive production lines are closed down and delocated to low wage countries, more skilled labor and capital intensive ones are expanding.

From the perspective of a single firm the deepening specialisation inherent to the fragmentation process induces productivity gains, decreases costs and thus fosters the market position on the world markets. To some extent this gain in competitiveness is expected to increase also domestic production and thus some of the employment lost due to fragmentation may be compensated. On the other hand firms which do not follow the international trend of fragmentation of production are likely to lose shares in world markets or even have to shut down altogether.

In the short run when structural change has not re-established a new equilibrium in the labor markets, fragmentation is expected to reduce employment (increase unemployment, respectively), if there is insufficient compensation by increased output in the domestically active production lines and if intersectoral movement of labor is hard to accomplish. As a response to enhanced international outsourcing (and trade volumes in general), economic policy thus has to seek measures to speed up structural adjustment, but also has to assist those groups losing most in the course of these adjustment processes, so that the economy as a whole can gain from these new potentials of specialisation at acceptable social and distributional consequences.

This study takes a trade theory perspective and aims to empirically assess the effects of outsourcing to Eastern countries<sup>2</sup> It is organized as follows: We will first describe the main stylized facts concerning the volume and structure of trade in intermediates with the transition countries as well as intrafirm trade induced by efficiency seeking FDI, both measuring the extent of international fragmentation of production. Using a small panel of two-digit industries for the period 1990 to 1998, we econometrically investigate the effect of fragmentation on productivity and on relative demand for skilled and unskilled labor in Austrian manufacturing. Additionally, we estimate mandated wage equations. The last section summarizes the main findings and discusses the implications for economic policy.

## 2. The main stylized facts for Austrian manufacturing

In the nineties Austrian manufacturing experienced a marked increase in both export and import growth which significantly surpassed that of gross production. The result was an increase in export (import) openness in terms of gross production of about 3.9 percent (2.8 percent) p.a. As a possible force towards higher x-efficiency more openness would be expected to stipulate some impact on the (skill-specific) labor market in terms of wages and employment (see Greenaway et al., 1999). Additionally, the direction of exports and imports provides some relevant information as e.g. openness vis-à-vis low-wage (maybe low-skilled intensive) trading partners could differ in its effect on the labor market from openness to high-wage (maybe high-skilled intensive) countries.

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<sup>2</sup> Eastern countries comprise: East Central Europe (Hungary, Poland, Czech Republic, Slovak Republic); South East Europe (Albania, Bulgaria, Romania, former Yugoslavia and former USSR).

Table 1: Openness in Austrian manufacturing 1990-1998

	Total exports	Total imports	Exports to Eastern countries	Imports from Eastern countries	Outsourcing to Eastern countries
	Shares in gross output as percent		Shares in total export as %	Shares in total import as %	Shares in gross output as %
1990	43.8	48.7	10.1	5.9	0.6
1991	43.1	49.6	10.8	6.2	0.5
1992	43.3	49.9	11.5	6.5	0.6
1993	42.4	48.8	12.7	6.8	0.5
1994	44.5	51.6	13.6	7.7	0.8
1995	48.1	53.1	14.1	7.0	0.7
1996	49.9	55.4	15.4	8.2	0.9
1997	55.1	58.0	17.7	9.3	1.1
1998	59.5	60.6	16.6	10.0	1.2
	Average annual percentage change				
1990/1998	3.9	2.8	6.4	6.8	10.7

In the case of Austria, openness in the manufacturing sector vis-à-vis the East increased substantially more than vis-à-vis the rest of the world (including the EU-member countries). Moreover, this increase was even larger for imports than for exports. The share of the Eastern countries in overall manufacturing imports increased by 6.8 percent p.a., that of exports by about 6.4 percent p.a. on average between 1990 and 1998. This increase in imports is also due to the enlargement of outsourcing activities of Austrian firms. Within the same period (1990-1998) we observe an increase in outsourcing to the East in terms of Austrian gross production by about 10.7 percent p.a. Since the fall of the iron curtain outsourcing activities, like FDI activities, developed far more dynamically than trade in final goods.

### 2.1. Magnitude of international outsourcing

Several different approaches as well as data sources have been used to measure the extent of international fragmentation of production. International outsourcing, first of all generally not only refers to an international splitting up of production processes that occurs within a multinational firm but also between firms that are completely independent from each other. In line with the trade models the usual presumption is that outsourcing of production leads to increased imports of intermediate products. Accordingly, outsourcing is measured by the amount of all imported intermediates that are used in the production of domestic firms, in addition to intrafirm trade of multinationals. Note

however, that besides an increase in intermediate imports outsourcing can also lead to increased imports of final products, if outsourcing occurs at the final stage of production and the final good is re-imported. On the other hand, the mapping between outsourcing and imports is not that clear at all. Outsourcing could also involve a setting where the assembly of a product is done in a foreign country, but the final manufactured good instead of being re-imported is directly shipped to a third country. International fragmentation then would not lead to higher imports it would instead lead to smaller exports of the outsourcing country. It is clear that there exists no single indicator on international outsourcing that can take account of all these aspects and activities under the heading of outsourcing. Despite that, all measures adopted in the literature indicate that international outsourcing has increased in the last two decades and has become quite important (e.g. Feenstra, 1998, Yeats, 1999, Campa/Goldberg, 1997, Hummels et al., 1998, Diehl, 1999 and Görg, 1999).

There are four main sources of information from which outsourcing indicators have been constructed in the literature: international trade statistics, statistics on inward and outward processing trade, FDI statistics and Input-Output tables or "proxies" thereof from statistics of input purchases by firms. Insights on outsourcing derived from international trade statistics relate either to trade in raw materials and semi-finished goods or to intra-industry trade. Both can only be very rough proxies for outsourcing, since trade in final and intermediate goods (parts and components) are not systematically separated in the trade classification systems and measures on intraindustry trade also include trade in differentiated final products. Statistics on outward processing trade, on the other hand are incomplete as only those activities are covered which are supported by trade policy concessions and above that the sensibility of the indicator to changes in content requirement regulations, tariffs and other trade related regulations limits its comparability over time.

Indicators based on the information of Input-Output (I-O) tables probably come closest to the definition of international outsourcing at least for countries where the information on intermediate input flows is disaggregated into domestic products and imports, which is the case for Austria. These tables indicate, in a matrix fashion, the value of intermediate inputs that each manufacturing industry purchases from every other industry. Information on imported intermediate inputs

within each industry is usually not further disaggregated by importing countries so that it is not possible to directly distinguish between intermediate imports from advanced and less advanced countries. We derive a regional breakdown of intermediate imports by multiplying each type of imported input for each industry by the respective country (regional) import shares for total imports. That is, imported intermediates purchased by industry  $i$ , from country (country group)  $c$  are given by:

$$(1) \quad O_{ic} = \sum_{j=1}^N MI_{ij} * \frac{M_{jc}}{M_j}$$

where  $MI_{ij}$  denote imports of intermediate good  $j$  by industry  $i$  and  $M_{jc}/M_j$  the share of imports of good  $j$  from country (group)  $c$  in total imports of  $j$  (see the Appendix on further details). We distinguish between the three regions, East, OECD and the Rest of the World. Note, that the underlying implicit assumption in the calculation of intermediate imports by country groups is that for each good the country import shares are the same across input purchasing sectors.

An I-O table for Austria is available for 1990 and a preliminary version for 1995 which we constructed from the usual make and absorptions matrices. Information from these two years were taken to construct a time series for imported intermediate flows at the 2-digit NACE level for the in between years as well as 1997 and 1998. Details are again described in the Appendix.

The outsourcing indicator introduced in table 2 is the share of imported manufactured inputs (derived from the Austrian I-O table) in the value of gross output. Based on this indicator, various studies for other countries have shown that international outsourcing is quite important (Campa/Goldberg, 1997, Diehl, 1999). Table 2 reproduces the results as calculated in Campa-Goldberg and Diehl for Canada, Japan, the UK, the US and Germany and compares them to our results for Austria. Fragmentation in Austria has already been at a comparable high level of 17.5 percent in 1990 and has been increasing since to 21.7 percent for total manufacturing and in all of the selected industries. This outsourcing indicator represents a very broad measure of outsourcing since it includes purchases from an industry from any other industry.

Table 2: Share of imported intermediate inputs<sup>1)</sup> in manufacturing industries of industrial countries



	USA	Canada	United Kingdom	Germany	Japan	Austria	
	1995	1993	1993	1990	1993	1990	1998
Shares as percent							
Manufacturing	8.2	20.2	21.7	15.2	4.1	17.5	21.7
Chemicals	6.3	15.1	22.5	16.7	2.6	26.6	19.8
Machinery	11.0	26.6	31.3	10.3	1.8	30.2	36.4
Road vehicles	15.7	49.7	32.2	14.0	2.8	33.3	40.3
Electrical products	11.6	30.9	34.6	11.8	2.9	21.2	28.9
Leather products	20.5	21.8	35.6	24.2	2.6	32.2	32.2
Clothing	3.2	21.6	24.2	24.6	4.8	25.5	28.0

<sup>1)</sup> Percent of gross output value; only inputs of manufactures. Except for Germany and Austria, imports of intermediate inputs are crude estimates based on total intermediate input coefficients (domestic and imported inputs) and the respective input sectors' import shares in apparent consumption.

Source: Campa-Goldberg (1997), Diehl (1999) and own calculations for Austria.

A second, narrow measure of outsourcing is obtained by including only purchases of an industry from industries which are in the same industry class. The difference between the broad and the narrow measure of outsourcing then represents the intermediate inputs from outside the two-digit purchasing industry that are sourced abroad. Narrow outsourcing took a value of 9.3 percent in 1990 and increased only slightly to 10.4 percent in 1998, so that most of the increase in total intermediate inputs sourced from foreign countries came from outside the two-digit purchasing industry class. Throughout the paper we use the narrow measure as our main indicator of outsourcing as it best captures the idea of outsourcing. For example, we would not define the sourcing of packaging material by the food industry to reflect fragmentation of the value added chain as would be the case if we took the wide measure. This is even more important as we have to rely on the relatively high aggregation level of two-digit industries.

Austrian international outsourcing to the East grew at an average rate of 10.7 percent p.a. over the period 1990 to 1998 and thus increased significantly stronger than for any of the other regions considered. It reached a level of 1.24 percent in 1998, which accounts for a regional share of 12 percent (Table 5) in total intermediate imports. Within the group of Eastern countries, trade in intermediates has most dynamically developed for East Central European countries, which accounted for a share of 8.6 percent in total Austrian intermediate trade in 1998, compared to 2.1 percent and 1.3 percent for South East Europe and the former USSR.

Table 3: Manufactured intermediate inputs and international outsourcing in Austrian manufacturing 1990-1998

	Total inputs	Imported inputs	Imported inputs from the OECD	Imported inputs from Eastern countries	Imported inputs	Imported inputs from Eastern countries
	Shares in gross output as %				Shares in total inputs as %	
1990	16.18	9.33	8.27	0.55	27.75	1.64
1991	14.39	8.36	7.39	0.50	27.17	1.64
1992	13.96	8.23	7.22	0.56	27.03	1.85
1993	13.40	7.90	6.86	0.55	26.36	1.83
1994	13.43	8.50	7.20	0.75	28.12	2.49
1995	14.05	9.11	7.93	0.70	28.39	2.19
1996	13.68	9.13	7.81	0.88	28.66	2.76
1997	13.64	9.83	8.23	1.11	30.57	3.45
1998	13.71	10.44	8.67	1.24	31.70	3.77
	Average annual percentage change					
1990/1998	-2.05	1.42	0.60	10.71	1.67	10.99
	Difference in percentage points					
1990/1998	-2.47	1.12	0.40	0.69	3.94	2.13

The observed increase in total international outsourcing is mainly accounted for by a structural shift in outsourcing, that is, a substitution of formerly domestically sourced inputs by international purchased inputs, rather than increased fragmentation per se. This can be seen by a comparison between the share of total material inputs in gross production which has been decreasing over the period 1990 to 1998 and the share of imported inputs in total material inputs which has been rising. At the industry level, substitution away from domestic inputs to foreign inputs is most pronounced for food products, apparel, leather, wood, pulp and paper, chemicals and the communication equipment industry. Total materials as a share of gross output increased only in some industries (e.g. basic metals, office machinery and computers). Again, the shift towards a higher share of internationally sourced inputs is mainly due to increased outsourcing to the East, which was especially pronounced in the communication equipment industry, and the leather and wood industry.

International outsourcing is most prominent and way above average in the production of other transport equipment, basic metals, and communication equipment, but also important for the motor vehicle industry, the leather, chemical, paper, the computer and textile industry. Out of those industries the communication equipment industry as well

as the basic metals and the electrical machinery industries are the sectors for which outsourcing to the East has also become relatively important over the last period. One can observe the highest increases in outsourcing to Eastern countries as a share of total outsourcing by industry for those sectors as well as for the clothing industry (Table 4). The respective country shares stood well above 15 percent in 1998. Apart from those industries the East, while remaining an important sourcing country for the refined petroleum industry, the East is an important provider of inputs for wood products, the leather industry as well as for non-metallic mineral products (Table 5).

Table 4: Development of Austrian outsourcing<sup>1)</sup> to Eastern Countries by industries, 1990-1998

	1990		1998		1990/1998		1990/1998	
	Outsourcing		Outsourcing		Outsourcing		Outsourcing	
	Total	to Eastern countries	Total	to Eastern countries	Total	to Eastern countries	Total	to Eastern countries
	Shares in gross output as %				Difference in %-points		Average annual %-change	
Basic metals	17.17	1.35	31.55	5.73	14.39	4.38	7.91	19.82
Communication equipment	24.50	0.13	30.20	4.67	5.70	4.54	2.65	56.16
Leather	19.45	1.44	17.23	2.75	-2.22	1.31	-1.50	8.40
Electrical machinery	9.35	0.30	13.92	2.39	4.57	2.10	5.10	29.70
Wood products	4.16	0.88	5.01	1.51	0.85	0.63	2.35	6.97
Textiles	21.97	0.55	14.92	1.41	-7.06	0.87	-4.73	12.57
Other transport equipment	5.33	0.08	40.62	1.32	35.29	1.24	28.89	41.66
Pulp and paper	13.60	0.84	15.37	1.27	1.77	0.43	1.54	5.31
Clothing	2.57	0.13	4.44	0.89	1.87	0.76	7.08	27.33
Motor vehicles	18.82	0.11	17.47	0.87	-1.35	0.77	-0.93	29.90
Chemicals	22.31	1.39	16.24	0.80	-6.08	-0.59	-3.90	-6.66
Other non-metallic mineral products	3.85	0.17	4.87	0.68	1.02	0.51	2.98	18.99
Fabricated metal products	5.00	0.18	4.82	0.58	-0.17	0.40	-0.44	15.65
Machinery and equipment n. e. c.	6.77	0.17	5.48	0.39	-1.29	0.22	-2.60	10.96
Furniture; manufacturing n. e. c.	1.98	0.05	3.40	0.37	1.42	0.32	7.02	27.28
Office machinery and computers	6.82	0.02	15.27	0.25	8.45	0.24	10.60	41.80
Coke, refined petroleum, nuclear fuel	3.38	2.24	0.72	0.24	-2.67	-2.00	-17.63	-24.49
Food products and beverages	2.90	0.36	3.45	0.22	0.54	-0.14	2.17	-5.80
Rubber and plastic products	1.16	0.02	2.75	0.19	1.59	0.17	11.43	31.12

Table 4 (continued):

	1990		1998		1990/1998		1990/1998	
	Outsourcing		Outsourcing		Outsourcing		Outsourcing	
	Total	to Eastern countries	Total	to Eastern countries	Total	to Eastern countries	Total	to Eastern countries
	Shares in gross output as %		Shares in gross output as %		Difference in %-points		Average annual %-change	
Medical instruments	5.63	0.03	5.61	0.15	-0.02	0.12	-0.04	21.04
Publishing, printing and reproduction	0.61	0.00	0.32	0.01	-0.29	0.00	-7.75	9.40
Tobacco products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total manufacturing	9.33	0.55	10.44	1.24	1.12	0.69	1.42	10.71
Industry rank correlation with 1990 <sup>2)</sup>			0.869	0.577				
Industry rank correlation of outsourcing to the East with total outsourcing <sup>2)</sup>		0.495		0.753				

1) Imported intermediates purchased from within the same statistical industry category. - 2) Spearman correlation coefficient.

Table 5: Regional structure of Austrian outsourcing by industry, 1990-1998

	1990			1998			1990/1998		
	Outsourcing to			Outsourcing to			Outsourcing to		
	OECD	Eastern	other	OECD	Eastern	other	OECD	Eastern	other
	countries	countries	countries	countries	countries	countries	countries	countries	countries
	Shares in total imports of manufactured			intermediate inputs			Difference in percentage points		
Coke, refined petroleum, nuclear fuel	33.3	66.2	0.5	66.7	33.1	0.2	33.4	-33.2	-0.2
Wood products	72.1	21.2	6.7	67.0	30.2	2.8	-5.1	9.0	-3.9
Clothing	76.6	5.0	18.2	59.9	20.0	19.9	-16.6	15.0	1.6
Basic metals	90.7	7.9	1.4	79.6	18.1	2.2	-11.1	10.3	0.8
Electrical machinery	93.6	3.2	3.1	77.9	17.2	4.8	-15.8	14.0	1.7
Leather	76.8	7.4	15.7	68.3	16.0	15.7	-8.5	8.5	0.0
Communication equipment	81.5	0.5	17.9	71.3	15.5	13.2	-10.2	14.9	-4.7
Other non-metallic mineral products	93.7	4.4	1.9	82.9	14.0	2.3	-10.8	9.6	0.4
Fabricated metal products	93.9	3.6	2.4	83.9	12.1	3.3	-10.0	8.4	0.8
Furniture; manufacturing n. e. c.	87.9	2.7	9.4	79.7	10.9	9.4	-8.2	8.1	0.0
Textiles	86.7	2.5	10.8	80.2	9.5	10.2	-6.6	7.0	-0.6
Pulp and paper	92.5	6.2	1.3	88.1	8.3	3.6	-4.4	2.1	2.3
Machinery and equipment n. e. c.	96.5	2.5	1.0	91.0	7.0	1.7	-5.5	4.6	0.7
Rubber and plastic products	96.1	1.9	1.9	89.9	7.0	3.0	-6.2	5.1	1.1
Food and beverages	76.8	12.4	10.7	89.4	6.5	4.1	12.6	-5.9	-6.6
Motor vehicles	99.2	0.6	0.2	93.4	5.0	1.5	-5.8	4.4	1.3
Chemicals	91.8	6.2	2.0	92.7	4.9	2.3	0.9	-1.3	0.3
Other transport equipment	93.9	1.5	4.6	93.0	3.3	3.7	-0.8	1.7	-0.9
Medical instruments	94.1	0.6	5.3	90.9	2.7	6.1	-3.1	2.1	0.9
Publishing, printing and reproduction	98.4	0.7	0.9	96.3	2.6	1.0	-2.1	1.9	0.1
Office machinery and computers	85.9	0.2	13.9	87.3	1.6	11.1	1.4	1.4	-2.8
Tobacco products	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total manufacturing</b>	<b>88.6</b>	<b>5.9</b>	<b>5.4</b>	<b>83.0</b>	<b>11.9</b>	<b>5.0</b>	<b>-5.6</b>	<b>6.0</b>	<b>-0.5</b>







A comparison over time shows that the industries that had a relatively high imported intermediates share in 1990 were still the most important outsourcers by 1998 (see the bottom row of table 4)<sup>3</sup>. While the relative pattern of total international outsourcing across industries has been very stable over time this is not true for outsourcing to the East as indicated by the lower Spearman correlation coefficient of 0.58. Industry rank correlations for Eastern countries with other regions show that the industry structure of outsourcing to the East has become more similar to total international outsourcing, with the correlation coefficient increasing from 0.50 to 0.75 over the period 1990-1998.

## 2.2. Magnitude and development of intrafirm trade

The international fragmentation of the value added chain also takes place within the organization of the firms and it must be seen as part of the outsourcing measure introduced above. Multinational firms (MNEs) set-up affiliates in several countries to perform different stages of production and to combine (or assemble) them to an end product thereby generating intrafirm trade. Thus, besides cost differences which make it attractive for firms to fragment production processes across countries according to their comparative advantages, MNEs prefer to pursue fragmentation within their own organization (i.e. within the boundaries of the firm) rather than contracting it out. Therefore, in contrast to the pure theory of trade an additional condition is introduced. In terms of Dunning's (1979, 1988) terminology this condition is referred to as the internalization decision, which says that a precondition for firms to become an MNE, i.e. organizing production within the firm, is that this form of organization of production yields higher profits than outsourcing part of it to foreign firms via contracts. In this case the fragmentation of the value added chain is accomplished by vertical foreign direct investment and it is simultaneously the decision for vertical integration across borders. In contrast, horizontal FDI – which is mainly analyzed in the models of MNEs and trade introduced by Markusen/Venables (1996, 1998) – refers to the case when production of the same product occurs in several, foreign and domestic plants. Here MNEs are multi-plant firms which trade off transportation costs of

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<sup>3</sup> This comparison is done using Spearman Rank Correlation Statistics. These statistics measure the correlation between two variables based on the ordinal positions of the observations, without otherwise considering the level of the variables.

exports or more generally market proximity to fixed plant set-up costs. The impact on the structure, wages and employment for the home country for these types of FDI are quite different.

Information on the importance of vertical direct investment is available from the Austrian National Bank's database which provides data for the period 1990-1997 for 10 manufacturing industries (combined from two-digits, see Austrian National Bank, 1999). For an interpretation of the data a few remarks are in order. First, there are a few manufacturing firms which are classified as holdings in the service sector and are not included. The unit of observation of the survey is the ultimate owner of the foreign affiliate which is sometimes a holding without activities in manufacturing<sup>4</sup>. Therefore, there may be an underestimation of foreign activities. Second, the foreign affiliates are classified by their activity abroad and not according to the activity of the parent firm. This rules out vertical FDI in services and distribution and makes intrafirm imports compatible with the narrow measure of outsourcing (intermediate manufactured imports). Horizontal FDI, however, cannot be identified, so we concentrate on intrafirm imports of goods from the ten Central and Eastern European accession countries (10 CEEC) to measure the extent of fragmentation within the firm.

Table 6: Regional structure of Austrian intrafirm imports 1993-1998

	Western countries <sup>1)</sup>	10 CEEC	Total
Shares in gross output as percent			
1993	0.01	0.12	0.34
1994	0.02	0.15	0.33
1995	0.02	0.14	0.48
1996	0.02	0.22	0.56
1997	0.04	0.31	0.93
Average annual percentage change			
1993/1998	30.9	27.2	28.4

1) EU15, Switzerland, USA and Canada.

<sup>4</sup> The domestic manufacturing activities are organized in a separate corporation also owned by the holding in this case.

At the beginning of the nineties intrafirm imports from the 10 CEECs (as was FDI into these countries in general) have been negligible in size, but looking at the period 1993-1997 illustrates dynamic growth at 27.2 percent p.a. stemming from both, increases of intrafirm imports of existing firms and the increasing number of new affiliates. In 1997, the year with the latest available figures, in most industries, intrafirm imports mainly came from the 10 accession candidates, with the chemical and oil sector forming the only exception. The intrafirm trade balance with the 10 CEECs amounted to 2.6 billion ATS (the biggest contribution 1.8 billion ATS comes from the chemical and oil sector) and it has been negative only in the textiles, wood and metal industries. That means that FDI in the 10 CEEC also generated a relatively large volume of intrafirm exports.

Table 7: Regional structure of intrafirm imports by industry in 1997

	Western countries <sup>1)</sup>	10 CEEC	Other Eastern countries	Other countries	Total
	Shares as percent				
Food, beverages, tobacco	0.0	83.6	16.4	0.0	100.0
Textiles, clothing	15.8	83.8	-	0.4	100.0
Wood	0.1	99.9	-	-	100.0
Paper, printing	0.0	99.7	-	0.3	100.0
Chemicals, rubber, mineral fuels	2.6	3.3	-	94.1	100.0
Non-metallic mineral products	20.0	69.3	0.3	10.3	100.0
Metal products	15.9	74.7	0.0	9.3	100.0
Machinery	10.4	49.4	0.4	39.7	100.0
Office and electrical machinery, communication equipment	3.4	76.3	0.6	19.6	100.0
Motor vehicles, other transport equipment	-	-	-	-	-
Furniture, manufacturing nec	0.0	35.9	63.3	0.7	100.0
Total	4.3	23.0	1.0	71.7	100.0

1) EU15, Switzerland, USA and Canada.

Source: Austrian National Bank.

Table 8: Austrian intrafirm trade balance by regions and industry in 1997

	Western countries <sup>1)</sup>	10 CEEC	Other Eastern countries	Other countries	Total
			mn ATS		
Food, beverages, tobacco	49.5	90.7	-30.5	38.5	148.2
Textiles, clothing	369.4	-113.1	-	171.5	427.8
Wood	22.5	-259.4	-	-	-236.9
Paper, printing	0.0	898.4	-	19.0	917.4
Chemicals, rubber, mineral fuels	2,565.4	1,770.5	-	-7,100.7	-2,764.8
Non-metallic mineral products	0.7	118.9	81.9	-35.6	165.9
Metal products	849.4	-43.5	2.2	875.0	1,683.1
Machinery	33.7	99.0	39.3	558.4	730.4
Office and electrical machinery, communication equipment	1,318.3	20.5	12.5	375.3	1,726.6
Motor vehicles, other transport equipment	-	12.0	-	26.1	38.1
Furniture, manufacturing nec	115.6	1.8	-29.9	281.5	369.0
Total	5,324.5	2,595.8	75.5	-4,791.0	3,204.8

1) EU15, Switzerland, USA and Canada.

Source: Austrian National Bank.

The database is too small for a more detailed econometric analysis. The relation between foreign activities and domestic performance can only be assessed on a descriptive basis. We observe that employment in the parent firms and in foreign affiliates has grown complementarily at a rate of 10.4 percent and 9.2 percent p.a., both mainly driven by new investors coming into the sample. In contrast, overall, employment in total manufacturing decreased by 2.3 percent on average. However, the five sectors with the highest increase in intra-firm trade witnessed an above average decrease in overall domestic employment. A significant shift to more skill intensive domestic production occurred only in one of these five sectors (electronics) and to a smaller extent in non-ferrous minerals. The correlations in table 9 indicate a loose relationship between domestic and foreign employment. The only (weak) stylized fact is that growth of foreign activities in the 10 CEEC tends to increase the skill intensity of domestic production, but it does not seem to be associated with a general decrease in domestic employment<sup>5</sup>.

<sup>5</sup> In Pfaffermayr (1999) further evidence is provided by estimating bilateral

Table 9: Correlation between domestic and foreign activities in the 10 CEEC (growth rates)

	Domestic employment					
	Total		Parent firms with FDI in the 10 CEEC		High-skilled/Low-skilled	
	Pearson	Kendall-t	Pearson	Kendall-t	Pearson	Kendall-t
Outsourcing	-0.04	-0.02	-0.07	-0.12	0.18	0.14
Employment in foreign affiliates	-0.08	-0.07	0.41 **)	0.38 **)	0.23 *)	0.16 *)
Intrafirm imports	-0.01	0.02	0.03	0.09	0.07	0.05

\*\*) significant at 5 percent; \*) significant at 10 percent.

### 2.3. Evidence on employment of direct investing firms at the firm level

In addition to aggregate figures on FDI and intrafirm trade an unbalanced panel of direct investing firms is available at the Austrian National Bank. It is based on surveys and includes annual foreign direct investment on a stock, balance sheet basis. The data base covers only FDI where the investor holds at least 10 percent of equity and total invested equity capital exceeds 1 million ATS (since 1995 companies with total assets in excess of 100 million ATS are also covered even if the equity capital is below 1 mn ATS). The data base starts in 1980, where 325 domestic direct foreign investors are covered, and extends to the present, where around 900 domestic direct foreign investors are in the sample.

Table 10 exhibit summary statistics about the size and growth of firms engaging in (active) FDI. The sample includes only Austrian manufacturing and mining companies and covers the period 1989 to 1997. The total number of firms involved in the calculations is 222.

Table 10 displays summary statistics for all firms and aggregates each firm's employees across all subsidiaries abroad. On average, the firms covered employed 613 (median 263) workers at home and 232 (median 52) employees abroad. The annual average percentage rate of growth in

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relative labor demand (domestic over foreign affiliates). It is found that there is a general shift to foreign production but no substitution between domestic and foreign employment in Eastern European affiliates at the margin.

employees was negative at home (-3.1 percent, median -0.1 percent), however positive abroad (9.8 percent, median 0.0 percent). Over time, the median firm retained its 1989 home employment in 1997, however, expanded from 23 to 100 employees abroad. Note however that sample composition changes between 1989 and 1997, since new firms start investing abroad and some firms are divesting.

Table 11 displays summary statistics only for those firms that undertake FDI in Eastern countries. The number of employees are again aggregated to the firm level by summing over all employees across all subsidiaries in Eastern countries. The median firm investing in Eastern countries starts out with much less employees in 1989 than all firms from table 10 (104 versus 278), but, ends up with an equal number of employees at home in 1997 (278 versus 280). This could be due to the fact that also smaller firms started to invest in Eastern countries after the fall of the iron curtain. The median size of foreign employment increased by a factor of six from 1989 to 1997. The number of firms investing in Eastern countries increased dramatically during the sample period from 14 in 1989 to 81 in 1997.

Firms investing in Western European countries<sup>6</sup> are larger than investors in Eastern countries (see table 12). The dynamics over time concerning both the number of FDI-investments and employee growth abroad is less pronounced than for Eastern countries.

Table 13 exhibits the statistics for firms investing in the rest of the world. These firms are the largest, and they experience the largest decline in domestic employment.

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<sup>6</sup> Western Europe includes Germany, Italy, France, Netherland, Belgium, Luxemburg, Spain, Portugal, Great Britain, Ireland, Greece, Sweden, Finland, Denmark, Switzerland, Norway, Island.

Table 10: Summary statistics about 222 Austrian manufacturing and mining firms over 1989-1997, total

	Austria	Abroad
1989/1997-Number of employees		
Mean	613	232
Median	263	52
Number of observations	1.594	1.594
1989/1997-Average annual percentage change of number of employees		
Mean	-0.031	0.098
Median	-0.001	0.000
Number of observations	1.303	1.278
1989-Number of employees		
Mean	824	117
Median	278	23
Number of observations	118	118
1990-Number of employees		
Mean	725	140
Median	275	33
Number of observations	141	141
1991-Number of employees		
Mean	659	212
Median	261	41
Number of observations	169	169
1992-Number of employees		
Mean	603	222
Median	255	44
Number of observations	190	190
1993-Number of employees		
Mean	565	229
Median	247	52
Number of observations	218	218
1994-Number of employees		
Mean	561	233
Median	255	69
Number of observations	208	208
1995-Number of employees		
Mean	568	275
Median	265	80
Number of observations	198	198
1996-Number of employees		
Mean	575	301
Median	265	102
Number of observations	181	181
1997-Number of employees		
Mean	563	299
Median	280	100
Number of observations	171	171

Table 11: Summary statistics about 222 Austrian manufacturing and mining firms over 1989-1997, Eastern Countries

	Austria	Abroad
1989/1997-Number of employees		
Mean	681	296
Median	215	102
Number of observations	606	606
1989/1997-Average annual percentage change of number of employees		
Mean	-0.034	0.124
Median	0.000	0.009
Number of observations	521	490
1989-Number of employees		
Mean	496	158
Median	104	23
Number of observations	14	14
1990-Number of employees		
Mean	462	215
Median	106	27
Number of observations	29	29
1991-Number of employees		
Mean	419	335
Median	185	50
Number of observations	49	49
1992-Number of employees		
Mean	830	300
Median	213	86
Number of observations	67	67
1993-Number of employees		
Mean	737	303
Median	206	93
Number of observations	90	90
1994-Number of employees		
Mean	708	288
Median	236	108
Number of observations	93	93
1995-Number of employees		
Mean	698	293
Median	225	119
Number of observations	95	95
1996-Number of employees		
Mean	685	313
Median	213	152
Number of observations	88	88
1997-Number of employees		
Mean	711	308
Median	278	143
Number of observations	81	81



Table 12: Summary statistics about 222 Austrian manufacturing and mining firms over 1989-1997, Western Europe

	Austria	Abroad
1989/1997-Number of employees		
Mean	745	136
Median	339	42
Number of observations	967	967
1989/1997-Average annual percentage change of number of employees		
Mean	-0.027	0.025
Median	-0.005	0.000
Number of observations	801	807
1989-Number of employees		
Mean	892	95
Median	449	23
Number of observations	85	85
1990-Number of employees		
Mean	864	102
Median	324	29
Number of observations	97	97
1991-Number of employees		
Mean	781	131
Median	305	40
Number of observations	105	105
1992-Number of employees		
Mean	750	139
Median	298	43
Number of observations	111	111
1993-Number of employees		
Mean	679	125
Median	302	41
Number of observations	127	127
1994-Number of employees		
Mean	671	122
Median	339	40
Number of observations	120	120
1995-Number of employees		
Mean	703	163
Median	341	50
Number of observations	113	113
1996-Number of employees		
Mean	719	179
Median	362	58
Number of observations	106	106
1997-Number of employees		
Mean	709	161
Median	363	52
Number of observations	103	103

Table 13: Summary statistics about 222 Austrian manufacturing and mining firms over 1989-1997, other countries

	Austria	Abroad
1989/1997-Number of employees		
Mean	923	151
Median	500	42
Number of observations	390	390
1989/1997-Average annual percentage change of number of employees		
Mean	-0.052	0.083
Median	-0.013	0.000
Number of observations	324	312
1989-Number of employees		
Mean	1.315	92
Median	590	36
Number of observations	38	38
1990-Number of employees		
Mean	1.256	91
Median	577	31
Number of observations	39	39
1991-Number of employees		
Mean	1.139	138
Median	545	50
Number of observations	41	41
1992-Number of employees		
Mean	1.045	149
Median	560	52
Number of observations	44	44
1993-Number of employees		
Mean	900	139
Median	547	50
Number of observations	48	48
1994-Number of employees		
Mean	849	157
Median	495	48
Number of observations	45	45
1995-Number of employees		
Mean	688	180
Median	448	46
Number of observations	46	46
1996-Number of employees		
Mean	664	173
Median	402	31
Number of observations	46	46
1997-Number of employees		
Mean	584	223
Median	345	34
Number of observations	43	43

Table 14 exhibits a correlation matrix of the employee growth rates at home and abroad, and broken down into growth in Eastern countries, Western Europe, and growth in the rest of the world. The table shows that annual growth rates at home and abroad are not significantly correlated. One interesting fact to note is that employment growth in the Western European countries is positively correlated to employment growth in Eastern countries (Pearson correlation coefficient of 0.31, p-value = 0.00).

Table 14: Correlation matrix of average annual percentage changes 1989/1997

	Austria	Eastern countries	Western Europe
Abroad			
Pearson correlation coefficient	-0.0027		
p-value	0.9247		
Number of observations	1.213		
Eastern countries			
Pearson correlation coefficient	0.0041		
p-value	0.9285		
Number of observations	471		
Western Europe			
Pearson correlation coefficient	-0.0234	0.3094	
p-value	0.5161	0.0003	
Number of observations	770	132	
Other countries			
Pearson correlation coefficient	-0.0536	0.0629	-0.0209
p-value	0.3569	0.6390	0.7697
Number of observations	298	58	198

#### 2.4. Outsourcing and total factor productivity growth

According to the theory of international trade, outsourcing may affect the home country by increasing its overall productivity. Feenstra–Hanson (1997, 1999) show that empirically the effects of outsourcing are similar to those of a (possibly non-neutral) technical change.

As a measure of productivity growth we use the Tornqvist-index of total factor productivity which is defined as the volume of output in relation to an index of inputs (weighted by shares in total variable costs, see Appendix). In contrast to labor productivity this index additionally accounts for increases in capital and intermediate inputs. Over the period 1991-1998 we observe a median increase of the total factor productivity (TFP) of 0.9 percent p.a. (Table 16 below).

There are differences in TFP-growth, however not significant, across industries with the highest productivity increases in refined petroleum, electrical machinery, communication equipment and medical precision instruments and decreases in office machinery (which seems to be an outlier) and textiles. At the pure descriptive level no differences in TFP-growth between those industries with a high and a low outsourcing ratio to the East can be detected. Below, we will analyze this issue in more detail econometrically, controlling for industry and time specific effects as well as for other exogenous determinants.

We do not analyze the impact of fragmentation on structural change in detail. However, looking at the growth rates of real value added reveals pronounced changes in industry structure in the nineties. Textile, apparel and leather undergo a deep restructuring process with real value added shrinking by 2.3%-7.5% p.a.; the other transport equipment industry is also shrinking on average. The highest growth rates can be found in refined petroleum, in the technology and human capital intensive industries (NACE 29-32) and in the motor vehicles sector. With respect to the degree of outsourcing table 16 below indicates that the industries with a high degree of outsourcing to the East are at least partly those which are under pressure of restructuring and exhibit slower growth. According to the Kruskal-Wallis test the growth differentials are not significant, however.

## **2.5. Outsourcing and the labor market**

### ***2.5.1. Relative wages and employment of skilled and unskilled workers***

One of the central issues in the debate on potential detrimental effects of increased trade on national labour markets has been whether increased trade has hurt unskilled workers by lowering their wages and increasing the skilled-unskilled wage differentials. Research on this issue has been most intense for the US and then the UK and less so for other advanced economies. To date, with some exceptions (Wood, 1995) the broad consensus of the research on the US is that import competition accounts for only a small part of the declining relative wages of the less skilled workers. The estimates range from zero to one-third for the US (Slaughter, 1999). For the other advanced economies, the evidence so far suggests a similarly small effect of imports on wages but possibly larger effects on employment in Europe, which is likely in part a reflection of structural rigidities in European labour markets.

For Austria table 15 reveals virtually no rise in relative wages but a quite large increase in the skilled-unskilled employment ratio of 4.4 percent p.a. on average over the period 1990 to 1998.

Table 15: Growth of total employment and ratio of wages and employment of skilled and unskilled workers in Austrian manufacturing

	Total employment	Ratio of skilled and unskilled workers	
		Wages	Employment
1990	100.0	1.39	1.54
1991	100.1	1.39	1.59
1992	97.2	1.39	1.62
1993	93.0	1.41	1.83
1994	90.4	1.41	2.01
1995	89.8	1.40	2.02
1996	87.0	1.42	2.15
1997	85.2	1.42	2.25
1998	85.4	1.40	2.19
Average annual percentage change			
1990/1998	-2.0	0.0	4.4

As a first glance at the possible impact of fragmentation, in tables 16 and 17 we split the file into industries with high outsourcing and industries with low outsourcing to the East and perform a Kruskal-Wallis test to see whether there has been a systematically different development across these industry groups in such variables as (value added) prices, wages of low-skilled and high-skilled workers, cost of capital, value added and employment. While we find no significant differences in the development of wages and any of the other variables considered, outsourcing results to make a difference to employment. High outsourcing industries have been subject to significantly higher negative employment responses than low outsourcing industries. That outsourcing leads to negative volume effects rather than price (wage) effects is consistent with the hypothesis that under unionized wage setting mechanisms and a preference for not too large skilled to unskilled wage differentials, possible negative impacts of trade are more likely to be absorbed in form of employment losses. While disaggregation of employment into skill types shows significantly higher employment losses for low-skilled workers, a significant difference between low and high outsourcing industries results only for high-skilled employment. Note however, that the difference in the

median of employment changes across the two industry groups is higher for low-skilled workers than for high-skilled workers.

Table 16: Outsourcing to Eastern Countries

	TFP	Median of log change of value added	total employment	low- skilled workers	high- skilled workers	Test on difference between low- and high- skilled workers <sup>1)</sup>
Degree of outsourcing						
high-above industry average	0.009	0.019	-0.014	-0.026	-0.012	0.02
low-below industry average	0.009	0.013	-0.026	-0.033	-0.018	0.00
total	0.009	0.017	-0.023	-0.030	-0.016	
Difference between high and low outsourcing, Kruskal-Wallis test, p-value	0.580	0.790	0.080	0.140	0.080	

<sup>1)</sup> two sided p-value

Table 17: Outsourcing to Eastern Countries

	Value added prices	Median of log change of Wages of		Cost of capital	Test on difference between low- and high- skilled workers <sup>1)</sup>
		low-skilled workers	high-skilled workers		
Degree of outsourcing					
high-above industry average	0.017	0.044	0.044	-0.011	0.700
low-below industry average	0.014	0.043	0.041	-0.016	1.000
total	0.015	0.043	0.041	-0.014	0.810
Difference between high and low outsourcing, Kruskal-Wallis test, p-value	0.850	0.760	0.390	0.800	

<sup>1)</sup> two sided p-value

### 2.5.2. The labor content of Austrian intermediate imports from the Eastern countries

A distinguishing feature of the literature on the labour market impacts of trade is the diverse set of methodologies and empirical research strategies. One of these have been factor (labor) content calculations (e.g. Borjas/Freeman/Katz, 1997, Wood, 1994 and 1998). Basically, this is an exercise which amounts to computing the quantity of labor embodied in net trade and so estimating the effect of trade on the demand for (skilled and unskilled) labor at given factor prices by comparison with what it would have been in a hypothetical situation without any trade, or where trade is reduced to a level of some earlier year, assuming technologies as constant. More specifically, while for exports one calculates the actual labor content, a counterfactual factor content is calculated for imports, that is, how much of labor would have been employed to produce the imported goods domestically.

We calculated the labor content of intermediate imports from the East. The results are displayed in table 18 and give the additional amount of labor (persons) that would have been demanded in 1990 and 1995 if intermediate imports from Eastern countries were reduced to zero and substituted by domestic input production. Having in mind all the possible sources of bias, and given wages and factor supply, we see that in both years the effects on labor displacements from outsourcing to the East is relatively small affecting in total 3880 employees in 1990 and 5363 in 1995. The third column in table 18 gives an alternative calculation of the labor content of intermediate imports from the East by applying 1990 sectorial input coefficients to 1995 imports (the assumption being that these would more correctly reflect the technology before outsourcing to the East became important). We see that estimates for 1995, applying this alternative calculation go up by 1865 persons to 7227.

Factor content calculations have been subject to wide criticism for a number of reasons, so that the figures should be interpreted with due care to their limitations and the underlying assumptions. Apart from theoretical considerations and criticisms widely discussed Deardorff-Hakura (1994), Deardorff (2000), Kohler (1999), Leamer (2000) and Krugman (2000) there is an important problem in the empirical application. The results depend crucially on the assumptions made in calculating the labor content of the hypothetical domestic production that would substitute for intermediate imports (see e.g. Wood, 1991 and 1998). Factor contents of imports are estimated from domestic sectorial factor input coefficients. This assumes that all imports are competing,

that is, imported intermediates in a given statistical category are taken to be goods of the same type, and in particular of the same labor and/or skill intensity as those produced in the corresponding domestic sector. This is an assumption specifically unreasonable for outsourcing to the East where it is more likely that the most labor intensive and most low skill intensive fragments of production are outsourced so that the factor intensities of the fragment outsourced certainly differ from that of the integrated process as well as from the fragment remaining in the country<sup>7</sup>. This is an important source of underestimation of the impact of outsourcing on labor demand. The higher the level of statistical aggregation at which factor input coefficients are observed the higher degree of underestimation.

On the other hand there is also a possibility of overestimation, that could arise, if domestic equivalents of imports are higher priced, which would deter consumers so that the impact of labor displacement is overstated.

Furthermore, the above calculation of factor contents does not take into account the adjustment processes on the labor and product markets induced by outsourcing. So, the calculated figures can at very best only be interpreted as "very short-run" effects of outsourcing with complete intersectoral immobility of factors and constant wages (see Kohler, 2000).

---

<sup>7</sup> Note that the fragmentation technology, i.e. the input coefficients, are unobservable, both in the domestic and foreign country at the two-digit industry level.



Table 18: Labor content of intermediate inputs imported from Eastern Countries

	1990	1995	1995 (1990 input coefficients)
	Persons		
Food and beverages	393	211	262
Textiles	247	349	416
Clothing	46	71	140
Leather	195	195	266
Wood products	505	690	849
Pulp and paper	206	154	234
Publishing, printing and reproduction	0	0	0
Coke, refined petroleum, nuclear fuel	89	13	18
Chemicals	651	412	469
Rubber and plastic products	31	42	83
Other non-metallic mineral products	104	271	340
Basic metals	726	1343	2037
Fabricated metal products	193	450	556
Machinery and equipment n. e. c.	203	305	332
Office machinery and computers	0	0	0
Electrical machinery	179	441	590
Communication equipment	38	205	294
Medical instruments	9	23	26
Motor vehicles	28	88	130
Other transport equipment	6	18	47
Furniture; manufacturing n. e. c.	31	79	136
Total manufacturing	3880	5362	7227
High outsourcing industries	3383	4582	6192
Low outsourcing industries	497	780	1035

### 3. Econometric estimates of the impact of outsourcing for Austrian manufacturing

#### 3.1. Productivity effects

To analyze the impact of outsourcing on changes in total factor productivity we specify an econometric equation based on a translog-production function (see Appendix). The dependent variable is the Tornqvist-index of TFP-growth and we concentrate on the effects of intermediate imports as a measure of fragmentation. Data on intrafirm trade are too highly aggregated and cannot be used in the econometric exercise.

Outsourcing is introduced as the lagged ratio of our proxy for intermediate purchases from Eastern countries relative to total expenses for intermediates. The full specification of the translog function as proposed, for example, in Feenstra/Hanson (1997) cannot be estimated since the interaction terms of outsourcing and inputs which should capture non-neutral technical change induced by outsourcing are highly collinear rendering precise estimation impossible. Rather we introduce two interaction terms of the outsourcing measure with dummies, the first taking the value 1 if an industry is classified as skill intensive,  $D_{\text{high skill}}$ , and the second if it is capital intensive,  $D_{\text{capital}}$ . Additional controls are included to avoid that all productivity changes are erroneously associated to outsourcing. Summing up, the estimated specification reads:

$$(2) \quad \Delta TFP_{it} = \beta_0 + \beta_1 O_{it} + \beta_2 O_{it} D_{\text{high skill}} + \beta_3 O_{it} D_{\text{capital}} + \beta_4' X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

where  $i$  is the index for two-digit industries and  $t$  the time-index.  $X$  comprises the R&D to output ratio as well as general export and import openness with respect to Eastern countries as additional controls.  $\mu_i$  are fixed industry effects capturing exogenous neutral technological progress and  $\lambda_t$  denote fixed time effects which control for yearly influences like the business cycle common to all industries. Additionally, we account for outliers by introducing outlier dummies whenever the studentized residuals turn out to be greater than 3 in the basic specification (see Belsley/Kuh/Welsch, 1980).

Table 19: Pooled regressions for total factor productivity growth

	Log change in TFP		Log change in $p^V + \text{TFP-e}$	
	b	t-value	b	t-value
Outsourcing to Eastern countries - base	0.54	2.4 **)	0.86	1.6 *)
Interaction with $D_{\text{low-skilled/high-skilled}}$	-0.12	-0.2	-0.47	-0.3
Interaction with $D_{\text{capital/employment}}$	0.31	1.0	0.04	0.1
Prediction (weighted average across industries and time)	0.009		0.023	
Predicted overall effect of outsourcing compared to 1990 (weighted average across industries and time)	0.002		0.002	
Statistics				
N=18, T=8				
$R^2$	0.57		0.59	
s	0.01		0.04	
Reset-Test, F-test	1.32	(3, 103)	1.56	(3, 104)
Heteroskedasticity, $c^2$	1.62	(1)	1.81	(1)
Normality, $c^2$	1.44	(2)	10.99 **)	(2)
F-tests				
Time dummies	2.5 **)	(7, 106)	1.35	(7, 107)
Industry dummies	1.6 *)	(16, 106)	2.73 **)	(16, 107)
Interaction terms	0.5	(2, 106)	0.04	(2, 107)

Note: Control variables for export and import openness, R&D intensity (all insignificant), outsourcing to OECD (significantly negativ), outlier dummies, fixed industry and time effects are not reported. NACE 16, 30, 35 and 36 are omitted because of data quality or because the majority of observations within the 2-digit industry level have been classified as outliers (absolute value of studentized residuals above 3). Standard errors are heteroskedasticity robust using the White-procedure (White, 1980).

\*\*) significant at 5 percent; \*) significant at 10 percent.

The estimation results in table 19 indicate that outsourcing exerts a significant, positive, technologically neutral effect on TFP-growth<sup>8</sup>. Note the Tornqvist-index implicitly controls for changes in inputs and in their intensity in usage (change in weights) as a result of changes in technology induced by outsourcing. So specification 2 is measuring

<sup>8</sup> We also estimated fixed effects regressions without additional control variables as well as robusts median regressions in order to assess the robustness of our estimates. For both equations we derive comparable results.

only overall changes in production technologies. The interaction terms suggest that the positive impact of outsourcing is possibly less pronounced in high-skilled and more capital intensive sectors than in low-skilled intensive industries. However, the parameters could not be estimated precisely and so it is impossible to draw firm conclusions on this. In assessing the impact of outsourcing we ask what would be the effect on TFP-growth, if outsourcing is reduced to its 1990 level and compare the difference in the prediction of the estimated equation. Table 19 shows that on average 0.2 percent of the 0.9 percent average increase in TFP can be attributed to outsourcing.

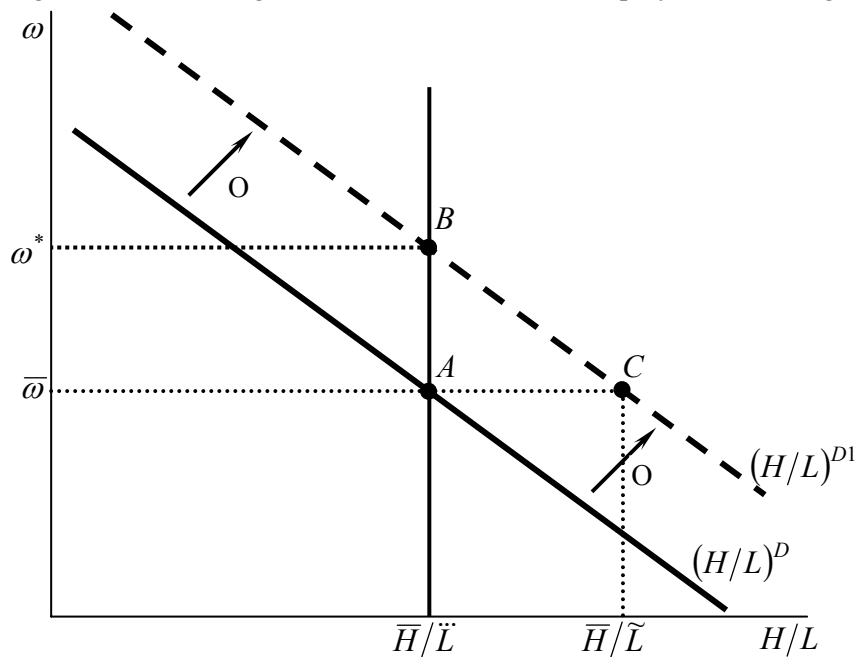
### **3.2. Outsourcing and the effects on skill-specific employment**

The literature on the labor market effects of increased openness (mostly measured either in terms of overall trade or multinational activities, less often directly in terms of trade in intermediates, i.e. outsourcing) to a large extent is only concerned with the effects on wages. This is driven by the fact that traditional trade models assume full factor market clearing in the sense that there is perfect intersectoral (not international) labor mobility, wages are fully flexible and unemployment is impossible. Under such circumstances the Heckscher-Ohlin model of trade allows for a valid analysis of the effects of trade (and also multinational activities, if the model is extended to non-perfect market structures, see Helpman, 1984 and 1985, Helpman/Krugman, 1985, Markusen/Venables, 1996 and 1998, among others) on factor income e.g. of the high-skilled relative to the low-skilled. This type of analysis was seen to be suitable for integration processes which occur without large changes of factor employment (for instance as in the case of Northern American integration with the foundation of NAFTA). In such a case it is sufficient to concentrate on the effects of falling trade barriers and other trade impediments on relative factor rewards. However, it was mentioned several times (Krugman, 1995, Wood, 1998) that for countries – usually associated with Europe – which are facing some form of wage rigidities this might be an incomplete analysis. In that case one would have to allow for the possibility of a change in relative factor employment (high-skilled versus low-skilled in our case). Rigidities of relative wages between the high-skilled and the low-skilled in Europe often were associated with preferences for not too large wage differentials and unionized wage-setting mechanisms within the respective economies.

The stylized facts for Austria give some support to a theoretical foundation which is based on the latter arguments, remember the relative small rise of relative wages and the relative large increase in relative employment of high-skilled and low-skilled over the last decade.

In this chapter we will search for the effects of fragmentation (outsourcing) on the relative employment of high-skilled to low-skilled by Austrian industries. In order to isolate this effect, we also have to control for changes in other variables which would generate a similar impact on this relation. Therefore, we shall demonstrate the effect on high-skilled relative to low-skilled employment in a particular industry remembering the well-known labor supply and demand diagram (Figure 1) which for our purpose is drawn for relative employment.

Figure 1: Outsourcing and the effects on relative employment and wages



Initially, the economy faces the relative labor demand curve  $(H/L)^D$ . As usual,  $\omega = \omega_H/\omega_L$  refers to the relative wage rate of high-skilled and low-skilled. What are the candidates for a shift of the depicted relative labor demand curve? The literature provides us with a couple of explanations: First, non-neutral (unskilled labor augmenting) technological change

tends to change the input mix and shifts the relative labor demand curve outwards. Second, increased efficiency in the production process might change the input-factor mix, increase exports and presumably shift relative demand outwards. Third, increased competition via imports in final goods might reduce relative demand for that factor which is more extensively contained in imports resulting in either an inward or an outward shift of the relative labor demand curve (this remains an empirical question). Fourth, increased competition from foreign suppliers of intermediates might (at least relatively) reduce the demand for that factor which is intensively used in the production of intermediates. Hence, outsourcing into low-wage countries would presumably result in an outward shift of the relative demand curve. In the case of opening-up of the East the driving forces behind arguments (2)-(4) could be the decline in tariff and non-tariff barriers to trade, increased multinational activities, etc.

Of course, the effect on relative employment ( $H/L$ ) and wages ( $\omega_H/\omega_L$ ) crucially depends on the shape and slope of the relative labor supply curve. As mentioned above, traditional models of trade assume a vertical (relative) labor supply curve which is due to fully flexible relative wages. Hence, any outward shift in relative labor demand (e.g. because of increased outsourcing) would only cause an increase in the wages for high-skilled relative to low-skilled employees (from  $\bar{\omega}$  to  $\omega^*$

in figure 1), leaving relative employment unchanged (at  $\bar{H}/\bar{L}$  in figure 1). In contrast, if relative wages were fully rigid this would be due to an infinitely elastic relative labor supply curve. Therefore, any shift in relative labor demand would result in a change in relative employment

(in figure 1 from  $\bar{H}/\bar{L}$  to  $\bar{H}/\tilde{L}$ ) leaving relative wages unchanged (at  $\bar{\omega}$  in figure 1). However, if there is some wage rigidity in the economy, the new equilibrium after an exogenous outward shift of relative labor demand would take place somewhere between point B (i.e. zero-elastic relative labor supply) and point C (i.e. infinitely elastic relative labor supply) in figure 1. We would therefore expect a rise in both relative employment and relative wages in favor of high-skilled employment.

In order to isolate the effect of outsourcing on relative employment between the high-skilled and the low-skilled, we have to control for the effects of the several explanatory variables which are capable to shift relative labor demand. Hence, industry-specific openness to exports and

to imports, and the capital-output ratio enter the equation. On the other hand, fixed industry and time effects are included in order to control for exogenous non-neutral technological progress (reflected by time effects) and to be able to interpret the coefficients "within" industries. This would lead us to the following econometric specification estimated with a panel of two-digit industries for the period 1990-1998:

$$(3) \quad \ln \frac{H_{it}}{L_{it}} = \beta_0 + \ln \frac{\omega_{Hit}}{\omega_{Lit}} + \ln XOP_{it} + \ln MROP_{it} + \ln KY + \ln O_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

where subscript  $i$  refers to industry and  $t$  to time (years).  $H$  and  $L$  are high-skilled and low-skilled employment,  $\omega_H$  and  $\omega_L$  are the respective wages,  $XOP$  is export openness and  $MROP$  is import openness (measured in terms of gross production), where the "R" indicates that this measure contains only imports minus outsourcing to Eastern countries.  $KY$  is the capital-output ratio. Finally,  $O$  is our outsourcing measure<sup>9</sup> and  $\mu_i$  and  $\lambda_t$  are group-specific (industry and time) fixed effects.

Of course, relative wages and relative employment face an endogeneity problem and the same holds true for outsourcing to the East, as we presume that this is production which intensively uses unskilled labor. We therefore instrument both variables (in an alternative specification we treat outsourcing as exogenous) to obtain unbiased and consistent estimation results. We find trade impediment measures (applied most favored nation tariff rates,  $TB$ , and non-tariff barriers to trade,  $NTB$ ) as well as union power measures (degree of organization of trade unions,  $ORG$ , median firm size,  $MSIZE$ , and price cost margins,  $PCM$ ) to be appropriate instruments from a theoretical point of view (see Egger-Egger, 2000).

Table 20: Skill-specific relative labor demand and outsourcing in Austria 1990-1998  
Two-stage least squares estimation results (dependent variable is high-skilled relative to low-skilled employment in heads)

<sup>9</sup> Of course, fragmentation of the value added chain was to some extent arm's length and to some extent it was of an intra-firm type. In the analysis of the effects on relative employment we will not distinguish between the two and remember that trade statistics do not discriminate between intrafirm and other trade.

	Specification I <sup>1)2)</sup>		Specification II <sup>1)3)</sup>	
	b	Std. error	b	Std. error
Dependent Variable <sup>4)</sup>				
Relative wage rate (RWAGE)	-0.07	0.850	-1.36	1.232
Export openness (XOP) <sup>5)</sup>	0.28	0.066 **)	0.20	0.070 **)
Import openness (MOP) <sup>5)</sup>	-0.36	0.069 **)	-0.25	0.086 **)
Capital intensity (KI)	-0.22	0.096 **)	-0.07	0.115
Outsourcing (OUT)	0.08	0.031 **)	0.02	0.209
Constant	1.49	0.717 **)	1.34	0.755 *)
Statistics (N=20; T=9) <sup>6)</sup>				
Observations		179		179
Adj. R <sup>2</sup>		0.98		0.98
Time effects: F (8, 146) <sup>7)</sup>		0.89		1.31
Industry effects: F (19, 146) <sup>7)</sup>		464.45 **)		311.49 **)
Outlier Effects: F(3, 143) <sup>7)</sup>		-		-
Normal Distribution I: adj. c <sup>2</sup> () <sup>8)</sup>		4.64		4.64
Normal Distribution II <sup>9)</sup>		0.43		0.43
Instrument Relevance: R <sup>2</sup> <sub>p</sub> (RWAGE) <sup>10)</sup>		0.26		0.19
Instrument Relevance: R <sup>2</sup> <sub>p</sub> (OUT) <sup>10)</sup>		0.57		-
RESET: F(3, 144) <sup>11)</sup>		6.69 **)		6.69 **)

1) Outsourcing to Eastern countries measured as percent of intermediate inputs.

2) Relative wages and outsourcing are instrumented by unit labour costs in Eastern countries (ULCOST), organisation degree of trade unions (ORG), price cost margin (PCM), median firm size (MSIZE), trade barriers (TB), non-tariff barrier dummy (NTBD), non-tariff barrier interaction term (NTBI). 3) Only relative wages are instrumented by organisation degree of trade unions (ORG), price cost margin (PCM), medium firm size (MSIZE). 4) All variables are in logs. Parameter estimates for fixed time and industry effects as well as for outlier dummies are not reported in order to save space. 5) Exports (imports) as percent of industry gross output. 6) Degrees of Freedom in parentheses. 7) F-tests for testing the restriction of joint zero parameters for the respective effects (outlier dummies, fixed time and industry effects). 8) Combined Skewness/Kurtosis test for normality, Royston (1991). 9) Shapiro-Wilk test for normal residuals (Royston 1991). 10) Partial R<sup>2</sup> diagnostics testing for instrumental relevance, Shea (1997). 11) Ramsey RESET test using powers of the fitted values of the dependent. \*\*) significant at 5 percent; \*) significant at 10 percent.



The econometric estimates provide the following relatively robust results:

- an increase in overall export openness increases relative employment in favor of high-skilled;
- an increase in overall import openness increases relative employment in favor of low-skilled;
- an increase in outsourcing increases relative employment in favor of high-skilled.

This on the one hand supports the stylized fact that Austria seems to act as an importer of relatively skill-intensive goods from abroad. On the other hand, it is an exporter of skill intensive goods itself. Outsourcing works in the same direction as was supported by other empirical contributions (e.g. Anderton/Brenton, 1999). However, this has nothing to say about the impact of outsourcing on overall employment which – as has been demonstrated – depends on general equilibrium effects. But it can help to underpin the role of labor market policy in the process of increasing integration. In so far as Eastern Enlargement would be related to outsourcing (via the reduction of trade impediments and differences between standards, etc.) one would expect a *ceteris paribus* decrease in the relative demand for unskilled labor. This would claim for accompanying labor market policies (financial support for training and education programs, etc.) in order to minimize welfare losses for the respective people in the adjustment process.

### **3.3. Induced mandated wage changes**

In this chapter we analyze the impact of outsourcing to the East on the labor market from yet another angle. We ask, how outsourcing to the Eastern countries would affect relative wages of skilled and unskilled in a world of fully flexible wages and no unemployment. In the light of specific labor market developments in Austria (virtually no increase in relative wages of skilled workers, relatively large rise in relative employment of skilled) one could then ask, to what extent possible negative pressures from outsourcing to the East on wages of skilled and unskilled are absorbed in the form of employment losses due to the inflexibility of wages.

Mandated factor price regressions, which are sometimes also referred to as "price studies" have been widely used in the empirical trade and

wages literature to study the impact of trade competition from low wage countries in general<sup>10</sup> and outsourcing to low wage countries in specific (Feenstra-Hanson, 1999), on the skilled-unskilled wage gap. The theoretical framework for these studies is the production side of the standard, perfectly competitive Heckscher-Ohlin trade theory model and the Stolper-Samuelson link between product prices and factor prices that results from totally differentiating a set of zero profit conditions equating price with average costs for all perfectly competitive industries. Expressed in terms of percentage changes this yields (e.g.  $p^* = dp/p$ ):

- holding technology constant:
 
$$(4) \quad p^* = \theta \omega^*$$
- allowing for technological progress:
 
$$(5) \quad p^* = \theta \omega^* - TFP^*$$

where  $p^*$  is a vector of product price changes,  $\omega^*$  is a vector of domestic factor price changes,  $\theta$  is a cost-share matrix and TFP is total factor productivity.

The basic intuition of the Stolper-Samuelson link between product and factor prices is the following: international trade affects product prices across countries, and this affects factor prices within countries by influencing relative factor demands. At initial factor prices, any change in product prices or technology means that zero profit conditions do not longer hold. Producers expand output in sectors which have become profitable and reduce output in unprofitable sectors. Relative labor demand increases for the factors employed relative intensively in expanding sectors and reduces for factors intensive in contracting sectors. To restore equilibrium, relative factor prices must adjust in response to these demand shifts.

The Stolper-Samuelson equations (4) or (5) form the basis for the mandated wage regressions: changes in industry prices are regressed on the level of sector cost shares for various factors of production. The coefficient estimates on the cost shares are then interpreted as the

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<sup>10</sup> For an overview see: Slaughter (1999), Huber/Wolfmayr-Schnitzer (1999).

predicted factor price (wage) changes, that are mandated by the change in product prices to maintain zero profits in all sectors.

Three important points are worth noting at this stage. First, as already pointed out, the underlying Heckscher-Ohlin trade theory takes a long run view and assumes fully flexible factor prices and perfect intersectoral mobility of factors, so that unemployment is impossible. Second, mandated wage regressions seem to suggest that goods prices are exogenous (given by world market prices) and can thus be influenced only by international trade, but this is only true for a small country. Note, that the Stolper-Samuelson mechanism holds whether product-price change are due to international trade or any other force (technological change). Thus, if technological changes are passed through to industry prices and productivity changes are happening across countries or happening in a large country which by virtue of its size can alter world prices the relation between international trade and industry prices is not that straightforward anymore. One needs a way to determine empirically what portion of the observed product price changes are attributable to international trade and what to technology. As Feenstra (1998) has noted, however, the distinction between trade versus technology becomes misleading in the case of increased trade through outsourcing. The reason for this is that outsourcing of labor-intensive production stages has a similar effect as sector specific skill-biased technological change in that it reduces the demand for unskilled relative to skilled labor (see also Kohler, 2000). The third important point is, that the Stolper-Samuelson mapping describes no causal relationship, but a general equilibrium relationship between two sets of endogenous variables. Attributing causality from international trade (which itself is an endogenous phenomenon) to product price changes and factor price changes requires reference to some exogenous aspect of international trade. Thus, empirically, the important question is, what are the exogenous forces that jointly drive goods and factor prices.

Feenstra/Hanson (1997, 1999) make this point very clear. They explicitly show, that when the price regression is fully specified, taking into account interindustry wage differentials, due e.g. to variation in factor quality or industry specific rents, the estimated coefficients just reproduce the factor price changes actually observed in the data, therefore only summarize how prices and productivity commove with factor prices, and can thus be no analytical device to calculate the effect of international trade on factor prices. Treating industrial prices as well

as productivity changes as endogenous, the authors therefore propose a two-step estimation procedure, where in a first step the features that contribute to changes in prices and productivity are disentangled, and then, as a second step it is asked how these individual features affect factor prices (wages).

In our estimation of the effects of Austrian outsourcing to Eastern countries we adopt their two stage estimation procedure. Thus, in a first step we decompose price and productivity changes into portions attributable to structural variables according to :

$$(6) \quad \Delta \ln p_{it}^V + \Delta TFP_{it} + e_{it} = \gamma_0 + \gamma_1 O_{it} + \gamma_2 O_{it} D_{\text{high skill}} + \gamma_3 O_{it} D_{\text{capital}} + \gamma_4 X_{it} + \mu_i + v_t + \varepsilon_{it}$$

which regresses the change in industry (value added) price ( $p^V$ ) and total factor productivity (TFP) corrected for interindustry wage differentials ( $e$ ) on outsourcing to the East ( $O$ ), interaction terms of outsourcing to the East with dummies for skill intensive industries ( $OD_{\text{high-skill}}$ ) and capital intensive industries ( $OD_{\text{capital}}$ ) and a variable  $X$  comprising the R&D to output ratio as well as overall export and import openness with respect to Eastern countries as additional control variables.  $\mu_i$  and  $v_t$  are industry and time specific fixed effects. Subscript  $i$  refers to industry and  $t$  to time (years) and  $\Delta$  indicates first differences. The last term on the left hand side corrects for interindustry-wage differentials and is defined as  $e_{it} = \frac{1}{2}(v_{i,t-1} + v_{it})' (\Delta \ln \omega_{it} - \Delta \ln \omega_t)$  where  $v_{it}$  is the vector of cost shares of primary inputs,  $\Delta \ln \omega_{it}$  are industry specific factor price changes and  $\Delta \ln \omega_t$  the average factor price change across industries. Note that the right-hand side of equation 6 is identical to that one in equation 2 explaining total factor productivity. See the Appendix for an exact derivation of regression equation 6. An important point is that outsourcing besides influencing total factor productivity and thereby indirectly influencing the product price, has a direct feedback on product prices through its factor bias. So the coefficient on outsourcing resulting from the first regression includes a component measuring the direct effect of outsourcing on productivity, a second one measuring how much of that productivity influence is passed through to prices, and

a third component measuring the direct impact of outsourcing on prices (see Appendix and Feenstra–Hanson, 1997 and 1999)<sup>11</sup>.

The corresponding estimation results are reported in the third and fourth column of table 19 above. Our results are consistent with that of TFP-growth indicating a pronounced positive and neutral impact of outsourcing on combined TFP- and industry price changes. Directly estimating the pass-through coefficient of TFP-growth on price changes (not reported) shows that the direct effects of outsourcing on value-added prices are small. Instead, the major impact comes from the indirect effect via productivity growth.

As a second stage we isolate the impact of outsourcing to the East on price and productivity changes (also reported in column 3 of table 19). That is, we calculate the difference between the overall prediction of equation 6 and the prediction for a hypothetical situation where outsourcing is constrained to its 1990 value other determinants being constant. We denote this by  $(\Delta \ln p_{it}^{V,O} + \Delta TFP_{it}^O - \Delta e_{it}^O)$ . The prediction for overall growth is 2.3 percent for the typical industry out of which 0.2 percent (about one tenth of this overall change) are attributable to the outsourcing effect. Taking these results as a left-hand side variable, we regress this decomposed price and productivity change arising from outsourcing on the primary factor cost shares in order to estimate the mandated changes in factor prices consistent with outsourcing alone.

This regression is specified as follows

$$(7) \quad \Delta \ln p_{it}^{V,O} + \Delta TFP_{it}^O - \Delta e_{it}^O = \omega' cs + \varphi_i + \psi_t + \zeta_{it}$$

where  $cs$  denotes cost shares for unskilled and skilled labor and capital.  $\varphi_i$  and  $\psi_t$  capture group specific (industry and time) fixed effects. The vector of coefficients,  $\omega$ , obtained from this regression represents the change in primary factor prices that are explained (mandated) by outsourcing to the East. That is, the wage changes caused by a change in outsourcing to the East (in our case to the value of 1990) which should be observed if factor markets were perfect (no unemployment and the HO-model holds). Although the regression diagnostics indicate some

<sup>11</sup> Note that under the assumption of exogenous prices the pass-through coefficient, as well as direct impact of outsourcing due to the factor bias of outsourcing would both be zero.

specification problems (possibly arising from endogeneity) and the estimates thus should be interpreted with care, we derive sufficiently robust results which are consistent with the hypotheses. In accordance with Feenstra/Hanson (1997, 1999), mandated changes are significantly negative for low-skilled workers and physical capital and positive – as expected – for high-skilled workers. However, the effect on the latter is less robust and possibly overestimated as the median regression in table 21 indicates.

Table 21: Pooled mandated wage regressions

	Log change in $p^V + \text{TFP-e}$ due to outsourcing		Median regressions <sup>1)</sup>	
	b	t-value	b	t-value <sup>2)</sup>
Wages of low-skilled workers <sup>1)</sup>	-0.11	-2.5 **)	-0.14	-2.4 **)
Wages of high-skilled workers <sup>1)</sup>	0.08	2.2 **)	0.02	0.4
Rental rate of capital <sup>1)</sup>	-0.15	-4.3 **)	-0.23	-4.5 **)
Statistics				
N=17, T=8				
R <sup>2</sup>	0.94		-	
Pseudo-R <sup>2</sup>	-		0.58	
s	0.03		-	
Reset-Test, F-test	14.90 **)	(3, 99)	-	
Heteroskedasticity, c <sup>2</sup>	28.00	(1)	-	
Normality, c <sup>2</sup>	10.11 **)	(2)	-	
F-tests				
Time dummies	4.24 **)	(7, 102)	3.35 **)	(7, 109)
Industry dummies	72.22 *)	(15, 102)	11.85 **)	(15, 109)

Note: Outlier dummies, fixed industry and time effects are not reported. Standard errors Heteroskedasticity robust using the White-procedure (White, 1980). NACE 16, 27, 30, 35 and 36 are omitted because of data quality or because the majority of observations within the 2-digit industry level have been classified as outliers (absolute value of studentized residuals above 3). 1) Deviation from total mean. 2) Based on residuals from bootstrapping (200 replications).

Compared to the actual movement of skilled and unskilled wages in Austria these results give some indication that the existing wage flexibility has been insufficient to prevent some employment losses that were due to outsourcing the East. To a certain extent wage policies aiming at more equality seem to have worsened the employment prospects especially for low skilled labor consistent with our findings in calculations on relative labor demand.

#### 4. Conclusions and policy implications

In the nineties Austrian manufacturing experienced a marked increase in both export and import growth which significantly surpassed that of gross production and in this way enhanced openness to trade in Austrian manufacturing. This phenomenon was even more pronounced for economic relations with the Eastern countries than with the rest of the world. Especially, intermediate imports (outsourcing) from the East and FDI activities – although low in levels – have been rather dynamic forces since the fall of the iron curtain and have been important enough to exhibit an impact on the Austrian economy. Concentrating on manufacturing, empirical evidence shows that the observed increase in outsourcing to the East is mainly due to a substitution between formerly domestically sourced inputs and international (non-East) purchased inputs, rather than increased fragmentation per se. The comparison over time shows a stable pattern across industries for total international outsourcing, that is, the industries that had a relatively high imported intermediates share in 1990 were still the most important outsourcers by 1998. In contrast, the industry structure of outsourcing to the East changed significantly over the period becoming more similar to Austrian sourcing from other countries. Looking at the correlations with domestic activities motivates our empirical analysis, showing that outsourcing to Eastern countries is related to changes in the volume and structure of employment in Austrian manufacturing. There seem to be almost no effects on factor prices.

The econometric analysis derived three main results:

- Outsourcing to the East significantly improves domestic growth in total factor productivity (possibly less pronounced in high-skilled and more in capital intensive industries).
- It increases domestic employment of the high-skilled relative to the low-skilled.
- Estimates of the mandated wage regressions lead to the conclusion that in the presence of perfect factor markets wages of the unskilled should be lower and higher for the high-skilled in response to outsourcing. As wages are not fully flexible one would expect to observe both (less pronounced) wage and employment effects.

The main conclusion is that the overall labor market effects from outsourcing to the Eastern countries are small. The most important impact will be on the structure of employment and wages (low-skilled versus high-skilled) as it is widely discussed in the literature on trade versus technical progress as the sources of increasing wage differentials (unemployment). The majority of the related literature on this topic has only been concerned with the effects on wages (having in mind the US situation) and less the employment effects (being in the center of European interests). However, independent of the causes of the pressures on the labor market (either trade or technological progress) and the expected effects (either mainly on wages or employment), most researchers agree that there is a substantial need for labor market policy in order to facilitate the adjustment process to the new equilibrium. The latter would be one with a higher proportion of high-skilled employees. There seems to be a consensus that trade restrictions and protection is an inadequate measure to avoid increasing wage differentials and unemployment (Krugman, 1995, Wood, 1995, Deardorff, 1999). Moreover, researchers also widely agree about the possible measures which are capable to ensure, that along the adjustment process distorting distribution effects on relative wages and/or employment (both in favor of the high-skilled) are kept as small as possible. In the literature the following policy measures in this debate are discussed:

- Upgrading the labor force skills (Burda/Dluhosch, 1998) also by government action to improve education and training is ranked highest in the agenda (in order to fasten and amplify the skill acquiring process; Wood, 1995).
- The deregulation of consumer services should enable this sector to absorb former production workers. This could also help to reduce possible income inequalities as it would tend to exhibit rising wages in flexible labor markets (Burda/Dluhosch, 1998).
- Tax cuts, cash supplements to wages, better public services, and other subsidies to improve the living standards of workers who take low-paying jobs (Wood, 1995).
- Subsidies to employers to encourage them to hire more unskilled workers, especially in non-traded services (Wood, 1995).
- Immigration policy in favor of high-skilled immigrants (Srinivasan, 1995). It was observed that certain low-skilled jobs in the nontradable sector seem to be performed disproportionately by immigrants.
- Subsidies particularly on the education of the children of the unskilled.



- Taxes on wages of the skilled (or on the production of skill-intensive goods) in order to finance the subsidies for the unskilled (Wood, 1995, Deardorff, 1998)

From a trade theory perspective our results suggest that policies towards higher wage flexibility and intersectoral mobility of workers could have some moderating effects on employment losses, especially for the low skilled. Finally, public policy should support structural change that gets an additional impetus from outsourcing. Of course, the optimal policy will vary from country to country, and no specific policy will be the correct one for all countries (Wood/Ridao/Cano, 1999) and theory does us not provide with a clear-cut solution which policies will handle the problem best (Deardorff, 1999). Nevertheless, policy makers are requested to prevent low-skilled workers from too severe welfare losses in the adjustment process.

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## 6. Appendix

### 6.1. Measuring international outsourcing by imports of intermediates

In our calculations of imported intermediates we rely on the Austrian I-O table for 1990 and preliminary I-O data constructed from the usual make and absorption matrices for 1995, that were just made available to us by Statistics Austria. While the 1990 table disaggregates intermediate input flows in domestic products and imports, this information was not available for 1995. Thus for each missing year as well as for 1995 the intermediate import matrix was calculated by the following formula:

$$(8) \quad \frac{MI_{ij}}{I_{ij}} \frac{I_{ij}}{\sum_j I_{ij}} \sum_j I_{ij}$$

The first term describes the share matrix of each type of intermediate import  $j$  of each industry  $i$  ( $MI_{ij}$ ) in total intermediate purchases of type  $j$  of industry  $i$  ( $I_{ij}$ ). This matrix is known for 1990 and was extrapolated by yearly growth rates of import quotas (share of total imports in gross production) for each good, derived from yearly national account figures. The underlying assumption is that the development of the imported intermediate share of each good is the same across sectors.

The second term gives the share of purchases of each type of input  $j$  in total intermediates sourced by industry  $i$ . This information is given by the respective I-O data for 1990 and 1995 and interpolated for the other years.

Finally, data for the last term (total intermediate purchases of each industry  $i$ ) is derived from national account figures.

## 6.2. Estimating the impact of fragmentation on total factor productivity

Following Feenstra/Hanson (1997, 1999) and others we assume that outputs and inputs of manufacturing industries are related by a translog production function (skipping the time and industry index):

$$(9) \quad \ln f(z) = A_0 + (\alpha + \mathbf{A})' \ln z + \frac{1}{2} \ln z' \gamma \ln z$$

where  $z = (x, y)$  is a vector of primary inputs  $x$  and intermediate inputs  $y$ . The scalar  $A_0$  captures neutral technical progress and the vector  $\alpha + \mathbf{A}_i$ ,  $\sum_{i=1}^{N+M} \mathbf{A}_i = 0$ , represents non-neutral technical change.

Additionally,  $\sum_{i=1}^{N+M} \alpha_i = 1$  and the rows and columns of  $\gamma$  sum the zero if the production function is linearly homogenous which is assumed through out. The discrete change in output, input and technology, the latter stemming inter alia from outsourcing, is given by

$$(10) \quad \Delta \ln f(z) = \left[ \Delta A_0 + \Delta \mathbf{A}' \frac{1}{2} (\ln z_{-1} + \ln z) \right] + \left[ \alpha + (\mathbf{A}_{-1} + \mathbf{A}) \frac{1}{2} \right]' \Delta \ln z + \Delta \frac{1}{2} \ln z' \gamma \ln z$$

and provides a decomposition in:

- technological change (e.g. induced by outsourcing) evaluated at average levels of the inputs;
- change in inputs evaluated at average technology parameters;
- change in the quadratic input terms.

The change of total factor productivity (TFP) is given by the first component of (10):

$$(11) \quad \Delta \text{TFP} = \Delta A_0 + \Delta A' \frac{1}{2} (\ln z_{-1} + \ln z)$$

and using the first order condition for cost minimization it can be shown that the change in TFP can be represented by the Tornqvist index which subtracts the growth of inputs weighted by observed cost-shares from total output growth.

$$(12) \quad \Delta \text{TFP} = \Delta \ln Y - \frac{1}{2} (s + s_{-1})' \Delta \ln z$$

We follow Feenstra–Hanson (1997, 1999) and postulate that  $\Delta A_0$  and  $\Delta A$  are functions of outsourcing, exogenous technological change and other determinants ( $\tau$ ). i.e.:

$$(13) \quad A_i = B\tau_i + u_i$$

$$(14) \quad A_{j0} = \beta\tau_i + v_i$$

implying

$$(15) \quad \Delta \text{TFP}_i = \beta\Delta\tau_i + \frac{1}{2} \Delta\tau_i' B' (\ln z_{i,-1} + \ln z_i) + \varepsilon_i$$

We can isolate the impact of outsourcing on (denoted by determinant  $k$ ) on  $\Delta \text{TFP}$ :

$$(16) \quad \Delta \text{TFP}_{ik} = \beta_k \Delta\tau_{ik} + \frac{1}{2} \Delta\tau_{ik} \sum_{j=1}^{M+N} b_{jk} (\ln z_{ijk,-1} + \ln z_{ijk})$$

In the empirical exercise this specification cannot be estimated since the interaction effects (second part of 16) are highly collinear. Rather we classify industries as skill intensive if the median skilled to unskilled ratio is higher than that of total manufacturing and as capital intensive if the median of the ratio of the real stock of capital to total employment is above the median of total manufacturing. These two dummies are interacted with the outsourcing measure and introduced instead of the second term in 16.

### 6.3. Measuring the effects of outsourcing on wage inequality – mandated factor price changes.

In accordance to Feenstra/Hanson (1997, 1999) we adopt a modification of the conventional mandated factor price regression and use a two stage approach:

1) In a first step the total changes in productivity and price changes, corrected for interindustry wage differentials is decomposed into different structural components, specifically, into an outsourcing component and an R&D component denoted by vector  $\tau$ :

Changes in total factor productivity (TFP) are decomposed according to:

$$(17) \quad \Delta TFP_{it} = \beta' \Delta \tau_{it} + \frac{1}{2} \Delta \tau_{it}' B' (\ln z_{i,t-1} + \ln z_{it}) + \varepsilon_{it}$$

which is the same as equation (15).

Changes in value added prices and industry specific wage changes are decomposed according to:

$$(18) \quad \Delta \ln p_{it}^v - e_{it} = \delta' \Delta \tau_{it} + \lambda \Delta TFP_{it} + v_{it}$$

where  $\lambda$  is the pass-through coefficient, measuring how much of the productivity change is passed through to industry value added prices,  $\delta$  is a vector of coefficients measuring the direct impact of outsourcing on industry prices.  $e_{it}$  is defined as:  $e_{it} = \frac{1}{2} (v_{i,t-1} + v_{it})' (\Delta \ln \omega_{it} - \Delta \ln \omega_t)$

where  $v_{it}$  is the vector of cost shares of primary inputs,  $\Delta \ln w_{it}$  are industry specific factor price changes and  $\Delta \ln \omega_t$  the average factor price change across industries. This term corrects for the fact that factor prices are not the same for all industries as it is assumed in trade theory. Both equations combined give:

$$(19) \quad \Delta \ln p_{it}^v + \Delta TFP_{it} - e_{it} = \gamma' \Delta \tau_{it} + \frac{1}{2} \Delta \tau_{it}' A' (\ln z_{i,t-1} + \ln z_{it}) + \eta_{it}$$

where

$$(20) \quad \gamma = [\beta(1 + \lambda) + \delta]; A' = B'(1 + \lambda); \eta_{it} = \varepsilon_{it}(1 + \lambda) + v_{it}$$

The regression again includes an interaction term of the structural variable  $\tau$  and the primary factor quantities ( $z$ ), whereby  $A$  is the matrix of coefficients measuring this interaction and should give evidence on the magnitude of nonneutral changes in technology due the factor bias

of outsourcing to the East and other structural variables. Again, these interaction effects turn out to be highly collinear in our regression analysis and are dropped. As before, we define dummies for skill intensive industries ( $D_{\text{high skill}}$ ) and capital intensive industries ( $D_{\text{capital}}$ ) and interact these two dummies with our outsourcing measure for Austrian sourcing from the East. We then arrive at the following specification for our first stage regression:

$$(21) \quad \Delta \ln p_{it}^V + \Delta TFP_{it} + e_{it} = \gamma_0 + \gamma_1 O_{it} + \gamma_2 O_{it} D_{\text{high skill}} + \gamma_3 O_{it} D_{\text{capital}} + \gamma_4 X_{it} + \mu_i + v_t + \varepsilon_{it}$$

The variable matrix  $X$  comprises the R&D to output ratio as well as overall export and import openness with respect to Eastern countries as additional control variables.  $\mu_i$  and  $v_t$  are industry and time specific fixed effects. Subscript  $i$  refers to industry and  $t$  to time (years) and  $\Delta$  indicates first differences.

2) As a second step, the decomposed price and productivity changes are regressed on factor cost shares to estimate the changes in primary factor prices attributable to (mandated by) outsourcing alone. The second stage regressions for each structural variable  $k$  are:

$$(22) \quad \Delta \ln p_{itk}^{VA} + \Delta TFP_{itk} - \Delta e_{itk} = \frac{1}{2} (v_{i,t-1} + v_{it})' \omega_k$$

$v$  denote factor cost shares of primary factors and the coefficients  $\omega_k$  obtained are the change in primary factor prices that are explained by determinant  $k$ , that is, outsourcing to the East and other possible determinants.

For our regressions we use the following specification:

$$(23) \quad \Delta \ln p_{it}^{V,O} + \Delta TFP_{it}^O - \Delta e_{it}^O = \omega' cs + \varphi_i + \psi_t + \zeta_{it}$$

where  $p^{V,O}$ ,  $TFP^O$  and  $e^O$  are the changes in value added prices, total factor productivity and industry specific wage differences due to outsourcing,  $cs$  denotes cost shares of primary factors. Finally, the coefficients  $\omega$  obtained from these regressions are the change in primary factor prices that are explained (mandated) by outsourcing to the East.



## 6.4. Variables and data sources

Table 22: List of variables and their definition

Variable	Symbol	Definition
Relative skill-specific employment	H/L	High-skilled employment in heads divided by low-skilled employment in heads
Relative skill-specific wages	$w_H/w_L$	Wage per high-skilled person divided by wage per low-skilled person
Export openness	XOP	Exports as percent of gross production
Import openness	MROP	Imports minus outsourcing to Eastern countries as percent of gross production
Capital output ratio	KY	Real capital stocks divided by real gross production
Degree of organisation of trade unions	ORG	Union members' share in industry (i) in overall industry members divided by employment share of industry (i)
Median firm size	MSIZE	Median size of firms in industry (i)
Price cost margin	PCM	Value added minus wage costs as percent of gross production
Total factor productivity	TFP	Tornqvist index: growth of inputs weighted by observed cost-shares minus total output growth
Outsourcing to Eastern Countries	O	Austrian imports of manufactured intermediates from Eastern countries as percent of gross production
Dummy variable for skill intensive industries	$D_{\text{high skill}}$	value = 1 if the median skilled to unskilled ratio is higher than that of total manufacturing
Dummy variable for capital intensive industries	$D_{\text{capital intensive}}$	value = 1 if the median of the ratio of the real stock of capital to total employment is that of total manufacturing
Value added industry price	$p^V$	
change in interindustry-wage differentials	e	Cost-share weighted difference between industry specific factor price changes and the average factor price change across industries
cost shares of primary factors	cs	Wage costs for unskilled and skilled, as well as total capital rents, respectively, divided by total costs

Table 23: Data sources

Variable	Source
Real value added	Statistics Austria, Österreichs Volkseinkommen 1998
Nominal value added	Statistics Austria, Österreichs Volkseinkommen 1998
Nominal gross production	Statistics Austria, Österreichs Volkseinkommen 1998
Real gross production	Statistics Austria, Österreichs Volkseinkommen 1998
Total employment	Statistics Austria, Österreichs Volkseinkommen 1998
Exports	Statistics Austria and reclassified to NACE 2-digit industries by WIFO
Imports	Statistics Austria and reclassified to NACE 2-digit industries by WIFO
Real stock of capital	Own calculations using the nominal stock of capital and the user costs of capital
Nominal stock of capital	Statistics Austria, We are indebted to K. Schwarz who kindly provided the unpublished figures
User costs of capital	Prime rate (WIFO) plus depreciation rate (15%) plus change in investment prices (investment deflator from the capital stock series, Statistics Austria)
Intrafirm imports	Austrian National Bank, we are grateful to R. Dell'mour for providing the detailed databasis
Intrafirm exports	See intrafirm imports
Employment in foreign affiliates	See intrafirm imports. The figures in table 10-14 are based on figures at the firm-level of these database
R&D-Intensity	Chamber of Commerce, reclassified to NACE 2-digit industries, values for 1997 from Statistics Austria, interpolated in between.
High-skilled workers and employees	"Lohnerhebung", Austrian Chamber of Commerce; blue colour workers of the categories "Besonders qualifizierte Arbeiter", and "Qualifizierte Arbeiter" and white colour workers of group IV to VI, reclassified to NACE 2-digit industries
Low-skilled workers and employees	blue colour workers and white colour workers of the remaining categories, reclassified to NACE 2-digit industries
Manufactured intermediate imports	Statistics Austria, Austrian Input-Output table 1990 and (preliminary) 1995, interpolation and extrapolation
Degree of organisation of trade unions	Austrian Trade Union Federation
Median firm size	WIFO Investment Survey





## **FOREIGN DIRECT INVESTMENT OF AUSTRIAN FIRMS IN THE CEECs**

Christina Burger

In May and June 2000, an opinion poll was carried out among 88 Austrian enterprises which have foreign direct investment in the central and eastern European countries.<sup>1</sup> Most of these enterprises founded their subsidiaries in Hungary followed by the Czech Republic, Slovakia, Poland, Slovenia, Rumania and Bulgaria. Most subsidiaries (67%) were established during the first five years after the fall of the iron curtain. 18% were founded later, but 15% of the Austrian enterprises started their activities in the CEECs already in the communist era before 1989.

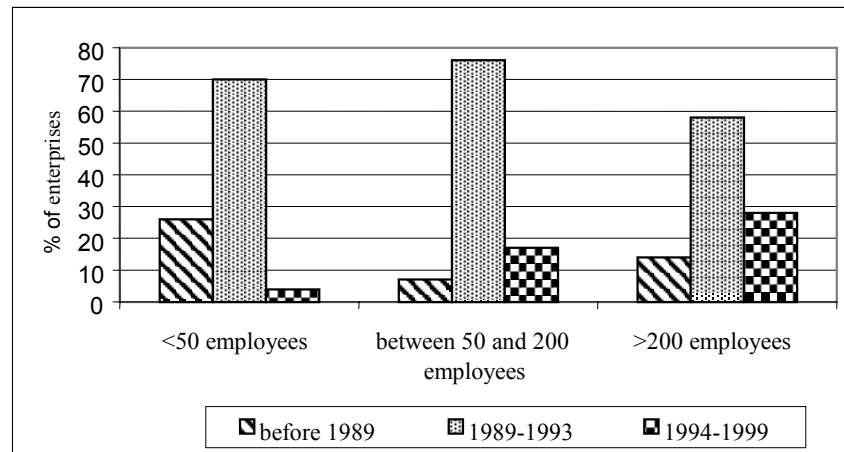
As regards production sectors, the core of activities took place in manufacturing industries and trade enterprises. Of the subsidiaries newly established in the CEECs, 33% belong to the manufacturing industry, 28% to the trade sector and 6% to other services.

Among the parent enterprises, the larger companies dominate. 41% of the enterprises interrogated employ more than 200 persons, 26% less than 50 employees. Smaller firms, however, have been quicker in starting their activities than larger firms in the CEECs. 26% of the small firms have founded their branch before 1989, while only 7% of firms of medium and 14% of large size have done so. 28% of large firms have started their activities in the CEECs between 1994 and 1999. Medium-sized enterprises have done so at a much lower proportion (17%), with small-sized falling much behind (4%).

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<sup>1</sup> Due to the small size of the sample, general conclusions cannot be drawn from the survey. All statements in the text refer exclusively to the enterprises questioned and not to the Austrian enterprises with branches in the CEECs as a whole.

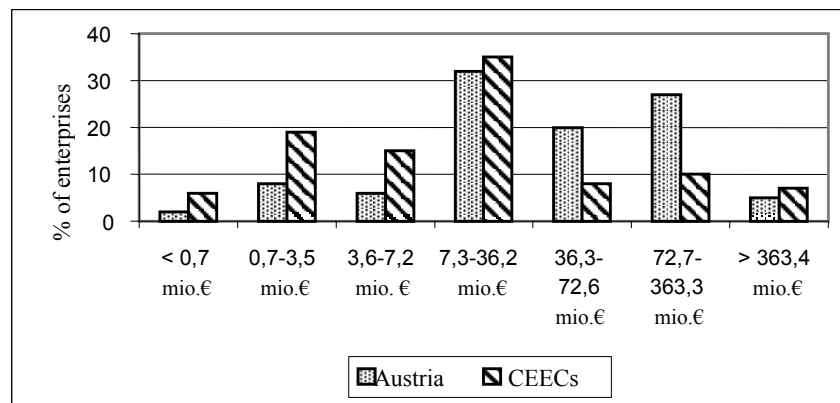
Figure 1: Time of FDI by size of the Austrian enterprise



Concerning the field of business which is carried out in the CEECs, trade and distribution dominate (68%), followed by advertising/marketing (27%) and administration/accounting (16%). R&D plays only a minor role (7%), as does the production of inputs and raw materials (9%). 10% of enterprises indicate that they assemble components in the CEECs, while 36% carry out the whole production process.

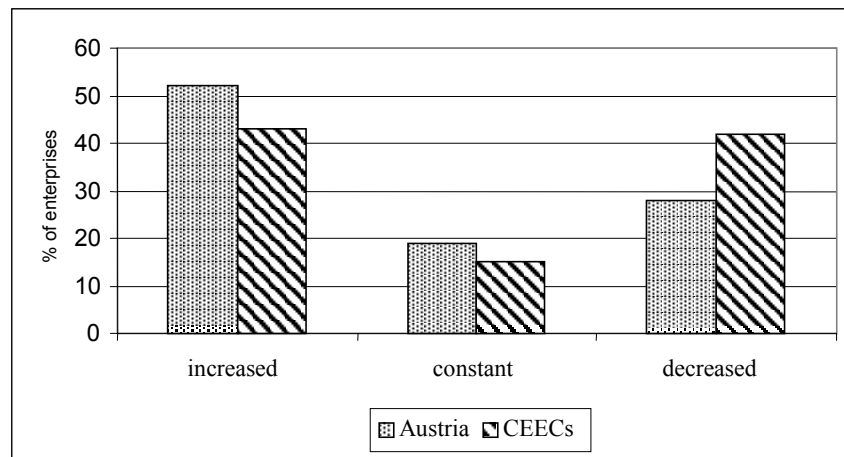
The turnover is on average (60%) lower in the CEECs than in Austria.

Figure 2: Turnover in the CEECs and in Austria



The main findings concerning the transfer of jobs are the following: Jobs are simply shifted to the CEECs only at a very small degree. 52% of the enterprises state that they have increased employment in the Austrian mother firm during the last 5 years, 19% that it has remained constant and 28% that it has decreased (the enterprises were, however, not questioned as to the reason of job reduction in Austria). In their subsidiaries, the employment since the foundation of the branch has increased in 43% of the cases, stayed constant in 15% and decreased in 42%.

Figure 3: Development of employment

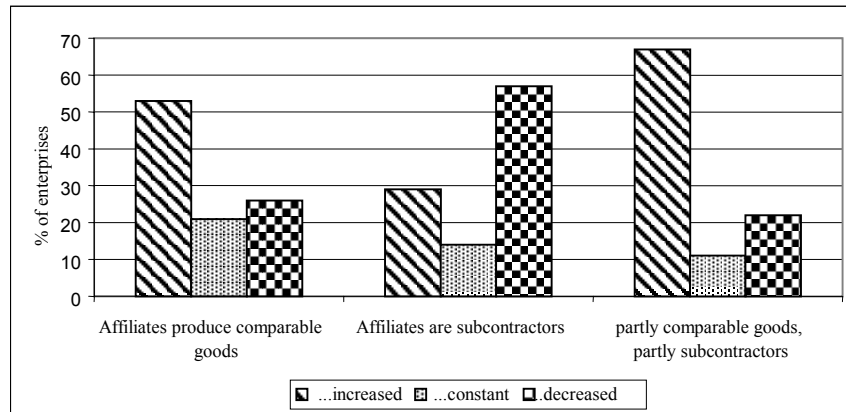


In 74% of the enterprises, production in the CEECs is not in any way connected with their production in Austria, while in 24% the Austrian production is partly and in 2% completely substituted by the activities in the CEECs. In 82% of the subsidiaries, goods are produced which are comparable to finished products manufactured in Austria. 8% of the CEEC-branches produce intermediate goods which are used as an input in the Austrian production. 10% of the CEEC-branches produce both – intermediates and comparable final goods.

53% of enterprises which use their CEEC-branches for the production of comparable final goods have increased employment in Austria during the last five years, while only 29% of enterprises which produce intermediates in the CEECs have done so. Those enterprises which produce intermediates as well as similar goods as in Austria have increased employment in 29% of the cases. From this information one

would tentatively conclude that the more successful enterprises expand their activities and explore new markets in the CEECs.

Figure 4: Employment in Austria...



This is quite in line with the intention stated by the entrepreneurs as regards their eastern activities: Establishing a market position, exploiting the high demand potential and in general co-operating with neighbouring countries are seen as the main reason for outsourcing. In contrast low labour costs play a rather subordinate role for FDIs in the CEECs, even although 98% of enterprises face a lower wage level in their eastern subsidiaries than in Austria (see table 1).



Table 1: Advantages of FDI in the CEECs

	very large advantages	rather large advantages	rather small advantages	no advantages
Knowledge of local markets	59%	34%	5%	2%
Working on local markets, neighbourhood to clients	81%	14%	1%	5%
Neighbourhood to local subcontractors etc	23%	23%	33%	22%
Early market intrusion, establishing a market position	59%	28%	10%	2%
Shorter transport routes	15%	25%	23%	38%
Lower labour costs	23%	27%	39%	11%
Lower taxes	8%	14%	45%	33%
Qualified employees	5%	31%	41%	24%
Unbureaucratic admini- strative procedures	5%	9%	30%	57%
Easy legal conditions	5%	9%	26%	60%
Larger market, neighbour- hood to neighbouring countries in the CEECs	39%	41%	9%	11%
Less entrepreneurial risk	26%	53%	15%	6%

The main disadvantages of foreign direct investment are seen in problems concerning tariffs and border controls, an unprofessional public administration, low purchasing power and the exchange rate risk. Much less do entrepreneurs complain about problems concerning the missing network of subcontractors, insufficient channels of distribution, the often unclear legal situation and the lack of information about market conditions (see table 2).

Table 2: Disadvantages of FDI in the CEECs

	very large dis- advantages	rather large disadvantages	rather small disadvantages	no dis- advantages
Lower purchasing power	13%	39%	35%	14%
Mentality of customers (less awareness of quality etc.)	9%	26%	43%	22%
Problems with sub- contractors	0%	15%	49%	36%
Bad, insufficient infra- structure	1%	22%	58%	19%
Legal and tax framework not sufficiently developed	6%	31%	51%	13%
Quick and unmotivated changes of the legal framework	11%	30%	50%	9%
Political risks in general	11%	14%	60%	15%
Unprofessional public administration	8%	45%	41%	6%
Problems of tariffs and borders	20%	34%	30%	16%
Exchange rate risk	18%	25%	51%	16%
Trade, distribution insufficiently developed	0%	18%	56%	26%
Lacking qualification of employees	7%	18%	53%	22%
Lacking working moral and readiness to achieve good performance	2%	22%	53%	23%
Problems of languages	5%	24%	52%	19%
Confused market situation	2%	17%	58%	23%

Summing up the main points concerning outsourcing, one can argue that employment in the Austrian firms included in the survey has not decreased significantly but rather increased due to the foundation of a subsidiary in the CEECs. Outsourcing is not so much driven by the reduction of wage costs, but by the larger sales potential in new markets. Outsourcing may thus be a win-win-situation for both, Austria and the CEECs.

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