Macroeconomic Effects of EU Enlargement
for Old and New Members

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March 29, 2001

Abstract

A new macroeconomic evaluation of EU enlargement is undertaken with a world macroeconomic model taking into account all possible integration effects: trade effects, Single Market effects, factor movements (FDI, migration) and the costs of enlargement. Due to the differences in size of the regions involved, on average the CEEC – measured in terms of real GDP - will gain around ten times more from enlargement than the EU. On average, enlargement is a win-win game. Hungary and Poland can increase their real GDP by around 8 to 9 percent over a ten year period, the Czech Republic gains a little bit less (5 to 6 percent). The EU on average would gain around ½ percent of real GDP over a six year period. However, the impact is quite different in the separate EU member states, with Austria, Germany and Italy gaining the most and losses for Spain, Portugal and Denmark. Hence, EU enlargement acts like an exogenous shock leading to asymmetric disturbances in the EU. This could pause the process of business cycle synchronisation and might impair monetary policy in Euroland at the beginning of the enlargement process.

1. Introduction

The European Council in Nice (December 2000) has paved the way for the enlargement of the European Union (EU). With the institutional reform (implemented in the Nice Treaty) the EU is now ready for enlargement up to 27 countries. This act is the last of a series of steps towards enlargement. At the European Council summit in Copenhagen (June 1993) the Union invited the Central and Eastern European countries (CEEC) to enter the EU and formulated the famous three accession criteria (democracy, market economy, acquis communautaire). In early 1998, accession negotiations started with the first group of countries (the "Luxembourg group"). In early 2000, negotiations were also opened with the rest of the candidate countries (the "Helsinki group").

After the reforms of the common agricultural policy (GAP) and the structural policy in the Agenda 2000, finally, the institutional reform makes the EU fit for enlargement. The preparedness of the 12 candidate countries (10 CEECs plus Cyprus and Malta) is permanently evaluated during the ongoing negotiations (acquis screening on the basis of 31 chapters) and is documented by the European Commission in its annual progress reports. Turkey has beeen designated as an official candidate country on the European Council in Helsinki (December 1999) although negotiations have not yet begun.

EU enlargement is not only a project with a world political dimension (peace in Europe, unification of East and West, EU transforming into a world power) it will also have far-reaching economic implications. There are already some studies in the literature, which either analyse the potential welfare effects of enlargement for the EU and the CEEC on a global scale (e.g., see Brown-Deardorff-Djankov-Stern , 1997 or Baldwin-Francois-Portes, 1997 with world CGE models; Neck-Haber-McKibbin, 1999 with a world macro model; Breuss, 2000b with a calibrated EU-CEEC growth model) or for individual countries (for Austria with a macro model, see Breuss-Schebeck, 1999; Keuschnigg-Kohler, 1999 with a CGE model; for Germany, see Keuschnigg-Keuschnigg-Kohler, 1999 with a CGE model; for a survey of model simulations, see Breuss, 1999). The shortcomings of all these calculations are either that they did not include all possible integration effects which one can expect in case of EU enlargement as a specific kind of regional integration of a rich EU region with a poor CEEC region, and on the other hand that they mostly analysed the consequences only for the blocks EU and CEEC but not for all countries involved in this enlargement process.

The present new estimation of the macroeconomic effects emanating from the process of EU enlargement tries to remedy these shortcomings. Not only that all possible effects of this specific kind of regional integration are considered, but also their consequences for the old EU member states and the new possible members are analysed explicitly. The work is done by simulations with a world macro model (the Oxford Economic Forecasting – OEF World Macroeconomic Model). The OEF World Macroeconomic Model allows to analyse explicitly the effects for 13 EU countries (besides other large OECD countries) and three CEECs (Czech Republic, Hungary, Poland) and Eastern Europe as a bloc. As far as the enlargement timing is concerned it is assumed that enlargement will take place in two waves: in 2005 the "Luxembourg group" (Czech Republic, Estonia, Hungary, Poland, Slovenia and Cyprus) will enter the EU; in 2007 the "Helsinki group" (Bulgaria, Latvia, Lithuania, Slovakia, Romania and Malta) will follow. In our estimation three CEECs (Czech Republic, Hungary and Poland) will be dealt with explicitly. These three countries account for 2/3 of CEEC-10 absolute GDP. Their GDP per capita, however is higher than those of CEEC-10 by around 15 percent. If one wants to draw conclusions of the integration effects of EU enlargement by these three CEECs on the integration of CEEC-10, as a rule of thumb, one could simply augment the results by 1/3.

The OEF World Macroeconomic Model is described shortly in chapter 2. The possible integration effects which can be expected in case of EU enlargement, there implementation into the model and their partial results are discussed in chapter 3. The overall macroeconomic consequences are then presented in chapter 4. It turns out that enlargement is not only about trade and growth potentials, but also about redistribution of income of labour market winners and losers. Because of the different macroeconomic impact in the EU member countries (real GDP, prices, real exchange rates, current account), enlargement can also be interpreted as a potential external shock hitting the widely harmonised EU asymmetrically and hence introducing new disturbances into the EU. Overall and on average of the EU and the CEEC, enlargement is a „win-win" situation (measured by GDP). With EU enlargement we see the same mechanism working as in the case of globalisation in general. In this way, EU enlargement is like globalisation on an European scale.

2. The OEF World Macroeconomic Model

The OEF World Macroeconomic Model (see OEF, 2000) is a traditional Mundell-Fleming type macro model with the standard demand and supply equations. Most of the equations consist of estimated parameters. Whereas the functional form for equations is left the same across countries, the estimated parameters differ. A typical Oxford country model consists of equations for four blocs: 1) the demand side, consisting of the goods market: consumption, investment, imports and exports, the money market: money balances, long bond rates, exchange rates, 2) the supply side, consisting of capital accumulation: capital stock, non-residential investment, real interest rates, labour market and the nairu: labour supply, participation rate, natural rate of unemployment, natural employment level, potential output, output gap, employment, average earnings, prices: gdp deflator, import prices, consumer prices, 3) government policy, consisting of monetary policy (in Euroland done by the ECB): Talyor rule, fiscal policy: government spending is exogenous, and 4) the rest of the world: world trade and world prices. The Oxford model consists also of a special section for the financial market and special features for the emerging market economies (risk premia). In the long run, each of the economies behave like the textbook description of a one sector economy under Cobb-Douglas technology in equilibrium.

The "core" Oxford World Model comprises 24 country models together with six trading blocs. In addition, there are new 14 "emerging market" country models. The country models are fully interlinked via trade, prices, exchange rates and interest rates, with the blocs completing all the world coverage. For our purpose, the EU consists of 13 explicit country models and the CEEC covers three country models for the Czech Republic, Hungary and Poland and the bloc Eastern Europe (consisting of the countries Bulgaria, Czech Republic, Hungary, Kazakhstan, Poland, Romania, Russia, Slovenia and Ukraine).

As a baseline for our calculations, the latest 10-year forecast of Oxford Economic Forecast is used, assuming no enlargement and an adaptive economic policy stance, oriented on price stability in Euroland and fiscal discipline according to the Stability and Growth Pact targets (zero budget balance in the medium run). All members of Euroland have the same interest rates. The following time schedule of accession is assumed: in 2005 the first round ("Luxembourg group") enters the EU, in 2007 the "Helsinki group" follows.

3. Integration Effects of EU Enlargement

The integration effects always depend on the degree of integration. In case of EU enlargement the new members will enter into the highest stage of economic integration in the EU (customs union, Single Market and lastly Economic and Monetary Union (EMU)). It is realistic to assume that the new members will enter the EU on the level of the Single Market. A participation in EMU right at the beginning is neither possible (because most of the candidate countries do not yet fulfil the convergence criteria), nor desirable[1]. The following estimations refer therefore to the implications of entering into the Single Market of the EU.

Therefore, we have to deal with the standard effects of regional integration (see Baldwin-Venables, 1995) plus some specific aspects in case of EU enlargement (see Figure 1):

- **Trade effects:** Abolition of existing import tariffs and of trade costs
- **Single Market effects:** Improvement in efficiency and more price competition
- **Factor movements:** Foreign direct investment (FDI) from the West to the East; labour migration in the other direction
- **Costs of enlargement/transfers to the CEEC**

Figure 1: Integration Effects of EU Enlargement
Table 1: The Dimension of EU Enlargement: EU and CEEC

EU enlargement is a project of regional integration with several asymmetries. On the one hand a bloc of rich countries (EU) integrates a bloc of still poor countries, and on the other hand a large bloc integrates a small one. At present, all candidate countries are poor compared with the EU. On average, their GDP per capita (CEEC-10) in PPP terms lies around 40

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[1] The ECOFIN Council of November 7, 2000 in its statement on the implications of the accession process upon exchange rate arrangements in the candidate countries identified three distinct stages for the full monetary integration of candidate countries (see EU, 2001b): (1) the *pre-accession stage* (free choice of an exchange rate regime; policy should be oriented towards achieving real and nominal convergence; fulfilment of the (economic) Copenhagen criterion of "the existence of a functioning market economy able to cope with competitive pressures and market forces within the Union"); (2) the *accession stage* (new member states shall treat their exchange rate policy as "a matter of common interest" (EC treaty Art. 124); no competitive devaluations; the candidate countries enter the EU as member states with a derogation concerning the EMU; co-ordination of economic policy and expectation that they work towards fulfilling the Maastricht convergence criteria); (3) *after accession*, although not immediately, accession countries are expected to join the ERM II. The ERM II has stable but adjustable central rates to the euro for the participating currency with fluctuation bands of +/- 15% around the central rate; countries with a Currency Board pegged to the euro may join the ERM II; after application the candidate countries are evaluated according to the Maastricht convergence criteria; the new member states will adopt the euro in a manner that ensures equal treatment with the initial participants in the euro area.

percent of the EU (see Table 1). The three CEECs which are dealt with here explicitly (Czech Republic, Hungary and Poland) are around 15 percent richer than CEEC-10. The absolute GDP in PPP terms of CEEC-10 is around 10 percent of the EU, measured at current prices it represents about 5% of the EU-15 GDP. The GDP of CEEC-3 bloc amounts to 2/3 of CEEC-10. Labour productivity of CEEC-10 is also only 40 percent of the EU. The share of agriculture is four times higher than those of the EU. Monthly wages are on average only 35 percent of those of the EU. Trade with the EU is much more important for the CEECs than trade with the CEECs for the EU at a proportion of nearly 1:20. Austria (export shares with the CEEC-10 13.3 percent, import share 9.4 percent), Germany (8 percent/8.5 percent), Greece (8.8 percent/3.5 percent), Finland (7.6 percent/4.1 percent), Italy (5.4 percent/4.2 percent) and Sweden (4.3 percent/4.1 percent) are those countries which trade most intensively with the CEEC-10. The integration of a group of highly developed economies with a group of countries which are still in the process of transition determines not only the trade flows, but also induces factor movements. Although at a first glance EU enlargement is similar to the NAFTA integration, participating in the Single Market program and lastly in the EMU is of course a much higher level of integration than the American counterpart. Due to the fact that the size of the new member countries is quite small compared to EU-15, the derived impact of their own development on the present Union is always likely to be small.

3.1 Trade Effects

The EU has concluded Europe Agreements (EA) with ten CEECs. That implies that an asymmetric tariff reduction takes place in trade between the EU and the CEECs. Since 1997, the EU has eliminated practically all tariffs (exceptions are agricultural and sensitive products) on imports from the CEECs. The CEEC will do the same in the year 2002. Joining the EU in 2005, the CEECs will enter into the customs union of the EU (Common External Tariff and Common Commercial Policy) and by participating in the Single Market of the EU border controls will be abolished (reduces trade costs). As the exact cost savings of the elimination of border controls were never exactly recorded, in the literature the size varies between 5 percent (e.g. Kohler, 2000) and 10 percent (Baldwin-Francois-Portes, 1997). Hoffmann (2000) mentions border costs before the completion of the single market of 1.7 percent of total exports in the EU. Here we assume that the remaining import tariffs in the CEECs until the year 2002 will amount to 5 percent. The reduction of trade costs in the year

of accession in 2005 are also assumed to be 5 percent. Whereas the elimination of the remaining tariffs leads to welfare losses in the CEECs (domestically captured rents), the reduction in trade costs does only influence trade flows (trade creation).

Model inputs:

The implementation of the trade effects belongs to the biggest challenges (see Kohler, 2000). In order to correctly measure the trade effects in case of enlargement, one should dispose of bilateral trade equations connecting the 15 EU member states with the 10 CEECs. As a rule, no world model – either CGE or macro – does consist of such a detailed trade network. As a compromise, the bilateral trade effects are calculated outside the model by using simple (trade weighted) import equations with the assumption of an average price elasticity. The trade effects of the elimination of tariffs (in the CEEC-3) and the trade costs, both in the EU and in the CEEC-3 are estimated and the values imputed into the OEF model equations for exports and imports.

Additionally to the price effects due to the elimination of tariffs and the reduction of trade costs, the income effects in a trade-linked world model (spill-overs) lead to additional income effects not usually captured in CGE models.

Model results:

Due to the fact that nearly 70 percent of the CEEC exports are sent to the EU, but only 4 percent of total trade of the EU is transacted with the CEEC, we get asymmetric trade effects (see Table 1). They are larger for the CEEC than for the EU.

The partial trade effect leads to an increase of real GDP in the EU of roughly 0.05 percent cumulative over the period 2005 to 2010. Austria and the Netherlands would gain the most (cumulative of around ¼ of a percentage points of real GDP; France, Ireland and Italy around 0.1 to 0.2 percent), some countries (Spain, the United Kingdom) would lose. The trade-induced GDP effect in the CEECs is nearly ten times larger. In Hungary, real GDP would be stimulated by around 4 ½ percent (cumulated over the period 2001 to 2010), in Poland and the Czech Republic somewhat half of that. The elimination of the remaining import tariffs will result in lost budget revenues of about 1 to 1 ½ percent of GDP. The reduction of trade costs (Single Market entrance) leads to trade creation in the EU and the CEECs without directly deteriorating the budget. The trade effects do not imply major disturbances in other macroeconomic variables: generally, prices and employment increase, unemployment rates

decrease. Only in the CEECs the budget and the external positions deteriorate, both the trade and the current balance (see Table 2).

Table 2: Integration Effects of EU Enlargement: Real GDP

3.2 Single Market Effects

Enlargement will contribute to a widening of the European Single Market. This will result in an increasing competitive pressure for the accession countries but also – to a lesser degree - for the present members of the EU. Taking the experiences with the Single Market programme as a benchmark, this should result in an increase of productivity (exploiting economies of scale) and also in a decrease of the price levels (via decrease in mark-ups). Together, this should increase the growth potential in the CEEC as well as in the EU. In theory and in CGE models, such effects are dealt with the theory of monopolistic competition (of the Dixit-Stiglitz type; economies of scale, product variety, etc.). In macroeconomic models Single Market effects are captured by shocks to productivity and/or decreases in mark-ups (or an immediate decrease in the price levels). Here, we implement Single Market effects by an increase in efficiency (economies of scale) and by a decrease of consumer prices (a methodology, similarly applied when estimating the Single Market program by Catinat-Donni-Italianer, 1988) separately, although in practice both phenomenon are interwoven.

Model inputs:
a) Productivity shock – improvement in efficiency: We assume that the productivity shock and the price competition when entering the EU will be similar or even stronger for the CEECs than it were when the old EU members created the Single Market in 1993. As a benchmark we take the ex-ante expectations when creating the Single Market (Catinat-Donni-Italianer, 1988) as well as ex-post experiences in single countries (e.g. in Austria, see Breuss, 2000a). This implies that for new members of the EU the productivity shock amounts to around 2 to 3 percent in the medium run. The initial shock to labour productivity in the CEECs is 1 ½ percent, increasing to around 3 percent after 6 years.
In the present EU member states we assume in general a much weaker productivity shock and in particular we implement the so-called "Casella effect". Casella (1996, p. 389) postulated that "if economies of scale imply that firms located in large countries enjoy lower costs, then

the gains from enlarging the bloc will fall disproportionally on small countries, because the entrance of new members diminishes the importance of the domestic market and improves the small countries' relative competitiveness". Hence, we assume for the present small EU members an initial productivity shock of around ¾ percent, decreasing over time and for the large EU countries one of only half of that size.

Model results:

Due to the assumed asymmetry in the productivity shocks, real GDP develops better in small EU countries: Belgium, Austria, Finland and Ireland will see an increase of ½ percent, cumulated until 2010, although with a decreasing speed. Large EU countries will exhibit a GDP increase of only half of that size. However, increased labour productivity has a trade off on the labour market: employment decreases, unemployment increases. Competitiveness, measured by the real exchange rate (relative unit labour costs) improve. Prices decrease and hence also nominal GDP declines somewhat with negative consequences for the budget. Improved labour productivity implies also a redistribution of income from labour to capital.

Due to the higher productivity shock implemented for the CEEC-3 the macro effect described for the old EU members states are similar in structure, but much larger in size. Real GDP increases of around 1 percent in the CEEC-3 (cumulated 2005 to 2010), although with a different time pattern in each of these countries (see Table 2).

Model inputs:
b) Price competition: The increase in price competition in an enlarged Single Market will be stronger in the new member states than in the old ones. Similar to the ex-ante expectations of the Single Market in 1993, we assume a decrease of the price level (measured with the CPI) of around 6 percent over six years (or 1 percent annually) in the CEEC-3. For the present EU members we assume a much weaker additional price competition and one which depends on the trade intensity with the CEEC. The price reductions are therefore calibrated according to trade weights, meaning that countries with more than 4 percent trade with the CEEC will be confronted with a price decrease of ½ percent annually, EU countries with less than 4 percent trade with the CEEC will see a price decrease of only 0.15 percent.

Model results:

More price competition results in more demand and therefore in an increase of real GDP initially of around ½ percent in the EU countries with higher trade intensity with the CEECs, and around half of that effect in the other EU countries. The real GDP impact is similar initially in Poland and Hungary (namely around 1 percent) and only half of that size in the Czech Republic. Over time, the GDP effect remains high in Poland but declines in Hungary and the Czech Republic. The other macroeconomic performance is not influenced very much by this price competition shock (see Table 2).

3.3 Factor Movements

The four freedoms of the Single Market (free movement of goods, services, capital and labour) would imply that one deals with factor movement in connection with EU enlargement under the heading "Single Market effects". In most of the present studies, factor movements were either not considered at all or only partially. Therefore, both important factor movements (capital movements from the West to the East and labour migration from the East to the West) are analysed explicitly with the OEF World Macroeconomic Model.

Model inputs:

a) FDI flows from the West to the East: Since the process of transition began in 1989, trade and foreign direct investment (FDI) have acted as the two main channels of integration. Over the last ten years Hungary attracted most of the FDI inflows per capita (1764 US-$), followed by the Czech Republic (1447) and Estonia (1115). Poland – although attracting most of the FDIs in absolute terms – per capita only 518 US-$. The estimation for the future is taken from Gács (1999). Accordingly, the FDI inflows in the CEEC-3 should increase by around 1 ½ percent of GDP. This would lead to capital accumulation as well as a renewal of the capital stock and is one important candidate for improving the growth potential (see also Baldwin-Francois-Portes, 1997 in their less conservative scenario; most of their 18.8 percent real income increase are due to this effect). It is indisputable that the CEECs will get more FDIs when entering the Single Market of the EU (more security for foreign investors will lead to a reduction of the risk premia). However, it is more uncertain how to implement this factor movement on the side of the sender countries. Additional FDIs in the CEECs may reduce the investment potential in the EU (and/or in the rest of the world), or it has only indirectly a

dampening effect via higher interest rates. Here we approach this problem via an increase of the short-term interest rate in Euroland by 0.05 percentage points at the beginning of the FDI process (already in 2003) up to 0.2 percentage points at the end of this process in 2010[2]. The reasoning behind is that additional capital demand in the EU will increase interest rates. This will indirectly crowd out investment in the EU countries.

Model results:

As a consequence we get a similar result as in the case of labour migration. In the sender countries of the EU we see a slight decline of real GDP of around 0.1 percent at the beginning up to 0.2 percent at the end in the EU on average. Smaller countries will be hit stronger than large countries. In the CEECs we get a strong impulse for real GDP, strongest in Hungary with up to 1 percent, followed by Poland (+3/4 percent) and the Czech Republic (+1/2 percent). Increased capital movement after EU accession leads therefore to the result that the CEECs will gain a FDI (welfare) surplus, whereas the sender countries in the EU are confronted with a FDI (welfare) loss (see Table 2).

Model inputs:

b) Migration from the East to the West: The hottest political potato connected with the enlargement debate is migration. Denied by the candidate countries that migration will happen at all, feared by the border states in the EU (Germany, Austria, the Scandinavian countries) that migration will disturb dramatically their labour markets when free movement of persons and therefore labour will be granted to the new members right from the beginning. Due to the large differences in wage levels (40 percent of the EU) could induce mass migration. Therefore, the border states of the EU plead for transitional arrangements in case of movement of persons[3].

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[2] How big the interest rate effect may be is largely unknown. Bartolini-Symanski (1995) study the macroeconomic impact of a sustained annual capital transfer of 70 bn. US-$ from Western Europe to Eastern Europe. Simulations with the IMF MULTIMOD show that in Western Europe the long-term interest rate would increase by ½ percentage point. Neck-Schäfer (1996) make a similar experiment with the McKibbin World Macromodel. An annual capital transfer of 35 bn. US-$ from Western Europe to Eastern Europe would increase the long-term interest rate in Germany by 0.2 percentage points. In case of our enlargement experiment by three CEECs the following additional capital demand to finance the equivalent FDIs from the West to the East is assumed: in 2003 the three CEECs would attract additionally 330 mill. US-$, increasing to 8.435 mill. US-$ in 2010 (this amounts to cumulative 28.596 mill. US-$ over this period). The assumed interest rate effect in Europe lies therefore in the range of the above mentioned studies.

[3] The European Commission in its information note (EU, 2001c) suggests five options concerning the free movement of workers in the context of enlargement: Option 1: Full and immediate application of the acquis; Option 2: Safeguard clauses; Option 3: Flexible system of transitional arrangements (different by countries; evaluation after an introductory phase); Option 4: Establishment of a fixed quota system (access to the EU labour market is limited on an EU level, on a national, regional or sectoral level); Option 5: General non-application of the acquis for a limited period of time. Germany and Austria are favouring a transitional arrangement for seven

The migration scenario implemented into the Oxford model is based on the most recent estimations for the European Commission by Boeri-Brücker (2000; see also DIW, 2000). Assuming that all CEEC-10 join the EU in 2002, they find that 335.843 people would migrate from CEEC-10 to EU-15, of which the majority goes to Germany (65 percent or 218.430 persons) and to Austria (12.1 percent or 40.547 persons). Over time the inflow of migrating people will decline, in 2010 to 146.926 persons and in 2030 to 2.366 additional persons. Here we adapted these figures on the one hand in order to fit into our assumed time schedule for enlargement (2005 "Luxembourg group", 2007 "Helsinki group"), and on the other hand the figures had to be broken down in order to get the bilateral trade flows from each of the CEEC-3 to all individual EU-15 member states. As a result, from the CEEC-3 in 2005 143.700 (to Germany 95.800; to Austria 17.650) persons will migrate to EU-15, declining to 72.100 in the year 2010 (Germany 48.000; Austria 8.820). Taking into account that around 2/3 enter the labour force we have finished the calibration of the migration scenario.

Model results:

In conformity with theory (see Borjas, 1995) the model simulations with migration lead to the famous pattern of immigration surplus in the recipient countries (EU) and to migration losses in the sender countries (CEEC). Firms in the EU can produce more with more labour at lower wages. As a result real GDP increases – of course relatively strongest in Germany (+1/4 percent in 2010) and Austria (+0.15 percent) – and it declines in the CEEC-3 by around the same amount as Austria wins. As a consequence of the increase (decrease) of labour supply the unemployment rate goes up (down) initially in the EU (CEEC). Over time – also after the reduced migration flow – the disequilibria on the labour market vanishes. Migration has of course also to do with redistribution of income, in the recipient countries a shift from wages to profits and in the CEECs the other way round (see Table 2).

3.4 The Costs of Enlargement for the EU – Benefits for the CEEC

Beside the migration problem, the costs of enlargement is a potential cause for headache of EU citizens. As a starting point for the model implementation of the costs of enlargement by (in our case) three CEECs and its distribution on the present EU member states is the Agenda 2000, agreed upon by the heads of state and government at the special European Council in

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years (the Commission favours a 5 plus 2 system – a general transitional period of 5 years plus 2 years for

Berlin in March 1999. The Agenda 2000 includes a financial perspective for the period 2000 to 2006, assuming (technically) that the "Luxembourg group" will join the EU already in 2002. Accordingly, the gross costs of enlargement (cumulative over the period 2000 to 2006, including also the pre-accession period costs) amounts to 80 bn. Euro (or 0.13 percent of EU GDP, in the year 2006, 0.22 percent), subtracting the own resources which the "Luxembourg group" has to contribute to the EU budget (1.27 percent of its GDP) we arrive at net costs of enlargement of around 60 bn. Euro. This would be 0.1 per cent of EU GDP (or in the year 2006, 0.17 percent).

Several adjustments have to be made, in order to fit the cost picture into our enlargement scenario. First, we have to extent the financial period to the year 2010. Second, it is necessary, to break down the average costs laid down in the Agenda 2000 for each EU member state and also to identify which transfers each of the three CEECs will receive over the simulation time period. Third, we have to adjust the costs to our time schedule (2005 and 2007). Lastly, the Agenda 2000 did not include the whole potential costs for the CAP (e.g. the direct support payments)[4].

Model inputs:

The Agenda 2000 excludes an increase of the own resources from the presently 1.27 percent of GDP. That means, that the costs of enlargement have to be brought up by the present EU member states by saving transfers in the CAP and structural funds area. The reform of these two policy areas already implies that those countries which were net receivers out of the EU budget will have to bear a higher burden as the so-called net payers. The Agenda 2000 has cut the transfers for structural policies much stronger than those for the CAP. That means that the so-called cohesion countries Greece, Ireland, Portugal and Spain will bear the highest burden. The calculation (adding to the costs for the CAP 80 percent due to direct support payments after 2006) results in cumulative net costs (already deducting the own resources of the CEECs) for enlarging by CEEC-10, cumulated over the period 2000 to 2010 of around 190 bn. Euro (or 0.15 percent of EU GDP; in the year 2010 they would be around 40 bn Euro or 0.3 percent of EU GDP). The CEEC-3 we consider in our calculations explicitly cost 134 bn. Euro over the same period or 0.11 percent of EU GDP (or 2 ½ percent of CEEC-3 GDP). Whereas the burden of the costs of enlargement of the majority of the EU member states are below EU average (average 2005 to 2010 0.17 percent of GDP), the cohesion countries have a

countries which need this to protect their labour markets).

higher cost burden: Portugal 1 ½ percent of GDP, Greece 1 percent, Ireland ¾ percent and Spain around 0.4 percent of GDP. Hungary and the Czech Republic will get transfers totalling to around 5 ¼ percent of GDP in 2010, Poland around 4 percent. This implies the ceiling of 4 percent of GDP in case of structural funds, agreed upon in the Agenda 2000. The costs and/or transfers are implemented into the Oxford model into three macro variables: in the current account balance with the full amount (deterioration in the EU countries, improvement in the CEECs), half of the amount in the national budgets (deteriorating in the EU, improving in the CEECs) and as a stimulus to infrastructure (dampening demand in the EU, stimulating demand in the CEECs).

Model results:

A deterioration in the budget balances and current account balances in the EU is accompanied with small decreases in real GDP in EU countries. In the CEEC-3, however, not only the budget and current account balances improve, but more importantly, the stimulus for infrastructure investment leads to higher real GDP. Real GDP would increase by around 3 percent in Poland, over 2 percent in Hungary and the Czech Republic, cumulated over the period 2001 to 2010. Such estimations are still at the cautious side. Recent evaluations of the Community Support Frameworks (CSFs) in the last two programming periods (1989 to 1999) indicate that the estimated effect (simulations with the HERMIN model) on growth was highest in Greece and Portugal, where the level of real GDP rose by 9.9 percent and 8.5 percent (cumulative over the period 1989 to 1999), respectively, over and above what would have been expected in the absences of assistance. The estimates for Ireland (3.7 percent higher real GDP) and Spain (3.1 percent) over the same period are lower (see EU, 2001a, p. 131). The potential impact of the structural funds programme over the period 2000 to 2006, according to simulations with the HERMIN model is an additional cumulative increase of real GDP of 6 percent in Greece and Portugal, 4 percent in Eastern Germany, 2 percent in Spain and 1 ½ percent in Ireland. After 2006 up to the year 2010 the GDP effects decline (see EU, 2000, p. 215). The QUEST II model of the European Commission (EU, 2000, p. 216) leads to much lower real GDP effects of the structural funds programme over the period 2000 to 2006: an additional increase of real GDP of 2 ½ percent in Greece and Portugal over ten years (2000 to 2009), of 1 percent in Spain and only ½ percent in Ireland. Our estimates for the CEEC-3 lie somewhat in the middle of these two extreme scenarios (see Table 2).

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[4] One might also add the costs of adjustment to the acquis communautaire which the EU is imposing to the CEECs as a precondition to join the EU (Copenhagen criteria) in the same way Rodrik (2001) mentions the burden of stabilisation the „Washington consensus" (IMF, World Bank) is imposing on developing countries.

4. Overall Evaluation

Due to the differences in the size of the economies involved in the enlargement process, the CEEC on average will gain around ten times more from enlargement than the EU on average. After considering all possible integration effects involved in the enlargement project individually for all available countries in the Oxford World Macroeconomic Model, Hungary and Poland will increase their real GDP by around 8 to 9 percent over a ten year period (inclusive the pre-accession period 2001 to 2004), i.e. nearly 1 percent higher yearly growth. The Czech Republic gains a little bit less (5 to 6 percent, or ½ to ¾ percent higher yearly growth). The EU on average would gain around ½ percent more real GDP over a six years period (2005 to 2010), or less than 1/10 of a percentage point higher yearly growth. In particular those countries with close ties to the CEECs, like Austria, Germany and Italy will gain more than EU average; Austria's real GDP could be increased by ¾ percent of GDP, or around 0.15 percent higher yearly growth. For the EU on average, and more so for the CEEC, EU enlargement is a win-win situation. For some countries in the EU, however, the costs surpass the benefits. In particular this is true for Spain, Portugal and Denmark. The slight positive GDP impulse initially vanishes in the medium run. Although we analysed explicitly only CEEC-3, one can roughly conclude what would be the outcome in case of the enlargement by CEEC-10. As the CEEC-3 we consider cover around 2/3 of CEEC-10 GDP with stronger trade bonds with the EU than CEEC-10 on average, as a rule of thumb one can conclude that the macroeconomic effects of total enlargement would be around 1/3 higher than our present results, in the EU and in the CEEC. That means, an increase of real GDP of around 12 percent in the long run in CEEC-10 and around 2/3 percent more real GDP in the EU.

Figure 2: Overall Integration Effects of EU Enlargement: EU and CEEC

When evaluating the total integration effects, one has to take into account a degree of caution. Not all partial effects are easily quantifiable. Whereas the quantification of EU transfers, FDI inflows and migration flows is relatively robust, others (Single Market effects – productivity and price competition) can only be evaluated with a wide margin of errors. This is important to know, if one looks a the different importance of the partial effects in the separate countries. The components of the total integration effects have different weights in the East and in the

West. In the case of Austria, the country which is probably the biggest enlargement winner, the Single Market effects account for 3/4 of the total GDP effects. Trade effects and immigration surplus are much less important. FDI outflows and costs of enlargement have negative impacts on GDP. In Hungary, for instance, trade effects and EU budget transfers have more importance than the Single Market effects and FDI inflows.

EU enlargement has not only different impacts of real GDP on EU member states and the CEECs, the consequences are quite differently on the labour market as well as on the price performance. It therefore acts like an external shock, with asymmetric outcome in the old and new member states. Central monetary policy in Euroland is becoming more challenging shortly after enlargement. Only after the shock waves have decayed a further synchronisation of the business cycle can be expected (see Table 3).

Table 3: Macroeconomic Effects of EU Enlargement in Selected Countries

Our results lie in the middle of those of former studies. They are quite similar to those of Brown-Deardorff-Djankov-Stern (1997) with a world CGE model. They get long-run real income gains for Czechoslovakia of 7.3 percent, for Hungary of 6.8 percent and for Poland 5.6 percent. The spill-over effect for the EU amounts to 0.2 percent. Neck-Haber-McKibbin (1999) with a world macro model find only mild GDP effects for Eastern Europe (+1.6 percent) and practically no effects for the EU. Baldwin-Francois-Portes (1997) with a world CGE model in their less conservative scenario are at the upper bound with real income increases of 18.8 percent in CEEC-7 in the long-run, but with only 0.2 percent income gain in the EU. Similar results are found in a calibrated two-bloc (EU-15 and CEEC-10) model (Breuss, 2000b) which includes trade effects, direct growth effects (via total factor productivity growth), FDI effects, migration effects and budgetary effects (costs of enlargement). The major growth impulse stems from the increase of TFP. As a result, real GDP increases in CEEC-10 by 17 percent after 18 years, those of EU-15 by 2.8 percent. A speedier integration of CEEC-10 would lead to more GDP and welfare in both regions.

In any case the stronger growth impact of enlargement in the CEEC spurs convergence of GDP per capita and hence reduces the migration potential. Further more our simulation results with the Oxford model show that – as forecast by the Balassa-Samuelson effect – in the CEECs real appreciation takes place after joining the EU.

References:

Baldwin, R.E., Francois, J.F., Portes, R., "The costs and benefits of eastern enlargement: the impact on the EU and central Europe", Economic Policy, 24/April 1997, pp. 127-176.

Baldwin, R.E., Venables, A.J., „Regional Economic Integration", in G. Grossman, K. Rogoff (Eds.), Handbook of International Economics, Vol. III, Elsevier Science B.V., Amsterdam 1995, 1597-1644.

Bartolini, L., Symansky, St., „Macroeconomic Effects on Western Europe of the Opening Up of Eastern Europe: Some Simulation Results", in: P. de Fontenay, G. Gomel, E. Hochreiter (Eds.), Western Europe in Transition: The Impact of the Opening Up of Eastern Europe and the Former Soviet Union, Banca d'Italia, International Monetary Fund, Oesterreichische Nationalbank, Washington, August 1995, 15-47.

Boeri, T., Brücker, H., The Impact of Eastern Enlargement on Employment and Labour Markets in the EU Member States, DIW, CEPR, FIEF, IGIER, IHS, Berlin and Milano 2000.

Borjas, G.J., "The Economic Benefits from Immigration", The Journal of Economic Perspectives, Vol. 9, No. 2, Spring 1995, 3-22.

Breuss, F., Costs and Benefits of EU Enlargement in Model Simulations, IEF Working Papers Nr. 33, Wien, Juni 1999.

Breuss, F., "An economic evaluation of the economic effects of Austria's EU membership", Austrian Economic Quarterly 4/2000a, 171-196.

Breuss, F., "The Role of Time in EU Enlargement", in: S. Arndt, H. Handler (eds.), Eastern Enlarement: The Sooner, the Better?, European Academy of Excellence, Austrian Ministry for Economic Affairs and Labour, Vienna, July 2000b, 118-132.

Breuss, F., Schebeck, F., "Costs and Benefits of EU Eastern Enlargement for Austria", WIFO Austrian Economic Quarterly 1/1999, 43-53.

Brown,D., Deardorff, A., Djankov, S., Stern, R., „An economic assessment of the integration of Czechoslovakia, Hungary, and Poland into the European Union", in: Black, St.W. (Ed.), Europe's Economic Looks East. Implications for Germany and the European Union, Cambridge University Press: Cambridge, U.K., 1997, 23-60.

Casella, A., „Large countries, small countries and the enlargement of trade blocks", European Economic Review, Vol. 40, No. 2, February 1996, 389-415.

Catinat, M., Donni, E., Italianer, A., The completion of the internal market: results of macroeconomic model simulations, Economic Papers No. 65, European Commission, Brussels, September 1988.

DIW, "EU-Osterweiterung: Keine massive Zuwanderung zu erwarten", DIW-Wochenbericht 21/2000, 67. Jg., 25. Mai 2000, 315-332.

EU, The EU Economy. 2000 Review, European Economy, No. 71, Brussels 2000.

EU, Unity, solidarity, diversity for Europe, its people and its territory, Second report on economic and social cohesion, adopted by the European Commission on 31 January 2001a.

EU, Exchange rate aspects of enlargement, European Economy, Supplement C, Economic Reform Monitor, No. 1, February 2001b.

EU, The Free Movement of Workers in the Context of Enlargement, Information note of the European Commission, Brussels, 6 March 2001c.

Gács J. (Koordination), Teilprojekt 2: Macroeconomic Developments in the Candidate Countries with Respect to the Accession Process, in P. Mayerhofer, G. Palme (Koordination): Strukturpolitik und Raumplanung in den Regionen an der mitteleuropäischen EU-Außengrenze zur Vorbereitung auf die EU-Osterweiterung, Preparity-Projekt, Wien, Dezember 1999.

Hoffmann, A.N., "The Gains from Partial Completion of the Single Market", Weltwirtschaftliches Archiv (Review of World Economics), Vol. 136(4), 2000, 601-630.

Keuschnigg, Ch., Kohler, W., Eastern Enlargement to the EU: Economic Costs and Benefits for the EU Present Member States? The Case of Austria, Study for the European Commission, University of Linz and of Saarland, September 1999.

Keuschnigg, Ch., Keuschnigg, M., Kohler, W., Eastern Enlargement to the EU: Economic Costs and Benefits for the EU Present Member States? Germany, Study for the European Commission, University of Linz and of Saarland, September 1999.

Kohler, W., „Wer gewinnt, wer verliert durch die Osterweiterung der EU?", in: L. Hoffmann (Hrsg.), Jahrestagung 1999: Erweiterung der EU, Schriften des Vereins für Socialpolitik, Band 274, zugleich Beiheft 9: Zeitschrift für Wirtschafts- und Sozialwissenschaften, Duncker & Humblot, Berlin, 2000, 27-77.

Neck, R., Schäfer, G., „Gesamtwirtschaftliche Auswirkungen westlicher Kredite an die Reformländer", in: R. Holzmann, R. Neck (Hrsg.), Ostöffnung: Wirtschaftliche Folgen für Österreich, Manzsche Verlags- und Universitätsbuchhandlung, Wien 1996, 155-192.

Neck, R., Haber, G., McKibbin, W.J., Macroeconomic Impacts of an EU Membership of Central and Eastern European Economies, Forschungsbericht Nr. 9917, Ludwig Boltzmann Institut zur Analyse wirtschaftspolitischer Aktivitäten, Wien, Oktober 1999

OEF, The Oxford World Macroeconomic Model – An Overview, Oxford Economic Forecasting, Oxford, March 2000.

Rodrik, D., „The Development Countries' Hazardous Obsession with Global Integration", a revised paper presented at a lecture in Vienna, February 21, 2001 (forthcoming in Foreign Policy magazine, March/April 2001) under the title „Trading in Illusions".)

Figure 1: Integration Effects of EU Enlargement

Trade, FDI, technology spill-over, EU transfers

EU-15

* **Trade effects**
* **Single Market effects**
  - Efficiency/EOS
  - Casella effect
  - Price competition
* **Factor movements**
  - FDI outflow
  - Immigration surplus
* **Costs of enlargement**
* **Euroland enlargement**

CEEC-10

Effects[+]

Trade, Labour migration

[+] <u>*Effects in CEEC:*</u>
* **Trade effects**
* **Single Market effects**
  - Efficiency/EOS
  - Price competition
  - Technology spill-over
* **Factor movements**
  - FDI inflow – capital accum.
  - Migration loss
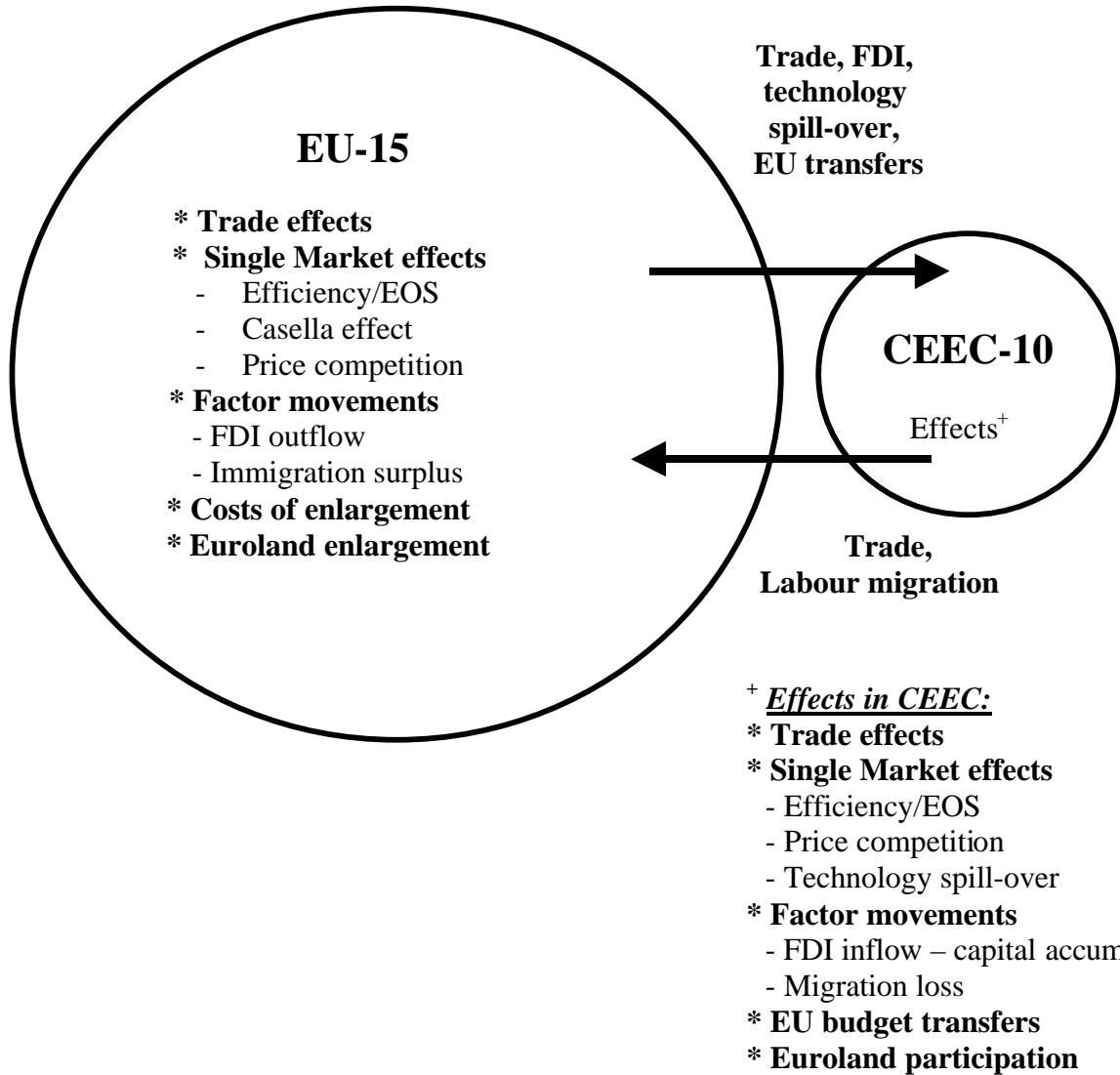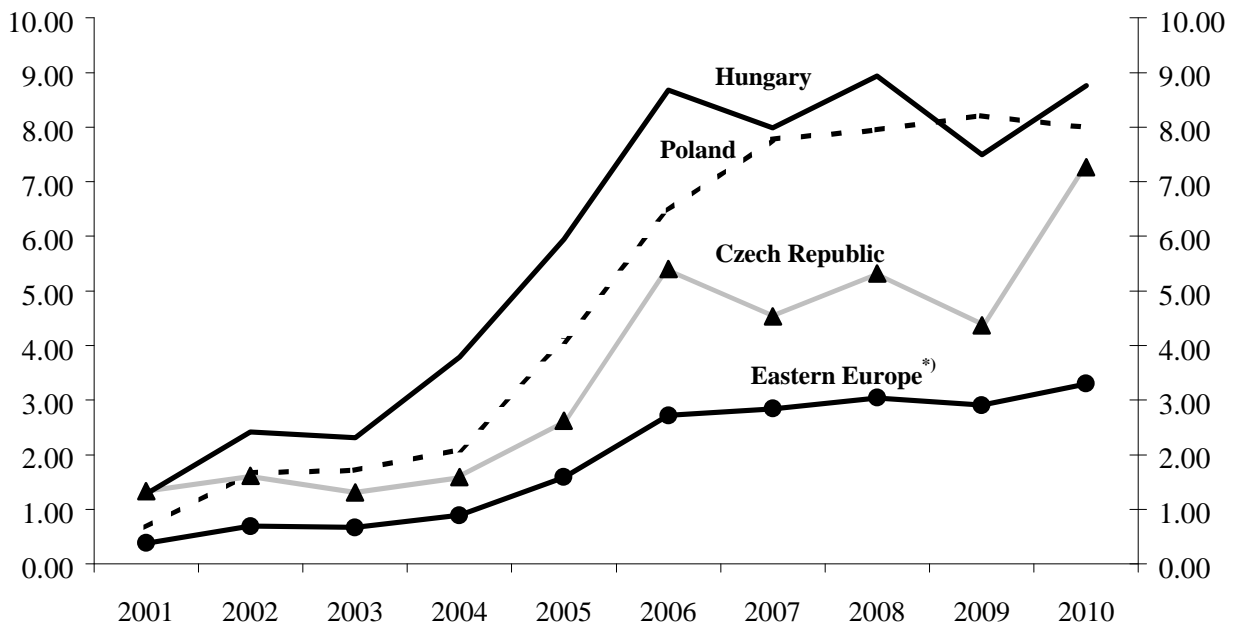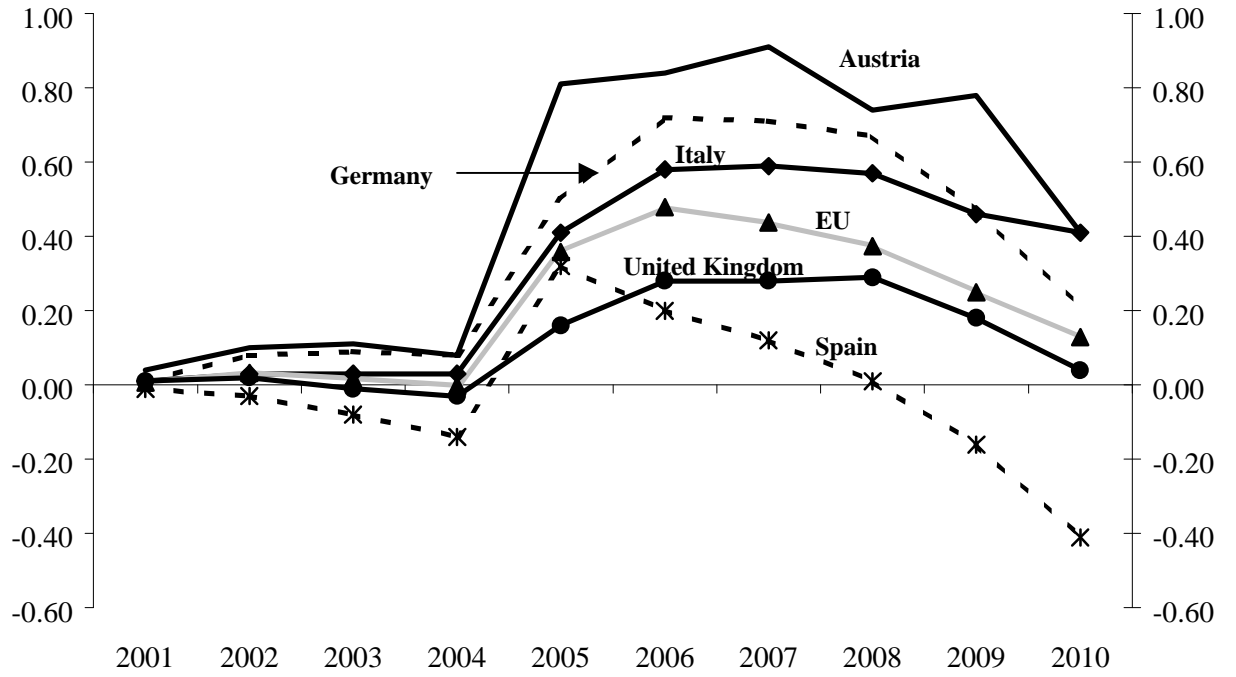* **EU budget transfers**
* **Euroland participation**

Figure 2: Overall Integration Effects of EU Enlargement: EU and CEEC
(Real GDP, cumulative deviations from baseline in percent)

[*] Eastern Europe = Bulgaria, Czech Republic, Hungary, Kazakhstan, Poland, Romania, Russia, Slovenia and Ukraine.

Source: Own simulations with the OEF World Macroeconomic Model.

Table 1: The Dimension of EU Enlargement: EU and CEEC

1999		EU-15	CEEC-10	CEEC-3	CEEC-10/ EU-15 in %	CEEC-3/ CEEC-10 in %
Population	Mill.	376	105	59	27.83	56.41
Dependent employ.	1000 Pers.	133132	27842	15665	20.91	56.27
Employment total	1000 Pers.	157244	42239	24216	26.86	57.33
GDP	bn. (PPP; Euro)	7962	831	539	10.44	64.88
	bn. (curr.pr,Euro)	7964	341	240	4.28	70.25
GDP per capita	(PPP; Euro)	21182	7946	9139	37.51	115.02
	(current pr,Euro)	21188	3262	4063	15.40	124.55
GDP/employment	(PPP; Euro)	50637	19676	22266	38.86	113.16
(Labour productivity)	(current pr,Euro)	50650	8078	9898	15.95	122.54
Monthly gross wages	(PPP; Euro)	1987	714	837	35.91	117.37
	(current pr,Euro)	2007	301	375	14.98	124.58
Agricultural sector	% of GDP	1.70	7.20	4.30	423.53	59.72
	% of employment	5.10	16.10	10.10	315.69	62.73
FDI inflows	Mill.US$ (EU='98)	215864	16599	12968	7.69	78.13
	in % of GDP	2.54	4.56	5.07	179.49	111.18
Migration (from CEEC to EU) 5 CEEC in 2005 5+5 CEEC in 2007	Persons in 2005 in 2010	200000 210000	-200000 -210000	-143700 -72100		71.85 34.33
Foreign trade: Exports to CEEC	Mill. $ in % of total exp. in % of GDP	99088 4.58 1.17				
Imports from CEEC	Mill $ in % total imp. in % of GDP	82794 3.94 0.97				
Exports to EU	Mill $ in % of total exp. in % of GDP		80645 68.50 22.15	56955 71.90 22.27		70.62 104.96 100.52
Imports from EU	Mill $ in % total imp. in % of GDP		94036 62.14 25.83	66332 64.56 25.94		70.54 103.89 100.41
Transfers from EU budget (net): 2000-2010 "Costs of EU Enlargement"	2000-2010 cumul. bn.Euro in % of GDP in 2010 bn.Euro in % of GDP	-190 -0.15 -39 -0.30	190 2.10 39 3.68	134 2.48 27 4.35		70.70 118.10 69.77 118.21

Sources: Own compilation with data from Eurostat, OECD, Wifo, WIIW.

Table 2: Integration Effects of EU Enlargement: Real GDP
(Cumulative deviations from baseline in percent)

	Trade effects		Single Market effects		FDI flows to CEEC		Migration to EU		Costs of enlargement		Total effects	
	A	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**
Germany	0.15	0.01	0.50	0.37	-0.07	-0.12	0.06	0.23	-0.01	-0.01	0.63	0.48
France	0.02	0.12	0.21	0.27	-0.10	-0.21	0.03	-0.03	-0.05	-0.04	0.10	0.11
Italy	0.09	0.16	0.46	0.49	-0.04	-0.09	0.02	-0.03	-0.03	-0.03	0.50	0.50
United Kingdom	0.01	-0.06	0.22	0.19	-0.01	0.02	0.03	0.05	-0.02	-0.02	0.24	0.18
Spain	-0.06	-0.11	0.48	0.37	-0.11	-0.41	0.04	0.05	-0.08	-0.07	0.28	-0.18
Netherlands	0.08	0.17	0.72	0.31	-0.08	-0.21	0.05	-0.08	-0.06	-0.04	0.71	0.15
Belgium	0.06	0.09	0.31	0.40	-0.06	-0.21	0.03	-0.02	-0.01	-0.01	0.33	0.26
Sweden	0.04	0.06	0.65	0.04	-0.06	-0.16	0.07	-0.02	0.00	0.00	0.69	-0.07
Austria	0.20	0.14	0.59	0.64	-0.09	-0.29	0.13	0.16	0.00	0.01	0.83	0.66
Denmark	0.07	0.07	0.35	0.10	-0.07	-0.21	0.02	-0.05	-0.01	-0.02	0.35	-0.11
Finland	0.07	0.08	0.52	0.55	-0.09	-0.33	0.05	0.02	-0.02	-0.02	0.53	0.31
Ireland	0.07	0.20	0.64	0.77	-0.14	-0.40	0.05	-0.05	-0.15	-0.13	0.47	0.40
Portugal	0.04	0.12	0.68	-0.12	-0.09	-0.14	0.05	-0.12	-0.05	0.05	0.63	-0.21
EU-13	**0.07**	**0.05**	**0.40**	**0.33**	**-0.07**	**-0.16**	**0.05**	**0.06**	**-0.03**	**-0.03**	**0.42**	**0.26**
Poland	1.95	2.47	1.23	2.07	0.21	0.45	0.02	-0.12	1.87	3.15	5.26	8.02
Hungary	3.95	4.20	1.58	1.25	0.32	0.81	0.03	-0.09	1.45	2.23	7.32	8.40
Czech Republic	1.79	2.84	1.02	0.54	0.14	0.37	-0.03	-0.08	1.10	1.98	4.03	5.65
Eastern Europe [*)]	0.94	1.23	0.53	0.62	0.08	0.19	0.01	-0.04	0.61	1.08	2.16	3.07

A = average of 2005/2006

B = average of 2008/2010

[*)] Eastern Europe = Bulgaria, Czech Republic, Hungary, Kazakhstan, Poland, Romania, Russia, Slovenia and Ukraine.

Source: Own simulations with the OEF World Macroeconomic Model.

Table 3: Macroeeconomic Effects of EU Enlargement in Selected Countries

	Germany		Italy		United Kingdom		Spain		Austria	
	A	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**
	Cumulative deviations from baseline in percent									
GDP, real	0.63	0.48	0.50	0.50	0.24	0.18	0.28	-0.18	0.83	0.66
GDP, nominal	0.70	0.63	0.37	-0.36	0.18	-0.13	0.08	-0.30	0.82	0.11
GDP per capita, real	0.52	0.41	0.49	0.49	0.23	0.17	0.27	-0.18	0.62	0.54
Personal disposable income, nominal	0.32	0.33	0.10	-0.29	0.01	-0.24	-0.02	-0.40	0.52	-0.22
Personal disposable income, real	0.73	0.76	0.69	1.04	0.15	0.25	0.30	-0.02	1.35	1.21
Consumer prices	-0.42	-0.43	-0.59	-1.33	-0.06	-0.31	-0.33	-0.41	-0.84	-1.42
Employment total	0.09	0.47	-0.15	0.02	-0.28	0.08	-0.35	-0.55	-0.37	-0.04
Productivity (GDP/head)	0.53	0.01	0.63	0.48	0.51	0.10	0.61	0.36	1.20	0.72
Relative ULC (real effect. exch. rate)	-0.16	1.36	-0.47	-0.09	-0.09	-0.41	-0.17	0.83	-0.18	-0.01
	Cumulative deviations from baseline in percentage points									
Unemployment rate	0.11	-0.21	0.15	0.06	0.28	-0.05	0.32	0.53	0.60	0.20
Current account (% of GDP)	0.04	0.24	-0.05	-0.21	0.04	0.21	-0.33	-0.15	-0.04	0.40
Budget balance (% of GDP)	0.11	0.29	0.10	0.00	-0.07	0.12	-0.06	-0.23	0.12	0.25
Short term interest rate (%)	-0.18	0.72	-0.18	0.72	0.13	0.20	-0.18	0.72	-0.18	0.72

	Poland		Hungary		Czech Rep.	
	A	**B**	**A**	**B**	**A**	**B**
	Cumulative deviations from baseline in percent					
GDP, real	5.26	8.02	7.32	8.40	4.03	5.65
GDP, nominal	4.21	1.87	7.67	8.49	2.60	-2.31
GDP per capita, real	5.52	8.18	7.56	8.54	4.18	5.75
Personal disposable income, nominal	3.68	1.66	7.06	9.60	2.81	0.76
Personal disposable income, real	5.66	9.87	8.16	12.20	5.72	11.36
Consumer prices	-1.97	-8.14	-1.11	-2.77	-2.88	-10.62
Employment total	0.45	1.71	0.42	0.82	-0.54	0.40
Productivity (GDP/head)	4.83	6.30	6.91	7.56	4.58	5.22
Relative ULC (real effect. exch. rate)	3.04	5.51	4.69	3.57	4.85	10.42
	Cumul. deviations from basel. in percent. points					
Unemployment rate	-0.63	-1.33	-0.52	-0.39	0.43	-0.15
Current account (% of GDP)	3.07	4.87	-1.04	-5.28	3.09	3.57
Budget balance (% of GDP)	2.48	6.12	4.56	3.85	0.83	1.90
Short term interest rate (%)	-3.95	-4.26	-1.46	5.81	2.04	5.54

A = average of 2005/2006
B = average of 2008/2010

Source: Own simulations with the OEF World Macroeconomic Model.