

## **Critical Probability of the EU Eastern Enlargement Project's Institutional Failure: Aspects of Calibrated Economic Impacts of the Failure**

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"in his speech Mr Greenspan did at least accept that the Fed should try to identify bubbles and to incorporate them into economic models."

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### **Abstract**

Leading mainstream economists specialized in economic impacts of the EU eastern enlargement project, have mainly argued in the context that successful enlargement/accession is "a sure thing", that successful enlargement is "not a zero sum game" and its expected potential impact in "the right conditions" can provide a further boost to prosperity in the candidate countries as well as a smaller positive effect on the present Member States.

This approach, however, leaves several lacunae, including an explanation in case the formal accession agreement will meet with ill success in scale or timing or both etc that the entire enlargement process may turn out to be "a bursting institutional bubble" or the formally successfully enlarged union will meet "the wrong conditions". Some of these issues are addressed here by emphasizing the importance of failure aspects to be considered especially in the current developments of the enlargement process. We especially try to calibrate the critical institutional failure probability of this enlargement process. These issues are addressed in the context of expected effects (utilities), opportunity losses, development path change shock and social planner hypotheses.

Further, not questioning the claims of economics as a rigorous science, and recognizing the understandable antipathies of it to all kind of approximate data and data intervals and ranges, subjective expectation evaluations, analogies, extrapolations, calibrations etc, we still implement these phenomena with the hope to make economics more liable, to see broader views, economic risks and dangers that may emerge in the enlargement project.

We demonstrate that the critical value of the enlargement failure probability may turn out small due to the asymmetrical success and failure effects on the Member States as well as on the accession countries. The latter factors may make the successive enlargement institutional implementation and enlargement bargaining processes very vulnerable to manipulations. And we also show that although this process is “not a zero sum game” it is still necessarily a very asymmetric negotiations game.

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## **Introduction**

The cumulative present value of the expected economic effect of the European Union (EU) enlargement process on the EU Member States (MS) and on the accessing countries (AC, mainly Central and Eastern European countries, CEECs) depends significantly on the probability of the institutional implementation of the enlargement *de jure*. The latter aspect has been largely neglected in literature, although it is an important angle in this problem. Formal enlargement/accession decision-making takes place in the sphere of political mechanisms and is therefore not strongly correlated with the expected economic results of the enlargement. Economic realisation of the enlargement has already been stated to take place *de facto* as economic integration and harmonisation of economic institutions. But the final effect of this process depends on the successful end of the enlargement negotiations by appropriate time and formal institutionalisation of the enlargement. But these events among other things depend on many unpredictable referenda results, uncertain future nature catastrophes, unfortunate international political events etc. Variants of subjective probabilities of the future realisations of the named phenomena are still on the working tables of experts.

Failure of the enlargement will probably involve significant economic losses. Credibility of the whole EU-AC economic system will suffer from causing inefficiencies: *e.g.* unexpected turning off from the chosen development path will bring something like a new transition for the accession countries, lower future flow of foreign direct investment and consequently larger unemployment etc. Just like bursting of the respective stock market bubble. In this connection it is interesting to attempt to estimate from the point of view of the hypothetical MS-AC social planner, what may be the highest value of the expected failure probability in this project that makes the project economically irrational, or in other words, what may be the critical value of the institutional failure probability.

Probability of the enlargement/accession failure may be perceived from the economic point of view as an externally determined parameter and according to the expected utility theory, economic outcome of this process depends on this parameter. Now it is interesting to estimate what is the lowest value of this probability that turns the outcome negative and the

process irrational. Analysis of these aspects may give some interesting insights into economic vulnerability of the enlargement process.

We have studied and quantified the above-mentioned issues for relevant magnitudes by calibration methods: that is the quantification assessments of the values of the elements of our macro model are mainly based on other experts' micro data and to a lesser extent on our own econometric or subjective evaluations (the term "calibration" of course has many disputable meanings (Broze, Dridi, Renault, 1999)). The quantifications are modelled as approximate numerals in intervals. Here we have taken into consideration a radical methodological standpoint by Keynes: better to be approximately right than exactly wrong.

The calculations of enlargement failure costs will cumulatively capture in ten-year horizons 2005-2014 (Fidrmuc *et al.*, 2002) after the enlargement crossroad point. As the formal institutional implementation of accession in 2004-2006 is still a probability event, we call 2005 here neutrally as the crossroad point.

We regard as the enlargement failure the situation where the 8 accession countries (Enlargement Paper No 4, 2001, AC8: the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic, Slovenia) will miss to access in 2004-2006 or so and with that consequently all the enlargement process will be discredited and terminated.

In this approach we neglect different enlargement scenarios and their relative probabilities as brought for instance in EU Enlargement Monitor by Deutsche Bank (Enlargement Scenarios 2002). These scenarios included with 75% probability the baseline scenario called "large convoy in 2005" (all AC-8 will be accepted in 2005) and with 25% probability an alternative scenario called "modified regatta/small convoys," which envisaged accession of Hungary, Slovenia, Czech Republic and Estonia in 2004, accession of Poland, Slovakia, Latvia and Lithuania not before 2006. In both scenarios accession of Bulgaria and Romania will be accepted after 2008. Option for "modified regatta" is still left open in this approach as it enables some candidate countries to participate in 2004 EP elections as members.

### **The Model**

There is a social planner of two markets. The first one is a large credible developed homogenous economic union in the process of enlargement and the second one a conglomerate of small applicant markets with lower economic credibility and low incomes. The enlargement process starts with about ten year long pre-accession period with bargaining of the enlargement conditions and with preparatory harmonisations and convergence of economic development paths of both markets. After that period there is a crossroad point where a legislative *yes* or *no* (failure) decision about the enlargement will be taken and the post-crossroad period starts in one enlarged market or still in two separate markets.

In the pre-accession period, the first market in this project makes enlargement specific investments into both markets and expects to achieve dividends through the enlargement of the common market, increase of credibility and purchasing power of the accession countries markets after the accession etc. In the case of enlargement failure, the enlargement specific investments will lose their value and the first market will lose all potential opportunity gains of enlargement and will suffer from the path-change shock etc.

The accession countries of the second market make also accession specific investments and hope that in the catch-up and convergence processes they will be more effective after the accession, have better economic environment for development. This ought to be realised through increased credibility of the markets after accession, enhanced innovative and technological diffusion, better and larger markets for exports etc. In the event of enlargement failure the accession countries probably have to join the second best economic union and converge to the lower level economic development as well as lose the enlargement specific investments for the accession from the first market, and suffer heavily from the path-change shock etc.

According to the expected utility theory, the expected economic rationality of the enlargement project depends significantly on the expected value of failure probability. We model this in the following as:

$$Y_{ma} = (1-p)(Y_{ms} + Y_{as}) - p(Y_{mf} + Y_{af}), \quad (1)$$

where all quantities here and beneath are cumulative comparable effects in the respective periods of calculation, all magnitudes are mainly quantified on the basis of statements (calibrated) of the mainstream experts and are according to the proximity of the statements modelled as approximate data (intervals: e.g.  $Y_{ma} = [Y_{mai}, Y_{mah}]$ , where  $Y_{mai}$  denotes the possibly lowest and  $Y_{mah}$  the possibly highest value of  $Y_{ma}$ ),

$p$  – *ex ante* subjective probability of failure of enlargement caused by exogenous phenomena (taken  $p=0$  in the formula gives success case effect and  $p=1$  gives the effect of failure, in the case of considering several failure scenarios each scenario should have its own probability),

$Y_{ms}$  and  $Y_{as}$  – the effects of successful enlargement in the MS and accession countries (ACs) respectively, where the benchmark for the measurements of the effects is economic situation if the “non-enlargement policy” has been chosen,

$Y_{mf}$  and  $Y_{af}$  – respectively the diseffects of failure of the enlargement process compared with the successful enlargement policy situation, meaning that the failure effect includes also lost opportunities,

$$Y_{ms} = Y_{mg} - Y_{mi}, \quad (2)$$

where:  $Y_{mg}$  – GDP growth effect of successful enlargement on the Member States,

$Y_{mi}$  – respective enlargement specific investments by the Member States, provided that these investments will lose their value after the enlargement failure,

$$Y_{as} = Y_{ag} - Y_{ai} + Y_m, \quad (3)$$

where:  $Y_{ag}$  – GDP growth effect of successful enlargement in the Accession countries,

$Y_{ai}$  – respective enlargement specific investments by the ACs, provided that these investments will have no value any more after the enlargement failure,

$Y_{mt}$  – net transfers from the EU to the ACs,

$$Y_{mf} = Y_{mg} + Y_{mi} + Y_{mp}, \quad (4)$$

where  $Y_{mg}$  is in the role of the value of sacrificed alternative (opportunity),

$Y_{mp}$  – losses of MSs from the path change shock,

$$Y_{af} = Y_{ag} + Y_{ai} + Y_{mt} + Y_{ap}, \quad (5)$$

$Y_{ga}$  is the value of the lost opportunity,  $Y_{ap}$  is the loss of path change shock.

Taking here the extremely risk averse min-max approach we consider the enlargement project economically rational in case the lowest value of  $Y_{mal}$  is at least zero.

Now it is easy to see from (1) that according to the of economic rationality constraint of the project ( $Y_{mal}=0$ ), the probability of expected enlargement failure  $p$  must be less than the lowest value of:  $P_c = (Y_{mst} + Y_{ast}) / (Y_{mst} + Y_{ast} + Y_{mfh} + Y_{afh})$ , (6)

where  $P_c$  denotes critical failure probability.

## **General cost of the enlargement failure**

### GDP growth rates and annual quantities

There are numerous and rather contradicting estimates of the costs and benefits of the EU enlargement. Some statements and assessments differ so vastly because the alternative situation is also defined differently. Neither the “Iron Curtain” nor the present status quo are viable alternatives to EU enlargement (Siedenberg and Böttcher, 2002). As a matter of fact, the costs are not fixed and depend on EU willingness to reform. It concerns especially the costs to be incurred after the enlargement in the form of transfers from EU15 to AC countries.

However, one must not worry about the variety of cost-benefit estimations since the real decisions about accession will be made on the basis of “Copenhagen criteria”. The actual scope of enlargement may depend also on various convergence indicators that show whether and to which extent candidate countries are ready for accession (Schularick, 2002). Thus, the cost-benefit approach remains rather indicative and possible miscalculations should not cause principal errors.

Estimations made by various authors who assumed different scopes of enlargement and used different methods including CGE modelling, macroeconomic modelling and Solow growth modelling, reveal that the cumulative long-term effect of successful eastern enlargement on GDP growth in EU15 may be between 0 and 0.8 per cent (Fidrmuc *et al.*, 2002). Directorate General for Economic and Financial Affairs evaluated that accession of AC-8 in 2005 should result in cumulative GDP growth in the EU15 by 0.5 % (central scenario) in 2005-2009 (Directorate General, 2001). According to the optimistic scenario, the cumulative effect may reach 0.7 per cent GDP growth. A more remarkable (1.7-3.2%) GDP annual growth acceleration in 2005-2009 (as compared to baseline scenario that envisages 2.9% annual GDP growth without accession) is expected to occur in candidate countries.

It means that in case of enlargement failure EU15 may lose less than 1% per cent of the potential GDP volume in 2009 (5 years after expected enlargement) and approximately the same proportion in potential GDP also in 2014 (10 years after expected enlargement). At 2000 prices the potential GDP loss may reach EUR 30-55 bn in 2009 and EUR 50-100 bn in 2014. Potential loss in GDP growth for eight candidate countries (AC-8 in Directorate General 2001 estimations) may be EUR 40-80 bn in 2009 and EUR 90-170 bn in 2014.

If to compare them with most favourable expected developments, then candidate countries may lose up to 40% of their greatest potential GDP in 2014. Nevertheless, for the EU23 (EU15 +AC8), the loss of potential GDP growth will remain under 2%.

The aforementioned costs of enlargement failure should be increased by previously made allocations targeted exclusively for eastern enlargement.



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For a more or less correct cost-benefit accounting costs and gains in different years are to be brought to the same year – it means that the net present value or future value of costs and benefits is to be evaluated. However, it is extremely difficult to carry out an economically acceptable accounting of costs and benefits of enlargement or its failure.

Even in the case of enlargement failure not all funding received by candidate countries from the EU as pre-accession aid or domestic investments made to comply with the EU requirements is misused. A great share of these funds is allocated for institutional and structural reforms or technological innovations that have to be carried out anyway. Nevertheless, in case of enlargement failure a part of funding targeted only at enlargement should be written off. Unfortunately, there is no information available on the amount of probably misused funding in the case of enlargement failure.

EU financial planning for 2000 to 2006, adopted by the European Council in Berlin in March 1999, included EUR 2 billion devoted to 'pre-accession assistance' for infrastructure and institution-building (PHARE), environmental and transport infrastructure (ISPA) and rural development (SAPARD) in the applicant countries (<http://europa.eu.int/comm/enlargement/faq/faq2.htm#costs>) or EUR 3,12 billion per year. A remarkable share of these assets have been used already and some part of used funding may turn into losses for EU15 if enlargement fails. Anyway, these potential losses don't compare with the expected gains.

Possible losses for the EU include also flows of funds earmarked for the future. Financial Framework for enlargement of the EU in 2004-2006 is clearly depicted in table 1.

However, only a small fraction of these costs can be treated as purely enlargement costs. First, after enlargement member states will participate in funding EU policies. As the final terms of accession are not fixed yet and disputes over funding of AC countries from the CAP continue, it is not possible to evaluate financial flows between EU and AC budgets after accession. According to the WIIW, the accession countries would — under pessimistic assumptions — be net payers with EUR 3.8 billion in

2004, EUR 2.2 billion in 2005 and EUR 1.6 billion in 2006 (Basiritz *et al.*, 2002, p.12).

**Table 1. Financial Framework for Enlargement 2004-2006, EURm., 1999 prices**

<b>Scenario: Accession of 10 new member states in 2004</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
<b>Commitment appropriations</b>			
Agriculture	2,048	3,596	3,933
Structural operations	7,067	8,15	10,35
Internal policies	1,176	1,096	1,071
Administration	503	558	612
<b>Total commitment appropriations</b>	<b>10,794</b>	<b>13,4</b>	<b>15,966</b>
<i>Total commitment appropriations (Agenda 2000)</i>	<i>11,61</i>	<i>14,2</i>	<i>16,78</i>
<b>Payment appropriations (enlargement)</b>	<b>5,686</b>	<b>10,493</b>	<b>11,84</b>
<i>Payment appropriations (Agenda 2000)</i>	<i>8,89</i>	<i>11,44</i>	<i>14,22</i>

*Source:* Commission of the European Communities. Communication from the Commission. Information Note. Common Financial Framework 2004-2006 for the Accession Negotiations. ([http://europa.eu.int/comm/enlargement/docs/financialpackage/sec2002-102\\_en.pdf](http://europa.eu.int/comm/enlargement/docs/financialpackage/sec2002-102_en.pdf))

Next, the EU budget for the years 2007-2013, which will outline financial flows for a more remote period, will be elaborated (probably with participation of new members) after the final decisions on 2004-2006 enlargement anyway.

To sum up, the main cost of enlargement failure will be a squeeze in potential GDP growth. The failure will hurt to some extent EU15 countries, but the drawback will be greater for candidate countries both in absolute terms (in billions of Euro and in terms of their possible growth rates. There will be also many other possible losses in the case of enlargement failure, for instance, costs related to economic policy reorientation.

Attention is sometimes drawn also to the fact that enlargement may speed up reforms in the European Union as first, enlargement itself urges reforms in the EU and second, new member states are more interested in reforms and less interested in carrying on protectionist policies. Enlargement failure caused by delays in the EU reforming process may cause loss in competitiveness of the EU15 in trade with the rest of the world. This may be even more costly than the aforementioned enlargement failure.

Cumulative expected effects and critical value of institutional failure probability

As the approximate cumulative magnitudes of the period effects may amount to several thousands of billions of euros, the most convenient scale to present these as approximate quantities should be the use of euro trillion (trn, the number presented as one followed by twelve zeros) with two significant digits only, considering our approximates and the final purpose of calculations (estimation of the value of critical probability).

For approximate calculations of the present values of annual streams we implicitly discount relative to the crossroad point 2004 with about 0.1 discount rate. For this reason for cumulative effects we summarise annual effects only in the ten year period.

According to the annual sums given above, the cumulative GDP effect  $Y_{mg}$  of enlargement on the EU15 may reach at 2000 prices EUR [0.41;0.57] trn in 2005-2014.

Potential cumulative additional GDP growth for eight candidate countries (AC8 in Directorate General 2001 estimations)  $Y_{ag}$  may amount to EUR [0.50; 0.90] trn in 2005-2014.

Based on the assumption that until 10 candidates can join the EU starting from 2004, assistance for infrastructure and institution-building, environmental and transport infrastructure and rural development for the joined countries will be according to Commissioner Schreyer estimates (Uniting Europe, 2001, p 2) in the year 2006 in the range of EUR 16 to 25 bn. Using this benchmark range, and assuming the 1.27% budget payment

from GDP, for the entire post-crossroad period we get the respective cumulative sum  $Y_{mt} = [0.10;0.19]$  trn.

An unpredictable share of these funds may turn into enlargement specific investments  $Y_{ai}$ . Anyway, according to our estimations these may not be remarkable compared to the cumulative sums of expected gross GDP gains and we neglect them. Likewise we neglect  $Y_{mi}$  as lower order values.

One of the main costs of enlargement failure will be a squeeze in potential cumulative GDP quantities due to the development path change shock  $Y_{mp}$  and  $Y_{ap}$ . This shock of path change will hurt to some extent EU15 countries, but the drawback will be greater for accession candidate countries. The cost of path shocks connected mainly with the negative impacts of new development adjustments (Fidrmuc *et al.*, 2002) may be comparable with the gains of the cumulative additional GDP growths in the case of successful enlargement. However, in our calculations we take this effect for the EU in the half amount of  $Y_{mg}$  and only for the accession countries in the equivalent amount of  $Y_{ag}$ .

Now:

$$(2) Y_{ms} = Y_{mg} - 0_{mi} = \text{EUR } [0.41;0.57] \text{trn}$$

$$(3) Y_{as} = [0.50;0.88]_{ag} - 0_{ai} + [0.10;0.19]_{at} = \text{EUR } [0.60;1.07] \text{trn,}$$

$$(4) Y_{mf} = [0.41;0.57]_{mg} + 0_{mi} + [0.21;0.28]_{mp} = \text{EUR } [0.62;0.85] \text{trn and}$$

$$(5) Y_{af} = [0.50;0.88]_{ag} + 0_{ai} + [0.10;0.19]_{mt} + [0.55;0.88]_{ap} = \text{EUR } [1.15;1.96] \text{trn.}$$

According to (6) now the critical probability value of institutional failure is:  $P_c = (0.41_{msl} + 0.60_{asl}) / (0.41_{msl} + 0.60_{asl} + 0.85_{mfh} + 1.96_{afh}) = 0.26$ .

### **Possible implications of accession failure for Estonia's economy**

It is quite broadly assumed that Estonia's GDP per capita growth after accession could be about 2-4 percentage points higher than expected for the EU15 average. These expectations are shared by the European Commission (2001), Ministry of Finance (2002) and Estonian analysts (2002).

Nevertheless, besides hopefully successful EU accession there are two main options that are to be discussed in order to outline possible implications in the case of accession failure. First, anticipated eastern enlargement may be postponed for some years as preparations both in candidate countries and in the EU itself take more time. Another option is moderate enlargement because some of the candidate countries may not succeed in complying with the EU requirements or accession will be voted down in pre-accession referendums in some countries.

In the first case, enlargement will be simply postponed for a while. There should be no changes in economic policy targeting; however, the pace of integration will slow down. Reaching compliance with EU regulations will take some more years. For instance, there will be probably less funding available for many environmental programs and it will take more time to comply with EU environmental requirements. The same holds true for technological and product standards. Some enterprises may continue their technologically outdated and ecologically hazardous or inefficient output for domestic market and for exports into third countries. Some cheaper import resources (from third countries) will be available for some more years. Perhaps some of the adverse accession shocks on enterprise level may be avoided or postponed but society in general will lose in speed of development. Integration into European economy will be slower; legacy from our past will survive longer. It is quite possible that in this case Estonia may lose about one or two percentage points from potential 4-6% annual GDP growth that was expected in the case of successful accession.

In the second case, society refuses to use opportunities offered by the EU accession and European integration. In this case some changes in economic policy orientation are to be expected. Harmonization with the EU requirements may cease, resulting in changes of export destinations. Hopes of entering the European single market are to be reconsidered. Existing free trade agreements can be continued and new ones with third countries are to be negotiated in order to compensate for a probable decline in EU exports. The change in foreign trade orientation will cause also reorientation to quality requirements, standards and purchasing power in third countries and Estonian economy will become more integrated

with the economies outside the European Union. It is most likely that some foreign investments into Estonia that were targeted for exports to the EU markets may be withdrawn.

Considering the high share of EU countries in Estonia's exports and foreign investors nowadays it may be quite difficult to replace them with other countries (especially if other candidate countries will be admitted). As Estonia cannot rely on endogenous growth, then possible squeeze in Estonia's exports and foreign capital inflows (or their reversal) will most likely result in a more radical decline of possible GDP growth rates. There will be a remarkable loss in credibility of Estonia's economic policy. Even if the average annual growth rate will remain about 2 per cent there will be most likely some years of recession.

Thus, although pre-accession years may be difficult and no fast growth can be expected right after the accession, the possible delays in accession or even refusal to join the European Union will reduce the economic growth potential and make Estonia's economy more vulnerable.

### **Conclusions**

According to the expected economic effect principles, the critical institutional failure probability of the EU Eastern enlargement project may be dangerously as low as one in four. That means in the scenario of higher expected (predicted) probability of formal institutionalisation failure that the project would become economically irrational. This low value of critical probability refers to high economic risks of this project partly due to the well-known uncertainties in the mechanisms of formal enlargement institutionalisation.

The high risks are determined by high costs of enlargement failure to the accession countries as well as to the present Member States of the EU, caused mainly by the opportunity losses of additional GDP growth and by the pre-accession period development path-change shocks.

The expected perspective EU enlargement failure losses *per capita* for the EU and for the accession countries are asymmetrical. In the accession countries these losses may reach up to Euro 2 thousand in the year, but for the present members only one order lower values, let's say in the range of

Euro1 to 2 hundred. By the way, the expected enlargement gains will be approximately one and half times lower than the latter numbers.

The asymmetric situation of gains and losses among other things implies that in the pre-accession enlargement negotiation processes the EU and accession countries have also asymmetric bargaining powers in favour of the EU and these negotiations may have counter productive results.

For Estonia the failure in accession means some loss in potential GDP growth in the medium and long term perspective. Even if in the case of non-accession some potential structural shocks can be avoided in the potential year of accession and negative impact of non-accession on growth rates may be not so evident, then in the long run the economy will lose a lot of its potential.

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