

Preliminary, not for quotation

The Fiscal Criteria and the New Member Countries?

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Abstract

Fulfillment of the fiscal criteria might represent a political challenge for the new members but it will not hurt real convergence. The new member countries might not run up very high debt levels even if their deficits stay somewhat above 3 % of GDP because their growth rates are higher than the old member countries. A closer look at their infrastructure reveals that this is not a bottleneck for growth, hence there is no need for them to run larger deficits on this account. The main reason why the Treaty limit on excessive deficits makes sense for the new member countries is that they have an even worse demographic outlook than the old ones, which implies that they should reduce public debt in order to be able to face their own looming pension crisis.

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Introduction

The Maastricht condition for joining EMU in the area of public finances is the following:

The sustainability of the government's financial position: this will be apparent from having achieved a government budgetary position without a deficit that is excessive as determined in accordance with Article 104(6).

The condition is thus not that the country wanting to join the euro area has a budget deficit below 3 %, but that the EU has not decided that the country in question does not have an 'excessive' deficit, i.e. that the country is not in the so-called 'excessive deficit' procedure under Article 104. What constitutes an 'excessive' deficit? This is specified in a protocol to the Treaty:

The general government deficit of a member state may not exceed 3% of GDP, or should be falling substantially or only be temporarily above though still close to this level. Moreover, the gross government debt may not exceed 60% of GDP at market prices, or must at least show a sufficiently diminishing rate and approaching the reference value at a satisfactory rate. This latter condition should not be an issue for most of the new member states which have generally debt ratios below the 60 % of GDP threshold.

This contribution discusses whether the fiscal criterion for joining the euro area makes sense for the new member countries. It starts with a critical examination of the argument that the new member countries have a higher need for infrastructure investment. (Section 1) It then shows in Section 2 that higher growth rates would permit the new member countries to run higher deficits than, say France or Germany, without running up excessively large debt/GDP ratios. Section 3 then argues that the new member countries actually should aim at lower debt levels because of the rapid ageing of their population. Section 4 concludes.

1 High deficits for public investment?

It is often argued that the Maastricht criterion concerning deficits is not appropriate for the candidates, which need to invest more in infrastructure, and might need to incur deficits on this account. This argument is based on three assumptions that are questionable:

1. that the infrastructure of the candidates is inadequate,
2. that more infrastructure investment will increase growth, and,
3. that this investment has to be financed by the government.

Infrastructure needs. The public infrastructure of the candidates is certainly less developed than that of current EU members. The candidates have fewer motorways and paved roads per inhabitant and square kilometer, fewer fixed telephone lines, etc. However, this does not immediately imply that they therefore also need more investment in this area. What they have, might be adequate for their level of development.

One way to estimate the adequacy of the infrastructure in the new member countries relative to their income is to run the following cross section regression using data from around 120 countries:¹

(1) $\text{Indicator}_i = \alpha + \beta \text{GNPpc}_i + \phi \text{CEE8} + \gamma \text{BALKAN} + \eta \text{CIS} + \varphi \text{ASEAN} + \varepsilon_i$,
with 'i' as the country-subscript, 'Indicator' stands for one of the infrastructure density indicators used here. The explanatory variables are, first, per capita income measured at PPP ('GNPpc') plus a series of dummy variable. 'CEE8' stands for the new member countries. The other regional dummies were included as controls: 'SEE' stands for South-Eastern Europe, i.e. the Balkans. The abbreviations 'CIS' and 'ASEAN' should be self-explanatory. The inclusion of the latter is useful to check whether this group of high growth countries stands out in terms of infrastructure (' ε ' is the error-term). All variables – except the dummy variables – are in natural logarithms so that the coefficients can be interpreted as elasticities.

¹ For more details see Gros and Suhrcke (2000).

Table 1: Regression Results

| | GNP per capita PPP | CEE8 | SEE | CIS | ASEAN | R2 |
|---|--------------------|--------------------|--------------------|-------------------|---------------------|------|
| Paved road network (% of all roads) (a) | 1.20**** (12.9) | 1.50*** (2.8) | 1.21**** (9.5) | 1.57**** (8.5) | 0.44 (0.9) | 0.80 |
| Rail network (km per surface area) (a) | 0.71**** (11.3) | 1.42**** (11.4) | 1.34**** (11.4) | 1.08**** (4.8) | -0.97**** (-2.8) | 0.73 |

Source: own calculations. All variables are in logarithm. All standard errors are corrected heteroskedasticity-consistent. The symbols: *, **, ***, **** indicate coefficients that are significant at the 10%, 5%, 1% and 0.1% level, respectively. (a) Additional explanatory variable: population density, 118 observations. 1999 data.

The two indicators used here (the only ones available for a large number of countries) are:

- 1) The quality of the road network (proxied by the length of all paved roads as a share in surface area²).
- 2) The density of the rail network (in km per surface area).

The result is clear-cut: table 1 shows that both indicators are closely related to income per capita, as one would expect. The key result for the present context is, however, that the dummy variable for the new member countries is in both cases positive, large, and highly significant. Hence one can decisively reject the hypothesis that the new member countries have not enough infrastructure for their level of income.

It is interesting that the dummy variables for all transition countries are positive. The heavy investment in physical infrastructure under the communist system has apparently left a legacy in terms of the part of infrastructure that depreciates very slowly, like roads and rail networks. Finally, the dummy variable for the ASEAN group of countries are not significantly different from zero. High growth does not seem to be closely associated with a high density of infrastructure. The point estimates for the dummy variables suggest that the new member countries have a rail network that is approximately twice as extensive as one would expect.

²For similar evidence on the cross-country relationship between road infrastructure and income see Querioz/Gautman (1992) and Ingram/Li (1997). For the rail-income relationship see also Canning (1999).

Against this point of view one might argue that the proper measure of the need for more infrastructure is the degree to which the current stock of public capital constitutes a brake on growth (as opposed to being adequate for the current level of income). One way to check whether this is the case is to look at the intensity of the use of the currently available road and rail infrastructure in the new member states. As there is no absolute standard or capacity limit in this area all one can do is to compare infrastructure use in the old and the new member countries from Central and Eastern Europe. The available data is quite limited, but three indicators are available for the two main modes of transport:

Railways: The two indicators presented below (see table 2 with data for the year 2000) show a mixed picture: The number of persons carried by railways could double in some of the new member states before the existing network would approach the degree of capacity utilization of the current EU-15. Constructing new railway lines for passengers is thus not a high priority. (Upgrading existing lines might be necessary, but this is much cheaper than constructing new lines.) In terms of freight transport railway usage is somewhat higher in two out of the three larger new member countries shown in table 2. But this is probably mostly a reflection of the still excessive importance of heavy industry in these countries (especially coal and steel in Poland). As their economies continue to modernize the relative importance of railway transport, whose comparative advantage is in large volumes of heavy goods, will decline, as everywhere else, in favor of the more flexible road transport.

Roads: one straightforward indicator to measure the need for more roads is the number of cars per km of existing road. The data reported in the table below for the year 2000 shows a similar result as for railways: there is ample free capacity in most new member countries. Congestion due to insufficient infrastructure is thus much more a problem for the EU-15 than for most candidate countries. As for railways one can argue that the quality of the road network in the new member countries is lower than in the EU-15, but given the large difference in the density this difference in quality would have to be huge to compensate for the 2:1, sometimes 5:1 difference in motor vehicle density. Moreover,

as argued above, it is much cheaper to improve and upgrade existing roads than to construct new ones.

Table 2: Idle capacity on rails and roads?

| | Freight (in TKM) per km railway line | Passengers (in PKM) per km railway line | Passenger cars per km road |
|----------------|---|--|-------------------------------|
| EU-15 average | 1.6 | 1.9 | 53.6 |
| Czech Republic | 1.9 | 0.8 | 27.1 |
| Hungary | 1.1 | 1.3 | 10.9 |
| Poland | 2.4 | 1.1 | 24.4 |
| Turkey | 1.1 | 0.7 | 11.0 |

Source: own calculations based on data from Eurostat, New Cronos and the Eurostat Statistical Pocket Book 2003 on energy and transport.

It is thus difficult to argue that public infrastructure is their main impediment to growth. Hence it is questionable that the candidates need more public investment relative to their income.

Public investment and growth. Within the EU one actually does not find any correlation between public investment and growth in GDP. Ireland, by far the fastest growing economy of the EU over the last decades has a somewhat below average ratio of public investment to GDP. One rough way to gauge the impact of public investment on growth is to look at the correlation between growth in real GDP and the share of GDP spent on general government investment. If one takes decade averages to iron out business cycle fluctuations one finds the following: This correlation is negative or close to zero for the 1970s and 1990s. Only for the 1980s does one find a small positive correlation, which is however, due to the special case of Luxembourg. The growth literature in general has also not found a strong impact of publicly finance infrastructure investment on growth.

Public financing needed for infrastructure investment? Given the changes in financial markets that have taken place over the last decade it is now generally recognized that most infrastructure projects could also be financed and sometimes even operated with substantial private sector involvement. Major projects, such as motorways are already been undertaken on a mainly private sector basis in the candidates. The merit of letting the private sector run at least some parts of what is traditionally subsumed under

infrastructure is apparent in the telecommunications sector. It is interesting to note that Ireland followed the so-called golden rule until the early 1980 running large deficits, supposedly justified by public investment, which lead to a large build up of public debt. Growth started to take off in Ireland only when this policy was abandoned and deficits sharply reduced.

All in all, there should thus be no presumption that the candidates would need to run large deficits on the grounds that they have a stronger need for infrastructure investment. Moreover, the revealed preference of the new member states has so far been to spend more infrastructure, but not by an amount that would be large enough to explain the very large deficits some of them are running. The table below shows some of the available data, together with that of the poorer EU-15 members in the past.

Table 3: Share of gross fixed capital formation by general government in GDP (in %)

| New members: 2003 data | | Old members: 1990 data | |
|------------------------|-----|------------------------|-----|
| Czech Republic | 4.2 | Portugal | 3.3 |
| Estonia | 4.7 | Greece | 2.7 |
| Hungary | 3.1 | Spain | 3.7 |
| Poland | 3.5 | Ireland | 2.1 |

Source: Commission, DG ECFIN, Statistical Annex, Spring Forecast, 2004.

Today's new members spend a bit more on infrastructure than the cohesion countries among the old EU-15. On average (for the 6 countries for which data is available) the new member countries spent around 3.5 % of their GDP on public GFCF, against 2.6 % of GDP for the old EU-15. The difference is rather small and, moreover, the new member country will soon receive substantial funds from the EU budget to help finance infrastructure investment. One condition of the so-called structural funds is co-financing by the beneficiary country. However, even under this condition the EU funds will provide some relief for public finances in the new member states. If the co-financing rate is fixed at 50 % (not far from reality) and if all infrastructure spending were eligible for EU support the total expenditure on infrastructure in the new member countries could 5.2 %, but the cost to national budgets would only be equal to the 2.6 % spent currently in the EU-15. The new member countries would have to have to spend much more than the cohesion countries among the present EU-15 ever did before one could claim that the

burden on their budgets is so large that they merit a differential treatment under the fiscal Maastricht criterion.

2 Higher growth means lower steady state debt levels.

The key rationale for the limit on excessive deficits in the Treaty is to make fiscal policy sustainable in the long run. Long run sustainability does not depend only on the deficit, but also importantly on growth. This is a point on which the new member states will, one hopes, differ from the EU-15. Even if one assumes a rather slow convergence the new member states should still be able to grow faster by 1-2 % per annum. Moreover, they might also have a somewhat higher inflation rate, again by about 1-2 % per annum; implying a difference in trend nominal GDP growth rates of 1-4 % per annum. These seemingly small differences have huge implications for the sustainability of fiscal policy. Table 4 below shows what combinations of growth and trend deficits would lead to what steady state debt level.

Table 4 shows that for a typical slow growth EU-15 economy like Germany even a deficit of only 2% of GDP that persisted over the cycle would barely keep the debt to GDP ratio close to the 60% limit. The Maastricht assumption was one of nominal growth of 5 %. The contrast between Germany and the new members is particularly striking. The latter could run indefinitely deficits about twice as high (4% of GDP) and still end up with a similar debt ratio (67% of GDP). If one factors in the Balassa-Samuelson effect they might even remain the 60 % of GDP debt level with this kind of deficit.

Table 4: Steady state debt levels (as % of GDP)

| | | Cyclically adjusted deficit in % of GDP | | | |
|--|---------------------------------|--|-----------|-----|-----|
| | | 2% | 3% | 4% | 5% |
| Trend growth of real GDP in % p.a. | Germany: 1.5% | 57 | 86 | 114 | 143 |
| | EU today (?): 2% | 50 | 75 | 100 | 125 |
| | Maastricht: 3% | 40 | 60 | 80 | 100 |
| | New members (?): 4% | 33 | 50 | 67 | 83 |
| | New members with B.S. effect | 29 | 43 | 57 | 71 |

Source: Own calculations. The calculations assume an inflation rate of 2% so that nominal GDP growth is 2 percentage points higher than the real rates indicated in the first column, the only exception is the last row where it is assumed that the new members have a trend inflation rate that is one percent higher than that of the rest of the eurozone.

3 Ageing requires lower debt levels.

Higher potential growth and somewhat higher infrastructure spending could thus constitute under certain, rather restrictive conditions, two arguments for a more lenient interpretation of the excessive deficit criterion for most of the new member countries. However, there is one consideration that points in the opposite direction. The population of most of the new member countries is ageing even more rapidly than that of the current EU-15. The chief reason behind this development is that birth rates in most of Central and Eastern Europe are even lower than among the current EU-15. To give an extreme example: the fertility rate in the Czech and Slovak Republics are now below 1.2 (per woman), whereas the average for the old EU-15 is around 1.6 (still way below the replacement level of 2.1).

The available population projections already assume a certain return to higher fertility, but this still implies that the ageing problem will be accelerating more quickly in most of the new member states than among the EU-15 as documented below. This table reports the best indicator for the fiscal pressure resulting from ageing, namely the old age dependency ratio (persons above 65 divided by the population in working age, i.e. those between 15 and 65). For both the Czech Republic and Poland this indicator will triple by 2050, whereas it ‘only’ doubles for the current EU-15. Even over the shorter time horizon

(for which there is little uncertainty about the working age population, most of which has already been born) there is a clear difference: the indicator for the EU-15 deteriorates by about 60 %, but almost 100 % for the Czech Republic and Poland.

Table 5: The dynamics of old age dependency ratios

| | 2030/2000 | 2050/2000 | Level in 2050 |
|----------------|-----------|-----------|---------------|
| EU-15 | 1.64 | 2.00 | 53.4 |
| Czech Republic | 1.92 | 3.05 | 60.5 |
| Hungary | 1.58 | 2.41 | 51.4 |
| Poland | 1.94 | 2.93 | 52.2 |
| Bulgaria | 1.59 | 2.56 | 62.7 |
| Romania | 1.50 | 2.72 | 52.9 |

Source: own calculations based on Commission data.

Standard theorems about optimal fiscal policy imply that a country confronted with a predictable increase in expenditure should react already today by running lower deficits or a higher surplus. This can be easily shown in a bare bones tax smoothing model.

The key assumption in such a model is that due to ageing of the population desired public spending will go up in a generation, i.e. in about 20 years. A supplementary assumption would be that the new steady state starts then.

The model itself is completely standard, including the following element:

The starting point is a social loss function. The social loss is increasing in the tax rate (= tax take as % of GDP), denoted by t , and is increasing in the deviation of public expenditure, g (again % of GDP) from a target, denoted by G . Time is divided in two periods:

Period 1 (runs from present to 2020)

Period 2 (runs from 2020 to infinity, new steady state)

The core is thus the usual quadratic social welfare loss function:

$$(1) \text{ Social loss} = [\alpha t_1^2 + (g_1 - G_1)^2] + (1+\delta)^{-1}[\alpha t_2^2 + (g_2 - G_2)^2]$$

Where the parameter α denotes the weight of taxes in social loss and δ is the inter-temporal discount factor.

The objective for policy makers is to minimize this social loss subject to the inter-temporal budget constraint:

$$(2) \quad t_2 = g_2 + (1+\rho)(g_1 - t_1)$$

where ρ denotes the (real) interest rate on public debt. Minimization with respect to taxation over time implies:

$$(3) \quad 2\alpha t_1 = (1+\rho)^{-1}[2\alpha(1+\delta)t_2],$$

or

$$(3)' \quad t_1 = [(1+\delta)/(1+\rho)] t_2$$

This yields the well known result that if the interest rate equals the discount rate (i.e. if $\delta=\rho$):

$$(4) \quad t_1 = t_2 = t$$

Minimization with respect to government spending (g_1) implies:

$$(g_1 - G_1) = [(1+\rho)/(1+\delta)] (g_2 - G_2)$$

with the same assumption as above this obviously also implies that $(g_1 - G_1) = (g_2 - G_2)$, i.e. the difference between actual and desired spending should be the same during both periods. As tax rates are also constant at the optimum this implies that the same should be true to the deficits:

$$(5) \quad (g_1 - t) - (g_2 - t) = G_1 - G_2$$

In other words: as it is optimal to keep tax rates constants it is also optimal to have in the first period a stronger fiscal policy if target expenditure is higher during the second period. Another way to see the same result would be to focus only on the first period deficit (or rather surplus):

$$(6) \quad (t - g_1) = (G_2 - G_1) / (2+\rho)$$

A first implication of this equation is that the first period should have a surplus, if future desired expenditure is higher than the present one. What are the magnitudes?

Recent careful estimates suggest that ageing will lead (*ceteris paribus*) to additional expenditure of 3-5 % of GDP, on average for eurozone member countries. No comparable exercise exists for the new members, but one can gauge the size of the problem by taking the old members as a starting point. As the ageing is proportionally even more acute for most of the new member states this implies that the difference between G_2 and G_1 should be even higher for the latter, perhaps 4-6 % of GDP. Equation (6) then implies that the first period surplus should be a fraction of the increase in desired expenditure. With an (inter-generational) discount factor of 50 % this implies that (with spending under unchanged rules for pensions increasing by the magnitudes mentioned above) the new members should run surpluses of between 1-2 % of GDP already today.

All in all the argument is thus quite simple: the magnitude of the ageing challenge for fiscal policy in the new member countries is considerable (under unchanged policies age related expenditures might go up by 4-6 % points of GDP, more than in the old EU-15).

This implies that the new member countries should start preparing even today by running lower deficits than might otherwise seem appropriate given their somewhat higher trend growth rates.

4. Concluding remarks

The note has concentrated on only one of the two conditions for EMU membership that are likely to constitute the key obstacles: low inflation and low deficits. The main result concerns the fiscal criterion. It is argued here that the new member countries actually have a sufficient endowment with infrastructure for their level of development. The fact that the new member countries have fewer roads and railways thus does not necessarily mean that they should be allowed to run higher deficits on this account. Their stronger medium run growth prospects would, however, imply that with deficits below the 3 % limit their debt levels would fall much more than that of the EU-15. Against this one has to set the fact that the ageing challenge is even more pronounced in most of the new member countries than in the supposedly old EU-15. This implies that it might be appropriate for the new member countries to aim at lower debt levels to prepare for the ageing challenge. All in all it thus appears that the 3 % limit on deficits would be appropriate for the new member countries as well.

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