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Economics Policy Roundtable

The Irish Growth Miracle: Can Latvia Replicate?

Morten Hansen

Abstract

Ireland’s economic development since the late 1980s has been remarkable: From languishing at the bottom of the EU to one of the top spots in income per capita. It is thus not strange that the Irish “miracle” has attracted much attention among the New Member States in Eastern Europe. Some similarities with Ireland of the 1970s and 1980s are glaring: Small, open, poor economies on the periphery of Europe. This paper reviews the driving factors behind the Celtic Tiger and asks to what extent a similar development may be possible for Latvia, currently the European Union’s poorest member. A classification of the reasons behind Ireland’s growth paints a somewhat pessimistic picture for Latvia: Many features have long been implemented (e.g. macroeconomic stabilization) but several are unique to Ireland (e.g. language and substantial FDI from the US). Worse still, necessary reforms successfully introduced in Ireland are either difficult to implement in Latvia or the consensus is that they have, largely, been implemented (e.g. education and research). The idea of Latvia as an “Ireland copycat” is thus very deceptive which should send a strong policy signal.

Keywords: Convergence, growth, transition

JEL Codes: E65, O10, O52, P20

1. Introduction

The Economist’s survey of the Republic of Ireland 16 January 1988 had the title: “Poorest of the Rich”. The headline of an editorial on May 17th 1997 was “Ireland shines” and a special report in the same issue was called “Europe’s Tiger Economy”. And, most recently, a survey from 16 October 2004 ran under the headline of “The luck of the Irish”. These articles very well describe the, by any standards, amazing economic transformation Ireland has witnessed over the past couple of decades. From languishing at the bottom of the EU in terms of income per head it is now one of the richest nations in the union - an unparalleled accomplishment in the history of the European Union.

Unravelling the reasons behind this development has given rise to a lot of research, some of which will be covered by this paper. In addition, it has made many of the union’s eastern European New Member States (NMS), themselves currently poor, look to Ireland in order to, if possible, mimic this development1.

But how much is there to learn and/or mimic from the Irish experience? This paper will try to help answer that question by reviewing many of the reasons behind the Irish success and asking if they can be implemented by other NMS. The Republic of Latvia, currently the poorest country in the EU, is used for comparison but it would be easy to compare with other NMS, too.

The paper, though short, aims very broadly. This implies that the discussion is rather general and covers many aspects and only few numbers and no economic models are provided2. The paper

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2 And allegedly made the Irish Central Bank cancel its subscription!
1 And allegedly made the Irish Central Bank cancel its subscription!
3 The Economist has also covered this topic, see e.g. its issue on 17 April 2004.
4 This author has lived in Latvia and followed its economic development for the past 12 years and thus simply has more knowledge of Latvia than of the other NMS.
draws on the rich literature on the Irish “Growth Miracle” and examines whether the Irish growth
determinants also apply to Latvia. The methodology may be labelled holistic and owes much to
Mancur Olson (see e.g. Olson, 1996).

Section 2 presents in brief economic development in Ireland since 1987 (when the “Celtic Tiger”
era started) and in Latvia since 1991 (the year when independence was regained). Section 3 is split
into various subsections, each having contributed to the Irish “miracle”. For each case an
assessment is made of whether Latvia can emulate the Irish experience or not. Section 4 sums up
and section 5 concludes.

2. Setting the stage: The Irish and Latvian growth performance

Irish GDP per capita, at PPS, stands at 138.4% (2004) of the EU25 average
(Eurostat), thus in sharp contrast to its performance during the 1950s, 1960s, 1970s and most of the 1980s
where with around 60% of the EU15 average it was firmly entrenched at the bottom, see e.g. Barry
(2003c). Figure 1 displays the dramatic catching-up, which has happened since then.

1987 is typically seen as the year of the emergence of the “Celtic Tiger” - the year of the
introduction of the tripartite social partnership between the government, the unions and the
employers, which led to a much-improved macroeconomic policy, see section 3. It was thus not
e.g. EU membership in 1973, which created the “miracle” and the debate is as much about why
Irish convergence was delayed as to why it finally happened, see e.g. Barry (2000) and Barry and
Crafts (1999) - and why it happened so successfully in Ireland in contrast to e.g. Portugal and
Greece (Barry (2003a)). It seems fitting to discuss the Irish experience in more detail in section
3. Suffice it here to say that the impressive growth rates, the decline in unemployment and the

Latvia regained its independence in August 1991 after the failed putsch in Moscow. The
breakaway from the Soviet Union, the liberalization of trade and prices and the overall
transformation from a planned economy to a market economy led to an output collapse of app.
50% in 1991-93 and an inflation rate which hit 956% in 1992 (see e.g. Baltic Economic Trends).

From 1994 the economy started to grow again and from 1996-7 at an impressive speed. Figure 2
portrays the dramatic growth rates, negative and positive, which have characterized the Latvian
economy since independence.

Note: No numbers prior to 1995 exist

Inflation was brought under control via a rigorous fixed exchange system from March 1994,
pegging the Latvian lat to the SDR, and reached single-digit figures in 1997. Fiscal policy has

5 More detailed papers, dealing with individual parts of the issues discussed are envisaged.
4 Though official data most likely overstate the true output collapse for the usual reasons, e.g. overreporting in Soviet
times and underreporting after.
largely been prudent - only once has the budget deficit exceeded the 3% Maastricht criterion and this was in 1999 after the Russian financial crisis, which had a negative impact on the Latvian economy (sharply declining exports, thus lower growth and lower tax receipts). Fierce spending cuts quickly brought the budget deficit under control and a 1-2% deficit seems to be the norm. Public debt is very low, at app. 14% of GDP, partly due to low deficits, partly due to the fact that Latvia did not inherit any budget liabilities from the Soviet Union. All in all one must characterize Latvian monetary and fiscal policy as prudent and (very) conservative.

3

The following sections discuss various factors, which help explain the Irish “miracle”. The literature does not seem to have agreed yet on the relative importance of these factors but the perhaps most elucidating way of handling these factors is to have in mind Barry's description of them as “concurrent beneficial shocks” that created a “virtuous circle” (Barry, (2004b)).

3.1 Macroeconomic stabilization

Ireland’s macroeconomic policy and performance leading up to 1987 is best described as a mess. Relatively slow growth (3.2% on average in the 1980s), unemployment around 16%, substantial inflation (around 9.5%), runaway budget deficits (6-8%), alarmingly high public debt (exceeding 130% of GNP in 1987) and thus very high interest rates were the norms of the day. In October 1987 a “Programme for National Recovery” the so-called “Social Partnership” was agreed upon between the Irish government, the unions and the employers where the unions promised wage moderation in exchange for lower taxes. Much more on this and the ensuing turnaround may be found in Honohan and Walsh (2002). Suffice it here to say that by comparison Latvia has nothing new to learn. Macroeconomic stability has been the norm in Latvia for more than a decade.

3.1.1 Monetary policy

By joining EMU and thus relinquishing the Irish punt, Ireland saw a one-off fall in interest rates, which created additional stimulus to growth (and to house prices!). Latvia, which joined ERM II in May 2005, is unlikely to witness a similar effect. Due to a credible monetary policy for more which created additional stimulus to growth (and to house prices!). Latvia, which joined ERM II in May 2005, is unlikely to witness a similar effect. Due to a credible monetary policy for more

3.1.2 Fiscal policy

Budget deficits in Ireland in the decade of 1978 - 1987 were between 6.1% and 8.2% of GNP (Leddin and O'Leary, (1991)) and this fiscal profligacy raised the debt-to-GNP ratio to 131.4% by 1987. Much lower deficits and some surpluses since then, together with the massive economic growth, has brought the ratio well below 40%. As is seen from section 2 Latvia has nothing new to learn here either - fiscal policy is largely sound and has at no times witnessed deficits or debt ratios of Irish magnitudes. Another facet, however, is the decline of the government sector in the economy. In 1987 government spending was 46.0% of GNP (and almost 50% in 1985); already by 1990 it was down to 37.2% (Leddin and O'Leary, (1991)) mainly via cuts of 4.8% and 5% in 1987 and 1988, respectively. To the extent one believes in more growth due to smaller government, may Latvia learn from the Irish experience? Not really - government spending is lower period is due to positive contributions from all four sub-components: Productivity has risen (and has been the most important component), the employment rate is up (the unemployment rate is down) and the age dependency ratio is down due to the still relatively young Irish population. The Irish “miracle” is thus not just a question of a productivity miracle - but it is also due to the much more earthly effect of more people working.

A similar decomposition has been done for Latvia (Hansen (2005)), and here the picture is quite different. Growth is almost exclusively due to productivity. Worse, in the future the age-dependency ratio will increase and the labour force will shrink due to very unfavourable demographics, see also 3.3.4.

This is also discussed in several of the already mentioned references. For a short opinion, see Bourke (2004).

Honohan and Walsh (2002) even dismiss the idea of a productivity miracle.
The following three sub-sections describe areas where Latvia significantly differs (negatively) from Ireland - where “learning” from the Irish experience would be beneficial but in practice is impossible or even unwanted.

### 3.3.2 Participation
As mentioned above participation is up in Ireland and not least for women, which has been a very important factor in the Irish growth experience (Fitz Gerald (1999)). Ireland also here caught up more slowly which again helped to delay its convergence. The participation rate for women in Latvia is lower than for men (68.5% versus 77.3% \(^{14}\), 2004) but neither is the difference that big (a positive left-over from Soviet times), nor are any of the numbers small by EU standards, implying that increased participation should not be envisaged as a major (if at all) engine of growth in Latvia.

### 3.3.3 Elastic labour supply
The Irish labour market is, due to Ireland's close links, historically, politically, economically and linguistically to the United Kingdom rather a part of the UK's labour market than an independent labour market. In times of unemployment the Irish migrate to the UK (and the US) and recently the trend has reversed due to low unemployment in Ireland see again e.g. Honohan and Walsh (2002). This makes the Irish labour market unusually flexible and the labour supply very elastic, which helps to avoid serious overheating in times of substantial labour demand. Latvia does not share this characteristic. The country saw substantial emigration in the first years after independence, many of whom will never return (Russian citizens, Russian-speaking non-citizens). In addition, the issue of immigration is anathema to most politicians in Latvia. The share of ethnic Latvians in the total population is only 58%\(^{15}\) (with the largest minority being Russian speakers, some 30%) and the issue of “Russification” is still a very important issue. Immigration from the former Soviet countries is not a popular issue either and, Latvia being the poorest EU country, most likely not the most preferred destination by would-be emigrants. The Latvian labour force is thus not as elastic as the Irish - and for mainly political reasons cannot become so.

### 3.3.4 Demographics
As mentioned in 3.3.1 the future demographic situation in Latvia is bleak. The country has since independence suffered a 13% population decline, roughly evenly split between larger emigration than immigration and more deaths than births. Whereas emigration flows have decreased substantially (see e.g. Statistical Yearbook of Latvia) deaths continue to outpace births at an alarming rate of more than 50%. Birth rates have been very low since independence and this being some 14 years ago will soon have consequences in the labour market, see again Hansen (2005). These consequences are obviously strongly negative with respect to economic growth. The picture is quite familiar in most western European countries - the relative magnitude is just much stronger in Latvia (and Estonia; the two countries have suffered the largest population declines in Europe since 1990).

### 3.4 Human capital
That human capital has an impact on GDP per capita comes as no surprise but a major expansion of the educational system in Ireland from around the 1960s seems to have been of particular importance for the ensuing Irish economic development. Expansion of the educational system came later than in western Europe (Barry (2000)) and may yet again help explain the delay in the Irish convergence. Durkan, Fitz Gerald and Harmon (1999) provide numbers and analysis. A (much) more well-educated labour force seems to have been a particular boon for foreign companies and may thus have helped spur foreign direct investment, see 3.5.

Educational attainment in Latvia is quite high and has expanded considerably since independence partly via significant input from the private sector in higher education - the public sector is simply unable to meet the demand for higher education, see Hansen and Vanags (2005). However, the EU Commission addresses in its Regular Report on Latvia, 2002, several shortcomings such as too much emphasis on vocational training, over-specialised types of education and skills acquired in the past i.e. during Soviet times.

Thus, by quantity measures the stock of human capital seems large but one may seriously question quality in various areas, which is not strange, given that independence is still quite recent and that several disciplines such as economics, law and public administration were wholly transformed after the abandonment of the Soviet system. Hard data are notoriously hard to produce but an interesting study by Gundlach (2001) points at human capital quality problems. Using a neo-classical growth model, data for West Germany and for East Germany and a hypothesis that by reunification the two areas automatically shared a common institutional framework and had common access to technology he estimates, by simulation, that East Germany's stock of human capital per worker is only one third of the West German level. This does not automatically lead to inferences about Latvia, of course, but taking into account that East Germany was typically seen as the leading economy of the eastern bloc these results should not be dismissed.

A crude but simple indicator of lack of human capital is to look at the Latvia's main export articles since they should display the country's comparative advantages. They are wood, transportation services and textiles i.e. based on natural resources, location and cheap labour, respectively. None of these requires sophisticated human capital inputs, however. It should thus come naturally that investment into the quality aspects of human capital (top level research, elite institutions etc.) is needed. Unfortunately, seemingly only a minority in the country seems to agree.

### 3.5 Foreign Direct Investment
There seems to be universal agreement among researchers that foreign direct investment (FDI) has played a major role in the transformation of the Irish economy. Foreign-owned firms account for around 50% of employment in Irish manufacturing (Barry (2004a)) and the FDI stock numbers are stunning: In 2000 (Barry (2003b)) the Irish FDI stock per capita was around 2.5 times that of the EU as a whole, 7 times that of Greece, 4.5 times that of Spain, 7.5 times that of the Czech Republic and Estonia (the two biggest recipients of FDI in the NMS) and a whopping 18 times that of Latvia.

The main reasons for the FDI boom in Ireland have been attributed to low corporate taxation (3.1.2), accession to the EU and not least the establishment of the Single Market by 1987 and to the US high-tech boom of the 1980s and 1990s. The Single Market has facilitated production in fewer (or only one) EU country since exports to the rest of the EU became much easier. In particular US firms took advantage of this by establishing subsidiaries in Ireland, using its well-educated labour force (3.5) and taking advantage of cultural similarities such as language (in particular) and “common roots” (USA is home to app. 50 mln. Irish-Americans). Barry (2004a) provides data on the size of FDI inflows, the timing and the share coming from US firms. Barry (2004a) also provides information on the sectors into which FDI has flowed: Information technology, biotechnology, pharmaceuticals etc. i.e. sectors demanding labour force with advanced skills. It is also interesting to notice that the jobs created by foreign-owned firms

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2. The capital city, Riga, has a majority of ethnic Russians, some 69%. In fact, the five largest Latvian cities have Russian speaking majorities. See data in Statistical Yearbook of Latvia, Central Statistical Bureau of Latvia.
typically display much higher productivity than indigenous Irish jobs.

Other reasons for the massive inflows of FDI are the IDA (Industrial Development Agency), see 3.8, and geography, see 3.6.

Sachs (1997) lists a set of conditions to attract and benefit from FDI: Low corporate taxes, low (or no) tariffs, good infrastructure, a stable political environment, competitiveness, a competitive labour market and a favourable geography. For Latvia, as have been argued, corporate taxes are indeed low, tariffs are zero inside the EU of course, infrastructure is excellent for e.g. telecommunication, somewhat less so for transportation, the political environment is stable (see 3.8) and the labour market is not heavily unionised. Competitiveness cannot be altered via devaluation but the country's massive trade deficit is not perceived as a result of lack of competitiveness. The geographical location is both problematic and beneficial, see 3.6. Although many of these indicators look promising Latvia cannot expect an FDI adventure on a similar scale as Ireland.

As already mentioned Latvian inward FDI is small compared to Ireland's - but the FDI stock per capita is higher than in e.g. Lithuania or Poland. For obvious reasons, however, Latvia cannot even dream of copying the Irish FDI experience. Qualifications in the labour market are one reason already mentioned and language is another (see also 3.9). But as mentioned in the context of low corporate taxes, too, Ireland has also in this area benefited from being a first-mover. Latvia competes for FDI together with the other NMS - not to speak of Ukraine or even China - and will thus, naturally, attract relatively less than Ireland could. Will Ireland lose FDI to the NMS? Not necessarily, as Barry and Hannan (2001) argue: Though the NMS may attract more EU FDI the total amount of FDI may increase - there will be a larger FDI cake to share.

One might argue that Latvia has a linguistic advantage with respect to the Russian language just as the Irish have it with the English language and that Latvia thus might be a magnet for Russian FDI in a similar way as Ireland has been for US FDI. Two arguments speak against this, however: Whereas Russia is indeed one of the largest investors in Latvia (but the biggest are Sweden and Germany) it is not at all dominating - and Russian investment is seen with some scepticism by Latvian politicians. For obvious historic reasons relations between Russian and Latvia are far from as cordial as relations between Ireland and USA. Secondly, the Russian economy is dwarfed by the US economy in size and thus in prospective FDI importance. Better relations and less suspicion in future Latvian-Russian relations should help but nowhere near the magnitudes of US FDI to Ireland.

A feature not touched upon so far is the sectoral distribution of FDI. Ireland has benefited from FDI into skills-demanding sectors creating high productivity. Without adequate human capital the same will not happen in Latvia. Current areas of major FDI inflows are retail, tourism and banking and not computers or biotech.

### 3.6 Geography

Ireland's geographical location on the periphery of Europe could lead one to believe that the country would have a natural disadvantage in international trade. But, as Krugman (1997) argues, "Ireland has been uniquely successful in taking advantage of the changing shape of economic geography". International trade has become "lighter" (the value-to-weight ratio has risen) which makes production in the periphery less unattractive. Together with many of the other factors already mentioned this has helped lure foreign firms to Ireland. This has, in addition, created self-reinforcing effects: The successful move to Ireland of some companies has led others to pursue the same strategy (herding behaviour) as well as has created cluster effects.

“A lighter” international trade should also benefit production in Latvia, which certainly also is located on the periphery of the EU but whether agglomeration may be created is a very open question.

### 3.7 EU funds

From around 1990 Ireland started receiving substantial funds from the European Union, see e.g. Barry, Bradley and Hannan (2001). Latvia, being as poor as it is, also can expect a relatively large share of EU funds but if the Irish experience is an indicator for what will happen Latvians will be disappointed. The aforementioned source estimates that EU funds contributed on average around half a percentage point to overall growth per year during the 1990s. On a background of an economy growing around 8% per year this is actually very little - in other words, much contrary to popular wisdom, it was not the structural funds that made the Irish rich. They helped of course e.g. to improve infrastructure and alleviate the government budget. Barry (2000) argues that especially the timing of the funds was beneficial. EU funds will hopefully be beneficial for Latvia, too, but the Irish experience says that these funds will not catapult Latvia to the EU average in income per capita.

### 3.8 Politics/institutions

An oft-mentioned institution behind a significant part of the Irish success is the IDA, the Irish Development Agency. The IDA has been used to attract FDI to Ireland and is one of the first institutions of its kind in the world (Barry (2004a)) - again it seems that Ireland has had a first-mover advantage. Latvia has also adopted this lesson via LIAA, the Latvian Investment and Development Agency (http://www.liaa.gov.lv) but it is not the only country to learn this lesson. Political stability prevails in Ireland where the two major parties, Fianna Fail and Fine Gail, have almost identical policies and are both centre-right. The situation is somewhat similar in Latvia where every single government since independence has been a centre-right coalition. Such political stability exists due to history: Parties for whom (mainly) ethnic Latvians vote are necessarily anti-communist and anti-socialist. This creates an environment where the political situation is rather predictable and consensus on e.g. economics prevails - although which party runs the government is not: Latvia has had some 12 governments in its 14-year history.

Another small institutional argument may be mentioned, namely deregulation. Barry 2003c mentions that airline deregulation in 1986 made flights to Ireland cheaper and thus facilitated a significant increase in tourism. Such deregulation is already in place in Latvia, which, in general, is a very liberal economy.

### 3.9 Culture

This section tries to point at possibly significant features for the Irish economic development but which cannot be characterized in economic or political terms.

As was already mentioned in 3.5 Ireland has benefited from its use of the English language and its cultural links to USA, a feature Latvia cannot copy and, in the case of Russian, is seriously unwilling to do.

The many Irish-Americans also form a lucrative base for tourism and thus income in Ireland. The Latvian diaspora is significant but many, many times smaller.

Clever marketing also seems to have been at work: Irish music is well known around the world and Irish pubs are omnipresent. By comparison, Latvia is unknown.

Ireland has not traditionally been known for transparency but often for murky business and shady deals (The Economist's 1988 survey provides some good examples) but some have argued that
October 2002 a new institution, KNAB\(^1\), the Corruption Prevention and Combating Bureau, was created as a means to fight corruption. Whether EU funds may induce greater transparency and accountability remains to be seen. In (Ireland ranks 17th). Whether corruption will become less of a problem as the economy grows and the amount of investment increases is another question. Latvia's economy is in general very liberal.

3.10 Luck(?)/the Irish

Krugman (1987) sums up the Irish experience as “good luck, good timing, good policies” and this author agrees by adding that, looking at these three arguments, one cannot be separated from the other. It is beyond questioning that Ireland pursued sound policies - macroeconomic stabilization, a more flexible labour market, more investment in human capital etc. But the timing was also strikingly beneficial: The much-needed macroeconomic stabilization was pursued just before the importance of the Single Market started to materialize - and EU funds were an additional bonanza. The “luck” - but again this should not be separated from timing or policies - may be seen by the fact that virtually all the shocks to the Irish economy were positive (cf. the “concurrent beneficial shocks” mentioned earlier) and that Ireland for such a relatively long time kept its first-mover advantages (low taxation and IDA, for example).

4 Summing up

This paper has tried to provide, in short, the reasons behind the Irish “miracle” and it has asked what, if anything, a small, poor country on the periphery of the EU, in this case Latvia, may learn from the Irish experience. The arguments will be put into five categories: What Latvia has already achieved, what Latvia can do and wants to do, what Latvia can do but does not perceive as a problem, what Latvia can do but is unwilling to do and, finally, what Latvia cannot do.

What Latvia has already achieved.

This is actually the major bulk: Macroeconomic stabilization (low inflation, low or no budget deficits, low public debt), a small government sector, low income taxes and low corporate taxes. Trade liberalization has long been achieved. Latvia has also achieved political stability and this has undoubtedly been enhanced with EU accession. Latvia has mimicked Ireland with respect to an industrial development agency. Deregulation (and privatisation) has taken place and the economy is in general very liberal.

What Latvia can achieve and wants to achieve

Less corruption and more transparency although it will not come easy - and some may argue that this should be listed in the next section.

What Latvia can achieve but does not perceive as a problem

Much more investment is needed at the top end of education and research.

What Latvia can achieve but is unwilling to do

Immigration - to replenish the dwindling labour force but for political reasons this is undesirable by most. Use the strong command of the Russian language and the many links to Russia to be Russia's gateway to the EU as Ireland has been the gateway for the USA.

What Latvia cannot achieve

Higher participation cannot be achieved - participation is already quite high. An elastic labour supply like the Irish is impossible since the Latvian labour market is national, not regional. Favourable demographics are currently not in the offing, far from. FDI cannot be achieved in amounts similar to the Irish experience since Latvia competes with so many other NMS for FDI. Low and flat taxes attract foreign companies but also here the competition with other NMS will limit the impact on Latvia. Latvians speak Latvian, not English as their first language and thus the competition with Ireland has. Marketing - although it remains to be seen - but the marketing of Ireland has been so successful and pervasive that it is very hard to imagine anything remotely similar.

5 Conclusions

A first glance at section 4 may be depressing for Latvians since, allegedly, nothing much can be adopted from the Irish experience. True, some factors are country specific and cannot be mimicked (e.g. language and the ensuing massive FDI inflows from the US) but the main reason for so few lessons to be learnt is that they have already been implemented in Latvia (macroeconomic stabilization, trade liberalization, reasonable political stability etc.), which is no small accomplishment for a country just 14 years into its existence as a market economy. Moreover, so few lessons to be learnt indicate that the Irish “miracle” never was a miracle - it was the result of sound and clever policies, some good timing and a bit of luck since the economic shocks that hit Ireland were all beneficial and since Ireland has benefited much from so often being a “first-mover” - a feature other countries, like e.g. Latvia, cannot emulate.

Latvia should be complimented for the early adoption of many of the Irish “lessons” and for its recent impressive growth performance but the uniqueness of the Irish experience also provides a warning. Being an “Ireland copycat” is impossible and future growth thus cannot be guaranteed. Economic convergence is as so many other things in economics, no free lunch. It is still a question of physical capital, labour, human capital and TFP (Total Factor Productivity). It has been argued in this paper that the development of e.g. the labour force in Latvia will inhibit growth and convergence as will, if it is not changed, the seeming lack of human capital. Policy makers have made wise choices so far for the Latvian economy but they certainly cannot rest from now on as many issues concerning future growth remain.

Whether in the end Latvia does catch up to the EU per capita income average remains to be seen but should it happen it will not be a miracle - it will just look like one.

References


Baltic Trade with Europe: Back to the Roots?  
Claus-Friedrich Laaser and Klaus Schrader*  

Abstract: The statistical analysis of Baltic trade flows and gravity estimates reveal that Estonia, Latvia and Lithuania have rapidly integrated into the international division of labour with a distinct EU focus. The three Baltic States have taken a road towards the EU common market which pays particular attention to close trade relations with their direct neighbours on the Baltic Rim. The Baltic Sea obviously serves as a major integrating device for these countries, although each of them has developed relations with different regional focal points. At the same time Estonia, Latvia and Lithuania, although being no longer integrated into the former intra-Soviet division of labour, have not abandoned their contacts to the Soviet successor states altogether. From a sectoral perspective, Baltic exports are dominated by "traditional" labour-intensive goods. However, this common feature is embedded in heterogeneous patterns of trade specialization, ranging from Estonia's exports with higher technological content to Lithuanian raw-material-intensive exports.

Keywords: Baltic trade patterns, Eastern enlargement, regional integration, gravity model, specialization patterns

JEL codes: F14, F15

1. Introduction

Estonia, Latvia, and Lithuania have become full members of the European Union (EU) on 1 May 2004 - just as the five larger transformation countries from Central and Eastern Europe and the Mediterranean Isles of Cyprus and Malta. In less than one and a half decades they managed to transform their political and economic systems profoundly. In doing so they even caught up with the reform pioneers Poland, Hungary and (former) Czechoslovakia. As a result, the EU core members were convinced not to let the Baltic States knock in vain on the Union's door.

Institutional integration into the EU which meant, besides managing systemic change in general, implementing some 80,000 pages of the EU common framework "acquis communautaire" was still one is task, and a highly challenging one at any rate. But what about the corresponding task, i.e. market integration? Have Estonia, Latvia, and Lithuania become genuine and integrative parts of the EU Common Market since their renewed independence in 1991? Or to put it that way: Have they arrived in Europe economically? And furthermore: Have they seized the opportunities offered by increasingly globalizing markets to link their rather small markets to the complex network of the international division of labour? What is the role Estonia, Latvia, and Lithuania actually are playing in the arena of international and particularly European trade?

The intention of this paper is to find an answer to these questions. Accordingly, it is organized as follows: In section 2, potential shaping forces of Baltic trade patterns which offer different

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scenarios for integration are discussed. In section 3, an overview on the development of Baltic regional trade since independence is given and the lines of economic integration are summarized. In section 4, a gravity analysis is applied to identify the regional focus of Baltic trade integration and the influence of the shaping forces in-depth. In section 5, against the background of regional Baltic trade integration during the nineties it is analysed which role the Baltic states have developed in the international division of labour from a sectoral perspective. Finally, in section 6, the status-quo and further perspectives of Baltic trade integration are assessed.

2. Scenarios for Integration

The opening of Baltic economies has occurred in an era of increasing globalization. Success in systemic transformation thus provided opportunities to establish trade links not only with Europe but also with fast growing trade blocs world-wide, such as North America and Asia. Yet, one may suspect this being an option for the longer run. The first steps could be expected to be taken in the European neighbourhood.

The geographical location of Estonia, Latvia, and Lithuania on the Eastern Baltic Rim as well as their history suggested three particular regional integration scenarios: (i) going straight ahead towards Western Europe, (ii) forming an important gateway to the successor states of the former Soviet Union, the Community of Independent States (CIS), or (iii) making use of the apparently strong integrative force prevailing in the neighbourhood of the Baltic Sea Region (BSR).

The Western European option is one which is mainly suggested by history, less so by location, because the Baltic States are forming part of the borderline between Central Europe and the CIS markets with Moscow as its hub. But this very location contributed to Estonia's, Latvia's, and Lithuania's integration into the Western European division of labour after their first independence at the end of World War I. At that time, Russia pursued a more inward-looking development strategy and cut off former links to the Baltics. As a result, each of the Baltic States developed particular close trade relations with Germany and the United Kingdom. Hence, integration into the EU of today would mean writing a success story a second time.

The gateway function of the Baltic States between East and West has both geographical and historical roots. The location on the borderline between East and West gives rise to the notion of resting on any leg if transactions costs are not prohibitive on both sides. The CIS of today does not pursue an equally introverted development strategy as it was the case for the Soviet Union in the 1920s although its markets still bear substantial risks. Knowledge of the peculiarities of these markets, even if acquired in the period of compulsory integration into the Soviet system, might qualify also Baltic economic agents to take a part in developing CIS markets and linking both Europes.

A Baltic Sea focus on integration with direct and indirect neighbours in the BSR could evolve from various sources. Traditionally, integration within this region has been particularly close, notably among Scandinavian countries. Cultural and some linguistic links to Scandinavia would support this integration option for the three Baltic States. Moreover, Baltic ports have played an active role in maritime transport links between Western Europe and Russia across the Baltic Sea rather serving as an integrating factor than a separating factor even in the Soviet era. Now, in the course of enlargement, the Baltic Sea has been converted almost entirely into an inland sea of the EU, thus merging EU-and BSR-integration options.

3. Emerging Regional Trade Patterns after Independence

In the early nineties, the collapse of the Soviet Union and the central planning system was followed by a short but visible transformation crisis: real GDP decreased by two-digit rates in the Baltic States. But since 1995 the Baltic economies recovered and positive growth rates turned up; even the so-called “Russian crisis” of 1998/99 did not have a lasting effect on the economic catching-up process of these countries. Export and import volumes were closely correlated with economic growth. Hence, the change of regional trade patterns analysed below took place in a context of growing export and import activities and it is not at all the result of a minimization of trade activities due to the breakdown of the socialist division of labour (Eurostat 2005, European Commission 2003, EBRD 1998).

In 1991, the first year of internationally recognized independence, the trade statistics of the three Baltic States still reflected the era of intra-soviet trade and economic integration in the Baltic Sea's Eastern rim region (Tables 1 and 2): Baltic exports as well as imports were still dominated by trade with CIS member states, especially with Russia; foreign trade with EU countries was yet of minor importance. But during the first half of the nineties Baltic trade structures changed entirely when the EU offered the opportunity to integrate into the (Western) European division of labour: Although access to the Common Market was granted stepwise, the Baltic States increasingly benefited from free trade agreements with the EU while at the same time the Baltic States could maintain protectionist measures. Latvia and Lithuania made use of this option of asymmetric openness, only Estonia introduced a free trade regime. Within short time, the EU-15 countries became the main trading partners of the Baltic States. In this period import volumes from EU countries even grew faster than Baltic exports to EU markets. Obviously, the Baltic demand for Western European consumer and investment goods met with the efforts of Western enterprises to develop new markets in Eastern Europe while Baltic enterprises lost their intra-soviet “home markets” but still lacked to some degree the ability to compete on Western markets.

Baltic efforts to integrate into the EU did not mean that these countries became “everybody’s darling” as the results of trade integration show. Baltic EU exports and imports have been far from being evenly distributed as the regional decomposition in Tables 1 and 2 reveals: The trade intensity with the more developed Northern EU countries is significantly higher than with the poorer European South. Especially trade with Western Baltic Rim countries - Scandinavia and Germany - became increasingly important for the Baltic States during the nineties, whereas trade with the group of former socialist countries lost importance, i.e. primarily trade with other former Soviet republics decreased. Anyway, Russia remained one of the major Baltic trading partners.

Although sharing a lot of common features the development of bilateral trade structures reveals that the Baltic States are not at all a homogeneous group: In the case of Estonia the dominance of trade with EU-15 countries is more distinct than it can be observed in the other Baltic States. In this context trade relations with Finland are outstanding and strong with Sweden, while Estonian trade with CIS countries is well below the Baltic average. Latvia's favourable EU-15 trading partner is Germany and, furthermore, Latvian exports to the UK have reached a striking size. Moreover, intra-Baltic trade - especially imports - reaches an eye-catching share, and Latvia's trade with CIS countries suffered remarkable losses but not at the Estonian level. Finally, Lithuania developed strong trade relations with Germany, and, as it is also true for Latvia, the UK became a major destination for Lithuanian exports. Compared to the other Baltic States, trade relations with...

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1 For an analysis of Baltic trade relations in the interwar period cf. Walter (1937) and Laaser and Schrader (1992).
2 An assessment of transport economic conditions of and developments on the Eastern Baltic Rim is given in Böhme et al. (1998).
3 The Russian currency and financial crisis gained momentum in the second half of 1998 and increasingly affected the real sector of the Russian economy, leading to a breakdown in production and foreign trade. Cf., e.g., Gaidar (1999).
4 During Soviet occupation, Baltic “foreign” trade was for the most part intra-soviet trade: e.g., in 1989 about 90 p. c. of Baltic exports were designed for other Soviet republics, about 80 p. c. of Baltic imports had their origin in these countries (Arkadie and Karlsson 1992; PlanEcon 1992).
Scandinavia are weaker while trade relations with CIS countries focussing on Russia remained stronger especially on the import side. The reorientation of Baltic trade towards EU markets came along with a geographic shift of inward Foreign Direct Investments (FDI). Overall FDI from EU-15 in the Baltic States increased up to 70 p.c. of total FDI in 2003, the share of Russian FDI decreased to 3.7 p.c. Again, Estonia acts as the front runner with a EU-15 share of 84.4 p.c. in 2003, while the Russian share decreased to 2.1 p.c. The integration into the EU as well as liberal investment laws supported this process.¹

4. A Gravity Model to Explain Baltic Trade Relations

Gravity models are often used in trade and integration analyses to assess the shaping forces of international trade flows. They assume that gravitational forces to undertake economic interaction stem from high incomes or population figures of trading partners, because these features promise high revenues from business deals with numerous well funded clients. But transaction costs which may vary with distance can be expected to impede the impact of the gravitational forces on the intensity of trade relations. Various forms of distance may be relevant, not only real geographical distances as a proxy of transportation costs, but also „virtual distances“ as exerted by tariff- or non-tariff-trade barriers, different languages, diversities in business cultures, traditions or economic systems.²

Gravity models date back to Linder (1961), Tinbergen (1962) and Linnemann (1966). In the past, some researchers have claimed that the application of the gravity model to economic interaction and trade relations would be without any foundation from trade theory, but this view no longer holds. In a number of contributions it is argued that the standard gravity equation is consistent with several trade models: Bergstrand (1985) derived a generalized gravity equation from a reduced general equilibrium model of world trade with nationally differentiated products. Later he introduced an extended model with two differentiated-product industries which use labour and capital; again a generalized gravity equation was derived and its consistency with Heckscher-Ohlin-models and models with monopolistic competition was illustrated (Bergstrand 1989).

Anderson (1979) and Deardorff (1995; 1998) found the gravity model to be consistent with a wide range of trade models including the Heckscher-Ohlin-model, either with frictionless or with impeded trade, although the successful standard log-linear gravity equation is not directly derivable from the respective trade models (Anderson and van Wincoop 2004: 18). Feenstra, Markusen and Rose (1998) also showed that the simple gravity equation is nevertheless consistent with several theoretical models of trade; from different trade models a gravity-type equation can arise, thereby the coefficient estimates depend on the respective types of goods which are traded. Evenett and Keller (1998) analysed to what extent the Heckscher-Ohlin-theory and the increasing returns trade theory account for the empirical success of the gravity equation. They showed that both models predict the gravity equation, and that models of imperfect product specialisation better explain the variation of trade flows than perfect product specialisation models. Accordingly, in this contribution a gravity model is deployed in order to identify the shaping forces of Estonia’s, Latvia’s and Lithuania’s trade integration.

4.1 Gravity Model Specification and Data Set

Gravity models for the BSR have been put forward in particular by Cornett and Iversen (1998), Byers et al. (2000), Löhnig (2001), Hacker and Johansson (2001), Paas (2002), Laaser and Schrader (2002, 2003a, b), and Hacker and Einarsson (2003). Cornett and Iversen (1998) try to predict future trade in the Baltic Rim by relying on the complete sample of bilateral trade relations between the European Union and Central and Eastern European accession candidates. They control for different phases of integration in order to differentiate between various forms of trade barriers typical for the different forms of bilateral trade links. Byers et al. (2000) estimate hypothetical coefficients from recent trade data of the Scandinavian countries in order to predict future trade volumes and country shares of the Baltic countries. They argue that in historical comparison many similarities exist between Scandinavian and Baltic countries in the interwar-period, including trade patterns and income levels. Löhnig (2001), Hacker and Johansson (2001), and Hacker and Einarsson (2003) calculate a standard pattern of trade relations for Europe as a whole including transformation countries and predict the trade flows of the involved accession countries, comparing them with actual flows. All these studies find particularly close integration tendencies on the Baltic Rim (cf., e.g., Hacker and Johansson 2001: 80-82). In view of these findings, this analysis focuses explicitly on Estonia’s, Latvia’s, and Lithuania’s integration patterns and provides evidence in how far the Baltic States’ road to Europe interferes with Baltic Sea integration tendencies.

The Gravity Model

As the results of the descriptive analysis in section 3 suggest that significant differences can be found between the trade patterns of Estonia, Latvia, and Lithuania, our gravity model has been estimated separately for the three Baltic States as well as for their exports and imports.

The model specification follows conventional paths in the empirical literature using the double-log specification. Dependent variable are logs of trade flows $T_{ij}$ either exports $X_{ij}$ or imports $M_{ij}$ of each of the Baltic countries:

$$\ln T_{ij} = \text{Const} + \beta_1 \ln \text{GDP}_j + \beta_2 \ln \text{PCI}_j + \beta_3 \ln \text{DIST}_{ij} + \sum k_d \delta_k \text{DUM}_k + \epsilon$$

with subscript $t$ indicating the year of observation (1995 to 2003), $i$ either Estonia, Latvia, or Lithuania, $j$ the respective bilateral trading partner, $k$ the enumerative index of dummies, and $\epsilon$ representing the error term. The estimation is performed by pooled OLS regression for the period 1995 to 2003.

Independent variables cover logs of the Baltic countries’ trade partners’ gross domestic products and per-capita-incomes ($\text{GDP}_j$, $\text{POP}_j$) as gravitational forces,³ and the real distance $\text{DIST}_{ij}$ between

¹ In empirical gravity analyses all three combinations of two out of the three interrelated independent variables $\text{GDP}$, $\text{POP}$ and $\text{PCI}$ (= $\text{GDP/POP}$) are to be found. In fact, all specifications can be obtained by algebraic transformation from their counterparts. Our specification with $\text{GDP}$ and $\text{PCI}$

$$\ln T_{ij} = \text{Const} + \beta_1 \ln \text{GDP}_j + \beta_2 \ln \text{PCI}_j + \beta_3 \ln \text{DIST}_{ij} + \sum k_d \delta_k \text{DUM}_k + \epsilon$$

translates either into

$$\ln T_{ij} = \text{Const} + (\beta_1 + \beta_2) \ln \text{GDP}_j - \beta_2 \ln \text{POP}_j + \beta_3 \ln \text{DIST}_{ij} + \sum k_d \delta_k \text{DUM}_k + \epsilon$$

or

$$\ln T_{ij} = \text{Const} + \beta_1 \ln \text{POP}_j + (\beta_1 + \beta_2) \ln \text{PCI}_j - \beta_2 \ln \text{POP}_j + \beta_3 \ln \text{DIST}_{ij} + \sum k_d \delta_k \text{DUM}_k + \epsilon$$

Compared to both alternatives the chosen specification splits the income elasticity into two components but has the advantage that both the “market size” - and the “wealth”-effect are denominated in monetary terms. In the first alternative the “market size”-effect would be covered twice, and in the second one “market size” would be measured solely by the demographic variable of “heads” without reference to the purchasing power of the respective market.

³ As a consequence of the separate estimation for the individual countries, $\text{GDP}_j$ and $\text{PCI}_j$ which would normally have entered the estimating equation in order to represent gravitational forces on the side of the reporting countries, had to be skipped here whereby the time trend has been captured by a fixed effects estimation for the single years of observation.


⁵ These various real and virtual distances are referenced to as “trade costs” in the pertinent literature (cf. Carrere and Schiff 2004, Anderson and van Wincoop 2004).
Baltic States capitals and their trading partners’ capitals (or economic centers) as impeding transportation costs factors.

In addition to these usual variables, up to six contiguity dummies \((k = 1\ldots6)\) are included to control for different kinds of virtual distances, proximities and neighbourhood effects.\(^\text{1}\) The choice of the dummy variables (see Box) reflects the variety of integration options for Estonia, Latvia, and Lithuania: (i) the Baltic States’ road into the EU Common Market while remaining in the field of tension between “going westward” and “keeping tied to the East”, i.e. maintaining substantial trade relations with the CIS, and (ii) the integrative impact of particularly close trade relations in the Baltic Sea Region.

Model 1 tries to capture the basic integration tendencies in the field of tension between EU integration and the role as a gateway to CIS markets by including \textit{INTRABALT} representing the common past as well as the early free trade agreements between Estonia, Latvia, and Lithuania, \textit{CIS} as an indicator for a hypothetic path dependency in trade relations with the former Soviet Union, \textit{EU-15} for the effects of the Europe Agreements with the EU, and \textit{OTHNEW} for similar effects of trade agreements between the various new EU members\(^\text{2}\), and \textit{EFTA} for controlling for trade relation with non-EU-members in the European Economic Area (EEA).

In model 2, the \textit{EU-15} dummy is substituted by \textit{SCAND}, \textit{HUBPORT} and \textit{RESTEU} in order to test the alternative hypothesis that the integration of the Baltic states has a regional focus in the BSR. The Baltic Sea with its intensely utilized coastal shipping system that allows to save transport costs may have a special impact on regional integration (cf. Böhme et al. 1998: 20-22 and 51-52). \textit{SCAND} (for Scandinavia) and \textit{HUBPORT} (for Belgium, the Netherlands, Germany and the UK) refer to the location of a trading partner either in the Western BSR\(^\text{3}\) or the adjacent North Sea Region, which may be regarded closely connected to the BSR.\(^\text{4}\) \textit{RESTEU} covers the rest of the EU-15 beyond the BSR.

In model 3, all contiguity dummies of model 2 have been estimated for the years of observation separately to cover deviating tendencies of redirecting trade flows over time.

### The Data Set

Trade data following the “special trade”-concept\(^\text{5}\) were provided by the three national statistical offices. The level of regional coverage was high: for all three countries at least 98 per cent. GDP and GDP-per-capita data in current US dollar and current exchange rates have been taken from The World Bank Economic Indicators (World Bank 2004).

\(^\text{1}\) In contrast to other gravity model estimates, especially those covering larger groups of countries worldwide, no language dummy was included to control for transactions costs savings due to the use of widely spoken foreign languages. Significant linguistic similarities between the Baltic countries and their neighbours exist for Estonia and Finland. However, it is impossible to separate this language effect from other proximities to Finland, such as the common seaborne border. After all, being small countries the Baltic States have to use international trading languages, i.e. especially English or, to a lesser extent Russian. These effects, however, are already covered by \textit{SCAND}, \textit{HUBPORT} and \textit{CIS}.

\(^\text{2}\) For an overview of Baltic States preferential trade agreements cf. World Tr@de Net (2000; 2002).

\(^\text{3}\) “Western” BSR in this context should be interpreted as “traditionally market-oriented”, and not solely in a geographical sense.

\(^\text{4}\) As Germany, Netherlands and Belgium host the main North-Sea hub-ports which link the BSR coastal shipping (“feeder”) network with intercontinental shipping lines, and the UK is another seaborne main trading partner in the EU, \textit{HUBPORT} represents the non-Scandinavian part of a virtually widened BSR.

\(^\text{5}\) Special trade is defined by the statistical offices of the Baltic States in accordance with the definition by Eurostat (e.g. Statistics Lithuania 2003) and excludes mere transit trade flows as well as exports from and imports to customs warehouses. It is particularly important for analysing Baltic trade patterns to rely on this “special trade” concept because transit trade from and to CIS countries via Baltic ports and Baltic Sea short sea shipping is substantial (cf. Böhme et al. 1998). Trade patterns based on the broader concept of “general trade” covering also transit and warehouse flows would thus differ substantially from those presented in this paper.

For the distance matrix the “Indo.com Distance Calculator” was used which provides a fast and comprehensive tool to calculate distances for a great variety of towns and locations worldwide or, alternatively, for exact latitudes and longitudes of any place in the world.

### 4.2 Regression Results

The gravity model has been estimated separately for Estonian, Latvian, and Lithuanian exports and imports for all three equations to cover obvious singularities in the integration pattern of the three countries. The results reveal that Baltic trade flows have conspicuously adjusted to the gravitational forces of the Common Market of the EU in the course of transformation during the first decade of restored independence, however without cutting off the links to CIS markets altogether. Significant differences can be observed between export and import estimates (Tables 3 and 4). While import estimates render rather homogeneous results for all three Baltic states and the impact of the various contiguity dummies, export estimates show greater variations. We therefore concentrate on the export side, and comment on results for imports only where significant differences emerge.

In general, all equations show a strong F-record below the 1 per cent error level. The adjusted \(R^2\), ranging from 0.62 for Estonian exports to 0.73 for Latvian imports, appears to be sufficient compared to standard gravity regressions and given the fact that the data set covers all trading partners, with polar cases not being excluded in order to draw a complete picture.

The gravity estimates for Baltic exports (Table 3) reflect the different development paths of Estonia, Latvia, and Lithuania in the course of transformation, and their differing choice of trading partners. The market size of trading partners \((GDP)\) exercises a moderate but distinct gravitational force on Baltic export flows with highly significant elasticities in the range of 0.6 to 0.7. The size of the coefficient of \(PCI\) is rather low for Estonia and Latvia - being highly significant only for Latvia - and zero for Lithuania. This result is consistent with the observation that the Baltic States currently are the location of predominantly traditional manufacturing industries meeting a moderate income elasticity of demand of their trading partners (see OECD 2000: 179-184 and section 5).

The distance variable \(DIST\) is highly significant with coefficient values in the range of -0.7 to -1.0.\(^\text{6}\) In contrast to this conventional result for exports, \(DIST\) has much less impact and significance on the import side, at least for Estonia and Lithuania (Table 4). This observation meets with expectations derived from the development level of the Baltic States: while they import sophisticated products from technologically advanced countries around the world, their export commodities still may lack competitiveness on world markets, with the exception of outsourced workbench production for Western European manufacturers.\(^\text{7}\)

Turning to the contiguity dummies, the \textit{INTRABALT} dummy for intra-Baltic trade relations exhibits an extremely high coefficient of 4.5 to 6 at a high significance level. Apparently, Estonia, Latvia and Lithuania are forming a small integration zone by themselves.

\(^\text{6}\) The drop in the size of the \(DIST\) coefficient for Estonia and Latvia between models 1 and 2 (from -1.0 to -0.9, and -0.9 to -0.8) can be explained by the mutual interrelationship between the distance variable and the contiguity dummies: Once the very intensive trade relations with the immediate Baltic Sea Region neighbors are controlled for by dummy variables, the regional concentration of Estonian and Latvian export relations does not influence the “average trade distance” any longer with the same intensity.

\(^\text{7}\) E.g., in Estonia the sharp increase of market penetration in electronic products and machinery in 2000 is largely a reflection of the assembly subcontracting operations of Scandinavian telecommunications equipment producers, as well as comparable structures in machinery manufacturing (cf. Gericg and Emits 2003: 11-16). A similar situation is true for Lithuania where an increase of exports came along with rising imports thus having only a minor impact on national value added. For details cf. Burgess et al. (2005).
The intensity of trade relations going beyond this intra-Baltic integration zone, however, is quite different for each of the three Baltic states. Clearly discernable is the explicitly lower size of the CIS coefficient for Estonian exports in models 1 and 2 (1.8 to 2.0) compared to those for Latvia (3.1 to 3.2) and, particularly, for Lithuania (4.0) (see Table 3). In order to find evidence for the dynamics behind this development, model 3 covering contiguity dummies estimated separately for all years of the observation period has been applied. The time path of the CIS coefficient reveals that the CIS dummy for Estonia even dropped to a value below 1.0 and towards total insignificance in the period from 2000 to 2002, with a slight recovery at moderate significance in 2003 (see Table A1). This westward trend in export flows was partly a consequence of the Russian crisis of 1999, with a wide collapse of Russian markets and a break-down of traditional trade links. But Estonia loosened its ties with the former Soviet trade partners, especially with non-European CIS members, already before the Russian crisis - the value of the Estonian CIS coefficient was distinctly lower than that of Latvia and Lithuania from 1997 on (Tables A1-A3). Even during the Russian crisis 1998/99 and its aftermath, Latvia and Lithuania remained engaged in CIS markets. On the import side, however, Estonia remains at least as closely connected with CIS markets as Latvia and Lithuania (Table 4).

Similar differences can be observed in the Baltic states' export relations with the EU. To be sure, the coefficients of the EU-15-dummy and the OTHNEW-dummy in model 1, as well as of the EU-15-subgroups in model 2 are all definitely positive and highly significant for all of them (Table 3). Estonia, Latvia, and Lithuania obviously have been fully integrated into the Common Market. At the same time, the relative size of Estonian, Latvian and Lithuanian export coefficients varies markedly. In model 1, the EU-15-coefficient of Lithuania of 2.6 clearly outperforms that of Estonia and Latvia. Model 2 reveals the reason for this feature: For none of the European subgroups the Lithuanian coefficient is below 1.8 (Table 3). The country has been deeply and rather evenly integrated into the enlarged Common Market since 1995, albeit with some fluctuations, as model 3 (Table A3) illustrates.

In contrast to this finding, we observe a strong and rather exclusive regional center of gravity for Estonian exports in the BSR. Only the SCAND and HUBPORT dummies reach high values (of 2.7 and above) in model 2 (Table 3). The coefficients for the rest of the EU-15 as well as for the new members, however, are markedly smaller and do not exceed 1. Latvia’s exports more or less follow the same integration path as those of Estonia, with even weaker links to the EU-15 countries beyond the extended BSR, but somewhat stronger links to the markets of the other new members. Model 3 reveals that OTHNEW for Estonia and RESTEU for Latvia have been weak particularly in the beginning of the observation period (Tables A1 and A2).

This means that on their export side Estonia and Latvia have followed an integration path into the enlarged Common Market, whereas Lithuania has continued to be deeply and rather evenly integrated into the enlarged Common Market since 1995, albeit with some fluctuations, as model 3 (Table A3) illustrates.

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comparative advantage measure of international competitiveness following a concept dating from Balassa (1965), is positive on a comparatively high level. But it is of particular importance for Estonia that the share of easily transferable technology-intensive products, i.e. mobile Schumpeter-goods, exceeds 20 p.c. and that the Estonian economy is going to develop some comparative advantage in these fields of production. In the context of trade with the EU-25 countries Estonia exports of mobile Schumpeter-goods are even more important, the RCA-value is now positive. In general, the observed trade patterns are rather stable over time since the end of the nineties although a continuing technological up-grade of Estonian trade is visible.

At first glance, the analysis of the Latvian trade patterns suggest that similarities with Estonia prevail: labour-intensive products are by far the dominant export items being highly competitive, especially in the trade with the EU-25. But in contrast to Estonian foreign trade, technology-intensive products still play a minor role for Latvia which obviously ranks below Estonia in the technological hierarchy of world and European markets. This finding is supported by a growing share of capital-intensive goods which gained importance in Latvian EU trade. Furthermore, the share of raw material intensive goods is higher than in Estonia, although it remains below the 20 p.c. level. All together, since the end of the nineties the combined share of labour- and capital-intensive goods only decreased slightly, accordingly structural change towards technology-intensive productions was insufficient. A technological push in Latvian trade is still missing.

In the case of Lithuanian trade, already a first look at the commodity structure indicates the importance of primary goods. Against this background, it is no surprise that raw material-intensive goods are characteristic for Lithuanian trade classified by factor intensities: their share of total exports exceeds one third, combined with labour-intensive goods they make up for about two thirds of Lithuanian exports. In the Lithuanian EU-25 trade the combined share is higher than 70 p.c., but with the focus on labour-intensive goods. Whereas these two types of goods are highly competitive, Lithuanian exports of technology-intensive goods still lack importance and international competitiveness. Instead, even trade with capital-intensive goods developed more dynamically, especially in trade with EU-25 countries. To sum up, the overall technology level of Lithuanian trade falls behind the Estonian level and at least in this respect similarities with the Latvian commodity trade structures appear. A significant technological “catch-up” did not take place during the last years. Despite these discrepancies it must not be ignored that the Baltic economies still have a core production of “traditional” labour-intensive goods in common that dominate their sectoral trade patterns. This feature of Baltic foreign trade makes up the difference to more advanced reform countries like Hungary or Poland which trade structures are increasingly coming closer to higher developed EU core member states (Sisak-Fekete 2002, Laaser and Schrader 2005).

6. Conclusions

Since the early nineties, Estonia, Latvia and Lithuania integrated successfully into the Western European division of labour without cutting all their links to CIS markets. Due to the stepwise access to the EU Common Market the focus of their trade relations changed from former intra-Soviet trade to intensive trade integration with Western partners. This development reminds on the period soon after World War I when the Baltic states had become independent from Russia. In this respect EU integration means reintegration into regional markets with a historical affinity. However, trade integration into the Common Market does not necessarily mean homogeneous trade relations with all European partner countries. Especially for Estonia and Latvia the Baltic Sea serves as a major integrating device. In the case of Estonia, Scandinavian partners play a decisive role, while Latvia developed closer relations also with Germany. It is only Lithuania which in some respects can be labelled as “everybody’s darling” in the process of EU integration. This process of economic integrating into the EU goes along with the transformation of former Soviet-type production patterns towards economic structures which reflect traditional comparative advantages of the Baltic States. Traditional industries which already dominated commodity structures of Baltic exports in the interwar period re-emerge. Again, historical affinities matter. At the same time, this kind of structural change did not establish a platform for mainly high value-added production. “Traditional” in this respect does not necessarily mean a catching-up in the technological hierarchy of markets. So far, it has been only Estonia that attracted a significant mass of new more technology-intensive industries. To conclude, all three Baltic States with their small markets and labour forces may lack the potential to compete with larger locations of production such as the Visegrad countries in attracting technology-intensive productions. Traditional workbench, labour- or raw material-intensive productions may not necessarily foster a climbing-up in the income hierarchy. Hence, it is probably up to the service sector to promote the Baltic catching-up process.

References


Cornett, A.P., and S.P. Iversen (1998). The Baltic States in an European and Baltic Perspective:


Eurostat (2005). Wirtschaft und Finanzen: Volkswirtschaftliche Gesamtrechnungen. Via Internet (09.09.05) <http://epp.eurostat.ec.eu.int/portal/page?_pageid=0,1136173,0_45570701&_dad=portal&schema=PORTAL>.


Baltic Trade with Europe: Back to the Roots?


<www.intracen.org/worldtradenet/docs/networking/country_papers/paper_estonia.pdf>,
<www.intracen.org/worldtradenet/docs/networking/country_papers/paper_latvia.pdf>,
<www.intracen.org/worldtradenet/docs/networking/country_papers/paper_lithuania.pdf>.


<www.intracen.org/worldtradenet/docs/whatsnew/budapest_workshop_june02/estonia_paper.pdf>,
<www.intracen.org/worldtradenet/docs/whatsnew/budapest_workshop_june02/latvia_paper.pdf>,

Appendix

Table 1: Regional Trade Patterns of the Baltic States: Exports

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<thead>
<tr>
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<th></th>
</tr>
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<td>68.4</td>
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<td>3.9</td>
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<td>23.3</td>
<td>25.9</td>
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<td>1.2</td>
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<td>0.5</td>
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<td>United Kingdom</td>
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<td>3.3</td>
<td>4.2</td>
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<td>EU-10-New Members</td>
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<td>13.6</td>
<td>14.0</td>
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<td>Poland</td>
<td>0.1</td>
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<td>1.1</td>
</tr>
<tr>
<td>EU-27c</td>
<td>15.5</td>
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<td>82.4</td>
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(1) EU Integration

(2) Ties with Transformation Countries

(3) Baltic Sea Integration

Table 2: Results of Gravity Estimates of Baltic Exports 1995-2003

<table>
<thead>
<tr>
<th>Country</th>
<th>1995</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estonia</td>
<td>4.9</td>
<td>8.6</td>
</tr>
<tr>
<td>Latvia</td>
<td>3.7</td>
<td>5.5</td>
</tr>
<tr>
<td>Lithuania</td>
<td>3.6</td>
<td>5.5</td>
</tr>
<tr>
<td>CIS</td>
<td>38.3</td>
<td>45.0</td>
</tr>
<tr>
<td>Central and Eastern European Countries</td>
<td>44.2</td>
<td>39.1</td>
</tr>
<tr>
<td>Russia</td>
<td>56.5</td>
<td>39.4</td>
</tr>
</tbody>
</table>

Box: The Gravity Model: Explanations of Variables and Equations

A| Percentage of total exports (special trade for 1995 and 2003). — b| The 10 new EU member states since May 1, 2004 are: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia. — c| EU-15, new members plus countries already participating in accession negotiations: Bulgaria, Romania. — d| Albania, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Hungary, Macedonia, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, Ukraine, Yugoslavia. — e| Included are Denmark, Finland, Germany, Norway, Sweden. — f| Included are Estonia, Latvia, Lithuania, Poland, Russia. — g| Data for the year 1991 are not available in adequate quality.

Table 2: Regional Trade Patterns of the Baltic States: Imports\(^a\)

<table>
<thead>
<tr>
<th></th>
<th>Estonia</th>
<th>Latvia</th>
<th>Lithuania</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) EU Integration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EU-15</td>
<td>6.1</td>
<td>67.5</td>
<td>53.6</td>
</tr>
<tr>
<td>Denmark</td>
<td>0.1</td>
<td>2.8</td>
<td>2.2</td>
</tr>
<tr>
<td>Finland</td>
<td>2.0</td>
<td>33.5</td>
<td>15.9</td>
</tr>
<tr>
<td>France</td>
<td>1.4</td>
<td>1.4</td>
<td>2.8</td>
</tr>
<tr>
<td>Germany</td>
<td>0.8</td>
<td>9.8</td>
<td>11.3</td>
</tr>
<tr>
<td>Italy</td>
<td>0.3</td>
<td>2.7</td>
<td>3.1</td>
</tr>
<tr>
<td>Sweden</td>
<td>0.8</td>
<td>8.6</td>
<td>8.8</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>0.1</td>
<td>2.2</td>
<td>2.2</td>
</tr>
</tbody>
</table>

| (2) Ties with Transformation Countries |         |        |           |           |        |           |        |        |           |
| Baltic States | 11.5 | 3.7 | 5.8       | 9.5       | 10.6   | 16.1      | 6.5    | 3.4    | 3.0       |
| Estonia     | –       | –     | –         | 6.4       | 5.0    | 6.4       | 1.8    | 1.4    | 1.4       |
| Latvia      | 5.1     | 2.0   | 2.4       | –         | –      | –         | –      | 4.7    | 2.0       |
| Lithuania   | 6.4     | 1.7   | 3.4       | 3.1       | 5.5    | 9.7       | –      | –      | –         |

| CIS       | 73.8 | 17.2 | 14.7      | 37.6      | 28.1   | 14.5      | 83.8   | 41.6   | 25.8      |
| Central and Eastern European Countries\(^d\) | 63.4 | 18.3 | 19.7      | 39.0      | 31.3   | 22.8      | 70.5   | 47.5   | 33.9      |
| Russia    | 46.2 | 14.6 | 8.6       | 27.9      | 21.6   | 8.8       | 49.6   | 32.8   | 22.7      |

(3) Baltic Sea Integration

| Baltic Sea Region | 62.0 | 74.4 | 56.3      | 60.9      | 71.7   | 64.4      | 58.8   | 66.2   | 56.6      |
| West\(^e\)       | 3.8   | 55.5 | 39.1      | 22.2      | 37.6   | 34.4      | 1.3    | 26.3   | 26.0      |
| East\(^e\)      | 58.2 | 18.9 | 17.2      | 38.6      | 34.1   | 30.0      | 57.5   | 39.9   | 30.6      |

\(^a\)Percentage of total imports (special trade for 1995 and 2003).  
\(^b\)The 10 new EU member states since May 1\(^{st}\), 2004 are: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia.  
\(^c\)EU-15 new members plus countries already participating in accession negotiations: Bulgaria, Romania.  
\(^d\)Albania, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Hungary, Macedonia, Moldova, Poland, Romania, Russia, Slovenia, Ukraine, Yugoslavia.  
\(^e\)Included are Denmark, Finland, Germany, Norway, Sweden.  
\(^f\)Data for the year 1991 are not available in adequate quality.


Table 3: Results of Gravity Estimates of Baltic Exports 1995–2003\(^a\)

<table>
<thead>
<tr>
<th>Dependent Variable: LnXEST, LnXLAT or LnXLT</th>
<th>Estonia</th>
<th>Latvia</th>
<th>Lithuania</th>
</tr>
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<tbody>
<tr>
<td>Method: OLS pooled</td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 1</td>
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</table>

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<tr>
<td>lnGDP(_j)</td>
<td>0.60***</td>
<td>0.59***</td>
<td>0.59***</td>
<td>0.57***</td>
<td>0.74***</td>
<td>0.73***</td>
<td>(16.90)</td>
<td>(17.03)</td>
<td>(16.97)</td>
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<tr>
<td>lnGDP(_j)</td>
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<td>0.12*</td>
<td>0.18***</td>
<td>0.20***</td>
<td>–0.07</td>
<td>–0.04</td>
<td>(1.79)</td>
<td>(1.99)</td>
<td>(2.92)</td>
</tr>
<tr>
<td>lnGDP(_j)</td>
<td>–1.04***</td>
<td>–0.88***</td>
<td>–0.90***</td>
<td>–0.83***</td>
<td>–0.74***</td>
<td>–0.75***</td>
<td>(–11.00)</td>
<td>(–8.00)</td>
<td>(–9.90)</td>
</tr>
<tr>
<td>CIS</td>
<td>1.83***</td>
<td>2.00***</td>
<td>3.14***</td>
<td>3.20***</td>
<td>4.03***</td>
<td>4.02***</td>
<td>(7.62)</td>
<td>(8.01)</td>
<td>(15.95)</td>
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<td>EU-15</td>
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<td>–1.58***</td>
<td>–2.61***</td>
<td>–2.46***</td>
<td>– (1.71)</td>
<td>(6.63)</td>
<td>(11.80)</td>
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<td></td>
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<td>2.87***</td>
<td>–</td>
<td>2.10***</td>
<td>–</td>
<td>2.70***</td>
<td>(7.90)</td>
<td>(6.73)</td>
<td>(9.17)</td>
</tr>
<tr>
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<td>0.98***</td>
<td>–</td>
<td>0.67***</td>
<td>–</td>
<td>1.86***</td>
<td>(4.50)</td>
<td>(2.75)</td>
<td>(7.74)</td>
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<tr>
<td>OTNEW</td>
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<td>0.94***</td>
<td>1.18***</td>
<td>1.25***</td>
<td>1.92***</td>
<td>1.86***</td>
<td>(3.24)</td>
<td>(3.97)</td>
<td>(5.49)</td>
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<tr>
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<td>1.73***</td>
<td>1.06***</td>
<td>2.93***</td>
<td>1.94***</td>
<td>(8.09)</td>
<td>(4.81)</td>
<td>(6.13)</td>
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<tr>
<td>Adjusted (R^2)</td>
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<td>0.63</td>
<td>0.64</td>
<td>0.71</td>
<td>0.71</td>
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<td>107.434***</td>
<td>99.849***</td>
<td>156.588***</td>
<td>139.769***</td>
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Table 4: Results of Gravity Estimates of Baltic Imports 1995–2003

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<th>Independent Variable</th>
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<th>Model 2</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 1</th>
<th>Model 2</th>
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<tbody>
<tr>
<td>Constant (Fixed effects)</td>
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<td></td>
<td></td>
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<tr>
<td>1995</td>
<td>-12.22</td>
<td>-14.06</td>
<td>-11.45</td>
<td>-11.91</td>
<td>-17.47</td>
<td>-17.66</td>
</tr>
<tr>
<td>2002</td>
<td>-10.95</td>
<td>-12.79</td>
<td>-10.84</td>
<td>-11.29</td>
<td>-16.35</td>
<td>-16.54</td>
</tr>
<tr>
<td>2003</td>
<td>-10.86</td>
<td>-12.70</td>
<td>-10.65</td>
<td>-11.11</td>
<td>-16.49</td>
<td>-16.68</td>
</tr>
</tbody>
</table>

lnGDP_j | 1.08*** | 1.09*** | 0.89*** | 0.89*** | 1.03*** | 1.03*** |

lnPCI_j | 0.14** | 0.14** | 0.18*** | 0.20*** | 0.06 | 0.08 |

lnDIST_ij | -0.37*** | -0.19* | -0.79*** | -0.74*** | -0.26*** | -0.24*** |

| INTRABALT | 6.10*** | 6.60*** | 5.82*** | 5.94*** | 6.09*** | 6.09*** |
| CIS | 3.89*** | 4.09*** | 3.41*** | 3.47*** | 3.50*** | 3.51*** |
| EU-15 | 1.99*** | -1.88*** | 2.13*** | -1.13*** | - | - |
| SCAND | -3.58*** | -2.46*** | -2.69*** | -2.46*** | -2.46*** | -2.46*** |
| HUBPORT | -2.13*** | -2.19*** | -2.21*** | -2.19*** | -2.19*** | -2.19*** |
| RESTEU | -1.48*** | -1.31*** | -1.55*** | -1.31*** | -1.55*** | -1.55*** |
| OTHNEW | 2.43*** | 2.26*** | 2.29*** | 3.00*** | 2.98*** | 2.98*** |
| EFTA | 1.96*** | 2.04*** | 1.21*** | 2.33*** | 1.37*** | 1.37*** |

Adjusted R² | 0.72 | 0.72 | 0.73 | 0.73 | 0.72 | 0.71 |

F-statistic | 199.440*** | 180.181*** | 161.577*** | 143.982*** | 187.669*** | 166.667*** |

n (trading partners) | 181 | 146 | 165 |

n (panel) | 1250 | 975 | 1191 |

---

aShares of exports and imports in p.c. (special trade). — Classification of SITC-Commodity groups according to the factor intensity concept: Raw material-intensive goods (RIG) = 0, 2 except 26, 3 except 35, 4, 56, 57; Labour-intensive goods (LIG) = 26, 6 except 62, 67, 68, 8 except 87; Capital-intensive goods (CIG) = 1, 35, 53, 55, 62, 67, 68, 793; Products of mobile Schumpeter-industries (MSI) = 51, 52, 58, 59, 75, 76, 77; Products of immobile Schumpeter-industries (ISI) = 54, 71, 72, 73, 74, 78, 791, 792, 87; the classification is based on STTC rev. 2 and was converted into STTC rev. 3. — **CAcal = ln[export_i / import_i]; \{\text{Exports} / \text{Imports}\}. |

Source: Eurostat (2004); Heitger et al. (1992 : 43–45); Klodt (1987: 29–37); own compilation and calculations.
Table A1: Results of Gravity Estimates of Baltic Exports 1995–2003a

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<tbody>
<tr>
<td>Constant (Fixed effects)</td>
<td>–</td>
<td>3.30</td>
<td>4.36</td>
<td>4.32</td>
<td>4.86</td>
<td>4.65</td>
<td>4.82</td>
<td>5.12</td>
<td>5.21</td>
</tr>
<tr>
<td>lnGDPj</td>
<td>0.59*** (17.03)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>lnPCIj</td>
<td>0.12** (1.99)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>lnDISTij</td>
<td>–0.89*** (–8.00)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>INTRABALT</td>
<td>4.90*** (14.22)</td>
<td>6.09***</td>
<td>5.16***</td>
<td>5.31***</td>
<td>4.82***</td>
<td>4.78***</td>
<td>4.66***</td>
<td>4.38***</td>
<td>4.41***</td>
</tr>
<tr>
<td>CIS</td>
<td>2.00*** (8.01)</td>
<td>4.07***</td>
<td>3.30***</td>
<td>2.97***</td>
<td>2.57***</td>
<td>1.74***</td>
<td>0.60</td>
<td>0.87</td>
<td>0.86</td>
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<tr>
<td>SCAND</td>
<td>2.87*** (7.90)</td>
<td>4.38***</td>
<td>2.59***</td>
<td>2.94***</td>
<td>2.79***</td>
<td>2.96***</td>
<td>2.91***</td>
<td>2.73***</td>
<td>2.69***</td>
</tr>
<tr>
<td>HUBPORT</td>
<td>2.69*** (12.05)</td>
<td>3.55***</td>
<td>2.61***</td>
<td>2.92***</td>
<td>2.33***</td>
<td>2.64***</td>
<td>2.70***</td>
<td>2.35***</td>
<td>2.52***</td>
</tr>
<tr>
<td>RESTEU</td>
<td>0.98*** (4.50)</td>
<td>1.26***</td>
<td>0.81***</td>
<td>1.03***</td>
<td>0.66</td>
<td>0.98***</td>
<td>1.10**</td>
<td>0.79**</td>
<td>1.13***</td>
</tr>
<tr>
<td>OTHEWE</td>
<td>0.94*** (3.97)</td>
<td>1.96***</td>
<td>0.87</td>
<td>0.50</td>
<td>0.42</td>
<td>0.96***</td>
<td>1.00**</td>
<td>0.59</td>
<td>1.00***</td>
</tr>
<tr>
<td>EFTA</td>
<td>1.33*** (4.81)</td>
<td>1.97***</td>
<td>1.05</td>
<td>1.38**</td>
<td>0.93</td>
<td>1.08**</td>
<td>1.62**</td>
<td>1.20**</td>
<td>1.32**</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.63</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>0.62</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>F-statistic</td>
<td>101.827***</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>24.911***</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Method: 
Pooled OLS

Pooled OLS with annually disaggregated contingency dummies

**Standard error White-corrected, t-values in brackets. — b1995–2003 for lnGDPj, lnPCIj, lnDISTij. adjusted R² and F-statistic. — aFixed effects for individual years (Model 2) see Table A1. — ***Significant at 1 per cent error level, **at 5 per cent, *at 10 per cent.**

Source: As Table 3; own calculations.
### Table A2: Results of Gravity Estimates of Baltic Exports 1995–2003 (Latvia)

<table>
<thead>
<tr>
<th>Method: Pooled OLS</th>
<th>Pooled OLS with annually disaggregated contiguity dummies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant (Fixed effects)</td>
<td>4.62*** (14.08)</td>
</tr>
<tr>
<td>lnGDP_j</td>
<td>0.57*** (16.95)</td>
</tr>
<tr>
<td>lnPCI_j</td>
<td>0.20*** (-0.32)</td>
</tr>
<tr>
<td>lnDST_j</td>
<td>-0.83*** (-8.53)</td>
</tr>
</tbody>
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<tbody>
<tr>
<td>HUBPORT</td>
<td>2.84*** (12.77)</td>
<td>2.97*** (5.89)</td>
<td>2.42*** (4.95)</td>
<td>2.57*** (5.45)</td>
<td>2.69*** (6.12)</td>
<td>3.11*** (7.34)</td>
<td>2.86*** (7.43)</td>
<td>2.94*** (6.52)</td>
<td>3.05*** (6.66)</td>
<td>2.96*** (6.95)</td>
</tr>
<tr>
<td>RESTEU</td>
<td>0.67*** (2.75)</td>
<td>0.83*** (1.39)</td>
<td>-0.17*** (-0.19)</td>
<td>-0.06*** (-0.31)</td>
<td>0.22*** (2.11)</td>
<td>1.03*** (1.18)</td>
<td>0.68*** (1.87)</td>
<td>0.94*** (1.96)</td>
<td>1.20*** (2.68)</td>
<td>1.39*** (2.81)</td>
</tr>
<tr>
<td>OTHEW</td>
<td>1.25*** (5.63)</td>
<td>1.59*** (2.47)</td>
<td>0.97*** (2.03)</td>
<td>1.06*** (2.68)</td>
<td>1.50*** (3.59)</td>
<td>1.50*** (1.75)</td>
<td>0.96*** (2.05)</td>
<td>1.04*** (2.90)</td>
<td>1.35*** (4.14)</td>
<td>1.38*** (4.66)</td>
</tr>
<tr>
<td>EFTA</td>
<td>1.06*** (3.38)</td>
<td>1.30*** (1.70)</td>
<td>0.53*** (0.76)</td>
<td>0.99*** (1.23)</td>
<td>0.86*** (1.04)</td>
<td>0.99*** (1.18)</td>
<td>0.83*** (0.94)</td>
<td>1.14*** (1.20)</td>
<td>1.39*** (1.45)</td>
<td>1.56*** (1.57)</td>
</tr>
</tbody>
</table>

| Adjusted R² | 0.64 | - | - | - | - | - | - | - | - | - |
| F-statistic | 99.84*** | - | - | - | - | - | 23.50*** | - | - | - |

| n (trading partners) | 157 | - | - | - | - | - | - | - | - | - |

*Standard error White-corrected, t-values in brackets. — b1995–2003 for lnGDP; lnPCI, lnDST, adjusted R² and F-statistic. — cFixed effects for individual years (Model 2) see Table A1. — ***Significant at 1 per cent error level, **at 5 per cent, *at 10 per cent.

Source: As Table 3; own calculations.

### Table A3: Results of Gravity Estimates of Baltic Exports 1995–2003 (Lithuania)

<table>
<thead>
<tr>
<th>Method: Pooled OLS</th>
<th>Pooled OLS with annually disaggregated contiguity dummies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant (Fixed effects)</td>
<td>5.94*** (20.75)</td>
</tr>
<tr>
<td>lnGDP</td>
<td>0.73*** (19.88)</td>
</tr>
<tr>
<td>lnPCI</td>
<td>-0.04 (-0.71)</td>
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<tr>
<td>lnDST</td>
<td>-0.75*** (-8.53)</td>
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</table>

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRABALT</td>
<td>3.20*** (15.88)</td>
<td>2.64*** (7.98)</td>
<td>3.67*** (7.29)</td>
<td>3.15*** (8.58)</td>
<td>2.67*** (8.18)</td>
<td>2.64*** (6.84)</td>
<td>3.23*** (5.29)</td>
<td>3.09*** (5.81)</td>
<td>3.03*** (7.46)</td>
<td>-</td>
</tr>
<tr>
<td>CIS</td>
<td>1.86*** (22.03)</td>
<td>4.41*** (14.55)</td>
<td>5.41*** (10.81)</td>
<td>4.11*** (11.25)</td>
<td>4.77*** (13.13)</td>
<td>4.17*** (13.13)</td>
<td>3.77*** (9.52)</td>
<td>3.63*** (8.31)</td>
<td>3.15*** (8.73)</td>
<td>-</td>
</tr>
<tr>
<td>SCAND</td>
<td>2.70*** (9.17)</td>
<td>2.42*** (3.63)</td>
<td>2.87*** (4.61)</td>
<td>2.09*** (2.89)</td>
<td>2.42*** (3.05)</td>
<td>2.42*** (4.90)</td>
<td>3.08*** (4.43)</td>
<td>3.05*** (5.96)</td>
<td>2.87*** (5.18)</td>
<td>2.65*** (4.02)</td>
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<td>HUBPORT</td>
<td>3.34*** (16.60)</td>
<td>3.10*** (8.33)</td>
<td>3.61*** (9.46)</td>
<td>2.93*** (8.29)</td>
<td>3.21*** (8.67)</td>
<td>3.53*** (11.01)</td>
<td>3.50*** (11.18)</td>
<td>3.59*** (10.52)</td>
<td>3.38*** (10.39)</td>
<td>3.21*** (11.37)</td>
</tr>
<tr>
<td>RESTEU</td>
<td>1.86*** (7.74)</td>
<td>1.96*** (2.38)</td>
<td>2.66*** (3.10)</td>
<td>1.72*** (3.09)</td>
<td>1.76*** (2.90)</td>
<td>2.02*** (3.36)</td>
<td>1.54*** (2.67)</td>
<td>1.53*** (3.02)</td>
<td>1.77*** (3.99)</td>
<td>1.95*** (4.52)</td>
</tr>
<tr>
<td>OTHEW</td>
<td>1.86*** (7.82)</td>
<td>1.62*** (2.30)</td>
<td>2.10*** (3.30)</td>
<td>1.75*** (3.77)</td>
<td>1.69*** (2.92)</td>
<td>2.07*** (4.03)</td>
<td>1.89*** (3.72)</td>
<td>1.60*** (3.29)</td>
<td>1.84*** (2.85)</td>
<td>2.24*** (4.47)</td>
</tr>
<tr>
<td>EFTA</td>
<td>1.94*** (5.93)</td>
<td>1.47*** (2.37)</td>
<td>1.60*** (1.94)</td>
<td>1.92*** (1.86)</td>
<td>2.30*** (2.22)</td>
<td>1.49*** (1.83)</td>
<td>1.94*** (2.41)</td>
<td>1.37*** (2.30)</td>
<td>1.96*** (3.07)</td>
<td>2.70*** (2.58)</td>
</tr>
</tbody>
</table>

| Adjusted R² | 0.71 | - | - | - | 0.71 | - | - | - | - | - |
| F-statistic | 139.76*** | - | - | - | 37.92*** | - | - | - | - | - |
| n (trading partners) | 154 | - | - | - | 32.855*** | - | - | - | - | - |

*Standard error White-corrected, t-values in brackets. — b1995–2003 for lnGDP, lnPCI, lnDST, adjusted R² and F-statistic. — cFixed effects for individual years (Model 2) see Table A1. — ***Significant at 1 per cent error level, **at 5 per cent, *at 10 per cent.

Source: As Table 3; own calculations.
Hooverism, Hyperstabilisation or Halfway-House? Describing Fiscal Policy in Central and Eastern European EU Members

Rasmus Kattai and John Lewis

Abstract This paper develops a simple framework for describing fiscal policy where policymakers attempt to minimise deviations in output and budget balance from target values. Optimal policy is given by minimising a quadratic loss function subject to a linear structure of the economy. This policy can be viewed as weighted average of two polar cases - the case where the budget deficit adjusts to eliminate any deviations from potential output (hyperstabilisation), and the case where taxes and spending are determined exclusively by some budgetary goal (hooverism). We find some evidence of stabilisation for Poland, Latvia and Estonia. There is no evidence for the Czech Republic, Lithuania, Slovakia and Slovenia, suggesting that fiscal policy was being used for other objectives. The best fit is for Estonia, suggesting that a strict fiscal policy environment may not be incompatible with stabilising fiscal policy.

Keywords: Fiscal policy, fiscal policy rules, new EU member states

JEL codes: E61, E62

1. Introduction

Whilst it is common to view monetary policy as a "Taylor Rule" (Taylor (1993) described in terms of the minimisation of a (typically quadratic) loss function, with terms capturing several objectives), fiscal policy is rarely viewed in the same way. However fiscal policy is typically utilised to pursue more than one objective in a similar way. For example governments may use fiscal policy to alter the rate of output, most typically to minimise the second order costs of fluctuations around some long-run equilibrium rate and in addition, fiscal policy may also be influenced by other considerations such as income distribution or by attempting to hit some kind of budgetary target.

It is widely recognised that such budgetary constraints may impede the government’s ability to stabilise the level of output, implying that when output is below trend, a trade-off exists between the goals of output stabilisation and budget balance (or fiscal consolidation). The existence of such a trade-off naturally begs the question as to what the preferences of the authorities are between the two goals.1

Economic theory offers the prospect of uncovering those preferences by analysing the choices of fiscal authorities. In particular, a popular method for describing the behaviour of monetary authorities, such as the sustainability of fiscal policies over the longer term, quantifying fiscal discipline and searching for possible structural breaks in behaviour. This approach has the advantage that fiscal policy is specified in terms of only two parameters, which is particularly important in cases such as Estonia, where there are relatively few observations available for empirical estimation.

Third, we provide a simple equation representing fiscal policy, which can be readily incorporated into a model. In such a setting, parameter values may be estimated, calibrated or imposed, allowing the possibility to use a full macro model to analyse changes in fiscal policy.

The paper is organised as follows: the basic derivation of the framework is presented in section 2, section 3 applies the framework to new EU Members in Central and Eastern Europe and estimates the parameters over the period 1996 - 2003. Lastly, conclusions are presented in section 4.

2. Deriving a Simple Fiscal Policy Rule

In what follows, we make no distinction between discretionary and automatic fiscal policy, rather the focus is on the combined effect on fiscal stance - as measured by the difference between expenditures and revenues. We assume that the total amount of government expenditure and revenues are exogenous variables, which can be selected by the fiscal authorities. This does not necessarily imply that the government has full (or in fact any) knowledge of shocks, before it acts in response to them. One could characterise the governments choice of taxes, benefits and other spending as equivalent to setting a kind of “Taylor rule” for fiscal policy - where the authorities, armed with knowledge about the behaviour of expenditures and revenues in response to cyclical trends, select the system which produces the desired (automatic) fiscal response to any given shock. The decision is made as to what system of automatic stabilisers to introduce, rather than of a discretionary choice having observed a shock. In this way, the government need not observe the shock before setting fiscal policy, since the operation of automatic stabilisers (the magnitude of fiscal authorities in a simple way which can be traced back to easily identifiable economic objectives. In addition, if parameters of the model have a ready economic interpretation, then standard econometric tests can be employed to answer questions about the stability of coefficients over time, and to detect structural breaks in fiscal policy regimes.

These three observations motivate this paper, which aims to provide a simple analytical framework to describe fiscal policy. In this paper we model fiscal policy as the solution to an optimal control problem where the government seeks to minimise a quadratic loss function in output and its budget deficit. Output stabilisation is typically included in the loss function for monetary policymakers to calculate policy rules, and under monetary union or a currency board, fiscal policy may well be the only major policy instrument open to governments to achieve this aim. Meanwhile, the level of debt and deficits affects the welfare of agents through its consequences for the intertemporal path of taxes and/or the probability of sovereign default.2

This paper makes several contributions to the literature on fiscal policy. First, it proposes a simple framework for analysing the conduct of fiscal authorities, which utilises a well-established methodology from the field of monetary policy. This allows us to describe fiscal policy in terms of parameters which have a clear economic interpretation, and which are grounded in optimising behaviour.

Second, the model offers a framework for testing a variety of hypotheses about the behaviour of fiscal authorities, such as the sustainability of fiscal policies over the longer term, quantifying fiscal discipline and searching for possible structural breaks in behaviour. This approach has the advantage that fiscal policy is specified in terms of only two parameters, which is particularly important in cases such as Estonia, where there are relatively few observations available for empirical estimation.

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2 Economist, Monetary and Economic Policy Department, De Nederlands Bank, J.M.Lewis@dnb.nl, Professor of Economics, Tallinn Technical University, jlewis@ttu.ee.

3 See Fatas and Mihov (2004) for an overview of the debate on the costs and benefits of balanced budget amendments in the US.

4 See Turini and in't Veld (2004) for example.

5 There is a growing literature which documents the effectiveness of fiscal policy to alter output. See Blanchard and Perotti (2002), Fatas and Mihov (2002), Mountford and Uhlig (2002) and Gali et al (2002).

6 See Alesina and Perotti (1996) for a summary of the arguments surrounding the costs of unrestricted fiscal policy.
of which is decided by the government) happens simultaneously. One may also add discretionary fiscal policy influences onto this framework. Either way, the key assumption here is that the government knows the budgetary consequences of any given tax and benefit system under any shock, and hence selects the system, which gives the optimal fiscal response, rather than having to observe the shock directly before acting.

We also assume that governments take into account any second round effects on revenues and spending of policy induced changes in output. The government (or other fiscal authority) has one fiscal instrument at its disposal - the budget deficit (or surplus) - to pursue two objectives: a budgetary one and an output stabilisation one.

Clearly this approach does not consider other objectives for which fiscal policy may be used - for instance to finance investment in public goods, or to re-distribute income. These omitted goals will only be problematic to the extent that they conflict with other goals. In the case of income redistribution for example, transferring money from one agent to another is budget neutral, so this aspect of fiscal policy is orthogonal to the budget deficit. Similarly, since we focus on the difference between taxes and spending, rather than their absolute value, our analysis is independent of the size of the public sector. However, our analysis does abstract from some potentially important considerations such as intergenerational equity, the need to borrow to invest in public infrastructure, or purely political factors.

Formally speaking, we may therefore write the government’s objective as the minimisation of the following quadratic loss function:

\[ \min_{D_t} L_t = \frac{1}{2} \delta (\bar{y}_t - y_t)^2 + \frac{1}{2} (1 - \delta) (D_t - \bar{D})^2 \]  

(1)

where \( y_t \) denotes output at time \( t \), \( \bar{y} \) denotes the potential output, \( D_t \) is the budget deficit, and \( \bar{D} \) denotes the budget target. In what follows, we assume that a budget deficit implies a negative policy serves to raise the interest rate or prices, then part of the stimulus will be choked off. On the other hand multiplier effects imply that output will increase by more than the initial stimulus.

We may now solve for the optimal fiscal policy. Since we have one choice variable, this is most easily done by substituting the constraint into the objective function and differentiating with respect to the choice variable. Substituting (2) into (1) and collecting terms yields:

\[ \min_{D_t} L_t = \frac{1}{2} \delta (\bar{y}_t - \lambda D_t)^2 + \frac{1}{2} (1 - \delta) (D_t - \bar{D})^2 \]  

(3)

Differentiating this function with respect to \( D_t \) and setting right hand side equal to zero allows us to solve for \( D_t \), the optimal fiscal policy:

\[ D_t^* = \frac{(1 - \delta) \bar{D}}{1 - \delta - \delta \lambda^2} + \frac{\delta \lambda \bar{y}_t}{1 - \delta - \delta \lambda^2} \]  

(4)

We find it helpful to view this fiscal policy equation as a weighted average of two polar cases, the first term on the right hand side in \( D \) captures the effect of the budget stabilisation objective; the second shows the effect of the output stabilisation objective. Such a representation gives a simple intuition of the governments actions and in addition, it allows us to relate our findings to earlier work on fiscal policy reaction functions for use in economic models.7

### 2.1. Hooverism

If \( \delta = 0 \), then fiscal policy is concerned exclusively with maintaining some budgetary objective, with no regard at all to the consequences for output. One possible for \( \bar{D} = 0 \), corresponding to stabilising the budget around zero, though it may take any value. We term this polar case of extreme emphasis on budget targets Hooverism.8

Thus, in each period:

\[ D_t^* = 0 \]  

(5)

In this setup, the balanced budget requirement is symmetric in the sense that neither surpluses nor deficits are permitted, or if \( \delta > 0 \), in the sense that budget surpluses are seen as equally “undesirable” as budget deficits.

### 2.2. Hyperstabilisation

The second case is where \( \delta = 1 \). In this instance the government sets fiscal policy to ensure that, in each and every period, output is at its long-run equilibrium level, with no concern for the budgetary implications of such a policy. We term this case Hyperstabilisation. Thus fiscal policy is given by:

\[ D_t^* = \frac{\delta \lambda \bar{y}_t}{1 - \delta + \delta \lambda^2} \]  

(6)

In calculating this measure we make a number of simplifying assumptions, which require some discussion. First, policy at a given point in time may affect the economy in the subsequent as well as current periods. For the purposes of this analysis, we consider only the same period effects.

---

1 For example, the specification of fiscal policy for the Eesti Pank’s macroeconomic model contained in Kattai (2004).

2 This phrase is borrowed from Stiglitz (2002), to denote a rigid pursuit of budgetary objectives regardless of the costs in terms of lost output.
Second, we define our counterfactual policy as the policy, which, if the government switched at that point to a regime of output stabilisation, would ensure the target was hit. Therefore by assuming that the government was not trying to stabilise output in previous periods, we can sidestep the issue that had the government pursued different policies in the past, the current values of consumption, investment and net exports would have been different.

2.3. Halfway-House

Fiscal policy is expressed as a weighted average of the two polar cases, where $0 < \delta < 1$ gives the relative strength of preferences. The higher the value of $\delta$, the greater the emphasis given towards stabilising output, the lower the value of $\delta$, the greater the emphasis given towards budgetary requirements.

We may also consider $D$ being a preference parameter to be uncovered. One possible target value is $D = 0$, this would embody the principle that budgets should balance over the cycle. However, in reality, it may well be argued that many governments cyclically adjusted, or long-run budget positions are not balanced. Accordingly, $D$ may be less than zero for a variety of reasons. Governments may simply be concerned with maintaining existing debt ratios, rather than the convergence towards zero, which is implied by a balanced budget. Or for reasons of myopia, indiscipline or other factors, governments may not seek to stabilise deficits around zero. A third option is that governments may wish to smooth the costs of one-off expenditures such as public investment over time, and will so finance these by borrowing rather than taxation.

Alternatively, there may be cases in which $D$ is positive. The most obvious is the case where the fiscal authorities are pursuing a debt reduction strategy, which would imply year on year budget surpluses. In any case, $D$ is a parameter, which can be estimated from the data.

2.4. Graphical Analysis

This approach can be simply demonstrated using graphical analysis. Figures 1(a) to 1(d) show the process of optimisation in deficit-output gap space. Our quadratic loss function will yield concentric indifference contours. Higher levels of utility correspond to progressively smaller ellipses, converging to some bliss point given by $(D, y)$.

Figure 1(a) shows the basic optimisation procedure. Assuming that there is no deficit bias, then the bliss point will be at the origin. In the absence of a shock, the possible combinations of output and deficits will be given by a line passing through the origin with slope $-1/\delta$. A shock to output of $y_t$ corresponds to a rightward shift of this line by $y_t$. The optimal fiscal policy is given by the smallest possible indifference contour that is compatible with the locus of deficit/output gap combinations and is obtained using the standard tangency conditions. This is shown by point $A$.

For any given shock, there is an optimal fiscal policy response. Given the objective function and the structural constraint giving the trade-off between output and deficit stability, we may obtain locus of these points, as shown in Figure 1(b). This line, in deficit-output gap space can be estimated empirically using observed values of deficits and output gaps.

Figure 1(c) shows the optimisation problem when there is a deficit bias. In this case, the locus of optimal points no longer passes through the origin, since the bliss point is no longer the origin. Thus by estimating this line, we may discover whether or not there is a budget deficit.

Logically speaking, since we can only estimate the locus of optimal points and not the indifference contours themselves, an observed locus of the form of Figure 1(c), could be due to an output bias, rather than a deficit bias. Figure 1(d), shows the same identical locus arising from an output bias. In this paper, output (as opposed to deficit) biases are ruled out by assumption, as the output target is fixed at zero. In reality this distinction may be largely unimportant, since a deficit bias may be motivated by a desire to increase output beyond its natural level. In the context of the model, nothing is changed by assuming an output as opposed to a deficit target bias.

2.5. Other objectives for fiscal policy

The R-squared of our regression measures how much of the observed variation in budget deficits can be explained by the explanatory variables - in this case the output gap. Accordingly, we can view the R-squared as indicating the extent to which stabilisation influences fiscal policy. A low R-squared value means that there must be some other objective or factor beyond our model, which is guiding influencing fiscal policy. Therefore, we must be clear that the behavioural parameter $\delta$ measures the relative preference between output and budgetary objectives, rather than being a measure of absolute preference for output stabilisation.

For example, we may find a high value for $\delta$ but a low R-squared. This would imply that whilst output stabilisation is important relative to budgetary objectives, it is clearly not very important relative to some other (unspecified) objectives.

3. Analysing Fiscal Policy Empirically

In this section, we estimate a fiscal policy function for central and Eastern Europe. We use national accounts data from 1996 - 2003 for the public sector budget deficit, and for GDP. Our data period is governed by the availability of statistics compiled using the ESA 95 convention. A measure of the long-run rate of output is obtained by applying the Hodrick-Prescott Filter to the GDP time series. For ease of computation, all variables in our dataset are expressed as ratios to potential output.

3.1. Estimation Procedure

Up to now our analysis has been derived in terms of a reaction function relating deficits to shocks. However, we cannot observe the shock directly, and so have to impute the shock in each period using equation (2).

To get round this problem, we may substitute (2)'s expression for $y_t$ into the optimal solution,
and rearrange. This yields:

$$ D_t' = \bar{D} + \frac{\delta}{1 - \delta} \lambda \hat{y}_t $$

(7)

This equation corresponds to the observed relationship between output gaps and budget deficits. We thus estimate the line, which corresponds to the locus of optimal points. Knowing the parameters, which describe this line, we may then uncover the preference parameters of the government. Specifically, we estimate the equation:

$$ D_t = \beta_0 + \beta_1 \hat{y}_t $$

(8)

We use two different estimation techniques. First 2SLS is used to avoid the problem of simultaneity. We instrument \( \hat{y}_t \) using the money supply, inventories, gross fixed capital formation and the first lag of the deficit ratio. On the other hand, as 2SLS is only consistent asymptotically and we deal with a small number of observations, OLS is also used in parallel.

$$ \bar{D} = \beta_0 $$

(9)

$$ \frac{\delta}{1 - \delta} \lambda = \beta_1 $$

(10)

$$ \delta = \frac{1}{1 + \frac{\lambda}{\beta_1}} $$

(11)

Preliminary analysis of the variables cannot reject the hypothesis of a unit root for both variables. However, the Augmented Dickey Fuller test has low power in small samples, so this may not be reliable.

As a further check, the residuals from the regression can be tested for autocorrelation, but none is found at conventional significance levels. This suggests that, even if there is in fact non-stationarity in the variables, our parameter estimates are still valid.

3.2. Results

Regression results using annual data are presented in Table 1. It reveals a marked contrast across the CEEC-8 countries. Estonia stands out as the only country for whom there is not statistically significant deficit bias. For the remainder of nations there is evidence that governments are not aiming for budgets to balance across the cycle. However, this does not mean that they are necessarily trying to stabilise output.

The Czech Republic, Lithuania and Latvia all show a deficit bias, but have no statistically significant stabilising element to fiscal policy - at least in so far as this approach captures it. If stabilisation were going on at all, it was dominated by other goals.

Poland and Estonia are the nations, which appears to have a stabilising element to fiscal policy. \( \delta \) is estimated to be 0.483 (0.477) for Estonia and 0.176 (0.328) for Poland, suggesting that the Estonian government places roughly equal weights on output and deficit stabilisation, whilst the Polish authorities place only one quarter weight on output stabilisation. What further differentiates the two is that there is marked budget bias of over 3% in the Polish case, but zero budget bias in Estonia.

Slovenia and Slovakia record the most problematic results - a negative value of \( \delta \) would indicate that the government valued destablising output. However, neither coefficient is significant, allowing us to suggest that the weight given to stabilisation is zero.

Table 1: Regression Results (Yearly Data)

<table>
<thead>
<tr>
<th>Country</th>
<th>Method</th>
<th>Period</th>
<th>( \bar{D} )</th>
<th>( \hat{p} )</th>
<th>( \hat{\beta}_1 )</th>
<th>( \hat{p} )</th>
<th>( \hat{\delta} )</th>
<th>( R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>CZ</td>
<td>2SLS</td>
<td>1996-2002</td>
<td>-4.74</td>
<td>0.001</td>
<td>0.411</td>
<td>0.386</td>
<td>0.291</td>
<td>0.144</td>
</tr>
<tr>
<td></td>
<td>OLS</td>
<td>1996-2002</td>
<td>-4.95</td>
<td>0.000</td>
<td>0.390</td>
<td>0.384</td>
<td>0.281</td>
<td>0.109</td>
</tr>
<tr>
<td>EE</td>
<td>2SLS</td>
<td>1996-2003</td>
<td>-0.88</td>
<td>0.142</td>
<td>1.056</td>
<td>0.013</td>
<td>0.483</td>
<td>0.758</td>
</tr>
<tr>
<td></td>
<td>OLS</td>
<td>1996-2003</td>
<td>-0.45</td>
<td>0.492</td>
<td>1.031</td>
<td>0.027</td>
<td>0.477</td>
<td>0.585</td>
</tr>
<tr>
<td>LT</td>
<td>2SLS</td>
<td>1996-2004</td>
<td>-1.93</td>
<td>0.005</td>
<td>0.992</td>
<td>0.770</td>
<td>0.084</td>
<td>0.090</td>
</tr>
<tr>
<td></td>
<td>OLS</td>
<td>1996-2004</td>
<td>-1.91</td>
<td>0.017</td>
<td>0.316</td>
<td>0.246</td>
<td>0.240</td>
<td>0.186</td>
</tr>
<tr>
<td>LV</td>
<td>2SLS</td>
<td>1994-2002</td>
<td>-2.15</td>
<td>0.015</td>
<td>0.650</td>
<td>0.372</td>
<td>0.394</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>OLS</td>
<td>1994-2002</td>
<td>-2.66</td>
<td>0.000</td>
<td>0.456</td>
<td>0.094</td>
<td>0.313</td>
<td>0.348</td>
</tr>
<tr>
<td>PL</td>
<td>2SLS</td>
<td>1995-2002</td>
<td>-2.92</td>
<td>0.000</td>
<td>0.213</td>
<td>0.071</td>
<td>0.176</td>
<td>0.509</td>
</tr>
<tr>
<td></td>
<td>OLS</td>
<td>1995-2002</td>
<td>-3.55</td>
<td>0.000</td>
<td>0.488</td>
<td>0.029</td>
<td>0.328</td>
<td>0.516</td>
</tr>
<tr>
<td>SK</td>
<td>2SLS</td>
<td>1995-2003</td>
<td>-6.73</td>
<td>0.000</td>
<td>-0.944</td>
<td>0.601</td>
<td>-16.857</td>
<td>0.284</td>
</tr>
<tr>
<td></td>
<td>OLS</td>
<td>1995-2003</td>
<td>-7.12</td>
<td>0.000</td>
<td>-2.292</td>
<td>0.015</td>
<td>1.774</td>
<td>0.595</td>
</tr>
<tr>
<td>SI</td>
<td>2SLS</td>
<td>1999-2003</td>
<td>-2.24</td>
<td>0.023</td>
<td>-0.079</td>
<td>0.886</td>
<td>-0.086</td>
<td>0.008</td>
</tr>
<tr>
<td></td>
<td>OLS</td>
<td>1999-2003</td>
<td>-2.14</td>
<td>0.000</td>
<td>-0.005</td>
<td>0.574</td>
<td>-0.005</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Notes: (1) Hungary excluded because only four data points existed. (2) Calculated under assumed value for \( \lambda \) of 1 for all countries except Estonia, where the value 1.13 is given by Eesti Pank’s macro model.1

For some countries in the sample, data also exists at the quarterly level. This has the clear advantage of quadrupling the number of observations, and so improves the quality of the inferences we can draw. However, this suffers from the drawback that it is calculated under the IMF’s accounting convention, as opposed to the ESA95 framework used for the annual regressions, and so is not directly comparable. The results are presented in Table 2.

Table 2: Regression Results (Quarterly Data)

<table>
<thead>
<tr>
<th>Country</th>
<th>Method</th>
<th>Period</th>
<th>( \bar{D} )</th>
<th>( \hat{p} )</th>
<th>( \hat{\beta}_1 )</th>
<th>( \hat{p} )</th>
<th>( \hat{\delta} )</th>
<th>( R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>CZ</td>
<td>2SLS</td>
<td>1995Q2-2003Q3</td>
<td>-1.361</td>
<td>0.010</td>
<td>0.127</td>
<td>0.698</td>
<td>0.113</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>OLS</td>
<td>1995Q2-2003Q3</td>
<td>-1.274</td>
<td>0.014</td>
<td>0.020</td>
<td>0.941</td>
<td>0.020</td>
<td>0.000</td>
</tr>
<tr>
<td>EE</td>
<td>2SLS</td>
<td>1994Q2-2003Q3</td>
<td>-1.233</td>
<td>0.006</td>
<td>1.093</td>
<td>0.003</td>
<td>0.522</td>
<td>0.262</td>
</tr>
<tr>
<td></td>
<td>OLS</td>
<td>1994Q2-2003Q3</td>
<td>-1.258</td>
<td>0.003</td>
<td>0.833</td>
<td>0.002</td>
<td>0.454</td>
<td>0.277</td>
</tr>
<tr>
<td>LV</td>
<td>2SLS</td>
<td>1996Q2-2003Q3</td>
<td>-1.979</td>
<td>0.000</td>
<td>1.172</td>
<td>0.016</td>
<td>0.540</td>
<td>0.285</td>
</tr>
<tr>
<td></td>
<td>OLS</td>
<td>1996Q2-2003Q3</td>
<td>-1.956</td>
<td>0.000</td>
<td>1.175</td>
<td>0.004</td>
<td>0.540</td>
<td>0.254</td>
</tr>
<tr>
<td>PL</td>
<td>2SLS</td>
<td>1995Q1-2003Q1</td>
<td>-3.406</td>
<td>0.000</td>
<td>-0.219</td>
<td>0.629</td>
<td>-0.208</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>OLS</td>
<td>1995Q1-2003Q1</td>
<td>-3.768</td>
<td>0.000</td>
<td>-0.157</td>
<td>0.575</td>
<td>-0.186</td>
<td>0.007</td>
</tr>
</tbody>
</table>

Notes: (1) Quarterly deficit and GDP data have been seasonally adjusted. (2) Lagged output gap included as an instrument. On the basis of these quarterly figures, there is still no observable cyclical pattern to the Czech or

1 This is an obvious source of weakness in uncovering the actual behavioural parameters. However, the basic regression results are independent of the value of \( \delta \) and are hence indicative of the extent to which cyclical considerations affect policy decisions.
Slovak budget deficits. In both cases the target budget deficit is negative, but smaller than that obtained from the annual data. However, as noted above, this could simply reflect definitional differences.

For both Latvia and Poland however, we find a cyclical pattern, suggesting that for both countries stabilisation is important - accounting for about one fourth of deficit variability. Comparing these figures with those obtained using annual data, we find a lower weight on output stabilisation in the objective function for both countries at the annual frequency. This is less likely to reflect definitional differences between the two measures, since the difference between the two measures is unlikely to vary with the cycle. This is an interesting result, which is difficult to explain. One explanation could be that the quarterly data captures the effects of automatic fiscal stabilisers more clearly, whereas inferences from annual data are clouded by fiscal policy being used for other matters. At the higher frequency, examining the within-year variation in fiscal policy we see stabilisation occurring more clearly.

**Conclusions**

This paper estimates a simple fiscal policy reaction function for the CEEC-8 countries over the period 1994 - 2003, where fiscal policy is concerning with minimising the weighted average of the deviations of output and deficits from target values.

For the Czech Republic, Lithuania, Slovakia and Slovenia the poor fit of the model suggests that fiscal policy was not used (or not used effectively) to stabilise output, suggesting other objectives must have predominated. It is beyond the scope of the paper to attempt to identify exactly what fiscal policy was being utilised for over the period. Our results could reflect a number of factors. It may be that our estimates of the natural rate of output are unreliable - particularly at a time of substantial structural reform; alternatively fiscal policy may have been used for political, distributional or structural goals, which are uncorrelated with the business cycles. Or it may reflect institutional features of the budget making process, which make it hard for governments to follow a co-ordinated strategy. 10

One possible explanation for the poor fit is that political factors such as electoral considerations, may distort fiscal policy. However, other work on the same dataset by Lewis (2005), which included a matrix of political variables failed to find any significant effects and thus controlling for political factors did yield any econometric improvement.

For Poland we find that fiscal policy is consistent with a significant weight given to output stabilisation in the government's objective function, but in these cases, the fit from the model is still relatively modest. Perhaps this is to be expected for a sample of countries undergoing profound structural changes, as one might expect that fiscal policy had other objectives than output stabilisation.

The best fit is for Estonia and Latvia. As part of the underpinnings of the currency board arrangement Estonia has a relatively strict fiscal framework, which gives very little scope for discretionary fiscal policy. Budgets presented to parliament must be balanced (or balanced if growth is at the trend rate), and subsequent revisions must be revenue neutral or revenue enhancing. Yet despite this relatively strict framework, we find that cyclical considerations can explain more fiscal activity in Estonia and Latvia than anywhere else. This suggests that the comparatively stringent requirements of the Estonian constitution, fiscal policy is able to perform a stabilising role.

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9For example procedures, which permit numerous amendments to initial budgets, or inability of central government to control local government expenditure, may render our approach of viewing fiscal policy as the outcome of a single maximisation problem inappropriate.

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**References**


Explanation of Economic Growth Differences in the CEE Countries: Importance of the BOP Constraint

Virmantas Kvedaras

Abstract: This paper presents a balance-of-payments (BOP) constrained growth analysis of the long-run growth process in the Central and Eastern European (CEE) countries during the recovery period of transition (1995-2004). The paper tests the BOP-constrained growth model, based on the specification of a dynamic import function, which describes the short-term and long-term import behaviour in a different way. McCombie and Thirlwall have implicitly argued for a similar specification of the import function in the analyses of this kind. Econometrically, the import function is formulated, in this article, as a conditional Error Correction Model (ECM). It is shown that even the basic BOP-constrained growth model captures well the disparity of growth rates of the gross domestic product (GDP) in the CEE countries. Furthermore, the use of this approach does not point to any ‘puzzles of the Baltic growth’ that were observed in the analysis by Campos and Kinoshita (2002) based on the supply side model which included the transition-specific variables.

Key words: economic growth, balance-of-payments constraint, Thirlwall’s law, import function, error correction model.

JEL codes: C15, C52, E12, F43, O11

1. Introduction

The rapid development of the CEE economies is pushing-up the economic growth of the whole European region. The lowest growth rates of GDP in the CEE countries in 2004 are comparable to the highest ones in the Western part of Europe - the ‘old’ European Union. The growth is, however, quite dispersed among the CEE countries, too. For instance, in 2004, Latvia boosted its GDP by 8.5 percent while the Czech Republic experienced ‘only’ about 4 percent economic growth.

The issue of economic growth in the CEE states attracted a sizable amount of the empirical research as they are among the most important countries in transition. Campos and Coricelli (2002) present an extensive survey of theoretical and empirical findings on economic growth in transition countries, including those of the CEE region. Some not referred to therein and more recent researches are rich as well: starting from more descriptive studies (see Sveijnar 2002; World Bank 2002), growth accounting exercises and analyses aimed at evaluating the future prospects of growth (Wagner and Hlouskova 2005; World Bank 2005) and convergence (Doyle et al. 2001; Amplatz 2003; Deliktas and Balciar 2005; Sohinger 2005), as well as running cross-sectional or panel growth equations (Dawson 2003; Mervar 2003; Tondl and Vukic 2003) and finishing with analyses focused more on the transition specific aspects of growth, like structural reforms, stabilization policies, and institutional framework (see Fisher and Sahay 2000; Pleskovic et al. 2002; Havylyshyn and van Rooden 2003).

As stressed in Havylyshyn (2001) and Wagner and Hlouskova (2005), the traditional factor inputs play no significant role as yet in explaining the growth in transition economies during the last decade. The usual way in empirical research of these countries is, therefore, to augment the traditional set of supply-side indices with additional ones measuring the strategy of privatization policy, sequencing economic reforms, institutional quality, set-up of the monetary system, and the financial development level, etc. However, even the transition specific factors augmented supply-side-based research is not always successful in explaining the empirical observations. For instance, Campos and Kinoshita (2002, p. 404) point out that ‘there seems to be a ‘Baltic puzzle’: although the former Soviet Republics Estonia, Latvia and Lithuania all had output contractions comparable to the CIS countries, their recovery was faster’.

This paper looks from a different point of view at the statistical evidence on growth in ten countries of the CEE region - eight new EU members (Estonia, Czech Republic, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia) and two other countries under accession (Bulgaria and Romania), named hereafter CEE10. It uses the demand-side approach and, namely, the balance-of-payments (BOP) constrained growth model (see Commendatore et al., 2003, for a recent overview of the historical development of the model), which stresses the importance of foreign demand and exports, is applied to explain the disparity of ten-year (1995-2004) average growth rates. Despite its simplicity the BOP constrained growth model was shown to be quite successful in explaining the growth rate differences in various developed and developing countries (see McCombie and Thirlwall 1994).

A small open economy in transition usually leans heavily on the imported (investment) goods. Since countries in transition are expected to face great productivity shocks due to restructuring etc., their needs for investment and foreign capital could be substantial. Therefore exports, being the only sustainable source of financing of the needed imports in the long run, play a crucial role in the economic development of a transition country. If international borrowing were not binding, this aspect of export importance would disappear. However, international institutions, e.g., the International Monetary Fund, are very concerned about the levels of the current account deficit and foreign debt. They would therefore send certain signals not only to an indebted country, but also to creditors and other potentially interested subjects, e.g., speculators. Fear of speculative attack consequences could force even those lenders to care about the ‘unacceptable thresholds’ that would not be interested much in them under other circumstances, e.g., because they believed in rationality and ‘honest’ optimality of the intertemporal smoothing of consumption of a borrower. Export revenue might become therefore a crucial binding variable for the growth of the transition economies.

Apart from these effects, under a growth promoting institutional framework, the (foreign) demand-led growth might induce large economies of scale and productivity gains in transition countries through the process of learning-by-doing and reallocation of resources from less to more productive sectors, making, as a consequence, the capacity constraint non-binding or, at least, the supply-side less important. As the CEE10 analysed are countries in transition, the demand-led BOP-constrained growth model could be expected to perform quite well in explaining their growth rate disparity.

Seemingly due to short data series, research on the performance of the model in predicting the growth rates of transition countries is rather scarce. There are few studies that use the BOP constrained growth principles for growth projections (Landesmann and Pöschl 1996; Hansen and Kvedaras 2004) and investigate the adequacy of the model in some separate countries (see, e.g., Beko 2003). Application of the approach to a broader set of countries in transition and the respective statistical analysis of the model fit seems to be absent though, and the first objective of the paper is to test the BOP-constrained growth model for the CEE10 with a dynamic import

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1 The period selected starts from 1995 because growth has returned to all the analysed countries after the initial recession (see Fisher et al. 1996) and in some countries the earlier data are not comparable because of crucial changes in the national accounting system.
function.

The second objective is to introduce a conditional error correction model for the test with the different short-term and long-term import behaviour. This objective emerged after reading the BOP model-related literature, which implicitly suggests that different economic factors might drive imports in the short run and in the long run. The related literature is reviewed in the following section.

2. The basic model of the BOP-constrained growth and its testing

Although the basic BOP-constrained growth model and the traditional methods used to test it are well known, we give a short overview of the relevant theory together with the respective references below in order to stress the points utilized later in developing a specific import function.

In the basic Post-Keynesian BOP-constrained growth model three equations are used to derive the long-run equilibrium growth rates of GDP (see McCombie and Thirlwall 1994, Ch.3). The first two structural equations determine the behaviour of imports and exports

\[ M = Y^* (P/P^*) x^0 \]
\[ X = P^{03} (P^3/P^*) x^1, \]

where \( M, P, P^*, X, \) and \( Y^* \) stand, respectively, for real imports, domestic and foreign prices, expressed in a common local country currency, real exports, and real domestic and foreign GDP; \( e \) is the natural logarithm base and \( m_0 \) and \( x_0 \) define the autonomous log-levels of imports and exports. The reaction of exports and imports to income and relative prices is defined by the respective constant, nonnegative and country specific elasticities \( \alpha, \beta, \delta, \gamma \) whose values depend crucially on the abundance of the resources in a country, specialization of a country in the international trade, home-produced product bias of domestic consumers, etc.

Given that the balance-of-payments constraint or, more exactly, the foreign trade constraint

\[ PX = P^3 M \]

is binding, the fixed structure of imports and exports in (1) and (2) determines the unique rate of growth of the domestic GDP \( \gamma^0 \)

\[ \gamma^0 = \alpha^1 \delta Y^* + \alpha^2 (1 - \beta - \gamma) (p - p^3), \]

which is consistent with the balance-of-payments constraint (3) for a given foreign demand growth rate \( \gamma^* \) and the rate of change in relative prices \( p - p^3 \). Hereafter the lower Latin alphabet letters with a sign “~~” above will denote the growth rates of the respective variables.

McCombie (1989, 1993) and Thirlwall (1997) argue that, at least in the long run, price effects are relatively unimportant due to oligopolistic pricing and such aspects of non-price competition as quality, reliability, after-sales service, effectiveness of distribution networks, etc. Therefore differences in income elasticity are considered to be the main reason for the long-run economic growth. Assuming that, in the long run, the growth of domestic and foreign prices is the same \( p^3 = p^0 \), (4) reduces to the long-run variant of the BOP-constrained growth equation

\[ \gamma^* = \alpha^1 \delta Y^* = \xi \alpha \]

where \( \gamma^* \) denotes the long-run BOP-constrained growth rates, and the right-hand side of equality follows from (2) due to the implication of \( p^3 = p^0 \) with \( \xi \) standing for the growth of exports. (5) is the standard Post-Keynesian BOP-constrained growth model applied to analyse the differences in the long-run economic growth of countries and is usually called as “Thirlwall’s law” or Harrod’s foreign trade multiplier equation.

Thirlwall’s law is a basic one and developed assuming that in the long run trade balance should hold. There are several other extensions of the basic model allowing for the prolonged deficits on the current account financed by foreign capital inflows, etc. (see the paper collection in McCombie and Thirlwall 2004). Nevertheless, based on empirical comparison of practical applications and calculations McCombie and Thirlwall (1997) conclude that a current account deficit of about 5 percents of GDP has little effect in raising the BOP consistent equilibrium growth rates. In addition, the simplest Thirlwall law successfully explained the disparities of the GDP growth rates in a range of various developing and emerging countries, including those having substantial and prolonged deficits on the current accounts (see Bairam and Dempster 1991; Hussain 1999; Perraton 2003). Therefore (5) is used to further explain the long-run growth differences among the CEE10, without complicating the model. If it failed, then some more elaborated alternatives could be considered.

Given that the supply side is not binding and (5) represents the (foreign) demand constrained long-run growth relationship, the functioning of such an economy is obvious. As any growth rate of GDP induces specific import needs of a certain country through (1) and BOP constraint (3) binds, the growth rates above those consistent with the balance-of-payments constraint, i.e. \( \gamma^0 > \gamma^* \), cannot be sustained due to the shortage of foreign currency whose supply is restricted by the exogenous foreign demand-determined export revenue. In the short-run, there could be certain growth accelerations \( \gamma^0 > \gamma^* \), e.g., due to currency depreciation-induced increases in export revenue, but, in the long-run, the growth rates of GDP will return to that defined by (5).

There are a couple of approaches used to evaluate the performance of the BOP-constrained growth model in explaining the empirical growth rates (see McCombie 1997 for a survey). The first one, originally suggested in McGregor and Swales (1985, 1986) and modified by McCombie (1989), uses the cross-sectional regression, estimated by the Ordinary Least Squares (OLS), of model predicted and actual growth rates

\[ \gamma^* = \theta_0 + \theta_1 \gamma_i + \xi_i \]

Here, for every country indexed by \( i \), \( \gamma_i \) and \( \gamma^*_i \) denote actual and (5) predicted growth rates, \( \xi_i \) is a regression error term. To evaluate whether the BOP model predictions are consistent with the actual data in the set of countries analysed, the joint null hypothesis \( H_0: \theta_0 = 0 \) and \( \theta_1 = 1 \) is tested with the alternative that any of these conditions fail.

The second formal alternative, suggested in McCombie (1989), allows testing (5) for an individual country in the time series framework. The idea is as follows. Under the null hypothesis that the BOP model holds, one could get the implied value of income elasticity of imports (\( \alpha \)) by dividing the actual long-run export growth rates by the respective long-run GDP growth rates, i.e., by rearranging equation (5). If the BOP model did hold, then the implied elasticity coefficient and the one in the import equation (1) would be coincidental. Since \( \alpha \) in (1) is not known and should be estimated, the validity of the BOP-constrained growth model is tested statistically by analysing the null hypothesis

\[ H_0: \alpha = \alpha \]

against the two-sided alternative \( H_1: \alpha \neq \alpha \). In order to obtain the long-run estimates of \( \alpha \) in the time series framework, Bairam (1993) and Hieke (1997), among others, recommend using the log-level specification of import equation (1), if it represents the cointegrating relationship, instead of basing the estimation on the growth rates that capture the short-term effects. In this study, however, a different model is utilized, and, before turning to the hypotheses testing, the particular import equation employed is defined, first, and the methodology applied to test the cointegration is described.
3. Analytical framework

3.1. The adapted import equation

As the discussion above reveals, estimation of the import function is needed in order to obtain the long-run parameter of income elasticity of imports for testing the basic model (5). The usual way in the current BOP-constrained growth analysis is estimating, in one or another way, the log-level regression analogue of (1) assuming thereafter that the price effects cancel-out. We do not follow this strategy, but listen to the prediction of McCombie and Thrirlwall that, at least in the longer run, the income effect on imports dominates. The prediction would separate estimating the short- and long-run parts in the empirical import function, where the long-run relationship would cover only imports and income, and the short-run term would allow for richer economic effects. In this section we present the import function adapted correspondingly.

For any time moment $t$, denote the logarithm of relative prices $z_{t}$, $p_{t}$, $p_{t-1}$, $z_{t}$. Given that all the analysed variables are integrated of order one and there is only one cointegrating vector, the import function, implicitly suggested by McCombie and Thrirlwall, would take a form of the (conditional) ECM:

$$\Delta m_{t} = \theta m_{t-1} + \eta \Delta y_{t} + v_{t}$$

$$u_{t} = m_{t} - m_{0} - \epsilon_{t}$$

where $\Delta$ denotes a difference operator of lag $k>0$, e.g., $\Delta m_{t} = m_{t} - m_{t-k}$; $\epsilon_{t}$ is a (weak) white noise (WN) with the usual properties; and all the lower letters will represent, hereafter, the log-levels of the earlier defined levels of variables denoted by the respective capital letters. Here $u_{t}$ represents deviation from the long-term relationship and $\eta \Delta y_{t}$ and $\lambda \Delta z_{t}$ define the short-term effects on the imports of changes in income and relative prices.

Model (8) differs from the conventional ECM because the term $v_{t}$ is not necessarily a WN that is not correlated with explanatory variables - due to the potential autocorrelation of $\Delta z_{t}$ and a possible correlation of $\Delta z_{t}$ with $\Delta y_{t}$ or $u_{t-k}$. In such cases, the standard estimation-inference of the model is not efficient or even consistent. Therefore we deal with an explicit form of (8) by including $\Delta z_{t}$ into the model, which, along with the recommendations in Banerjee et al. (1998), is extended with additional dynamic terms while the error correction term is expanded:

$$\phi(L)\Delta m_{t} = K + \theta m_{t-k} - M y_{t-k} + \eta \Delta y_{t} + \lambda \Delta z_{t} + \epsilon_{t}, \quad k=0, \cdots, K$$

(9)

where, for some $k=0$, lag polynomials $\phi(L) = \Sigma_{i=-k}^{k} \phi_{i} L^{i}$, $\eta(L) = \Sigma_{i=-\infty}^{0} \eta_{i} L^{i}$, $\lambda(L) = \Sigma_{i=-\infty}^{0} \lambda_{i} L^{i}$.  

3.2. Empirical specification of the import function and cointegration testing

In specifying an empirical analogue of (9), $k=4$ is selected because, after some preliminary investigation, it produced the best results in terms of general empirical adequacy of the model and has a direct interpretation as the exponential yearly rate of growth, when quarterly data are used. The error correction related terms $\kappa$, $\theta_{i}$, $\mu_{i}$ and $\gamma_{k}$, are included in advance. However, owing to the very limited number of observations, only significant lag polynomial terms were selected out of $\{\phi_{i} \Delta m_{t-j} \} = \{\eta \Delta y_{t-j} \} = \{\lambda \Delta z_{t-j} \}$, using the usual general-to-specific model reduction approach (see, e.g., Charemza and Deadman 1997, Ch. 4). Although the error-correction related terms were pre-included during the empirical specification of (9), $\theta=0$ is required in order to obtain a sensible estimate of $\alpha$, meaning that import and income variables are cointegrated, i.e., $\exists \alpha$ such that $(m_{t-1}, \cdots, \Delta z_{t})$. Given the OLS-estimated empirical analogue of (9), one could apply the ECM cointegration test by using the t-statistic to examine the null of no cointegration

$$H_{0}: \theta = 0$$

(10)

against the alternative of the cointegrated series $(m_{t-1}, \cdots, \Delta z_{t})$. Ericsson and MacKinnon's (2002) finite sample critical values could be used that are simulated from the response surface estimates. However, they are generated under the assumptions that the model's lag order is one, the error term is normally distributed, and the random walk process describes the exogenous variables. In our case, the stationary covariates might create further complications similar to those reported in Seo (2004). Other sources of the ECM-test finite sample critical values are scarce and produced using some specific data generating processes, too (see references provided in Ericsson and MacKinnon 2002). Therefore, along with the above-mentioned critical values, we employ the bootstrap inference that is flexible and shows superior size properties over the asymptotic approximations (see Arranz and Escribano 2005 for evidence on the good performance of bootstrapping the cointegration test in a single-equation ECM).

There are several alternative ways to design a bootstrap of an ECM type cointegration test. For instance, Mantalos and Shukur (1998) use the approach, where the ECM is estimated, its residuals are re-sampled, and the bootstrap is performed with the same parameter estimates, just by removing the error correction term from already estimated ECM, i.e., by imposing $\theta=0$ and $\gamma_{k}=0$. The problem with this approach is that the parameter estimates are obtained under the alternative of cointegrated variables and the variance of the bootstrapped residuals is, in fact, smaller than those under the null. Based on Giersbergen and Kiviet (1994) and Li and Maddala (1996, 1997), it is better to use an alternative approach that resamples the residuals from the restricted ECM equation, where the error correction term is omitted before estimation, i.e., $\theta=0$ and $\gamma_{k}=0$ are imposed in advance. Other than the former approach, this resampling is performed under the null. Arranz and Escribano's (2005) simulations show that this approach has a much better power performance compared to the above-mentioned scheme, and, in addition, it is robust to a number of structural (co-)brakes. Consequently, the restricted ECM bootstrapping is performed to test for cointegration (details on the design of the employed residual resampling bootstrap are presented in Appendix D Part 1).

3.3. Testing the parameter restrictions in the ECM

Given that (9) is an ECM, i.e., $\theta=0$, the parameter $\alpha$ represents the long-run income elasticity of imports. This allows estimating $\alpha$ sensibly and testing the respective hypothesis in (7), i.e.,

$\alpha = \alpha_{0}$  

The 5% significance level was set as a benchmark for selecting the lag polynomial terms. In addition, in order to have sufficient degrees of freedom, the maximum number of parameters allowed in an equation was set to 6. Therefore, some variables with insignificantly different parameters were contracted.

1 In the case of co-breaks in differences and not in levels, the usual bootstrap ECM would render no power though.

2 In the case of co-breaks in differences and not in levels, the usual bootstrap ECM would render no power though.

3 Appendix A presents formal results on integration order testing obtained using the ADT test. Except a few cases, variables under investigation are found to be I(1). Those few deviations could arise due to the well-known problems of using unit root tests in practical applications (see, e.g., Maddala and Kim 1998). In our case, some inferences were sensitive to using different information criteria for augmentation order selection and the allowed maximum order of autoregressive terms, too. As the I(1) property dominates clearly and because it would be difficult to accept that levels of the analysed economic variables could be driven by a deterministic trend, in the following we assume that all variables are I(1).

4 In the case of Bulgarian model, the CUSUM test pointed clearly to instability of parameters around the end of 1996 and beginning of 1997 that, most probably, is due to establishment of the currency board arrangement at that time. To account for this structural change, model (9), in the Bulgarian case, was extended with a dummy variable $d_{i}$ that takes value 1 before the first quarter of 1997, and becomes 0 thereafter.

5 See Gerrard and Godfrey (1998) for problems on diagnostic checks for single-equation error-correction models.
applying the McCombie testing procedure. Based on Pesaran and Shin (1998) results and leaning on the equivalence of the OLS estimates of the cointegrating vector parameters in the respective ECM and autoregressive distributed lag models, Hassler and Wolters (2005) show the limiting normality of the estimated cointegrating vector in the ECM under exogeneity and a single cointegrating vector. Therefore the standard procedures could be applied to obtain the asymptotically valid inferences. However, asymptotic results might be misleading in small samples, so we lean more on the bootstrap inference in this case as well.

Although Li and Maddala (1996, 1997) favour the direct bootstrapping of the cointegrating regressions, recently Herwartz and Neumann (2005) have also demonstrated the good performance of bootstrapping the hypothesis tests in the single-equation ECM. We follow their approach with the difference that a simple residual bootstrap is applied instead of the wild one, because, in our case, there is no need to account for the (conditional) heteroscedasticity (the details on the bootstrap procedure are provided in Appendix D Part 2).

Hereafter we need to be more precise on how the BOP model implied value \( \tilde{\alpha} \) is calculated and how, using the ECM, hypothesis (7) is tested. Let \( \tilde{\gamma}_2 = \Delta \tilde{y}_t \) and \( \tilde{\gamma}_1 = \Delta \tilde{y}_t \). We define the BOP-constrained model implied value of income elasticity of imports \( \alpha \) as follows:

\[
\tilde{\alpha} = \frac{\hat{x} - \tilde{y}_t}{\Delta \tilde{y}_t},
\]

where \( \hat{x} = T \Sigma \hat{x}_t \) and \( \tilde{y}_t = T \Sigma \tilde{y}_t \), and summation runs over time \( t \) for the whole sample analysed. The estimate of \( \alpha \) could be obtained implicitly from the OLS estimates \( \hat{\mu} \) and \( \hat{\theta} \) in (9) or, alternatively, the explicit ECM

\[
\phi(I) \Delta \tilde{m}_t = \kappa + \theta(m_{t-1} - \alpha \hat{y}_{t-1}) + \eta(I) \Delta \hat{y}_t + \lambda(I) \Delta \hat{y}_t + \epsilon_t
\]

(12) could be estimated, using the Nonlinear Least Squares (NLS) that straightforwardly provides the standard error of \( \hat{\alpha} \) and, respectively, the t-statistic \( \frac{\hat{\alpha} - \alpha}{\text{s.e.}(\hat{\alpha})} \) could be defined for testing (7). Thereafter, the standard or bootstrap-based inferences could be derived.

4. Data and the results

4.1 Data used

Due to the small number of observations the econometric modelling is based on the quarterly data\(^a\). Except for the artificially created dummy variable used in the case of Bulgaria, all the other quarterly data needed are downloaded from the Eurostat database\(^b\) and are seasonally adjusted. Real exports, imports, and GDP are measured in the 1995-year prices and are direct aggregate measures provided in the National Accounts at Eurostat\(^c\). All the flow variables are expressed in millions of the respective national currency. The implicit price deflators of GDP and imports are indices defined by the ratios of GDP and imports, expressed in the current and constant prices.

\(^a\) Usage of various growth period definitions or different filtering schemes to extract the long-run growth rates \( \hat{\alpha} \) and \( \hat{\eta}_t \) produces different \( \hat{\alpha} \) estimates. This is one of the ambiguities of McCombie’s testing approach, especially when higher than yearly frequency data are used. We apply the most straightforward averaging approach that, with quarterly data and \( k=4 \), approximates the average annual rate of growth. See Hicke (1997) and Atesoglu (1997) for some other approaches and the discussion on that.

\(^b\) It should be noted that, initially, a preliminary analysis was made using yearly data and very similar results have been obtained. This inspired further research using the quarterly data that increased the number of observations and allowed for a richer econometric analysis.

\(^c\) Free access is provided at http://epp.eurostat.ec.eu.int; and the particular data set used for estimation and inference is available at http://vk.ten.lt as is the EViews file with the estimated models.

The estimated long-run income elasticity of imports ranges from 1.23 in Latvia to 4.45 in the Czech Republic. The obtained estimates are comparable to those reported in the previous literature dealing with the BOP-constrained growth in the other developing and fast growing countries. For instance, Bairam and Dempster (1991) obtained income elasticity of demand for imports that ranges from 1 in India and Sri Lanka to 4.1 in Turkey with the other cases in-between: 1.9 in Thailand, 2.4 in Philippines, 2.7 in Indonesia, 3.6 in Singapore, etc. Despite the established similarity and that our aim is to explain growth experience in the past, it should be noted that such high elasticity values could be period specific and might not be likely to prevail in the far future\(^d\). A part of high import sensitivity to changes in income in the analysed period might be caused by a surge in imported investments needed to restructure economies during the transition. As intensiveness of restructuring will decrease, at least, a partial reduction in income elasticity of imports could be expected, too. This would be also consistent with a general observation made by Bairam (1997) that income elasticity of imports might depend on and vary

---

\(^d\) The yearly growth rates provided therein were used to get the respective estimates of the levels.

The relative prices of imports are defined as a ratio of the deflator of GDP to the implicit imports deflator. Although, for individual countries, the available data sample varies, in most cases it covers the full range from the first quarter of 1995 to the fourth quarter of 2004 with an extreme exception of the Romanian case, where the available data period covers, for real exports and imports, only the 1991L-2004.1 quarter period (see Appendix A). As the data on nominal variables were available from the Eurostat as well as yearly real data for the years 1997 and 1998 from the Romania’s National Institute of Statistics\(^e\), we extrapolated the real quarterly data, utilising the relationship between the nominal and real data in the latter period.

The following sections summarize the modelling results obtained by implementing the above-defined procedures. The detailed results of each step of econometric analysis are contained in Appendices from A to C. The variable integration order testing results are presented in Appendix A. The empirical counterparts of the estimated import function (11) and the respective ECM cointegration test \( t^* \) values together with the standard critical and bootstrap \( p \)-values are reported in Appendix B. Appendix C presents the more detailed information on the results of the BOP model testing procedures.

4.2 The estimated import functions

The OLS-based empirical analogues of the import equation for each country are presented in Table 1 in the form of (12). The standard errors are provided below each parameter estimate in brackets and the coefficient of determination is placed next to the equation (other details on the empirical adequacy of equations are contained in Appendix B). The income elasticity of imports parameter is bold-faced. In all cases imports and income are cointegrated (see Appendix B) and, respectively, the import equations presented above are consistent with the ECM form. Moreover, in many cases only the income variable is sufficient to obtain a statistically adequate model of the empirical data, i.e., the relative prices were insignificant even in the short-run part of the ECM formed. Out of four cases where they were relevant, the acceleration of relative prices was more important rather than the level of relative prices. All this corroborates McCombie and Thirlwall’s prediction of the importance of income as a determinant of imports, at least, in the long-run\(^f\).

The yearly growth rates provided therein were used to get the respective estimates of the levels.

It should be noted, however, that these findings do not contradict the hypothesis that prices and income could have another nonstationary common path, i.e., the system comprising imports, income, and relative prices could have two cointegrating vectors. We are not able to test this hypothesis in a general-to-specific modelling framework based on the vector error correction model due to the small number of observations. However, running the respective single-equation ECM of imports, where only prices are allowed to enter the long-run relationship, was successful only in the cases of Estonia and Hungary. In the case of Poland the conclusion is ambiguous.

For instance, the value of 4.45 in the Czech Republic means that imports to GDP would increase here about eleven times when income doubles.

\(^e\) The yearly growth rates provided therein were used to get the respective estimates of the levels.

\(^f\) It should be noted, however, that these findings do not contradict the hypothesis that prices and income could have another nonstationary common path, i.e., the system comprising imports, income, and relative prices could have two cointegrating vectors. We are not able to test this hypothesis in a general-to-specific modelling framework based on the vector error correction model due to the small number of observations. However, running the respective single-equation ECM of imports, where only prices are allowed to enter the long-run relationship, was successful only in the cases of Estonia and Hungary. In the case of Poland the conclusion is ambiguous.

\(^f\) For instance, the value of 4.45 in the Czech Republic means that imports to GDP would increase here about eleven times when income doubles.
Table 1

<table>
<thead>
<tr>
<th>Country</th>
<th>Import function</th>
<th>Coefficient of determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulgaria</td>
<td>( \Delta m_t = 6.9 - 0.74(m_{4t} - 2.7y_{5t}) + 0.96(\Delta y_{5t} + \Delta y_{2t}) + 0.26 \Delta m_t - 0.26d_t + \hat{e}_t )</td>
<td>0.86</td>
</tr>
<tr>
<td></td>
<td>(1.37) (0.12) (0.12) (0.04) (0.05)</td>
<td></td>
</tr>
<tr>
<td>Czech Rep.</td>
<td>( \Delta m_t = 12.32 - 0.28(m_{4t} - 4.45y_{5t}) + 1.54 \Delta y_{5t} + 0.45 \Delta m_t - \hat{e}_t )</td>
<td>0.60</td>
</tr>
<tr>
<td></td>
<td>(4.3) (0.09) (0.54) (0.42) (0.13)</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>( \Delta m_t = -3.26 - 0.61(m_{4t} - 1.6y_{5t}) + 1.01(\Delta y_{5t} - \Delta y_{2t}) + 0.47 \Delta m_t + \hat{e}_t )</td>
<td>0.95</td>
</tr>
<tr>
<td></td>
<td>(0.72) (0.09) (0.07) (0.12) (0.05)</td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>( \Delta m_t = -12.85 - 0.47(m_{4t} - 2.87y_{5t}) + 2.46 \Delta y_{5t} + 0.44 \Delta m_t + \hat{e}_t )</td>
<td>0.82</td>
</tr>
<tr>
<td></td>
<td>(3.29) (0.14) (0.14) (0.06) (0.11)</td>
<td></td>
</tr>
<tr>
<td>Latvia</td>
<td>( \Delta m_t = -2.22 - 2.06(m_{4t} - 1.23y_{5t}) + 1.48 \Delta y_{5t} + 0.39 \Delta d_t + \hat{e}_t )</td>
<td>0.63</td>
</tr>
<tr>
<td></td>
<td>(0.48) (0.11) (0.05) (0.38) (0.16)</td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td>( \Delta m_t = 5.67 - 0.98(m_{4t} - 1.61y_{5t}) + 2.28 \Delta y_{5t} + 0.45 \Delta m_t + \hat{e}_t )</td>
<td>0.90</td>
</tr>
<tr>
<td></td>
<td>(1.09) (0.12) (0.08) (0.31) (0.15)</td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>( \Delta m_t = -15.79 - 0.9(m_{4t} - 2.43y_{5t}) + 2.74 \Delta y_{5t} + \hat{e}_t )</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>(3.36) (0.12) (0.17) (0.53)</td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td>( \Delta m_t = -14.85 - 0.44(m_{4t} - 2.99y_{5t}) + 1.73 \Delta y_{5t} + 0.64 \Delta d_t + 0.74 \Delta m_t + \hat{e}_t )</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td>(7.85) (0.14) (0.67) (0.61) (0.1)</td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>( \Delta m_t = -19.31 - 1.15(m_{4t} - 2.36y_{5t}) + 1.94 \Delta y_{5t} + \hat{e}_t )</td>
<td>0.71</td>
</tr>
<tr>
<td></td>
<td>(3.45) (0.19) (0.08) (0.53)</td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td>( \Delta m_t = -13.67 - 1.07(m_{4t} - 1.91y_{5t}) + 2.63 \Delta y_{5t} + 0.22 \Delta m_t + \hat{e}_t )</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td>(1.83) (0.15) (0.04) (0.3) (0.07)</td>
<td></td>
</tr>
</tbody>
</table>

4.3 Fit of Thirlwall’s law

The main results of the BOP-constrained growth model-adequacy analysis are collected in Figure 1 and Table 2. Figure 1 compares Thirlwall's law (5) predicted average growth rates with the actual ones:

\[ y_{\text{predicted}} = \left( T - 4 \right)^{-1} \sum_{t=5}^{T} \Delta y_t, \]

where \( y_t \) denotes the logarithm of the quarterly GDP in period \( t \), and the BOP model predicted growth rates are calculated accordingly to

\[ y^*_{\text{predicted}} = \left( T - 4 \right)^{-1} \sum_{t=5}^{T} \Delta y_t / \alpha \]

using the logarithm of exports (\( \Delta y_t \)) and the estimate of income elasticity of imports \( \alpha \).

Notes: In the figure on the left, countries are ranked according to the actual rates of growth: starting from the forerunners on the left side and finishing with the most slowly growing on the right. Abbreviations are as follows: BG - Bulgaria, CZ - Czech Republic, EE - Estonia, HU - Hungary, LT - Lithuania, LV - Latvia, PL - Poland, RO - Romania, SI - Slovenia, and SK - Slovakia.

First of all, from the figure on the left a close fit could be noticed, formally the joint null hypothesis \( H_0: \theta_0 = 0 \) and \( \theta_1 = 1 \) in (6) cannot be rejected (see Appendix C Part 1), and it is evident that the BOP model leaves no place for Campos and Kinoshita’s ‘puzzle of the Baltic states’. In addition, three clusters of the countries could be identified: those growing most slowly (Bulgaria and Czech Republic), the average performers (Hungary, Poland, Romania, Slovakia, and Slovenia), and the top growers (Estonia, Latvia, and Lithuania). As could be noticed from the figure on the right, the higher the average economic growth rates, the more precise predictions of the BOP-constrained growth model are: the thin line defines the ideal model fit case, and the thick one represents the fitted cross-sectional linear regression function. This corroborates the intuition that the higher the growth rates, the more relevant the BOP constraint becomes.

Table 2, besides providing the data on the predicted and actual average growth rates, reveals the cases where the BOP-constrained growth model is statistically significantly rejected using McCombie’s approach.

As could be seen, only in the Bulgarian and Hungarian cases, the estimated income elasticity of imports \( \alpha \) differs significantly from that implied by the BOP-constrained growth model (\( \alpha \)). The average GDP growth rates in the other countries are consistent with the BOP-constrained growth approach. However, the Slovenian estimate of income elasticity of imports is on the verge of being significantly different from the BOP-constrained growth model-implied value.

5. Conclusions

The BOP constraint has played an important role for the economic development of the most of the CEE10 countries during the last decade (1995-2004). Even the basic BOP-constrained-growth model - Thirlwall’s law - explains well the disparity of the average growth rates. The predictions are relatively more precise in those countries that grew faster. Usage of this approach does not point to any ‘puzzles of the Baltic growth’ that were observed applying the transition-specific variable augmented supply side approach as in Campos and Kinoshita (2002).

Apart from showing the potential importance of the BOP model and importance of the demand-
side policy, at least in some countries, the analysis made points to the value of the structural policy: the top-three performers have the lowest income elasticity of imports, while the four growing most slowly have the highest one. It seems therefore that the structural policy could be of importance. To be more specific, among the analysed CEE10 countries, the one extreme is Slovenia, where the average growth of exports was lowest, and the export promotion policy seems to be of great importance here. The other extreme is the Czech Republic with a very high income elasticity of imports, therefore the structural policy oriented towards reducing it, could, probably, promote the growth there.

Nevertheless, it does not seem that currently the structural policy has undergone significant changes in any country, because, as noted in Bairam and Ng (2001), a successful economic policy oriented towards affecting the income elasticity of imports would make the income elasticity parameter time varying. However, with the exception of the Bulgarian case, we have not detected a significant parameter instability of the import model in any analysed country. Even the identified structural break in the Bulgarian case is linked more to general changes of the institutional framework - the establishment of the currency board arrangement - rather than to the structural policy as such.

### Table 2

**Calculation of Implications of the Thirwall Law**

<table>
<thead>
<tr>
<th>Country</th>
<th>Average growth of exports in 1995-2004, %</th>
<th>Income elasticity of imports</th>
<th>BOP model implied income elasticity</th>
<th>Long-run GDP growth rate, %</th>
<th>Actual average annual GDP growth rate, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latvia</td>
<td>7.3</td>
<td>1.2</td>
<td>1.2</td>
<td>5.9</td>
<td>6.2</td>
</tr>
<tr>
<td>Estonia</td>
<td>9.6</td>
<td>1.6</td>
<td>1.7</td>
<td>6.1</td>
<td>5.7</td>
</tr>
<tr>
<td>Lithuania</td>
<td>8.7</td>
<td>1.6</td>
<td>1.6</td>
<td>5.4</td>
<td>5.4</td>
</tr>
<tr>
<td>Poland</td>
<td>10.3</td>
<td>2.4</td>
<td>2.3</td>
<td>4.2</td>
<td>4.0</td>
</tr>
<tr>
<td>Slovakia</td>
<td>5.7</td>
<td>2.4</td>
<td>2.4</td>
<td>4.1</td>
<td>4.0</td>
</tr>
<tr>
<td>Slovenia</td>
<td>6.9</td>
<td>1.9</td>
<td>1.8</td>
<td>3.6</td>
<td>3.8</td>
</tr>
<tr>
<td>Hungary</td>
<td>12.5</td>
<td>2.9</td>
<td>3.3</td>
<td>4.3</td>
<td>3.7</td>
</tr>
<tr>
<td>Romania</td>
<td>10.8</td>
<td>3.0</td>
<td>3.4</td>
<td>3.6</td>
<td>3.2</td>
</tr>
<tr>
<td>Czech Rep.</td>
<td>9.2</td>
<td>4.4</td>
<td>3.6</td>
<td>2.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>7.1</td>
<td>2.7</td>
<td>4.5</td>
<td>2.6</td>
<td>1.6</td>
</tr>
</tbody>
</table>

Notes: * At the 5 percent significance level the null hypothesis is rejected that the estimated income elasticity of imports $\hat{\alpha}$ differs insignificantly from the BOP model-implied value $\alpha$.

### Table A

**Data Samples and the Results of the Standard ADF Test**

<table>
<thead>
<tr>
<th>Country</th>
<th>Variable</th>
<th>Data range / definition</th>
<th>Integration order of variables***</th>
<th>Deterministic terms**</th>
<th>Augmented ADF statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>levels</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>first diff.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td>levels</td>
<td>first diff.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>levels</td>
<td>first diff.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>levels</td>
<td>first diff.</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>Real imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-1.86</td>
</tr>
<tr>
<td></td>
<td>Real GDP</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-1.63</td>
</tr>
<tr>
<td></td>
<td>Real imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-1.67</td>
</tr>
<tr>
<td></td>
<td>Relative prices of imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-0.51</td>
</tr>
<tr>
<td></td>
<td>Dummy variable*</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-0.51</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Real imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>1.09</td>
</tr>
<tr>
<td></td>
<td>Real GDP</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>1</td>
<td>1.23</td>
</tr>
<tr>
<td></td>
<td>Real imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-1.74</td>
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<tr>
<td></td>
<td>Relative prices of imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
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<td>-0.20</td>
</tr>
<tr>
<td></td>
<td>Relative prices of imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>1</td>
<td>-0.20</td>
</tr>
<tr>
<td></td>
<td>Real imports</td>
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<td>-1.91</td>
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<tr>
<td></td>
<td>Real GDP</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-1.64</td>
</tr>
<tr>
<td></td>
<td>Real imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-1.64</td>
</tr>
<tr>
<td></td>
<td>Relative prices of imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>1</td>
<td>-0.82</td>
</tr>
<tr>
<td></td>
<td>Real imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
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<td>-2.53</td>
</tr>
<tr>
<td></td>
<td>Real GDP</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-0.53</td>
</tr>
<tr>
<td></td>
<td>Real imports</td>
<td>1995-2004 IV (t)</td>
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<td>-2.39</td>
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<tr>
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<td>Relative prices of imports</td>
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<td>-2.36</td>
</tr>
<tr>
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<td>1995-2004 IV (t)</td>
<td>c</td>
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<td>-1.55</td>
</tr>
<tr>
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<td>Real GDP</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
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<td>-0.88</td>
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<tr>
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<td>Relative prices of imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-0.82</td>
</tr>
<tr>
<td></td>
<td>Real imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-0.55</td>
</tr>
<tr>
<td></td>
<td>Real GDP</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>1</td>
<td>-0.43</td>
</tr>
<tr>
<td></td>
<td>Real imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>1</td>
<td>-2.43</td>
</tr>
<tr>
<td></td>
<td>Relative prices of imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-2.70</td>
</tr>
<tr>
<td></td>
<td>Real imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-2.38</td>
</tr>
<tr>
<td></td>
<td>Real GDP</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-0.97</td>
</tr>
<tr>
<td></td>
<td>Real imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-0.97</td>
</tr>
<tr>
<td></td>
<td>Relative prices of imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-0.97</td>
</tr>
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<td>Real imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-4.48</td>
</tr>
<tr>
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<td>Real GDP</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-3.97</td>
</tr>
<tr>
<td></td>
<td>Real imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-0.97</td>
</tr>
<tr>
<td></td>
<td>Relative prices of imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-0.97</td>
</tr>
<tr>
<td></td>
<td>Real imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-4.48</td>
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<tr>
<td></td>
<td>Real GDP</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-3.97</td>
</tr>
<tr>
<td></td>
<td>Real imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-0.97</td>
</tr>
<tr>
<td></td>
<td>Relative prices of imports</td>
<td>1995-2004 IV (t)</td>
<td>c</td>
<td>0</td>
<td>-0.97</td>
</tr>
</tbody>
</table>

Notes: * At the 5 percent significance level the null hypothesis is rejected that the estimated income elasticity of imports $\hat{\alpha}$ differs insignificantly from the BOP model-implied value $\alpha$.

- The CUSUM test was used to evaluate the null hypothesis of stability of parameters of the import model at the 5 percent significance level.
The results of testing the BOP-constrained growth model

C.1 Cross-sectional test

The estimated (6) is

\[ \tilde{y}_i = 0.76 + 0.87 \tilde{y}_i + \tilde{\xi}_i, \ i=1,...,10. \]

(0.34) (0.08)

\[ R^2=0.94, p(\text{White})=0.11, p(JB)=0.78. \]

The heteroscedasticity-consistent standard errors are provided in parentheses. Other descriptive notation is the same as in Appendix B. The joint \( H_0: \beta_0=0 \) and \( \beta_1=1 \) is not rejected using the Wold F-type test at the 5 percent significance level (F=3.84), however the empirical significance level (0.08) is quite close to it.

C.2 McCombie's approach

Table C summarizes the results obtained by applying the approach outlined in Section Testing the parameter restrictions in the ECM to test (7).

Table C

The results of testing the BOP-constrained growth model using McCombie's approach

<table>
<thead>
<tr>
<th>Country</th>
<th>The estimated income elasticity of imports (( \tilde{\alpha} ))</th>
<th>The BOP model implied income elasticity of imports (( \tilde{\alpha} ))</th>
<th>( \tilde{\alpha} - \tilde{\alpha} )</th>
<th>s.e.(( \tilde{\alpha} ))</th>
<th>t(( \tilde{\alpha} - \tilde{\alpha} ))</th>
<th>Wald F-test p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulgaria</td>
<td>2.70</td>
<td>4.45</td>
<td>-1.75</td>
<td>0.20</td>
<td>-8.82</td>
<td>0.00</td>
</tr>
<tr>
<td>Czech Rep.</td>
<td>4.44</td>
<td>4.39</td>
<td>0.05</td>
<td>0.83</td>
<td>0.06</td>
<td>0.93</td>
</tr>
<tr>
<td>Estonia</td>
<td>1.57</td>
<td>1.69</td>
<td>-0.12</td>
<td>0.07</td>
<td>-1.68</td>
<td>0.12</td>
</tr>
<tr>
<td>Hungary</td>
<td>2.87</td>
<td>3.33</td>
<td>-0.45</td>
<td>0.14</td>
<td>-3.39</td>
<td>0.00</td>
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<tr>
<td>Latvia</td>
<td>1.23</td>
<td>1.18</td>
<td>0.04</td>
<td>0.11</td>
<td>0.41</td>
<td>0.39</td>
</tr>
<tr>
<td>Lithuania</td>
<td>1.61</td>
<td>1.60</td>
<td>0.01</td>
<td>0.08</td>
<td>0.11</td>
<td>0.89</td>
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<tr>
<td>Poland</td>
<td>2.43</td>
<td>2.55</td>
<td>-0.12</td>
<td>0.17</td>
<td>-0.70</td>
<td>0.48</td>
</tr>
<tr>
<td>Romania</td>
<td>2.99</td>
<td>3.37</td>
<td>-0.38</td>
<td>0.67</td>
<td>-0.56</td>
<td>0.58</td>
</tr>
<tr>
<td>Slovakia</td>
<td>2.36</td>
<td>2.43</td>
<td>-0.06</td>
<td>0.19</td>
<td>-0.35</td>
<td>0.41</td>
</tr>
<tr>
<td>Slovenia</td>
<td>1.91</td>
<td>1.83</td>
<td>0.08</td>
<td>0.04</td>
<td>1.97</td>
<td>0.06</td>
</tr>
</tbody>
</table>
Bootstrap procedures

D.1 The design of the bootstrap of the cointegration testing

The bootstrap-based inference on (10) leans on the following procedure:

1. The restricted version – the imposed restrictions are $\theta=\mu=0$ – of the specified empirical analogue of (9) is estimated by the OLS and the residuals $\{\hat{e}_t\}$ are saved.
2. Under equal probabilities, the residuals are resampled 2000 times with replacement giving the bootstrap samples of residuals $\{\hat{e}_t^{*(0)}\}$, $j=1,\ldots,2000$, and the respective bootstrap samples $\{\hat{\Delta m}_t^{*(0)}\}$ are generated recursively from the $\theta=\mu=0$ restricted version of the empirical analogue of (9) using centred $\{\hat{e}_t^{*(0)}\}$ while the initial values are randomised by applying the block initialisation.
3. Using the bootstrapped $\{\hat{\Delta m}_t^{*(0)}\}$ instead of the original $\{\Delta m_t\}$, the (unrestricted) ECM is estimated by the OLS, saving the respective bootstrap t-statistic $t^{*(0)}_h$, $j=1,\ldots,2000$.
4. The bootstrap p-value $p^*$ for (10) is defined as

$$p^* = \sum_{l=1}^{2000} I(t^{*(0)}_h < t_h),$$

where $I(\cdot)$ stands for the indicator function and $t_h$ is a t-statistic based on the actual data sample $\{\Delta m_t\}$ and the unrestricted empirical analogue of (9) presented in Table B. For $p^* > 0.05$, (10) is rejected.

Note: For discussion on the initialisation problem, possible solutions – including the one applied here – with the relevant references see Berkowitz and Kilian (2000) that give a wide overview of recent developments in bootstrapping time series.

D.2 The design of the bootstrap of the parameter restriction testing

The bootstrap-based inference on (7) leans on the following procedure:

1. A version of (12) is estimated with the imposed constraint $\alpha=\bar{\alpha}$ and the respective residuals $\{\hat{e}_t\}$ are saved.
2. For $j=1,\ldots,2000$ $(\hat{e}_t^{*(0)})$ are resampled from $(\hat{e}_t)$ and for each $j$, using the centred $(\hat{e}_t^{*(0)})$ instead of $(\hat{e}_t)$ in the estimated (12) in Step 1, the respective bootstrap samples $(\hat{\Delta m}_t^{*(0)})$ are generated recursively, employing the block initialisation.
3. Using the bootstrapped $(\hat{\Delta m}_t^{*(0)})$ instead of the original $(\Delta m_t)$, the unconstrained (12) – without imposing $\alpha=\bar{\alpha}$ – is estimated by the NLS, saving the respective bootstrap t-statistic $t^{*(0)}_h$, $j=1,\ldots,2000$.
4. The 2.5 percent lower and upper quantiles $t^{*(0)}_{0.025}$ and $t^{*(0)}_{0.975}$ of the bootstrap distribution of $t^{*(0)}_h$, $j=1,\ldots,2000$ are obtained.
5. At the 5 percent significance level, (7) is rejected in favour of the two-sided alternative $H_j$: $\alpha \neq \bar{\alpha}$, when $t^{*(0)}_{0.025} < t^{*(0)}_h < t^{*(0)}_{0.975}$, where the t-statistic $t_{0.025}$ is based on the actual data sample $(\Delta m_t)$ and the unrestricted empirical analogue of (12) presented in Table 1.

References


Hansen, J.D., and V. Kvedaras. “Balance of Payments Constrained Economic Growth in the
Giersbergen, N., and J. Kiviet. “How to Implement Bootstrap Hypothesis Testing in Static and
Giersbergen, N., and J. Kiviet. “How to Implement Bootstrap Hypothesis Testing in Static and
Hansen, J.D., and V. Kvedaras. “Balance of Payments Constrained Economic Growth in the
Hieke, H. “Balance-of-Payments-Constrained Growth: A Reconsideration of the Evidence for the
Hussain, M.N. “The Balance of Payments Constraint and Growth Rate Differences Among
Havrylyshyn, O. “Recorvery and Growth in Transition: A Decade of Evidence”.
McCombie, J.S.L. “Economic Growth, Trade Interlinkages, and the Balance of Payments
With the relations between state, market and civil society still strongly in flux the new EU members in Eastern Europe present a somewhat bewildering quilt of tax systems and tax philosophies. This timely book, a collection of scholarly articles, gives insight into elements of tax policy shared by the new member states, and elements that are country specific.

As Vito Tanzi reminds us in his foreword to the book, in the previous central planning environment the role of a country's tax system and tax administration was a very minor one. For example, the state taxed labor income by simply collecting from the state-owned enterprises. More precisely, such taxation took the form of strategically calculated transfer payments from the central bank to the state enterprises to provide payment for the wage bill. In this framework a reduction in transfer payment, other things held constant, implied an increase in taxes.

Against this background, tax systems in most of the new EU member states had to be built de novo. While West European tax systems served as models, they underwent thorough adaptation to country specific economic conditions.

Part I of the book gives an overview of tax systems and tax reform in the new EU member states. Luca Gandullia's chapter 1 presents selected new member countries' evolution of tax structure. He convinces the reader that these countries are successful examples of tax reformers in the sense of having avoided fiscal crises. A comparison with West European tax structures reveals, on average, a relatively light tax burden on corporations, and a heavy tax burden on labor income. Together with weak tax progression this gives a picture of low income labor carrying a significant proportion of the tax burden.

Luigi Bernardi and Mark Chandler issue a cautionary note towards the commonly held perception that governments in the new member states are too big. Due to the population's significant exposure to risk regarding pensions, due to potential instability in financial markets, may actually warrant some state intervention in the welfare arena. Moreover the Nordic countries, with whom some of the new member states have strong economic ties, are examples of high tax and high government service countries, which are undoubtedly very successful economies. Maybe it is more the particular mix of taxes and expenditures that should be re-examined.

Vito Tanzi, in his foreword to the book points to the ubiquitous fiscal decentralization observed in the new EU member states. He cautions that irrespective of its political merits such decentralization may inhibit future tax reform efforts, as it has in other parts of the world.

The authors succeed in conveying to the reader the enormity of the transformation that the new EU member states have undergone, of which tax reform is one important part. The reader will appreciate this guided tour through what many perceive to be an innovative laboratory for tax policy.

As is the case with many books, events sometimes overtake the published text. The process of tax policy shared by the new member states, and elements that are country specific.

The importance of building a well functioning tax administration in a region lacking institutional memory of tax administration ethics and tax payment habits is stressed by Viktor Trasberg in his chapter on tax administration and the shadow economy (chapter 5). A relation between the quality of tax administration and the size of the shadow economy is explained. It is pointed out that improvements in the quality of tax administration in the new EU member countries have been going hand-in-hand with a decline in the shadow economy.

Part I of the book closes with a chapter by Jeffrey Owens on competition for foreign direct investment and the role of taxation. The author addresses important principles as well as recent findings that point into the direction of increasing importance of taxation conditions for location decisions. In part this stems from the successes in dismantling other non-tax related obstacles to investment. It is unfortunate (in the context of this book) that examples are presented from the countries of South-Eastern Europe rather than from the new EU member states. However findings, such as the importance of the quality of tax administration for investment location decisions undoubtedly generalize to the new EU member states.

Part II offers a number of country studies which illustrate many points of the more general analysis from part I, in the context of the Czech Republic (Simone Pellegrino), Estonia (Evelin Ahermaa and Luigi Bernardi) with brief summary report on Latvia and Lithuania, Hungary (Francesca Sala), Poland (Lucia Vergano and Francesca Zantomio) and Slovenia (Matteo Maria Galizzi and Simona Scabrosetti).

Overall the opinion, voiced in some parts of the book, that governments in the new EU member states are still too big, and that taxes should be reduced further, is not entirely convincing. As Bernardi and Chandler point out in Chapter 2 rates of economic growth in the new member states are vigorous. In some of the countries the population's exposure to risk regarding pensions, due to potential instability in financial markets, may actually warrant some state intervention in the welfare arena. Moreover the Nordic countries, with whom some of the new member states have strong economic ties, are examples of high tax and high government service countries, which are undoubtedly very successful economies. Maybe it is more the particular mix of taxes and expenditures that should be re-examined.
The latest expansion of the EU, in May 2004, was surely one of the most historic, representing a unification of Eastern and Western Europe that has proved elusive for centuries. It also consisted of very practical political and economic decisions about sovereignty, energy supplies, agriculture, public administration and a host of other such issues. Negotiations with the EU over these issues took place not with the new entrants as a group, but with each potential entrant individually. In their book, “Lithuania's Road to the European Union”, Maniokas, Vilipisauskas and Žeruolis tell the story of the process of negotiation over these issues for entry of one of those countries, Lithuania. It reveals a panorama of fascinating detail, and is the first book to treat this important subject for any of the 2004 entrants. A huge bonus for this book is that the three editors, and many of the other eight chapter authors including Lithuania’s chief negotiator, were intimately involved in the negotiation process either as staff or as consultants of the European Committee, which ran the accession process in Lithuania.

There were several issues that were important for all of the new entrants and these are dealt with comprehensively in the book. The chapters on agriculture, land acquisition, regulatory norms and budgetary negotiations take a thorough look at the accession process in these areas. Lithuania was also an interesting case, however, in that several major issues were specific to this former republic of the USSR. The book does not disappoint on these issues either, and the chapters on decommissioning of the Ignalina nuclear power plant and Russian transit to the Kaliningrad exclave are among the most interesting. The book also contains very illuminating sections on two post-negotiation phases; firstly the preparation of the final treaty and referendum, and secondly two forward looking chapters on Lithuania’s place inside the EU.

While this book will undoubtedly prove useful in the field of public administration, due to its detailed account of the process of negotiations, the same details also provide much of interest for political science and economics. Particular highlights include the account of the political struggle to amend the Lithuanian constitution and allow EU citizens to buy Lithuanian land. Perhaps the overall story of the book is the tale of how a country that had become seen as a laggard destined to miss the first wave of Eastern EU expansion managed to catch up and become a leader of the group of entering countries in the negotiations. A core message is that the EU managed to set up the accession process so that it became tantamount to a competition between the potential entrants and thus on the whole the process was a very one-sided negotiation. However, the book also illuminates precisely at what level there was the possibility for member states to achieve concessions from the European Commission.

Overall the book is a very informative and fascinating read. It provides the detail required to understand many processes but also the overview and policy context so as not to lose the reader among the thicket of negotiation documents. The book does not shy away from controversy either. For example, the penultimate chapter on interests to be pursued by Lithuania within the EU provides ample material for discussion as to what stands Lithuania will likely take in the continuing EU battle between laissez faire and more dirigiste policy.

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Articles

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Morten Hansen

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Claus-Friedrich Laaser and Klaus Schrader

Hooverism, Hyperstabilisation or Halfway-House?
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Rasmus Kattai and John Lewis

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Virmantas Kvedaras