EUROPEAN CENTRAL BANK

WORKING PAPER SERIES
NO. 519 / SEPTEMBER 2005

NON-KEYNESIAN EFFECTS OF FISCAL CONTRACTION IN NEW MEMBER STATES

by Andrzej Rzońca
and Piotr Ciżkowicz

EUROPEAN CENTRAL BANK

WORKING PAPER SERIES

NO. 519 / SEPTEMBER 2005

NON-KEYNESIAN EFFECTS OF FISCAL CONTRACTION IN NEW MEMBER STATES

by Andrzej Rzońca [1]

and Piotr Ciżkowicz [2]

In 2005 all ECB publications will feature a motif taken from the €50 banknote.

This paper can be downloaded without charge from http://www.ecb.int or from the Social Science Research Network electronic library at http://ssrn.com/abstract_id=781087.

1 National Bank of Poland; e-mail: Andrzej.Rzonca@nbp.pl

2 National Bank of Poland; e-mail: Piotr.Cizkowicz@nbp.pl

© **European Central Bank, 2005**

Address
Kaiserstrasse 29
60311 Frankfurt am Main, Germany

Postal address
Postfach 16 03 19
60066 Frankfurt am Main, Germany

Telephone
+49 69 1344 0

Internet
http://www.ecb.int

Fax
+49 69 1344 6000

Telex
411 144 ecb d

All rights reserved.

Reproduction for educational and non-commercial purposes is permitted provided that the source is acknowledged.

The views expressed in this paper do not necessarily reflect those of the European Central Bank.

The statement of purpose for the ECB Working Paper Series is available from the ECB website, http://www.ecb.int.

ISSN 1561-0810 (print)
ISSN 1725-2806 (online)

CONTENTS

Abstract 4

Non-technical summary 5

1 Introduction 7

2 A short survey of existing theories 7

3 Review of previous empirical studies 10

4 Econometric analysis 12

4.1 Fiscal impulses 12

4.2 Data 12

4.3 Specification of equations 13

4.4 Methodological issues 14

4.5 Results of the estimation 15

5 Descriptive analysis 19

6 Conclusions 28

References 30

European Central Bank working paper series 33

Abstract

Many economists are convinced that longer-term benefits from fiscal consolidation are in a trade-off with short-term deceleration in output growth. However, more recent research suggests that curbing fiscal imbalances contributes to faster growth already in the short term. This paper is about such non-Keynesian effects. Section two systematizes theoretical explanations. Section three reviews previous empirical research. Section four uses panel estimation techniques to examine the consequences of fiscal consolidation in New Member States. This analysis provides evidence that in those countries fiscal consolidation contributed substantially to the acceleration of output growth even in the short term. However, the exact channels through which non-Keynesian effects occurred could not be unambiguously identified in the paper. Section five takes the new step of a qualitative analysis of the outcomes of strong fiscal adjustments in the countries under consideration. That analysis shows that their experiences were quite similar to those of developed countries.

JEL Classification: E62, E65, C33

Keywords: fiscal consolidation, non-Keynesian effects, new member states

Non-technical summary

'Fiscal contraction', 'fiscal adjustment', 'fiscal consolidation', 'tightening fiscal policy' - all these terms mean reducing imbalances in public finances. An 'imbalance in public finances' is when the state spends more than it receives from taxation. All economists believe that fiscal consolidation is beneficial for the economy in the long term. However, most economists believe that the same fiscal consolidation inevitably causes temporary slow-downs – i.e. we have long-term benefit at the price of short-term problem. However, more recent economic studies show that these short-term problems are not in fact inevitable. Reducing fiscal imbalances may contribute to faster growth even in the short term. Such an immediate acceleration of economic growth, induced by fiscal contraction, and driven by private demand – i.e. driven by businesses and households rather than government spending - is called a non-Keynesian effect.

This paper discusses the effects of fiscal contraction in the new member states from Central and Eastern Europe, i.e. Estonia, Lithuania, Latvia, Poland, the Czech Republic, Slovakia, Slovenia, and Hungary. These countries are especially interesting for debates on 'fiscal contraction' - European Union membership and the perspective of joining the euro zone mean that these countries must conduct a disciplined fiscal policy. Some of these countries have already managed to reduce fiscal imbalances; the others have this ahead of them. The experience of the former group is potentially an important lesson for the latter countries. However, as of yet, hardly any analysis of the type undertaken in this paper has been presented.

The paper consists of four main parts.

In the first part, existing theoretical explanations are systematized, categorised. Models explaining non-Keynesian effects can be divided into two groups. (It should be stressed, however, that these two explanations are not mutually exclusive.) In the first type of explanation, non-Keynesian effects can only occur when a government, facing the spectre of a fiscal crisis, decides to reduce budget deficit suddenly. According to this kind of explanation, the government's withdrawal from its prior irresponsible fiscal policy must be decisive. This decisiveness makes the public believe in the sincerity of the government's new approach. Non-Keynesian effects appear – this explanation continues – because the previous uncertainty in the public mind about government policy is now dispelled. This means that households and businesses start to become more confident about the future; they start spending more, and the increase in their expenditure more than compensates for the reduction in government-led demand.

In the second type of explanation, the occurrence of non-Keynesian effects is thought to depend on the *composition* of fiscal contraction rather than on the *scale* of the initial fiscal imbalance. The source of the non-Keynesian effects is said to be the fall in enterprises' costs brought on by reducing government expenditure. As a result, business profitability increases, and secondly, their competitiveness on international markets goes up. This situation may occur if the initial government deficit is reduced by cutting government expenditure on wages and salaries. For this cost-cutting softens wage pressure throughout the whole economy, wage expenditure being globally the main cost of enterprises.

In the second part, we briefly review the available empirical research on non-Keynesian effects. Although those studies taken as a whole are inconclusive in many details, there does appear to be an emerging conviction, that these non-Keynesian effects are not merely a theoretical curiosity. The specific impact of fiscal contraction on growth

can be better and better isolated from the effects of other factors, thanks to the development of econometric techniques. Despite that (or rather due to that), new evidence in support of non-Keynesian effects occurring is being gathered.

In the third and fourth parts, we examine the consequences of tightening fiscal policy in selected NMS. By using econometric tools, we find evidence that in the NMS fiscal consolidation made economies grow faster already in the short term. However, this paper does not unambiguously establish the details of the effects of fiscal contraction on private consumption and investment – whether the latter were boosted or restrained. Only export behaved strictly in a non-Keynesian way, that is to say, exports started growing much faster immediately following consolidation. Next, we carry out qualitative case studies of the strongest fiscal adjustments in the countries under consideration. With only one exception, such adjustments resulted in immediate improvements of economic performance. Cuts in government expenditure, including expenditure on wages and salaries, brought about similar results to those implied by the models which suggest that we should look for the sources of non-Keynesian effects in the fall of business costs. Those cuts contributed to wage moderation. The weakening of wage pressure in turn made exports more profitable, and clearly increased businesses' ability and propensity to invest. The deficit reduction, regardless of the method applied, led to a drop in interest rates. The governments in question gained credibility, since they were in a better position to pay their bills. This situation contributed to the increase of direct foreign investment inflow. The fact that the governments of those same countries had not previously enjoyed much credibility may partly explain why the non-Keynesian effects occurred in the NMS more often than in developed countries – the change was more dramatic. However, this aspect could only have played a key role in the mid 90's. After that, the crucial factor in explaining non-Keynesian effects seems to be the focus on expenditure cuts. Nevertheless, economic performance during fiscal consolidation may have been partly the effect of strong demand in the main trading partners of the New Member States. Even if this was the case, one might still claim that in a small open economy a Keynesian response of output to even large fiscal contraction will not exceed the impact of favourable external conditions on the economy.

1. Introduction.

The view that transitory slow-downs in output momentum are an unavoidable consequence of tightening fiscal policy has been predominant among economists at least since the 1940's. Many economists have been convinced that an economy can reap longer-term benefits from a reduction of the budget deficit only at the cost of a short-term deceleration in output growth. However, more recent research shows that reducing fiscal imbalances may contribute to faster growth not only in the long term, but in the short run as well.

This paper is about these kinds of non-Keynesian effects of tightening fiscal policy. We analyse new member states (NMS) from Central and Eastern Europe, i.e. Estonia, Lithuania, Latvia, Poland, the Czech Republic, Slovakia, Slovenia, and Hungary. Our motivation for selecting these countries was as follows: European Union membership and the perspective of joining the euro zone impose on these countries the requirement of disciplined fiscal policy. Some of these countries – Estonia, Lithuania, Latvia, and Slovenia – have managed to reduce fiscal imbalances; the others – Poland, the Czech Republic, Slovakia, and Hungary – have this ahead of them. So the experience of Estonia, Lithuania, Latvia, and Slovenia represents an important lesson for the countries in the second group. As far as we are aware, hardly any analysis of the type we are undertaking has been conducted.

The main part of this paper consists of four sections, numbered from two to five. In section two we systematize theoretical explanations of non-Keynesian effects. In section three we briefly review previous research on the non-Keynesian effects of fiscal contraction. In section four we use panel estimation techniques to examine the consequences of tightening fiscal policy in selected NMS. We have said that tightening fiscal policy may influence output growth in the short term; we attempt to analyse the channels through which this happens. (Previous studies on effects of fiscal contraction in transition economies have focused mostly on its persistence (see, e.g., Catriona Purfield, 2003).) In section five we analyse the outcomes of strong fiscal adjustments in the countries under consideration - in the case of *minor* deficit reductions, any results could be biased by the impact on deficits of cyclical fluctuations in output. However, there are too few cases of strong fiscal adjustment to allow credible statistical conclusions to be drawn, so instead we have carried out *qualitative* case studies. (Until now, this is an undeveloped aspect of the literature on non-Keynesian effects in NMS.) Having described the size and composition of fiscal consolidation in the various cases, we analyse expenditure flows, placing particular stress on the momentum of exports, investment, and private consumption during periods where fiscal policy is being tightened.

In section six we present the main findings of our analysis.

2. A Short Survey of Existing Theories.

In the Keynesian approach, fiscal contraction is said to reduce aggregate demand and, as a result, output. In the simplest case, the negative relationship between aggregate demand and fiscal impulses, in the module, is larger than one. A given improvement in fiscal balance leads to a decline in aggregate demand that is several times larger. The decline consists of: the original reduction of public expenditure (or of private consumption, if the improvement in fiscal balance is obtained through tax increases or transfer cuts), plus secondary falls in private consumption, resulting from the decreased flow of total income from enterprises to households and the allocation by households of a fixed per cent of additional income to consumption. One may derive the general definition of non-Keynesian effects from that of Keynesian ones: an improvement of fiscal balance is said to lead to a non-Keynesian effect, if that improvement causes an increase in aggregate demand and output.

This kind of division of the effects of fiscal contraction into the Keynesian and the non-Keynesian is imprecise. In using even the simplest textbook Keynesian model (i.e., the Samuelson model), one can easily show that fiscal contraction may in certain circumstances raise aggregate demand. Since tax and transfer multipliers are smaller than the public expenditure multiplier, as far as the modules are concerned, a sufficient condition for an increase in aggregate demand is higher taxes or transfer cuts, provided that those additional taxes are eased by an adequate increase of public expenditure on goods and services. So it is clear that to assess the effects of fiscal contraction, one needs to know about the mechanisms that led to them.

Models explaining non-Keynesian effects of fiscal contraction can be divided into two groups. The first group attributes the source non-Keynesian effects to the concerns of private agents about government's solvency. According to models of the second group, these non-Keynesian effects are caused by positive supply shocks, induced by fiscal impulses.

With the first type of explanation, the strength and sign of the relation between aggregate demand and fiscal impulses both depend on the expectations of private agents. In the aftermath of fiscal contraction, households may reach the conclusion that they have had over-pessimistic expectations as to the course of public expenditure and cumulated tax burdens (factors which influence the distribution of income between consumption and savings). In that case, adjustment of these expectations may result in an increase in private expenditure that more than offsets the direct negative impact of fiscal adjustment on aggregate demand. The sign of the relationship between aggregate demand and negative fiscal impulse will be positive, if, in the opinion of households, a reduction of the budget deficit considerably raises the cumulated flow of disposable income in their horizon of utility maximization. This will happen if fiscal consolidation in the current period allows the avoidance of a major increase of taxation in the future. (Such a major taxation increase, by inducing serious distortions, could lead to a permanent drop in output.)

The foregoing argument would suggest that the occurrence of non-Keynesian effects of fiscal contraction is more likely where public debt is high and growing. In such circumstances, households are more likely to expect that they will soon be burdened with the repayment of a part of the debt accumulated by previous generations – they are aware that public debt cannot increase endlessly (see e. g. Alan Sutherland, 1995). On the other hand, when public debt is high and rising, a rise in taxation to a level causing serious distortions is more and more likely (see, e.g. Olivier J. Blanchard, 1990). A sufficiently large reduction in fiscal deficit would dispel both of these fears[3].

So fiscal impulses may lead to non-Keynesian effects because of their impact on the flow of disposable income expected by households in a horizon of utility maximization. However, fiscal impulses may also lead to non-Keynesian effects because of their influence on interest rates and, thus, on interest rate-sensitive private expenditure –this influence being stronger than predicted in the standard Keynesian approach (with regard to the latter see e.g. John R. Hicks, 1937). With public debt, there is always the risk that the government will attempt to decrease its real value with higher inflation, or that the government will become

[3] Conversely, increase in fiscal deficit, by accelerating the pace at which public debt grows, hastens the moment when fiscal policy must be changed, thus strengthening pessimistic expectations of households.
The influence of fiscal policy on aggregate demand may also depend on the level of the ratio of public expenditure to output. If the ratio is low, then the increase of public expenditure is – to a considerable degree – offset by the decrease of private consumption, because households are aware that the government is unlikely to cut public expenditure until its financing becomes a problem, and thus, they consider the increase to be permanent. Each subsequent increase of government spending leads to an ever weaker decrease of private consumption and, in effect, a stronger increase in aggregate demand because the higher the level of current expenditure, the greater the proportion of households thinking that the increase of public expenditure is temporary. If public expenditure exceeds a certain threshold - and despite this is not reduced - households cease to believe in the temporary nature of its previous increase. As the value of the cumulated tax burden expected by households goes up sharply, households considerably reduce their consumption. In effect, the increase of public expenditure is associated with a decrease of aggregate demand (see, for example: Giuseppe Bertola and Allan Drazen, 1993). Thus, the failure to reduce the budget deficit may, if announced, result in a sharp fall in private consumption, leading to a decrease in aggregate demand.

insolvent or lose liquidity. That risk is reflected in premiums included in interest rates. When the state of public finances gives rise to the concern of economic agents, reduction of fiscal deficit, by substantially decreasing the previously high currency and country risk premium, may crowd in private expenditure (which is sensitive to changes in interest rates) much more strongly than in 'normal' times (see, for example: Marcus Miller, Robert Skidelsky and Paul Weller, 1990).

Let us now turn our attention to the second type of explanation for non-Keynesian effects. Fiscal impulses may cause supply shocks which lead to changes in output, because of the impact of fiscal impulses on the level of real wages. This kind of supply shock spills over into the economy more quickly than other kinds of supply shock as it is more easily perceived by economic agents, thus influencing their decisions more directly.

Generally speaking, the sign of the shock caused by the reduction of fiscal deficit cannot be unambiguously determined. It depends on the way fiscal policy is tightened. Deficit can be reduced either by cuts in spending or through tax increases. Reducing expenditure, particularly on wages and salaries, softens wage pressure in the whole economy, while higher taxes increase the pressure. Wage expenditure constitutes the main cost of enterprises *en masse*. A fall in real wage dynamics increases the price competitiveness of businesses on the international market. The more open the economy, the more important the wage dynamics for the economic performance of country in question. Strengthened wage discipline may also raise enterprises' profits, profits which affect both their capacity and their propensity[4] to invest. Accelerating wage momentum has precisely opposite effects.

It follows that a reduction in deficit, depending on how it is introduced, could either raise, or lower domestic business profitability and domestic business competitiveness on international markets. The increase in competitiveness occurs if the deficit is reduced by curtailing expenditure on wages and salaries, and the opposite happens if taxes are raised. All this means that, in regard to the short-term impact of fiscal impulses on output, they should have a composition exactly opposite to that suggested by the standard Keynesian approach (see, for example: Alberto Alesina, Silvia Ardagna, Roberto Perotti, Fabio Schiantarelli, 1999, Philip Lane, Roberto Perotti, 2001).

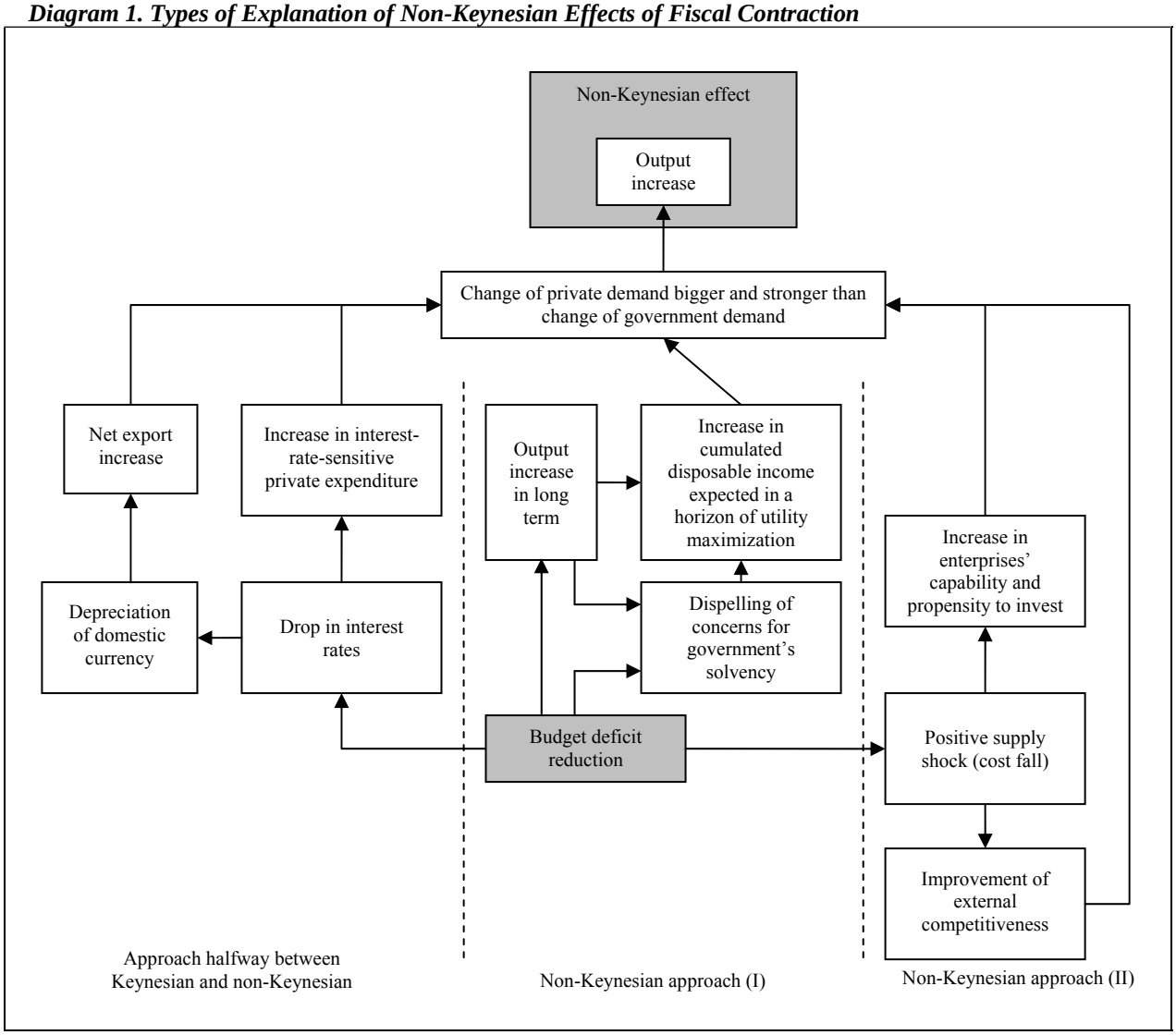
To summarize: according to the first explanation, non-Keynesian effects should occur only if a government, facing the spectre of a fiscal crisis, decides to introduce credible fiscal consolidation - consolidation strong enough to stop the growth of public debt. The origin of the non-Keynesian effects in this view is the dispelling of the uncertainty left in the public mind by the government's previous policy. Such an explanation can be called quasi-Keynesian, since, on the one hand, it is close to Keynes' conviction (1936, chapters 5 and 12) about the role played by the changing expectations of private agents in causing fluctuations in aggregate demand, and, on the other hand, those effects are only deemed likely in the case of deep initial fiscal imbalance.

In the second type of explanation, the occurrence of non-Keynesian effects depends on the composition of the fiscal contraction rather than on the scale of the initial fiscal imbalance. The source of the non-Keynesian effects is positive supply shock, whose nature is exclusively determined by the manner in which current fiscal policy is tightened - not by the manner in which it was conducted in the past.

However, we should point out that these kinds of explanation are not mutually exclusive - the various mechanisms described in them seem to be independent of each other. In that sense, contrary to what is sometimes stated in the literature (see, for example: Francesco Giavazzi, Tullio Jappelli, Marco Pagano, 2000), the different views are not competing, but complementary.

[4] A fall in real wage dynamics raises (*ceteris paribus*) capital remuneration, but has no impact on depreciation of capital. Thus, the increase in capital remuneration is tantamount to a rise of rate of return from investment.

Diagram 1. Types of Explanation of Non-Keynesian Effects of Fiscal Contraction



At the end of this section it seems worth remarking that non-Keynesian effects of fiscal contraction may be easily shown using the slightly modified textbook IS-LM model (see, for example: William Silber, 1970, Gregory N. Mankiw and Lawrence H. Summers, 1984, Andrzej Rzońca, 2005a, 2005b), which itself has to a large extent contributed to the spread of the belief that the only possible change of output during fiscal consolidation is its decline.

3. Review of Previous Empirical Studies.

The experience of Denmark in 1983-1986 and Ireland in 1987-1989 fuelled research on circumstances where a reduction in public spending or a rise in taxes leads to a growth in output - even in the short term. The experience of these two countries was thoroughly analysed in the seminal paper of Francesco Giavazzi and Marco Pagano (1990). Many more episodes of non-Keynesian effects of fiscal contraction have since been identified[5] and discussed. Still, case studies have usually been treated as a mere starting point for research into those effects. The next step - analysis of the experience of a wide group of countries – has, however, been taken. At first, this analysis came down to the quoting of descriptive

[5] Inter alia: in Italy in 1976-1977, in Sweden in 1984-1987 and 1994-1997, in Canada in 1993-1997, in the United Kingdom in 1994-1997, and in Spain in 1996-1997; see e.g. Göran Hjelm (2002).

statistics (see, for example: Alberto Alesina and Roberto Perotti, 1996). Cross-country models, if presented, focused on the issue of the persistence of fiscal adjustment (see e.g. John McDermott and Robert F. Wescott, 1996). Gradually, more emphasis was put on estimating private consumption or investment equations - so researchers were able to determine, quantitatively, the channels through which fiscal tightening leads to non-Keynesian effects. In most cases single equations, constructed on an *ad hoc* basis, were estimated[6] (e.g. Francesco Giavazzi, Tullio Jappelli and Marco Pagano, 1999), but the multi-equation approach, in the form of the structural VAR framework, has also been applied (e.g. Roberto Perotti, 2002).

One can draw the following conclusions from the empirical studies on non-Keynesian effects of fiscal contraction.

- Episodes of fiscal tightening are very often accompanied by an acceleration of output momentum. This acceleration is driven by both private consumption and investment. However, the latter's growth rate increases much more than that of the former (see, for example: Alberto Alesina, Roberto Perotti and Jose Tavares, 1998). The acceleration of investment momentum is preceded by an increase in the share of capital remuneration in output (see e.g. Alberto Alesina and Silvia Ardagna, 1998).
- Non-Keynesian effects of fiscal contraction are more plausible in open economies rather than in closed ones (see, for example: Richard Hemming, Selma Mahfouz and Axel Schimmelpfennig, 2002).
- Non-Keynesian effects occur mainly when the external economic situation is favorable (e.g. John McDermott and Robert F. Wescott, 1996). However, an unfavorable domestic economic situation in the period preceding fiscal adjustment, does not present an obstacle for the occurrence of these effects (e.g. Alberto Alesina and Roberto Perotti, 1996).
- It follows from most studies that non-Keynesian effects occur more often when fiscal adjustment is lasting (see, for example: Alberto Alesina and Roberto Perotti, 1996) and large (e.g. Francesco Giavazzi and Marco Pagano, 1996). Some of those studies point out that the probability of the effects' occurrence is greater when public debt is high (Rina Bhattacharya, 1999) or fast growing (see, for example: Francesco Giavazzi, Tullio Jappelli and Marco Pagano, 2000), rather than low and, at most, slowly growing.
- Fiscal adjustments are more lasting and lead more often to non-Keynesian effects if they are caused rather by curtailment of expenditure than by tax increases (see e.g. Alberto Alesina, Roberto Perotti and Jose Tavares, 1998). Some studies show an opposite relationship, but they mainly concern the reaction of private consumption to negative fiscal impulses (see e.g. Francesco Giavazzi, Tullio Jappelli and Marco Pagano, 1999).
- The manner of fiscal policy tightening is of far greater importance in terms of its aftermath than the scale of deficit reduction. Among successful fiscal adjustments, those that focus on cuts in public sector wage expenditure and in transfers to households are particularly frequent (see, for example: Alberto Alesina, Silvia Ardagna, Roberto Perotti and Fabio Schiantarelli, 1999).

In closing this section it should be nevertheless emphasized: none of the aforementioned studies considers the acceleration of output as a result of fiscal tightening to be certain. In the literature, the view still prevails that a Keynesian reaction of output to budget deficit reduction is more plausible than a non-Keynesian one. But then that reaction is at most of modest scale. Most empirical studies on the effectiveness of fiscal policy in stimulating aggregate demand show that the tax multiplier hardly exceeds one half and that of public expenditure hardly exceeds one (Richard Hemming, Michael Kell and Selma Mahfouz, 2002).

[6] That and other weaknesses of empirical studies on non-Keynesian effects of fiscal contraction are discussed, inter alia, in Richard Hemming, Michael Kell and Selma Mahfouz (2002, pp. 25-26)

4. Econometric Analysis.

In this section we used panel data estimation techniques to verify whether fiscal policies in New Member States[7] in 1993-2002 produced non-Keynesian effects. First, we briefly describe the methods we used to obtain measures of discretionary fiscal policy. Then we present the data, the specification of the equations and estimation techniques used. Finally we provide results of the estimation.

4.1. Fiscal Impulses.

To evaluate the effects of fiscal policy on the economy in question, one should separate the discretionary changes in this policy from those caused by changing macroeconomic variables. For this reason we focused first on the primary aspects of a fiscal policy stance, such as primary balance and primary expenditure, since fluctuations of interest payments cannot be considered discretionary (Alberto Alesina, Roberto Perotti, 1996).

Secondly, we tried to apply one of the available cyclical correction methods. There are at least three possibilities. The first approach - proposed, for example, by the OECD - relies on calculating cyclically adjusted fiscal variables. However, this method cannot be used in the case of states subject to our analysis because these countries have completed at most one business cycle since the beginning of their transition, so there are no reliable measurements of either elasticity of fiscal aggregates, or of potential output. Both these measures are required to apply the proposed method. The second available method is a procedure proposed by Oliver Blanchard (1993). One of the most important conditions for the reliability of impulses computed in this manner is a good fit of the equation estimated. Unfortunately, in almost all the countries in question, we failed to find relations which would show a sufficient degree of precision. Because of the above-mentioned problems, we used a third method, which is a simplified version of the growth-accounting approach proposed by Jurgen von Hagen (2002)[8]. The fiscal impulse calculated in this manner indicates what the growth of the ratio of a given fiscal variable over GDP would be, if GDP was at the same level as during the previous period - assuming that changes in real GDP growth affect all fiscal variables in the same way.

4.2. Data.

We used panel data for New Member States (i.e., the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia) in the period from 1993 to 2002. We used data from IMF's Government Finance Statistics. This publication contains detailed fiscal data for the above-mentioned states and includes all government sectors. The national accounts data (such as real growth of GDP, exports, imports, private consumption and private investment) were taken from the European Commission's AMECO database, and the data concerning real effective exchange rates and interest rates - from the Economist Intelligence Unit database. The data do not cover the whole period for all countries; hence the estimated models are based on an unbalanced panel.

[7] Malta and Cyprus were excluded from the estimation.
[8] This method was applied in paper by Jurgen von Hagen and Iulia Traistaru (2004) for computing fiscal impulses in New Member States.

4.3. Specification of Equations.

To find possible evidence of non-Keynesian effects of fiscal policy tightening in selected countries, we first estimated the effects of fiscal impulses caused by changes in general government balances on GDP growth. We used a simple empirical specification[9] relating the real GDP growth rate to primary deficit impulses (current and lagged). We also included lagged real GDP growth in order to capture the conventional persistence of this variable caused by the business cycle. We also control the effects of changes in the levels of exchange and interest rates. Hence, the estimated equation based on cross-country time-series data set has the following form:[10]

$$gdp_{it} = \mu + \delta_1 gdp_{it-1} + \sum_{k=1}^{2} \beta_k def_imp_{it-k+1} + \sum_{l=1}^{2} \varphi_l reer_{it-l+1} + \sum_{m=1}^{2} \gamma_m r_m_{it-m+1} + u_{it}, u_{it} = \alpha_i + \varepsilon_{it} \quad (4.1)$$

where *gdp* is real GDP growth, *def_imp* - fiscal impulse resulting from changes in primary deficit, *reer* - real effective exchange rate (based on CPI), *r_m* - real money market interest rate[11], α_i represents a time-invariant country-specific disturbance (*individual effect*) and ε_{it} is random noise. According to the theoretical assumptions described in Section two of this paper, non-Keynesian effects in the analyzed economies should appear in output expansions (or contractions) when fiscal policy is tightened (loosened). This means that in equation (4.1) at least one of the estimated coefficients β_k should be positive and statistically significant[12].

As the next step, we tried to identify the channels through which non-Keynesian effects occur. Firstly, we tried to confirm the existence of the export channel. If it really does operate, the reduction in fiscal deficit obtained by cuts in expenditure should boost exports more than a reduction obtained by tax increases, as described in Section two. To verify this relationship, we first computed the contribution of the expenditure impulse to the fiscal deficit impulse. Then we defined an artificial variable, which is equal to 1 if the contribution is greater then 50% and 0 otherwise. Using this variable we estimated the following equation:

$$\exp_{it} = \mu + \gamma \exp_{it-1} + \sum_{j=1}^{2} \delta_j gdp_{it-j+1} + \sum_{k=1}^{2} \beta_k def_imp_{it-k+1} + \sum_{l=1}^{2} \lambda_l ex_def_ratio_{it-l+1} + \sum_{m=1}^{2} \alpha_m imp_eu_{it-m+1} +$$

$$+ \sum_{n=1}^{2} \varphi_l reer_{it-n+1} + u_{it} \quad (4.2)$$

where *exp* is real growth of exports in NMS and *imp_eu* is real growth of imports in the EU (other variables as in (4.1)). We added real effective exchange rate, real growth of imports in the EU and real growth of GDP in NMS in order to control for the most important determinants of the growth of exports. If an export channel exists, parameters of at least one of the pairs (e.g. β_1 and λ_1 or β_2 and λ_2) should be positive and statistically significant. Such values of the parameters would indicate that the composition of the fiscal impulse matters for the occurrence of non-Keynesian effects.

[9] We realize that the models presented in this subsection could be considered oversimplified. However, the short time dimension of the analyzed panel prevents us from using more sophisticated methods such as, for example, panel VAR models.
[10] We fixed the maximum lag of variables at 1 because of the short time dimension of the panel.
[11] We used the money market rate (instead of deposit or lending rate) to take into account the effect of deposit rate on consumption and the effect of the lending rate on investment. The use of deposit or lending rate does not change the results considerably.
[12] In this section we defined fiscal impulse caused by adjustment of the primary deficit as positive, if there was a reduction in the deficit or an increase in the surplus level.

Secondly, we examined the existence of the private investment channel. Also in this case, as described in section two, the composition of the fiscal impulse is crucial. To verify this channel we used the same artificial variable (*ex_def_ratio*) as in the case of the export channel. We estimated an equation in the form of:

$$pinv_{it} = \mu + \kappa pinv_{it-1} + \sum_{j=1}^{2} \delta_j gdp_{it-j+1} + \sum_{k=1}^{2} \beta_k def_imp_{it-k+1} + \sum_{l=1}^{2} \lambda_l ex_def_ratio_{it-l+1} + \sum_{m=1}^{2} \gamma_m r_l_{it-m+1} + u_{it} \quad (4.3)$$

where *pinv* is real growth of private investment and *r_l* – real lending rate (other variables as in (4.1)). We used the real lending rate to control the effects of changes in the user's cost of capital on the investment dynamics. If an investment channel does really operate, parameters of at least one of the pairs (e.g. β_1 and λ_1 or β_2 and λ_2) should be positive and statistically significant.

Thirdly, we analyzed the possible consumption channel using specifications of the following form:

$$pcon_{it} = \mu + \gamma pcon_{it-1} + \sum_{j=1}^{2} \delta_j gdp_{it-j+1} + \sum_{k=1}^{2} \beta_k def_imp_{it-k+1} + \sum_{l=1}^{2} \lambda_l def_imp_art_{it-l+1} + \sum_{m=1}^{2} \gamma_m r_d_{it-m+1} + u_{it} \quad (4.4)$$

where *pcon* is real growth of private consumption, *r_d* is real deposit rate (included to control the impact of the higher revenues from private savings on current private consumption) and *def_imp_art* is an artificial variable, which equals *def_imp* if the fiscal impulse caused by change in the primary deficit is large[13] and 0 in other cases (other variables as in (4.1.)). We decided on such specifications since - as is well known from the theory - changes in households' savings should offset changes in government savings only if the latter are considered permanent. As shown in previous empirical studies (see section three), households are more likely to consider fiscal adjustments to be permanent, if their scale is large enough. Hence, in the case of the existence of a consumption channel, the estimated parameters at least for one *k* (where k=1 or 2) should be statistically significant and fulfill the following subset of conditions:

- $\beta_k < 0$ and
- $\lambda_k > 0$ and
- $|\beta_k| < \lambda_k$.

4.4. Methodological Issues.

The estimation of equations (4.1), (4.2), (4.3) and (4.4) based on the described panel could cause severe problems. First of all, in the case of dynamic panel data models with a lagged dependent variable, basic estimators like pooled (OLS), fixed effects (FE), or random effects (RE) are biased. Secondly, this specification could be affected by the endogeneity of the regressors. In this situation the standard approach is to use either the GMM estimator proposed by Arellano and Bond (1991) – the so-called *difference estimator*, or the estomator proposed in Arellano and Bover (1995) – the so-called *system estimator*. Both require an instrumental variables' procedure with the instruments usually being second- and higher-order lags of endogenous variables. Those estimators cannot be used in our panel due to the lack of a sufficient number of observations[14].

[13] We have adopted the definition used in von Hagen and Traistaru (2004). According to this definition, large expansions (contractions) mean that the general government budget deficit increased (or fell) by at least 1.0 percent of GDP in one year, or 1.5 percent in two consecutive years. In the econometric part of the analysis we did not use the stricter conditions applied in other research works concerning developed countries, due to the lack of a sufficient number of observations fulfilling those conditions.

[14] Because GMM estimators have an asymptotical character, they exhibit severe bias in the case of small samples.

For the same reason we have ignored the third potential problem – the possible heterogeneity of the estimated parameters. If the estimated parameters were indeed heterogeneous, the estimated coefficient would vary across countries and, for instance, instead of (4.1) the true relation between the variables analyzed could be

$$gdp_{it} = \mu + \delta_i gdp_{it-1} + \sum_{k=1}^{w} \beta_{ki} def_imp_{it-k+1} + \sum_{l=1}^{2} \varphi_{li} reer_{it-l+1} + \sum_{m=1}^{2} \gamma_{mi} r_m_{it-m+1} + u_{it} \qquad (4.5)$$

If the time dimension of the panel were large enough, the standard approach would be a separate estimation of the model for each country by OLS and averaging of the parameters obtained in such a way[15].

The fourth problem that could affect our results is a possible panel-level (or group) heterogeneity and a contemporaneous correlation of error terms. In the model analyzed this is equivalent to the assumption that there is a connection between individual states in the range of effects not included in the model. If such an assumption were true, the model can be estimated using the OLS estimator with the panel corrected standard errors proposed by Beck and Katz (1995). In our models we use the Prais-Winsten transformed regression estimator for additional correction of the first-order serial-correlation of the residuals.

Taking into account all the above-mentioned restrictions, we analyzed relations we have formulated using four types of panel data estimators: pooled (OLS), fixed effects (FE), random effects (RE), and Prais-Winsten with panel corrected standard errors (PW-PCSE). At the same time, we do realize that the obtained results could be affected by some of the above-mentioned problems and that conclusions drawn on their basis should be taken with caution.

4.5. Results of the Estimation.

Using the data and the empirical specifications described above, we first estimated the impact of discretionary changes in the fiscal deficit on GDP growth. Table 1 presents various pooled estimates of equation (4.1).[16] For each type of the estimators used we received similar values of the estimated coefficients[17]. The impact of current impulses of the fiscal deficit is in all cases positive and statistically significant, which confirms the appearance of non-Keynesian effects. The estimated coefficients indicate that a discretionary reduction in fiscal deficit by 1% of the GDP raises the output momentum rate by about 0.50 p.p. The estimated coefficients on control variables are highly significant, regardless of the type of estimator used.

[15] This estimator is called the Mean Group estimator and was first proposed by Pesaran and Smith (1995).
[16] We present only the final results e.g. after excluding insignificant variables from initial specification.
[17] There are two common features of results presented in this subsection. Firstly, in all of the estimated specifications, tests for the individual effects (in random and fixed effects models) indicate that models should be estimated using OLS. Secondly, the results obtained using the random effects estimator are, almost in all cases, equal to the results using the OLS estimator, which indicates that the estimated variance of the individual effects is close to 0 (see e.g. Baltagi, 2003, p.18). For these reasons we treat the results obtained using OLS and PW-PCSE as the most appropriate.

Table 1. The Effects of Fiscal Deficit Impulses on GDP Growth.

	OLS	FE	RE	PW-PCSE
gdp_{t-1}	0.3411**	0.3057**	0.3411**	0.2909**
	(0.0728)	(0.0849)	(0.0728)	(0.1033)
r_m_t	-0.0678**	-0.0876**	-0.0678**	-0.0806**
	(0.0293)	(0.0360)	(0.0293)	(0.0263)
def_imp_t	0.5174**	0.4879**	0.5174**	0.5315**
	(0.1326)	(0.1380)	(0.1326)	(0.1310)
const	3.6988**	4.0474**	3.6988**	4.0930**
	(0.5786)	(0.6934)	(0.5786)	(0.6152)
R^2	0.5008	0.4960	0.5008	0.6467
Wald test for joint significance (p-value)	0.0000	0.0000	0.0000	0.0000
Wald test for joint significance of fixed effects (p-value)	NA	0.8098	NA	NA
Breusch-Pagan Lagrangian multiplier test for random effects (p-value)	NA	NA	0.3049	NA
Number of observations	66	66	66	66

Next, we tried to verify the channels through which non-Keynesian effects operate. Firstly, we used equation (4.2) in order to examine the export channel. The results we obtained (see table.2) confirm the existence of the export channel: as expected, the coefficients on current *def_imp* and *ex_def_ratio* variables are both positive and statistically significant. The sign and value of the parameter on *ex_def_ratio* variable indicate that the composition of the fiscal impulse has significant impact on the growth of exports. Furthermore, the signs and values of the coefficients on control variables are consistent with the theory.

Table 2. The Export Channel.

	OLS	FE	RE	PW-PCSE
exp_{t-1}	0.3571**	0.1792	0.3571**	0.3724**
	(0.1403)	(0.1675)	(0.1403)	(0.1358)
imp_eu_t	1.3195**	1.1150**	1.3195**	1.2201**
	(0.3255)	(0.3383)	(0.3255)	(0.3669)
imp_eu_{t-1}	-1.1955**	-1.0443**	-1.1956**	-0.9202*
	(0.4018)	(0.4082)	(0.4018)	(0.5517)
gdp_{t-1}	-0.8431*	-0.4709	-0.8431*	-0.8135**
	(0.4774)	(0.5514)	(0.4774)	(0.3540)
def_imp_t	3.3587**	3.4178**	3.3587**	3.2675**
	(0.5871)	(0.5959)	(0.5871)	(0.4548)
$ex_def_ratio_t$	3.8819	2.9062	3.8819	4.0386**
	(2.4941)	(2.6344)	(2.4941)	(1.7557)
const	7.4380*	7.9827*	7.4380*	5.8856
	(4.1849)	(4.2064)	(4.1849)	(4.6266)

R^2	0.5345	0.5187	0.5345	0.5696
Wald test for joint significance (p-value)	0.0000	0.0000	0.0000	0.0000
Wald test for joint significance of fixed effects (p-value)	NA	0.4043	NA	NA
Breusch-Pagan Lagrangian multiplier test for random effects (p-value)	NA	NA	0.7503	NA
Number of observations	59	59	59	59

Secondly, using the empirical specification given by equation (4.3), we attempted to examine the potential investment channel. The results of the estimation (see table.3) indicate that discretionary changes in the fiscal deficit have no significant impact on private investment growth, regardless of the estimator used. The same applies to the artificial variable *exp_def_ratio*, which indicates fiscal adjustments dominated by changes in government expenditure: the values of the parameters differ substantially depending on the estimator used. The estimates of current GDP growth are significant and, in accordance with the conventional accelerator effect, act positively on dependent variables.

Table 3. The Investment Channel.

	OLS	**FE**	**RE**	**PW-PCSE**
gdp_t	2.9209**	2.6496**	2.9209**	2.8251**
	(0.6174)	(0.6848)	(0.6174)	(0.7568)
def_imp_t	0.7186	0.9011	0.7186	0.5476
	(0.8265)	(0.8587)	(0.8265)	(0.6931)
$ex_def_ratio_t$	0.2618	1.6385	0.2618	-0.3078
	(3.3715)	(3.6421)	(3.3715)	(2.4194)
const	-2.5477	-2.3112	-2.5477	-1.7799
	(3.6103)	(3.8523)	(3.6103)	(2.9983)
R^2	0.3205	0.3180	0.3205	0.3624
Wald test for joint significance (p-value)	0.0000	0.0009	0.0000	0.0000
Wald test for joint significance of fixed effects (p-value)	NA	0.6836	NA	NA
Breusch-Pagan Lagrangian multiplier test for random effects (p-value)	NA	NA	0.3287	NA
Number of observations	63	63	63	63

Finally, we estimated equation (4.4) in order to find evidence of a consumption channel for non-Keynesian effects. The estimates presented in table 4 indicate that current discretionary changes in fiscal deficit have a negative and (only in one case) significant impact on private consumption growth, as predicted by the Keynesian theory. The claim that this impact can be offset by a non-Keynesian reaction of households finds at most mixed evidence in the obtained results. The coefficients on the current variable *def_art* possess a sign consistent with the theory according to which sufficiently large fiscal adjustments have a positive impact on the growth of private consumption. However, the values of the estimated parameters are slightly smaller than the corresponding absolute values of the coefficients on

current fiscal deficit impulses. In addition, the significance of the estimates depends on the type of the estimator used.

Table 4. The Consumption Channel.

	OLS	FE	RE	PW-PCSE
$pcon_{t-1}$	0.1280	0.1423	0.1283	0.0629
	(0.1032)	(0.1113)	(0.1034)	(0.0930)
gdp_t	0.8230**	0.8970**	0.8323**	0.8056**
	(0.1656)	(0.1854)	(0.1671)	(0.1137)
r_d_t	-0.1217**	-0.1827**	-0.1262**	-0.0906
	(0.0541)	(0.0837)	(0.0569)	(0.0571)
def_imp_t	-1.1383	-0.9887	-1.1200	-0.8887*
	(0.8800)	(0.9219)	(0.8774)	(0.5018)
$def_imp_art_t$	0.9302	0.7977	0.9133	0.7129*
	(0.8790)	(0.9198)	(0.8764)	(0.3675)
const	1.3022	1.5635	1.3051	1.4851**
	(0.9438)	(1.1395)	(0.9747)	(0.7248)
R^2	0.4403	0.4415	0.4477	0.4271
Wald test for joint significance (p-value)	0.0000	0.0000	0.0000	0.0000
Wald test for joint significance of fixed effects (p-value)	NA	0.6859	NA	NA
Breusch-Pagan Lagrangian multiplier test for random effects (p-value)	NA	NA	0.3270	NA
Number of observations	60	60	60	60

To sum up, the estimated models provide mixed evidence of non-Keynesian effects in the countries analyzed. On the one hand, we found that discretionary fiscal impulses contributed substantially to the acceleration of output growth even in the short run. On the other hand, we identified unambiguously only one of the channels through which non-Keynesian effects occur, i.e. the export channel. We found also some evidence confirming the existence of a consumption channel, but no evidence in the case of an investment channel.

One of the possible reasons for these results are the problems caused by the insufficient number of observations (some of those problems are described in subsection 4.4). These problems could also have affected the results we obtained which confirmed the existence of non-Keynesian effects. This situation induced us to conduct more detailed research based on an analysis of separate cases. This analysis is presented in the next section.

5. Descriptive Analysis

The research findings presented in this section concern episodes of strong fiscal contraction. The scope of the analysis has been narrowed because considering only major fiscal tightening limits the risk that the findings will be biased by the impact of cyclical fluctuations in output on the deficit; that is to say, that the causal chain runs not from the reduction of the deficit to a growth in output, but rather from a growth in output to a reduction of the deficit.

Some arbitrary decisions are unavoidable when defining episodes of strong fiscal adjustment. In this section such episodes are considered to be periods during which the primary structural balance or the primary balance of the general government improved respectively by at least 1.5% and 2% of GDP within one year or 1.25% and 1.5% of GDP on average over a period of two years. Similar thresholds were assumed by, e.g., Alberto Alesina and Roberto Perotti (1996), and Catriona Purfield (2003) for primary structural balance and primary balance respectively.

We analyzed data both on a cash and on an accrual basis, before making the final decision whether to consider an episode a strong one or not. The objective of reviewing data from different sources[18] and on the basis of different definitions was twofold. On the one hand, we wanted to avoid describing episodes of fiscal consolidation that in fact had not occurred. On the other hand, we wanted to avoid omitting any period of strong fiscal adjustment. In the case of transition economies, the risk of such mistakes was rather high because of incessant changes in definition of general government.

Ten episodes meet the aforementioned definition. They took place in the Czech Republic in 1993, in Poland in 1993, in Slovakia in 1993-1995, in Hungary in 1995-1996, in Lithuania in 1997 and in 2000, in Estonia in 1997 and in 2000-2001, and in Latvia in 1996-1997 and 2000-2001. They were too few to allow us to draw credible statistical conclusions. So we decided instead to carry out qualitative case studies.

We omitted the first three episodes, i.e., those that occurred in the Czech Republic in 1993, in Poland in 1993, and in Slovakia in 1993-1995. The decision to take only the 7 other episodes into consideration was driven by the following two premises. First, we were constrained by data availability. It is hard to find detailed data of sufficient quality covering the beginning of the transition period. Secondly, the analysed countries experienced a lot of shocks, which make it hard to isolate from other factors the impact of fiscal policy tightening on output momentum in the short term. For later episodes of strong fiscal adjustment, that problem has not disappeared, but any possible bias resulting from it has become much less significant. It should be remarked, however, that such an omission is of no importance for the general conclusion of the analysis, since in all the excluded cases, output followed the same qualitative path as in the remaining cases (if taken as a whole). A year before fiscal consolidation the GDP momentum amounted to -3.3% in the Czech Republic, 2.5% in Poland and -6.1% in Slovakia; during the adjustment it came to 0.6, 3.7, and 6.1%, and in the two-year period following fiscal consolidation to 4.3, 6.1, and 5.7% respectively[19].

Let's get down to the central point of the analysis.

During the period of fiscal adjustments under discussion, general government primary balance in each year improved, on average[20], by 2.7% or 3.1% of GDP on an accrual and

[18] For the purpose of the analysis in this section we used data from the following sources: The Economist Intelligence Unit, Eurostat, the International Monetary Fund (International Financial Statistics Database and Government Financial Statistics Database), the OECD (Economic Outlook Database, Main Economic Indicators Database, Structural Analysis Database and Revenue Statistics Database), the World Bank (World Development Indicators Database), and the web pages of statistical offices, ministries of finance, and the central banks of the countries under discussion.

[19] In these three cases one cannot exclude, however, that the output momentum acceleration was driven by mechanisms other than non-Keynesian ones.

[20] All means in this section are arithmetic.

cash basis respectively. The contribution of a cyclical component to the improvement ranged from a negative contribution in the case of Hungary to 1.0-1.6% of GDP in the case of Estonia in 2000-2001[21]. Hence, the size of the adjustments (for the majority of the episodes mentioned) by far exceeded the threshold separating strong ones from minor ones. This feature, in light of previous empirical studies, increased the probability that they would induce non-Keynesian effects. Firstly, the strength of the deficit reduction is an indication of the government's determination to permanently improve situation in public finances. The more convinced are households that the improvement is irreversible, the more efficiently is the direct impact of fiscal impulse on aggregate demand neutralized by changes of the opposite sign in private expenditure. Secondly, fiscal impulse can have an impact not only on output, but on prices as well. The stronger the shock, the more likely is the latter effect. The effect on prices alleviates the effect on output, if the output effect is Keynesian. In an open economy the price effect is even able to reverse the sign of the output effect to a non-Keynesian one.

In four of the seven cases under consideration, the improvement of fiscal stance resulted solely from a fall in the public expenditure to GDP ratio. That ratio fell in Hungary in 1995-1996, in Lithuania in 2000, and in Estonia and Latvia in 2000-2001. In Lithuania, public expenditure was at that time curbed even in nominal terms – by almost 9%. In Hungary, Estonia, and Latvia it was cut, but in real terms, by 12.0, 2.1 and 1.8% respectively[22]. In one case out of the other three, i.e. in the case of Estonia in 1997, the improvement of fiscal stance was mainly due to a curtailment of public expenditure. In the two remaining cases, the exclusive source of fiscal tightening was a rise in taxes. This type of fiscal consolidation took place in Latvia in 1996-1997[23], and in Lithuania in 1997. All in all, the composition of the fiscal policy tightening was, in general, conducive to the occurrence of non-Keynesian effects. A more detailed examination of the composition of the tightening confirms that conclusion.

In six out of the seven cases, the fiscal consolidation program contained measures aimed at lowering the momentum of public expenditure on wages and salaries below the GDP growth rate. The relation of that category of spending to GDP did not fall only in Latvia in 1996-1997. Curtailment of transfers to households was as much a part of these fiscal consolidation programs as the cuts in expenditure on wages and salaries. The ratio of these transfers to GDP was not reduced only in Lithuania in 1997. In all cases, the fiscal adjustment plan included cuts in subsidies to enterprises.

The curtailment of these three categories of spending softened the wage pressures in the economy. Cuts in public expenditure on wages and salaries, and in transfers weakened the position of employees in wage bargaining. The former lowered the opportunity cost of working in the private sector instead of working in the state sector, while the latter reduced the profitability of staying away from work altogether. And subsidy reductions made enterprise budget constraints more rigid, forcing enterprises to be tougher in wage negotiations.

At the same time, the difficult situation on the labour market facilitated the preservation of wage discipline in enterprises. A year before fiscal consolidation, the unemployment rate was, on average, 13.4%. During the tightening of fiscal policy, it rose further in Lithuania in 2000, in Estonia in 2000, and in Latvia in 1996 and 2000. Employment was falling. A year before fiscal adjustment it declined in Hungary, in Estonia and Latvia, on average, by 4.6%. In Lithuania it increased before the first adjustment, and slightly decreased before the second one. However, in Lithuania, as opposed to other

[21] We didn't manage to find the time series of structural balance for Latvia. Data for Estonia are quoted following Rasmus Kattai et al (2003), for Hungary – following Gabor P. Kiss and Gabor Vadas (2004), and for Lithuania – following Violette Klyviene (2003).

[22] Data for Hungary are on an accrual basis. For other countries, they are on a cash basis. In the case of Latvia, the real drop of public expenditure on an accrual basis was even deeper and, in total, came to 2,4%.

[23] In the case of Latvia in 1996-1997, the picture of fiscal tightening is quite opposite to the one presented above, if one takes into consideration data on an accrual basis. Then it would appear to have been driven mainly by public expenditure curtailment. Public expenditure to GDP ratio dropped by 3.5 p.p., and the revenue to GDP ratio increased by 0.4 p.p.

countries, employment momentum worsened during the consolidation. It fell from 0.9% to 0.6% and from -0.5% to -3.7% respectively.

Table 5. The Size and Composition of Fiscal Adjustments (in % of GDP).

		Hungary	Lithuania		Estonia		Latvia	
		1995-96	1997	2000	1997	2000-01	1996-97	2000-01
Size of improvement of primary balance	on accrual basis	8.2	2.3	3.3	3.8	2.9	3.5	4.0
	on cash basis	7.1	2.7	5.9	4.1	4.9	3.9	1.8
Change in revenue		-4.0	3.0	-1.4	1.7	-0.7	4.1	-4.8
Change in expenditure		-10.2	1.2	-5.0	-2.5	-5.7	0.2	-6.4
Change in expenditure on wages and salaries		-2.9	-0.9	-0.5	-0.6	-0.6		-1.1
Change in transfers to households		-4.4		-0.3[24]	-0.3	-0.8	-4.2	-3.5
Change in subsidies to enterprises		-1.0	-0.5	-0.2	-0.6	-0.6	-0.2	-0.8
Memo:								
Unemployment rate before consolidation (in %)		11.0	16.4[25]	14.1	10.0	12.3	18.9	14.4
Employment momentum before consolidation (in %)		-3.4	0.9	-0.5	-3,0	-4.4	-10.4	-1.8

In six out of the seven episodes of fiscal adjustment, output changed in the opposite direction than a Keynesian approach would predict, that is to say, one observed an acceleration in output momentum in comparison with the previous period instead of its slowdown. GDP growth was, on average, faster by 4.9 and 4.2 during and a year after consolidation respectively, than a year before fiscal adjustment. Moreover, actual GDP momentum during tightening of fiscal policy was almost twice as strong as generally expected at the onset of fiscal adjustment, although forecasts of GDP momentum were usually built under the assumption of a far more lax fiscal policy than what was actually implemented[26]. That non-Keynesian sign of the change in output momentum could not be the result of Keynesian mechanisms as described in section two of this paper. In the cases under discussion, state intervention, as measured by public expenditure, was either cut, or the scale of its increase was negligible in comparison with the tax rise. Hence, the precondition for activating Keynesian mechanisms was not met.

Only in Hungary did output momentum slow down during a fiscal consolidation. Thus, the first reaction of output in this country could be considered Keynesian. But then, when taking into account the size of the fiscal adjustment, that reaction was of at most a modest scale. Moreover, the sign of the output momentum change shifted to a non-Keynesian one soon after. In 1997-98, that is to say directly after the tightening of fiscal policy, GDP was growing at an annual rate of 4.7%. That was its highest momentum over the whole transition period in Hungary.

[24] In Lithuania in 2000 the ratio of these transfers to GDP was reduced by 3.1 p.p., if one considers spending on savings restitution to be transfers (in 1998 the government established a program aimed at compensating savers for the loss of their deposits during the period of hyper-inflation at the beginning of the 90's and in 2000 this program was suspended.)

[25] In the Baltic states registered unemployment was about a half lower. The reason for such a big difference in the registered unemployment rate and the rate computed in the poll research, was at a low level of unemployment benefits and the short period during which they could be collected.

[26] For example in the case of Lithuania in 2000 the general government deficit was not expected to fall below 5% of GDP. Economists were in general doubtful about the government's capability to reduce public expenditure during the pre-election period.

As all the countries under consideration except for Hungary are very small, there is a risk of the data on GDP momentum being distorted by the production of an individual large company. In the case of GDP growth acceleration such distortions could come only from the tradables sector, i.e., from manufacturing[27], since the strongly increased output of an individual large company could hardly find domestic buyers. It seems that this risk did not materialize in these periods of fiscal adjustments. Only in the case of two consolidation episodes, did the manufacturing contribution to gross value added growth significantly exceed its share in GVA. Such discrepancy occurred in Lithuania in 2000 and in Estonia in 2000-2001. Yet, if manufacturing is excluded from GVA, GVA's momentum would still stay at quite a high level in these countries, that is to say, it would amount to 2.8 in Lithuania and 5.8% in Estonia, and would be larger than in the year before the consolidation, by 3.8 and 5.3 p.p. respectively.

Table 6. Fiscal Consolidation and GDP Growth.

		Hungary	Lithuania		Estonia		Latvia	
		1995-96	1997	2000	1997	2000-01	1996-97	2000-01
GDP momentum	a year before	2.9	4.7	-3.9	3.9	-0.6	-1.6	2.8
	during consolidation	1.4	7.3	3.8	9.8	6.9	6.0	7.3
	a year after consolidation	4.6	5.1[28]	5.9	4.6[28]	6.0	4.8[28]	6.1
GDP growth forecasts published before consolidation		2	4	2	3.5	5	3	4
Share of manufacturing in GVA during consolidation			16.5	17.9	15.9	17.2	15.6	14.7
Share of manufacturing in GVA growth during consolidation			17.6	41.6	21.2	30.6	23.4	15.9

In all the countries analyzed one could observe fast export growth during the period when fiscal policy was tightened. Its momentum amounted, on average, to 15.9% and it was higher by 13 p.p. than a year before fiscal adjustment.

Except for Hungary, strong domestic demand in the countries' main trade partners contributed to such an export performance. Favorable external conditions do not constitute, however, a complete explanation of strong export performance in the fiscal consolidation periods. This is particularly true of the second episode of fiscal adjustment in Lithuania[29]. In that country export momentum more than doubled between 2000 and 2002[30], whilst the external economic situation considerably worsened: the GDP growth rate in the EU fell from 3.6% in 2000 to 0.9% in 2002. Latvia is another example. It is not as striking as the Lithuanian case, but is still convincing. The slowdown in the world economy almost halved export momentum in 2001-2002 in comparison with its level in 2000. Yet it still exceeded 6%[31]. Only in the case of Estonia did tougher external economic conditions reduce export momentum almost to zero in 2001-2002. Being a more open economy[32] than Lithuania and Latvia, Estonia has also been more exposed to changes in its external environment.

[27] This is the only kind of economic activity which meets two criteria. Firstly, it produces tradables. Secondly, one may find large enterprises operating there.
[28] GDP momentum deceleration in 1998 resulted from Russian crisis.
[29] The same analysis for the first episode of fiscal contraction is impossible because of the Russian crisis. This applies to the other Baltic states too.
[30] The quoted export momentum was calculated on a constant prices basis. The picture of exports in terms of current prices is exactly the opposite. Export grew by 26.8% in 2000, and by 10.7% in 2002.
[31] The quoted export momentum was calculated on a constant prices basis. In current prices it amounted to 11.7 in 2000-2001 and 12.1% in 2002.
[32] In 1992-2002 the international trade to GDP ratio amounted to more than 160% in Estonia, and to less than 110% in Lithuania and Latvia. In Estonia there was no duty at all until 2000. In that year the government imposed tariffs on food and other commodities from non-EU countries and those with which it did not have free trade agreements This was partly to offset a decline in revenues caused by the abolition of tax on reinvested profits, and partly because the government wanted to convince the European Commission of its readiness to participate in the EU Customs Policy.

In Hungary, large forint devaluation seems to have been the main factor explaining strong export growth in the fiscal consolidation episode. Keeping the NEER on the level of 1994 would have been tantamount to the deterioration of external competitiveness by 5%, as measured by REER based on ULC in manufacturing, if to pass over the impact of the devaluation on inflation, and, thus, on wage pressure. In fact, due to devaluation, that measure of external competitiveness improved by 25%. In other countries exchange rate changes can hardly account for export performance. NEER strengthened in Lithuania and Latvia. The Estonian kroon depreciated during both episodes of fiscal adjustment, but the scale of the depreciation was not large. In no period did it exceed 3%. It was not close to the size of prior appreciations either. Such a picture could hardly be considered a surprise, as there had been currency board in Lithuania and Estonia, and the Latvian lat had been pegged to SDR.

The profitability of export, and, as a result, its volume, were pushed up by the fast growth of labor productivity, which was accompanied by wage moderation. In five out of the seven episodes of fiscal tightening, the share of labor remuneration in output decreased – on average, by 3.9 p.p. It did not fall only in Lithuania in 1997 and in Latvia in 1996-1997. A drop in the share of labor remuneration in output occurred in all periods in which fiscal consolidation was solely or mainly driven by a curtailment of public expenditure. This suggests that the mechanisms described by the second type of explanation for non-Keynesian effects (see section two) could work effectively. It should be stressed once again that the non-Keynesian effects operated mostly through their influence on export profitability, and not through their impact on export prices.

The evidence that after fiscal consolidation, domestic enterprises started a more intensive price competition with foreign businesses than in previous periods is rather limited. Export prices relative to the average for 35 industrial countries, if expressed in a common currency, decreased only in Hungary[33]. During the other periods of fiscal tightening, they rose. Only by comparing export prices in domestic currencies, can one find signs of more intensive price competition. On such a basis they decreased in relation to the 35 industrial countries in Lithuania in 1997 and 2001-2002, and in Latvia in 1997 and 2000-2001. One should always bear in mind, however, three important weaknesses of the foregoing analysis. Firstly, it disregards the improvement in quality of exported goods, whereas the quite fast growth of both exports and export prices since the mid 90's in the countries analyzed suggests that such an improvement had to be made much quicker than for their trade partners[34]. Secondly, due to the difficulty of acquiring other data, changes in export prices in industrialized countries were assumed to be a reference point for economies in transition. Yet goods exported by the latter have been competing first and foremost with products from developing countries[35]. Thirdly, the analysis is based on the implicit assumption that exporters are price-makers. However, in the case of the countries under consideration, rather the opposite seems to be true, since they are small, and, additionally, not many enterprises operating there sell highly processed goods.

[33] This resulted solely from the forint devaluation. It allowed Hungarian enterprises to lower export prices in foreign currency and at the same time to raise them in the domestic currency much more strongly than in previous years.

[34] This is quite evident for anyone who had the opportunity to buy something in the countries under discussion during the time of communism and after its collapse.

[35] For instance, with the exception of Hungary and Estonia, the share of high technology exports in manufacturing exports was about 4 times smaller in transition economies than in developed countries.

Table 7. Fiscal Consolidation and Export Performance.

		Hungary	Lithuania		Estonia		Latvia	
		1995-96	1997	2000	1997	2000-01	1996-97	2000-01
Export momentum	a year before	13.7	19.4	-16.8	2.4	0.5	4.3	-6.4
	during consolidation	10.9	18.6	9.8	29.5	13.3	16.6	9.4
	a year after consolidation	26.4	4.6	21.2	12.0	0.6	4.9	6.3
GDP growth in main trade partners of NMS during consolidation (i.e. in EU)		1.8	2.6	3.6	2.6	2.5	2.1	2.5
Total change of NEER during consolidation (positive change means its appreciation)		-28.6	16.2	17.0	-2.8	-1.4	6.9	2.6
Total change in share of labor remuneration in output (in p.p)		-5.1	0.3	-3.3	-1.3	-5.0	0.0	-4.7
Total change in export prices relative to the average for 35 industrial countries (prices expressed in common currency)		-1.2	14.1	17.4	4.4	7.5	11.1	7.5

The aforementioned non-Keynesian mechanisms' contributing to export growth could also explain at least some part of the investment growth during the fiscal adjustment periods. With a non-increasing tax burden, the drop in the share of labor remuneration in output was tantamount to the increase of the share of capital remuneration. That raised enterprises' ability to invest. They simply had more money for that purpose. The favourable economic situation of enterprises allowed them not only to finance investment from their own resources, but also, by improving their credit standing, facilitated access to external financing (see, e.g., Ben Bernanke, Mark Gertler, 1989). Since the capital depreciation to output ratio remained stable, relatively higher capital remuneration meant a higher rate of return from investment. Hence, it not only increased enterprises' ability, but also their propensity, to invest. Investment momentum amounted, on average, to 15,2% and it was higher by 12 p.p. than a year before fiscal consolidation. Only in Lithuania in 2000 it was negative, but already a year later it came to 17.0%. Such a lag in investment increase is natural. On the one hand, entrepreneurs need time to become convinced that shifts in income structure - towards relatively higher remuneration of capital and lower remuneration of labor - are of a more lasting nature. On the other hand, the investment process is time-consuming in itself, as it consists of many stages. The same phenomenon that occurred in Lithuania was, in fact, also observed in Hungary. In 1995-1996 the contribution of gross fixed capital formation to investment growth did not even exceed 1 p.p., that is to say 7%. Enterprises preferred investing in inventories[36]. Thus, they must have perceived the increase in their profit margin to be only transitory, as is often the case with increases caused by devaluation. They did not start investing in fixed capital until the curtailment of public expenditure on wages and salaries managed to dispel those concerns. Gross fixed capital formation momentum rose from -4.3% in 1995 to 6.7% in 1996 and then to 9.2% in 1997 and 13.3% in 1998 (its highest level over the transition period).

In five episodes, fiscal policy raised the rate of return from investment in a more direct way than through impact on the behavior of employees and employers in wage bargaining. Reducing fiscal imbalances made room for large tax cuts. In Hungary in 1995 corporate income tax was halved from 36 to 18%[37]. In Lithuania in 1997 the government reduced tax on retained earnings to 0%. In 2000 it lowered the CIT general rate from 29 to 24% (and to 15% in 2002[38]). In Estonia in 2000 tax on reinvested earnings was abolished. In Latvia in 2001 the CIT general rate was cut from 25 to 22% (see, e.g., Vahram Stepanyan, 2003, pp.26-

[36] Inventories were growing despite the decline in GDP momentum. If their increase had been caused by a false evaluation of demand by entrepreneurs, strong adjustments would have occurred in the following years.

[37] It was reduced to the former level only in the previous year; prior to 1994 it amounted to 40%; see, e.g., Gabor P. Kiss and György Szapáry (2000, p. 255).

[38] In this year government, under the pressure of the European Commission, agreed to reintroduce the tax on retained earnings.

27). Without a reduction in the deficit such tax cuts would have been less likely, still it is hard to consider this source of investment increase to be non-Keynesian.

So let's return to purely non-Keynesian mechanisms. Aside from those contributing to wage moderation, it seems that some other non-Keynesian mechanisms were at work too. Fiscal consolidation clearly limited uncertainty as to macroeconomic stability. It not only lowered the risk of government insolvency, but also reduced external imbalance. Having a positive impact on both export and domestic demand, it was followed by significant net export improvement only in two cases. In Hungary net export increased from -5.9% of GDP in 1994 to -1.1% of GDP in 1996, and in Lithuania from -10.3% of GDP in 1998 to -6.5% of GDP in 2000. However, an increase in export relative to GDP, which occurred in all countries during the tightening of fiscal policy, was equivalent to broadening their capability to service and repay foreign liabilities. On average, the export to GDP ratio rose, in total, by 6.7 p.p. Domestic enterprises were extensively utilizing imported goods as an input for export. This feature of international trade used by the countries under analysis reduced the risk of widening the external imbalance, should a negative shock in external demand occur. At the same time, due to GDP growth acceleration, the same value of foreign liabilities presented a lower percentage of output than before. Thereby their servicing or repayment presented a smaller burden for the economy than in the case of slower growth[39]. Besides, fiscal adjustment meant an improvement of the composition of domestic expenditure financed by foreign savings. Firstly, as is obvious, they started financing more private expenditure than government expenditure, the latter being, on average, more wasteful than the former. Not only the foreign capital inflow that was actually financing the budget deficit decreased, but also the value of loans taken out directly by governments abroad, and those loans are considered to have a particularly negative impact on markets' perception of a country's macroeconomic stability. In one case, i.e., that of Estonia in 2000-2001, general government net foreign assets even became positive. Secondly, foreign savings were financing, to a larger degree than prior to consolidation, investment rather than consumption. In all cases but that of Lithuania in 2000, the share of investment in GDP increased. The increase amounted, on average, to 2.5 p.p. Higher investment may lead to a rise in external competitiveness and, as a result, higher future exports, expanding the capability of a country to service foreign debt. With the exception of Latvia in 1996-1997, the national savings to GDP ratio also rose, but only in the two aforementioned cases of Hungary in 1995-1996 and Lithuania in 2000 was its rise large enough to reduce the needs of foreign financing for domestic expenditure considerably.

The lower risk of financial crisis found its reflection in a drop in the risk premium included in interest rates, and in an increase of the net inflow of foreign direct investment. These two changes conducive to faster output growth were notably visible during the first episodes of fiscal adjustment. In spite of structural reforms, market participants considered the stability of the countries under discussion to be rather poor. This applied particularly to Lithuania and Latvia. Only after the reduction of fiscal imbalances, was the assessment vehemently revised.

---

[39] Not in all cases was a short term acceleration of output momentum observed (see Hungary in 1995-1996). However, much more important for the solvency of a country is the fact that in the longer term, lack of fiscal consolidation would have an unambiguously adverse impact on economic growth. Firstly, budget deficit reduces investments by enterprises. On the one hand, it means lower domestic savings (if not all households are aware that the deficit implies higher taxes in the future). On the other hand, it increases the uncertainty concerning the future tax burden and rate of inflation. High uncertainty lowers capital formation all the more, when potential investments are lees reversible and when the degree of capital account liberalisation is higher – what enables entrepreneurs to transfer capital to countries where the risk is not as high. Secondly, deficit reduces employment. Lower investment is equivalent to employees being equipped more poorly in capital and, subsequently, to lower marginal product of labour. For the employment to be at the level corresponding to higher capital stock, wages would have to be lower. Wages, however, are often regulated by the state (government introduces minimal wages, finances various benefits for the unemployed and non-employed, hires employees in the state sector). Finally, deficit may result in the collapse of the economy, should the increase in public debt remain unstopped in due time.
Empirical evaluation of budget deficit's impact on output is provided e.g. by Ross Levine, David Renelt (1992), Stanley Fischer (1993), William Easterly, Carlos A. Rodriguez and Klaus Schmidt-Hebbel (1994), Michael Bleaney, Norman Gemmell, Richard Kneller (2001).

So, firstly, over the earlier period of fiscal adjustment, risk premium[40] in Baltics fell, on average, by 9.3 p.p. Over the subsequent period, the average size of the risk premium drop amounted to 3.3 p.p. In four cases, that fall meant a real decrease in the costs of external funding for business operations. The real lending rate for businesses dropped in Lithuania in 2000, in Estonia in 2000-2001, and in Latvia in both periods of fiscal adjustment[41]. The decrease in nominal interest rates, even if not accompanied by a fall in real terms, favoured external funding of business operations, particularly of longer-term needs, that is to say, of investments. Nominal interest rates set the minimal rate of return for a long term project – if installments, as is quite often the case, are non-growing in nominal terms. In such a situation, high nominal interest rates mean high real costs of the first installments (even if the real interest rate is quite low), since the debtor must repay to the creditor a sum protecting the latter against the decline of the real value of the principal. It is hard to smooth the real costs of installments, for creditors are reluctant to grant another loan for the same collateral[42]. Hence, a project that is financed by a loan, has to generate in all periods an income large enough to pay off an installment of the highest real value, i.e., in the case of non-growing installments – the first one. The experience of Latvia is most striking in this respect. The increase in the amount of credit granted to enterprises during the second period of fiscal adjustment was more than twice as large as the increase during the first period of fiscal adjustment[43], although real interest rates were almost exactly the same in both episodes. During the second adjustment, the contribution of the rise of credit of more than 5 years' maturity to the increase of total credit to the private sector came to 43.0%. During the first adjustment, that contribution did not exceed 12%[44]. Also, in the case of Estonia, a fall in the costs of bank loans increased their attractiveness for enterprises. In Lithuania after disturbances in the banking system[45] in 1995-1996, credit to enterprises rose by barely 6% in nominal terms in 1997, i.e., its nominal momentum did not exceed the inflation rate. By contrast, in 2001-2002, it grew by more than 56%. Yet in relation to GDP, this growth rate was less impressive. However, an analysis of the effects of a decrease in interest rates should not be limited to the availability of loans. A reduction in the cost of credit should be accompanied by a reduction in the cost of capital from other sources. Particularly in those cases where the reduction of the interest rate on bank loans did not lead to a significant growth in the importance of such loans for funding business operations, the price of other financing opportunities, being bank loan substitutes, could still be more favourable and enterprises could benefit from them.

Secondly, FDI net inflow increased during five episodes of fiscal adjustment. The increase was observed in Hungary, in Lithuania in 1997, in Estonia in 1997 and 2000-2001 and Latvia in 1997 and, on average, it amounted in total to 3.2% of GDP. The gross fixed capital formation was directly increased by green-field investments. However, a large part of FDI took the from of the acquisition of privatized state enterprises, and thus had no direct impact on capital formation. Still, its indirect influence is not to be undervalued. On the one hand, the buyers of the privatised companies mostly made a commitment to invest. On the

[40] In the case of Latvia and Estonia, risk premium was calculated as a difference between the lending rate in those countries and in the euro zone respectively. In the case of Lithuania the lending rate in the United States was considered to be the point of reference, since until 31 January 2002 the litas was pegged to the dollar. Because of potentially large differences between individual countries as to the structure of borrowers and loan maturity, this difference may be treated as an approximation only of the risk premium.

[41] The data for Latvia refer to the lending rate not only for enterprises, but also for households. For that reason, the GDP deflator was used while calculating real interest rates, instead of PPI.

[42] The less developed the banking sector is, the more important is the average asymmetry of information between creditors and potential debtors, and consequently the larger is this reluctance.

[43] The difference could be to some extent the aftermath of a banking crisis in Latvia in 1995. A result of that crisis was the bankruptcy of the largest bank (Banka Baltija); see e.g. Wojciech Morawski (2000, p. 359).

[44] Time series, which would present the duration of credit to enterprises exclusively, are not commonly available.

[45] In 1995 there was a banking crisis in Lithuania. As a result, 16 out of 28 banks, including the two largest ones, ceased to operate (Wojciech Morawski, 2002, p. 359).

other hand, corporate management, strengthened by foreign proprietors, favoured the increase of efficiency in the privatised companies, and thus, their capacity to invest[46].

However, one should bear in mind that in the Baltic states the strong growth in investment in 1996-1997 could in some part have resulted from its previous sharp decline, by far exceeding the output fall[47]. In 1990-1995 the investment to output ratio dropped by about 12% in Estonia, 24% in Lithuania, and 56% in Latvia. A relatively long period of recession, lasting in those countries up to 6 years, meant a relatively strong aging of capital, and as a result limited the opportunity for GDP growth without capital expenditure. Besides, a large part of the capital stock, accumulated during communism, could not be used after communism's collapse, at least not without undertaking additional investment (see, e.g., Stanisław Gomułka, 1998). It can be assumed, without risking a major mistake, that five-six years after the beginning of transition, all capital resources that could be used by new entities had found their application. In the case of Estonia and Lithuania, the quite strong growth of GDP in 1995-1996, amounting to 4.1 and 4.0% on average, also contributed to the increase of investment momentum during the fiscal adjustment[48].

Table 8. Fiscal Consolidation and Investment.

		Hungary	Lithuania		Estonia		Latvia	
		1995-96	1997	2000	1997	2000-01	1996-97	2000-01
Investment momentum	a year before	24.3	12.0	-2.1	12.5	-15.4	-11.1	1.7
	during consolidation	14.2	36.6	-11.8	25.1	18.7	11.3	12.0
	a year after consolidation	8.9	19.8	17.0	-0.1	17.5	52.4	4.0
Total change in net export to GDP ratio during consolidation (in p.p.)		4.8	-0.6	3.8	-0.1	1.2	-6.1	-0.9
Total change in export to GDP ratio during consolidation (in p.p.)		9.9	1.2	5.5	11.3	13.4	4.1	1.7
Total change in investment to GDP ratio during consolidation (in p.p.)		5.0	2.1	-2.1	3.2	3.2	5.2	0.7
Total change in national savings to GDP ratio during consolidation (in p.p.)		8.2	1.0	3.1	0.2	1.8	-0.6	3.1
Total change in risk premium during consolidation (in p.p.)			-7.3	-2.2	-1.8	-3.4	-18.9	-4.3
Total change in credit to enterprises to GDP ratio during consolidation (in p.p.)				3.2	7.2	0.9[49]	2.9	7.9
Total change in net inflow of FDI to GDP ratio during consolidation (in p.p.)		2.3	1.8	-1.2	2.3	3.9	5.6	-2.9

[46] Foreign-owned enterprises were much better equipped with capital than enterprises of purely domestic ownership. They were also marked by a larger -and growing -ability to export (see, e.g., IMF, 1999; IMF, 2000). For instance, the goods produced by these foreign owned enterprises could be sold under a brand name, which was recognised more easily in countries where those goods were to be distributed. Hence, the positive influence of fiscal policy consolidation on foreign direct investment inflow presented simultaneously an additional channel through which the former stimulated export. That channel is not discussed more thoroughly in this section because in the short term it could hardly be of comparable importance to the one mentioned, because of the delay between undertaking an investment and starting production. These delays were shortened by making the investment in privatised companies, i.e. already operating companies. But privatisation, even if measured in terms of revenue, gradually died out.

[47] The decrease in investment, and as a result in GDP, after the change of the coordination mechanism, can be at least partly explained by the end of communism's investments, which represented a waste of resources. More can be read about the difficulties connected with comparing GDP before and during the transition period in research by Anders Aslund (2002).

[48] With an increase of output, the desired level of capital grows as well. The observed GDP growth is commonly argued to be one of the most important investment determinants; cf. e.g. Hollis B. Chenery (1952); Robert S. Chirinko (1993); Donald A. Hay, Derek Morris (1991).

[49] In Estonia in 200-2001 credit to enterprises increased by 5.2% of GDP if the assets of leasing companies are added to credit.

With the exception of Hungary, fiscal tightening was followed by a strong rise in private consumption. Its momentum amounted, on average, to 5.0% and was almost twice as high as a year before fiscal adjustment. This phenomenon cannot be explained without recalling non-Keynesian mechanisms[50]. Yet they manifested themselves rather in fast growing disposable income than in dissaving, since household savings were already very low before consolidation (in the case of Latvia they were even negative.) A strong growth of export and investment made GDP and, hence, disposable income grow fast, what in turn enabled households to raise their consumption. However, it should be stressed that a strong growth in consumption occurred despite the difficult situation on the labor market, or the shift of income from individuals with a higher propensity for consumption to those with a stronger propensity to save (as the share of labor remuneration in output declined and the share of capital remuneration increased[51]). The large range of needs that had never been satisfied under communism raised the momentum of private consumption in the 90's. However, the importance of this factor has diminished with time. It could be helpful in explaining the fast growth of private consumption during the first episodes of fiscal contraction, but not that during subsequent ones.

In the case of Hungary private consumption dropped in total by 11.1% in 1995-1996. The size of this drop was even larger than the drop in households' disposable income (which fell by 3.6%), and thus, a much larger than the Keynesian absolute income hypothesis would suggest. The momentum of private consumption clearly decelerated before the tightening of fiscal policy. In 1994 it declined from 3.4% in 1993 to 0.2%, whilst the momentum of households' disposable income rose from -3.9% to 3.5%. Households began rebuilding their savings, which had decreased to 10% of households' disposable income in 1993. By 1996 households' savings rate stayed below the average for the transition period. Thereby, one can consider the years 1994-1996 as a period in which consumption, which had not adjusted to the fall in output at the beginning of transition, was corrected.

Table 9. Fiscal Consolidation and Private Consumption.

		Hungary	Lithuania		Estonia		Latvia	
		1995-96	1997	2000	1997	2000-01	1996-97	2000-01
Private consumption	a year before	0.2	6.5	3.2	9.2	-2.7	-1.7	3.7
	during consolidation	-5.4	5.3	6.4	7.8	5.9	7.4	7.6
	a year after consolidation	1.9	4.7	4.0	4.3	9.4	1.1	6.9

6. Conclusions

Using panel data estimation techniques we found evidence that in the NMS discretionary fiscal consolidation contributed substantially to the acceleration of output growth even in the short term. However, we were not able to identify unambiguously the channels through which non-Keynesian effects occur: we found some evidence confirming only the existence of the export channel.

Yet then we went one step further than in other studies devoted to this topic. We carried out a qualitative analysis of episodes of strong fiscal adjustment in the NMS. It showed that their experiences in that respect were quite close to those of developed countries. The main difference was that in the NMS strong fiscal adjustment was almost always accompanied by acceleration in output momentum, that is to say, non-Keynesian effects

[50] However, the optimism of households in Lithuania and Latvia in 2000 could partly be the result of the negotiations on EU accession, which in the case of those countries had started in December 1999.

[51] Persons receiving a majority of their income from work must, by all means, demonstrate a higher propensity to consume than capital owners, since savings are source of capital. If capital owners demonstrated a higher propensity to consume than workers, they would lose their property.

occurred much more often than in the developed countries. That difference could partly be explained by vehement reassessment of the stability of the NMS, the market sentiment being rather negative before the reduction of fiscal imbalances. This peculiar bonus of prior low credibility applied to the adjustments which were undertaken in mid 90's. However, later, the fiscal consolidation contributed to the acceleration of output momentum mainly because it concentrated on cuts of public expenditure, and not because of any special features of NMS.

References

- Alesina A., Ardagna S. (1998), Tales of fiscal adjustment, "Economic Policy: A European Forum", Vol. 27, October, pp. 487-546
- Alesina A., Ardagna S., Perotti R., Schiantarelli F. (1999), Fiscal Policy, Profits, and Investment, NBER Working Paper, No. 7207, National Bureau of Economic Research, Cambridge, July
- Alesina A., Perotti R. (1996) Fiscal Adjustments in OECD Countries: Composition and Macroeconomic Effects, NBER Working Paper, No. 5730, National Bureau of Economic Research, Cambridge, August
- Alesina A., Perotti R., Tavares J. (1998), The Political Economy of Fiscal Adjustments, "Brookings Papers on Economic Activity", No. 1, pp. 197-266
- Almonacid R. D. (2003), The Determinants of Nominal Income, Output and the and the price level: A synthesis of the Keynesian and neo-classical views, "Journal of International Money and Finance", Vol. 22, pp. 747-772.
- Arellano M., Bond S. (1991), Some Test of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations, "Review of Economic Studies", Vol. 58, pp. 277-97.
- Arellano M., Bover O. (1995), Another Look at the Instrumental Variable Estimation of Error-Components Models, "Journal of Econometrics", Vol. 68, pp. 29-51.
- Aslund A. (2002), Building Capitalism: The Transformation of the Former Soviet Bloc, Camridge University Press, New York
- Baltagi B.H. (2003), Econometric Analysis of Panel Data, John Wiley & Sons, Chichester
- Beck N., Katz J. (1995), What to Do (and Not to Do) with Time-Series Cross-Section Data, "American Political Science Review" , Vol. 89, pp. 634-647
- Bertola G., Drazen A. (1993), Trigger Points and Budget Cuts: Explaining the Effects of Fiscal Austerity, "The American Economic Review", Vol. 83, No. 1, March
- Bhattacharya R. (1999), Private Sector Consumption Behavior and Non-Keynesian Effects of Fiscal Policy, IMF Working Paper, No. 99/112, International Monetary Fund, Washington, August
- Blanchard O. J. (1985), Debt, Deficits, and Finite Horizons, "The Journal of Political Economy", Vol. 93, No. 2, April, pp. 223-247
- Blanchard O. J. (1990), Comment on Giavazzi and Pagano, NBER Macroeconomics Annual 1990, National Bureau of Economic Research, Cambridge
- Bleaney M.,Gemmell N., Kneller R. (2001), Testing the endogenous growth model: public expenditure, taxation, and growth over long run, "Canadian Journal of Economics", No. 1
- Chenery H. B. (1952), Overcapacity and the acceleration principle, "Econometrica", Vol. 20, No. 1, pp. 1-28
- Chirinko R. S. (1993), Business fixed investment spending: modeling strategies, empirical results and policy implications, "Journal of Economic Literature", Vol. 31, pp. 1875-1911
- Easterly W., Rodriguez C. A., Schmidt-Hebbel K. (1994), Public Sector Deficits and Macroeconomic Performance, The World Bank, Washington D.C.
- Finn M., (1998), Cyclical Effects of Government's Employment and Goods Purchases, "International Economic Review", Vol. 39, No.3, August, pp. 635-657
- Fischer S. (1993), The Role of Macroeconomic Factors in Growth, "Journal of Monetary Economics", Vol. 32, pp.485-512

- Giavazzi F., Jappelli T., Pagano M. (1999), Searching for Non-Keynesian Effects of Fiscal Policy, CSEF Working Paper, No. 16, Centre for Studies in Economics and Finance, February
- Giavazzi F., Jappelli T., Pagano M. (2000), Searching for Non-Linear Effects of Fiscal Policy: Evidence from Industrial and Developing Countries, NBER Working Paper, No. 7460, National Bureau of Economic Research, Cambridge, January
- Giavazzi F., Pagano M. (1990), Can Severe Fiscal Contractions Be Expansionary? Tales of Two Small European Countries, NBER Macroeconomics Annual 1990, National Bureau of Economic Research, Cambridge
- Giavazzi Francesco, Pagano Marco (1996), Non-Keynesian Effects of Fiscal Policy Changes: International Evidence and the Swedish Experience, NBER Working Paper, No. 5332, National Bureau of Economic Research, Cambridge, October
- Gomułka S. (1998), Teoria innowacji i wzrostu gospodarczego, Centrum Analiz Społeczno-Ekonomicznych, Warszawa
- Hay, D.A., Morris, D.J. (1991), Industrial economics and organization: theory and evidence, Oxford University Press, Oxford
- Hemming R., Kell M., Mahfouz S. (2002), The Effectiveness of Fiscal Policy in Stimulating Economic Activity – A Review of the Literature, IMF Working Paper, No. 02/208, International Monetary Fund, Washington D. C.
- Hemming R., Mahfouz S., Schimmelpfennig A. (2002), Fiscal Policy and Economic Activity During Recessions in Advanced Economies, IMF Working Paper, International Monetary Fund, Washington D.C.
- Hicks J. R. (1937), Mr. Keynes and the Classics; A Suggested Interpretation, "Econometrica", Vol. 5, April, pp. 147-59
- IMF (1999), Hungary: Selected Issues, IMF Staff Country Report, No. 99/27, International Monetary Fund, Washington D.C., April
- IMF (2000), Republic of Latvia: Selected Issues and Statistical Appendix, IMF Staff Country Report, No. 00/100, International Monetary Fund, Washington D.C., August
- Kattai R., Kangur A., Liiv T., Randveer M. (2003), Automatic fiscal stabilisers in Estonia: the impact of economic fluctuations on general government budget balance, Eesti Pank, Tallinn, December
- Keynes J. M. (1936), The General Theory of Employment, Interest and Money, Macmillan Cambridge University Press. Cambridge
- Kiss G. P., Szapáry G. (2000), Fiscal Adjustment in the Transition Process: Hungary, 1990-1999, "Post-Soviet Geography and Economics", Vol. 41, No. 4, pp. 233-264
- Kiss G. P., Vadas G. (2004), Mind the gap – watch the ways of cyclical adjustment, MNB Working Paper, No. 2004/7, Hungarian National Bank, Budapest, June
- Klyviene V. (2003), Cyclical adjustments – the main problems and challenges from a Lithuanian perspective, Fiscal forecasting, monitoring and analysis in the ESCB Workshop, Berlin, 17-18 September
- Kneller R., Bleaney M., Gemmell N. (1998), Growth, Public Policy and the Government Budget Constraint: Evidence from OECD Countries, Department of Economics Discussion Paper, No.14, University of Nottingham
- Lane P. R., Perotti R. (2001), The Importance of Composition of Fiscal Policy: Evidence from Different Exchange Rate Regimes, Trinity College Dublin CEG Working Papers, No. 2001/11, Trinity College Dublin Economics Department, Dublin, October
- Levine R., Renelt D. (1992), A Sensitivity Analisis of Cross-Country Growth Regression, "American Economic Review", Vol. 82, No. 2, September, pp. 942-963

- Mankiw G. N., Summers L. H. (1984), Are Tax Cuts Really Expansionary?, NBER Working Paper 1443, National Bureau of Economic Research, Cambridge, September
- McDermott J. C., Wescott R. F. (1996), An Empirical Analysis of Fiscal Adjustments, IMF Staff Papers, Vol. 43, No. 4, International Monetary Fund, Washington D.C., December
- Miller M., Skidelsky R., Weller P. (1990), Fear of Deficit Financing: Is it Rational? in: Dornbusch R., Draghi M. /eds./, Public Debt Management: Theory and History, Cambridge University Press, Cambridge
- Morawski W. (2002), A general history of money and banking, Wydawnictwo TRIO, Warsaw (in Polish)
- Obstfeld M.(1998), The Global Capital Market: Benefactor or Menace?, Paper prepared for the "Journal of Economic Perspectives"
- Perotti R. (1999), Fiscal Policy in Good Times and Bad, "Quarterly Journal of Economics", November, pp.1399-1436
- Perotti R. (2002), Estimating the Effects of Fiscal Policy in OECD Countries, ECB Working Paper, No. 168, European Central Bank, Frankfurt am Main, August
- Pesaran M. H., Smith R. (1995), Estimation of Long-Run Relationships from Dynamic Heterogeneous Panels, "Journal of Econometrics", Vol. 68, pp. 79-114.
- Rzońca A. (2004), Non-keynesian effects of fiscal contraction. Modified Blanchard model, „Bank i Kredyt", November-December (in Polish)
- Rzońca A. (2005a), Portfolio crowding out and fiscal multipliers. Part I. Modified Silber model. Part II. Modified Friedman model, „Bank i Kredyt", January-February (in Polish)
- Rzońca A. (2005b), What does influence the probability of occurrence of non-Keynesian effects?, „Bank i Kredyt", forthcoming (in Polish)
- Silber W. L. (1970), Fiscal Policy in IS-LM Analysis: A Correction, "Journal of Money, Credit and Banking", Vol. 2, November, pp 461-72
- Stepanyan V. (2003), Reforming Tax Systems: Experience of the Baltics, Russia, and Other Countries of the Former Soviet Union, IMF Working Paper, No. 03/173, International Monetary Fund, Washington D.C., September
- Sutherland A. (1995), Fiscal Crises and Aggregate Demand: Can High Public Debt Reverse the Effects of Fiscal Policy, CEPR Discussion Paper No. 1246, London, September
- Von Hagen J. (2002), More Growth for Stability – Reflections on Fiscal Policy in Euroland, ZEI University of Bonn, Bonn.
- Von Hagen J., Traistaru I. (2004), Macroeconomic Adjustment in the New EU Member States, Third ECB Central Banking Conference.

European Central Bank working paper series

For a complete list of Working Papers published by the ECB, please visit the ECB's website (http://www.ecb.int)

490 "Unions, wage setting and monetary policy uncertainty" by H. P. Grüner, B. Hayo and C. Hefeker, June 2005.

491 "On the fit and forecasting performance of New-Keynesian models" by M. Del Negro, F. Schorfheide, F. Smets and R. Wouters, June 2005.

492 "Experimental evidence on the persistence of output and inflation" by K. Adam, June 2005.

493 "Optimal research in financial markets with heterogeneous private information: a rational expectations model" by K. Tinn, June 2005.

494 "Cross-country efficiency of secondary education provision: a semi-parametric analysis with non-discretionary inputs" by A. Afonso and M. St. Aubyn, June 2005.

495 "Measuring inflation persistence: a structural time series approach" by M. Dossche and G. Everaert, June 2005.

496 "Estimates of the open economy New Keynesian Phillips curve for euro area countries" by F. Rumler, June 2005.

497 "Early-warning tools to forecast general government deficit in the euro area: the role of intra-annual fiscal indicators" by J. J. Pérez, June 2005.

498 "Financial integration and entrepreneurial activity: evidence from foreign bank entry in emerging markets" by M. Giannetti and S. Ongena, June 2005.

499 "A trend-cycle(-season) filter" by M. Mohr, July 2005.

500 "Fleshing out the monetary transmission mechanism: output composition and the role of financial frictions" by A. Meier and G. J. Müller, July 2005.

501 "Measuring comovements by regression quantiles" by L. Cappiello, B. Gérard, and S. Manganelli, July 2005.

502 "Fiscal and monetary rules for a currency union" by A. Ferrero, July 2005

503 "World trade and global integration in production processes: a re-assessment of import demand equations" by R. Barrell and S. Dées, July 2005.

504 "Monetary policy predictability in the euro area: an international comparison" by B.-R. Wilhelmsen and A. Zaghini, July 2005.

505 "Public good issues in TARGET: natural monopoly, scale economies, network effects and cost allocation" by W. Bolt and D. Humphrey, July 2005.

506 "Settlement finality as a public good in large-value payment systems" by H. Pagès and D. Humphrey, July 2005.

507 "Incorporating a "public good factor" into the pricing of large-value payment systems" by C. Holthausen and J.-C. Rochet, July 2005.

508 "Systemic risk in alternative payment system designs" by P. Galos and K. Soramäki, July 2005.

509 "Productivity shocks, budget deficits and the current account" by M. Bussière, M. Fratzscher and G. J. Müller, August 2005.

510 "Factor analysis in a New-Keynesian model" by A. Beyer, R. E. A. Farmer, J. Henry and M. Marcellino, August 2005.

511 "Time or state dependent price setting rules? Evidence from Portuguese micro data" by D. A. Dias, C. R. Marques and J. M. C. Santos Silva, August 2005.

512 "Counterfeiting and inflation" by C. Monnet, August 2005.

513 "Does government spending crowd in private consumption? Theory and empirical evidence for the euro area" by G. Coenen and R. Straub, August 2005.

514 "Gains from international monetary policy coordination: does it pay to be different?" by Z. Liu and E. Pappa, August 2005.

515 "An international analysis of earnings, stock prices and bond yields" by A. Durré and P. Giot, August 2005.

516 "The European Monetary Union as a commitment device for new EU member states" by F. Ravenna, August 2005.

517 "Credit ratings and the standardised approach to credit risk in Basel II" by P. Van Roy, August 2005.

518 "Term structure and the sluggishness of retail bank interest rates in euro area countries" by G. de Bondt, B. Mojon and N. Valla, September 2005.

519 "Non-Keynesian effects of fiscal contraction in new member states" by A. Rzońca and P. Ciżkowicz, September 2005.