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IS INTERNAL DEVALUATION POLICY IN THE EU EFFECTIVE?

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ABSTRACT: *This research provides in-depth analysis of the causes and outcomes of internal devaluation policy in EU. It is conducted using statistical and econometric tools on a sample of three groups of EU member states: EU new member states, PIIGS, and the rest of the EU (EU-core). The analysis points to the key drivers of economic growth in the whole of the EU as being productivity and investment (and consumption in EU new member states and EU core members). Unit labour costs are relevant for GDP growth in PIIGS but*

with a positive sign, while for the rest of the EU it is not a significant variable. The policy of internal devaluation is unsuitable for application in any EU member states, due to individual specificities. The solution is stronger EU governance that takes the heterogeneity of EU member states into consideration in the process of creating policies and finding solutions.

KEY WORDS: *internal devaluation, Baltic States, PIIGS, EU governance, panel data analysis*

JEL CLASSIFICATION: F34, F15, E24

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INTRODUCTION

After the global economic crisis, the EU member states face a slow and unbalanced economic recovery. Their economies do not share a common growth model: while some countries have export-led growth, the countries of South and Central-East Europe have based their development on consumption (demand) growth. That fact (along with financial integration/openness) is the backdrop to their economic decline during the global recession and their slow and inadequate post-crisis recovery. On the one hand there are countries with current account surpluses (such as Germany – the largest economy in the EU), while on the other hand many countries had deficits that were subjected to a crisis that brought wage cuts and increased unemployment, and thus a reduction in personal consumption. It is evident that during and after the crisis, most of the problems (high budget deficit and high public debt growth) were in those countries where growth is based on consumption, and with the decline in consumption, economic growth becomes negative or only slightly positive. These countries are characterized by a drop in competitiveness and very limited room for economic policy measures. Usually in such situations the government (under pressure from the Troika – the European Commission, the European Central Bank, and the International Monetary Fund) has to apply austerity (fiscal) policies to reduce budget expenditure. Consumption-led growth with growing trends is unsustainable in the long run and produces adverse effects such as increased (public/foreign) debt, but in the short run it boosted the economies in countries of Central, East and South Europe. The financial means provided by the Troika are not unconditional: countries have to implement structural reforms aimed at decreasing the public debt (and budget deficit), improving the current account, promoting exports, reforming the pension system, and increasing wage and price flexibility (i.e., reducing consumption), etc. Countries first sign a Memorandum of Understanding with the Troika, and the country then has to present an Economic Adjustment Programme in which the goals and measures are explained. The focus of these programmes is on structural reforms to boost potential growth, create jobs, and improve competitiveness; a fiscal consolidation strategy, aimed at putting the gross public debt-to-GDP ratio on a firm downward path in the medium term and reducing the deficit below 3%; and a financial sector strategy to safeguard the financial sector against disorderly deleveraging through market-based mechanisms, supported by backstop facilities. This is specially the case in Cyprus and Spain (European Commission, 2015).

The decline in economic activity during the last economic crisis and the very slow and uncertain economic recovery spurred a new analysis of the effects of

devaluation that differentiates between external devaluation (weakening of the exchange rate), and internal devaluation, which has been less researched. However, in recent years, as internal devaluation has been applied in countries of the EU monetary union and other countries with a fixed exchange rate, it has become the subject of analysis.

The goal of this paper is to discover the importance of internal devaluation variables to the GDP growth rate in the EU. We will provide arguments regarding the effectiveness of the policy of internal devaluation. Panel data analysis is applied to discover the main determinants of economic growth in the period 2000-2015 for the three groups of EU member states: Portugal, Italy, Ireland, Greece and Spain (PIIGS), the EU new member states (Bulgaria, Czech R., Croatia, Cyprus, Hungary, Estonia, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Romania) and the rest of the EU, the so-called EU core (Austria, Belgium, Denmark, Finland, France, Germany, Luxembourg, Netherlands, Sweden, UK). The paper's aim is to extend analysis of the applicability and effectiveness of internal devaluation in EU member states.

The paper is structured as follows. The second section presents a review of the main findings on internal devaluation in the literature and the third presents the panel data analysis and discussion of results. The conclusion is provided in the fourth chapter.

2. LITERATURE REVIEW

When a country wants to increase its exports and competitiveness in international markets, one possible mechanism is exchange rate policy. If there is elasticity of foreign demand for domestic products and elasticity of domestic demand for foreign products, exchange rate depreciation (external devaluation) will improve the trade balance. Although such a devaluation has costs (increase in the price of imported intermediate goods, increase of credit in the domestic currency), it is considered to be the easier way to stimulate exports. The issue of internal devaluation policy arose in Europe during and after the global economic crisis because of the limited possibility of using external devaluation in the Eurozone and other countries with fixed exchange rates.

According to Optimal Currency Area (OCA) theory, wage and price flexibility are necessary for a smooth monetary union because EU member states have surrendered their ability to use national monetary and exchange rate policies.

If an asymmetric shock takes place, wage and price adjustment should replace nominal devaluations (Mundell 1961; De Grauwe 2012). Armingeon and Baccaro (2012) emphasize that fiscal transfers should be part of the institutional architecture of a currency union. When considering internal devaluation it is also important to take into account the role of fiscal policy, which can apply (in recession) fiscal contraction (consolidation) and expansion. According to Keynes, it is better for a country to apply expansionary fiscal policy to stimulate falling aggregate demand (and therefore employment). The currency peg and lack of fiscal resources (and the high cost of obtaining them from international financial markets) are serious limitations to applying such policy, and it also slows down internal devaluation and therefore the process of regaining competitiveness. On the other hand, fiscal consolidation (cutting expenditure) results in decreased employment, lower aggregate demand, and falling economic activity, which then depresses tax revenues.

Internal devaluation processes aim to pursue this adjustment through plummeting production costs caused by deflation and the implementation of structural reforms. Since governments have no influence on overall prices they must rely on substantial cuts to civil servants' wages, private sector salaries, and, eventually, production prices. In short, internal devaluation refers to the reduction of salaries in order to maintain the same level of employment and increase productivity. A shift in investment and structural reform is necessary. It is assumed that currency devaluation is the better option, because, due to wage rigidity, internal devaluation takes longer and therefore generates greater political and social costs.

Given that external devaluation is not possible in the countries with fixed exchange rates or in countries participating in monetary union because monetary union has imposed fiscal rigidity and removed monetary independence, adjustment has to come through the labour market. Therefore, policy discussion has focused on analysing unit labour costs. A number of economists have concluded that to close the 'competitiveness gap', in particular with Germany, requires downward adjustments in relative wages (Black 2010).

When we talk about internal devaluation the question is whether we understand how it works. Blanchard et al. (2013) are very cautious and warn that it works "in ways different from the textbook adjustment". The government decision to reduce wages in the public sector does not mean that the same trend will occur in the private sector, so it is possible that private sector wages will decline less. The

increase in productivity (based on improvement in unit labour costs) was only partly transmitted to prices, leading to an increase in firms' profit margins.

Only a few papers have been written on the effects of internal devaluation. In the recent period they have dealt with the case of the Baltic states, as countries that have applied internal devaluation as a way out of the crisis, and to the countries of Southern Europe, which are most affected by the crisis due to inefficient implementation of internal devaluation.

Constantinos and Nellis (2013) explain internal devaluation as a process of price and wage setting through which countries can improve price competitiveness, i.e., spillover effects on its exports and aggregate demand. But competitiveness is a broad term, and price levels are just one aspect of it.

Bara and Piton (2012) address the effectiveness of internal and external devaluation and find that internal devaluation has been a slow process in Latvia and Ireland, allowing only limited adjustment at the price of persistent social costs, while external devaluation produces more evident results (for example, in the cases of Argentina and Iceland). They warn that internal devaluation processes must be backed by a cooperative European strategy.

In the Baltic States the labour market is very flexible, especially in terms of downward wage flexibility, due to low unionisation, private labour law contracts in public administration, and easy dismissal rules (Goretti 2008, Eamets, Masso 2004). Blanchard et al. (2013) point to Latvia as a successful example of internal devaluation policy. The Latvian authorities decided to maintain their currency peg and adjust through internal devaluation and front-loaded fiscal austerity rather than devalue. Despite the costs of this kind of adjustment – a large drop in output, a big increase in unemployment, and substantial emigration – it has resulted in increased productivity rather than nominal wage cuts driving much of the unit labour cost reduction, which has led to an increase in profit margins (rather than a decrease in prices) and to a surprisingly fast supply response. But Blanchard et al. (2013) also warn that the Latvian experience cannot be applied to Southern European countries because of their different circumstances. Internal devaluation has been a positive mechanism for Latvia because of its specificities, but this does not mean that it will be a good solution for other EU member states.

Uxo et al. (2014) show the failure of internal devaluation policies in the European periphery (Spain, Portugal, and Greece). They find an improvement in current account and trade balances but also indicate that internal devaluation

is insufficient. Wage and unit labour costs have decreased, but real effective exchange rates have improved much less if they are calculated using production prices or export prices. This means that appreciation of the euro cancelled out the effects of internal devaluation.

Papadimitriou et al. (2013) and Polychroniou (2014) show that the implementation of internal devaluation in Greece is having a strong restrictive effect on the disposable income of households and their spending, which is not compensated for by a positive contribution of net exports to growth.

Armingeon and Baccaro (2012) warn that the internal devaluation policy that is being imposed on Greece, Ireland, Italy, Portugal, and Spain is ineffective and counterproductive. Internal devaluation depresses growth, and the absence of growth requires further austerity for governments to regain their fiscal credibility, thus generating a vicious cycle. Eurozone members have lost any meaningful ability to choose between alternative policy options and, as a result, all countries implement pretty much the same, deeply unpopular, austerity package.

Felipe and Kumar (2014) warn of the problem of calculating unit labour costs on an aggregate level and find that a large reduction in nominal wages will not solve the problem that some Eurozone countries (Greece, Spain, Portugal) face. They also offer a solution to the problems of how to allow fiscal policy play a larger role in the Eurozone and how to upgrade the export basket to improve competitiveness with more advanced countries. There is a lack of empirical relationship between the growth in unit labour costs and output growth. This is referred to in the literature as Kaldor's paradox (Kaldor 1978).

Adam and Moutous (2014) find that when contractionary credit and budgetary policies come to an end, wage reductions in the periphery countries of the euro area can have a non-negligible, albeit modest, effect on future employment growth.

It is clear that the success of internal devaluation is very dependent on several factors, mainly domestic market flexibility and openness of the economy, which reduce the adverse effects of this policy on domestic demand (Pfannkuche 2010). Essentially, these features are common to both Latvia and Lithuania. However, further analysis shows that the internal devaluation policy in these economies has been only partially successful. Higher external competitiveness means not only a reduction in unit-labour costs but also a focus on policies reinforcing structural changes in the economy. One of the major sources of imbalance

has been the labour market. In pre-crisis years, wages grew much faster than labour productivity. The widening of the gap between wages and productivity was mostly associated with non-tradable sectors like construction, retail trade, and transportation, but export-oriented manufacturing also started to feel the pressure. The consequence of this imbalance was pressure on external competitiveness. Internal devaluation has led to competitiveness gains, which are reflected in these countries' significantly improved external position and broadly balance the current account position.

Some authors examine the relationship and contribution of the 'core' developed EU centre to the appearance and widening of imbalances in Southern and Southeastern Europe (Lapavitsas et al. 2010). Bartlett (2014) explains the core-periphery model in the EU through the dependency between the highly developed countries and the Southeastern European countries. He points out that import demand and credit activities in Southern European countries contributed to current account surpluses in 'core' countries that faced under-consumption and were threatened by stagnation. He suggests a better way out of the current period through coordinated fiscal expansion to stimulate domestic and Europe-wide demand. The developed EU member states should help to solve the problems of Southern European countries because they influence their ability to sustain development.

Steinberg and de Cienfuegos (2012) indicate the political and economic risks associated with the German strategy for solving the Eurozone's debt crisis. They warn that Germany is leading reform of the Eurozone's governance but is doing so based on an incomplete diagnosis of the crisis, believing that fiscal austerity will be enough to save the euro. They argue that the German strategy of "authoritarian austerity" is hindering economic growth in Europe. Armingeon and Baccaro (2012) find that the German current account surplus is equal to the deficit of Greece, Spain, Portugal, and Italy together, indicating that Germany and other 'core' countries have developed their economies thanks to exporting to the Southern European countries. These authors find internal devaluation policy in the EU peripheral countries to be inadequate.

Here we should also point to the necessity for higher fiscal transfers in the EU. Fiscal transfers should be part of the institutional architecture of a currency union (Armingeon and Baccaro, 2012). Currently, the EU budget is very small in comparison with national budgets: it represents only 1.24% of EU GNI and is spent on agricultural policy, cohesion policy, the global role of the EU, administration, etc., and there is no specific expenditure for countries hit by asymmetric shocks

connected with Economic and Monetary Union EMU. Expenditure follows the goals of Europe 2020 strategy. Fiscal cooperation is very poor and it is unlikely that the situation will change in the near future. However, solidarity has been partially realized in the last five years through new initiatives and outcomes, such as establishing the European Financial Stability Facility (EFSF), the European Stability Mechanism (ESM), and the Fiscal Compact (Treaty on Stability, Coordination and Governance in the Economic and Monetary Union). Countries in the process of repaying their debt are under special supervision from the European Commission, via so-called Post-Programme Surveillance (PPS), until at least 75% of the financial assistance received has been repaid. The objective of PPS is ultimately to measure a country's capacity to repay its outstanding loans to international creditors (European Commission 2015).

3. RESEARCH

3.1. Data and methodology

We have analysed the determinants of GDP growth rates separately for the PIIGS group (Portugal, Ireland, Italy, Greece and Spain), the EU new member states (Bulgaria, Czech R., Croatia, Cyprus, Hungary, Estonia, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Romania) and the rest of the EU, the so-called EU core (Austria, Belgium, Denmark, Finland, France, Germany, Luxembourg, Netherlands, Sweden, UK).

Behind the implementation of internal devaluation policy are numerous deteriorations of macroeconomic indicators.

- The unemployment rate increased from 7% in 2008 to 10.2% in 2014
- In 2009 the EU had a negative GDP growth rate (-4.4% for EU28) and after 2009 most EU member states started a slow recovery with low, albeit positive growth rates
- Wage and productivity growth were mismatched. In particular Southern and Central-Eastern European countries had high wage growth compared to productivity growth and also compared to, for example, Germany. During the 2000s wages increased in many Eurozone countries, especially Greece, Spain, and Portugal, while labour costs in Germany remained broadly unchanged. In this way Germany improved its competitiveness and boosted its exports.
- There was an unsustainable level of public debt, especially in PIIGS, with a public debt level of over 100% of GDP in Greece, Italy, Portugal and Ireland.

Particularly concerning is the fast-growing trend of public debt (in Ireland and Portugal between 2000 and 2014 it increased from 36% to 110% and from 50% to 130% respectively). Armington and Baccaro (2012) warn that fiscal irresponsibility was not a common characteristic of PIIGS – when the crisis hit, their fiscal positions differed considerably. Only Greece had a fiscal problem before the crisis, while in the other countries the fiscal imbalance was largely the result of economic shocks that hit from 2007 on. The Baltic States have lower public debt, below 60% of GDP, but it also has a growth trend (in Estonia from 5.1% to 10.6% of GDP and in Latvia from 12.2% to 40% of GDP between 2000 and 2014, while the Lithuanian debt increased from 14.6% to 41% in the period 2008-2014 (Eurostat 2015).

- During the financial crisis the problem of debt servicing arose, and its influence on the growing gap between the interest rates in PIIGS and EU new member states and German bond yields. While this spread remain below 0.5 percentage points in 2000 for all countries except Italy and Greece¹ the differences are growing, and in 2014 it was above 1 percentage point for Spain, Ireland, Italy, Lithuania, and the EU28, while for Portugal and Latvia it was above 2 percentage points and for Greece almost 6 percentage points. These differences reflect problems with obtaining new financial resources in the international capital markets and international investors' loss of confidence (which is also evident in lower credit ratings).

Annual data is from the Eurostat database and covers the period 2000 to 2015. As the sample has a cross-sectional dimension, represented by countries ($i = 1; \dots; N$), and a longitudinal dimension, represented by a time series ($t = 1; \dots; T$ periods), the panel data method is used. The sample comprises unbalanced panel data; that is, there are some periods missing from some units in the population of interest. Panel data analysis can be static (fixed and random effects) or dynamic (Wooldridge 2002, Hsiao 2003, Verbeek 2008). We will provide static analysis. The random effects and fixed effects estimation methods deal with the problem of non-observed heterogeneity. Fixed effects models capture country-specific effects with α_i , which does not change over time, and random effects incorporate heterogeneity among the countries by including a specific non-observable effect (ϵ_{it}) in the error term.

We started with the following model:

¹ There is no data for the Baltic states for 2000, and for Estonia there is no data even for the more recent period.

$$(\text{RGDPgr})_{i,t} = \alpha + \beta_1 X_{1\dots n_{i,t}} + \text{dummy} + \varepsilon_{it} \quad (1)$$

where RGDPgr is real GDP growth rate, $X_{1\dots n_{i,t}}$ are a set of independent variables, and ε_{it} is an error term.

Although these are the estimation methods most commonly employed with panel data, their estimates are consistent only if the condition of strict exogeneity of regressors applies, which will be verified by methodology proposed by Wooldridge (2002). The results of Hausman test indicated that fixed effects models are more suitable than random effects. In testing the validity of models we found that fixed effect models suffered from heteroscedasticity, so we corrected them with cluster-robust standard errors (vce (robust)). We then tested the models for autocorrelation and did not find first-order autocorrelation, but found cross-sectional dependence by applying Pesaran's CD test (Pesaran 2004). We then performed fixed effects regression, but including Driscoll and Kraay standard errors, since they are robust to very general forms of cross-sectional and temporal dependence (Hoechle 2007). The error structure is supposed to be heteroskedastic, autocorrelated up to some lag, and possibly correlated between countries.

The dependent variable is real GDP growth rate and $X_{1\dots n_{i,t}}$ are a set of independent variables: productivity (annual growth rates), current account (% of GDP), unit labour costs (ULC, annual growth rates), consumption (annual growth rates), gross fixed capital formation (GFCF, annual growth rates), public debt (% of GDP), cyclically adjusted budget deficit (% of GDP), and a dummy for crisis year (value 1 for 2008 and 2009, 0 for other years).² We also include FDI intensity, as a drop in FDI inflow has impacted GDP decline during the recession period. The choice of independent variables was determined by the model of an open economy where investment, consumption (including public consumption), and external balance are the main components of GDP (so their changes/growth will influence GDP growth rates). We also included productivity and unit labour cost as indicators of internal devaluation, and cyclically adjusted budget deficit as an indicator of fiscal austerity policy.³

² Unit labour cost (ULC) is defined as the ratio of labour costs to labour productivity.

³ The cyclically adjusted budget deficit corrects the budget deficit data, taking into account business cycles, especially during recessions when less income is collected through taxes and VAT revenue and there is higher spending on unemployment benefits.

We expect a positive influence on the GDP growth rate of productivity, current account, GFCF, and consumption, and a negative influence of ULC, public debt, budget deficit, and dummy for crisis year.

3.2. Results

Tables 1-3 show the results, which differ between the observed country groups. The common characteristic is that productivity growth and GFCF growth have a significant and positive influence on GDP growth rate (in almost all models), as expected.

Regarding PIIGS, the variables budget deficit, current account, consumption, and FDI intensity were not significant. GFCF has a positive impact on GDP growth, i.e., higher investment promotes economic growth. Public debt has a negative influence on growth. The crisis dummy has a negative and significant impact on economic growth. ULC have a positive influence on GDP growth, which means that higher wages will stimulate GDP growth. The obtained results question the policy of internal devaluation in PIIGS, which is primarily carried out by means of lowering wages in the public sector. The main drivers of growth are productivity and investment (GFCF).

In the EU new member states, productivity, investment, and consumption are the most important variables that explain economic growth. Cyclically adjusted budget deficit has a positive impact on growth, i.e., an increase (improvement) in budget equilibrium will result in higher growth. Public debt has a negative impact on growth rate. Current account is significant but its influence on growth rates is negative, which means that an increase in current account surplus will have a negative impact on GDP growth rate. This does not accord with our expectation or with economic theory, where export should positively impact GDP growth rates. ULC is not a significant variable. The crisis dummy is also important, with a negative impact on growth rates.

The results for the EU core (10 countries when we exclude PIIGS and new member states) show that current account, public debt, and ULC do not have a significant influence on GDP growth rate. Cyclically adjusted budget deficit has a significant and positive impact on growth rate, as in the EU new member states. The crisis dummy also has a negative influence on GDP growth, to approximately the same value as in the EU new member states.

The EU-core results are similar to those of PIIGS and the new member states in that productivity and investment have a positive impact on growth rates. The differences between the different groups of countries are important because it is there that we can find the explanation for the proposed policy of fiscal austerity and internal devaluation, which derives from developed EU-core member states that have a strong influence on EU institutions and the ECB. They proposed an austerity policy of reduced wages and fiscal deficit in good faith, expecting a positive impact on GDP growth rate in the countries with an overall imbalance and excessive consumption. The results shown here emphasize that this will not happen, because the different economies do not behave in a like manner.

4. CONCLUSION

Although internal devaluation seems like a way of improving competitiveness in the case of EMU and/or a pegged exchange rate, it is questionable whether it is appropriate. This research focused on the three different groups of EU member states. The data on the macroeconomic situation in the EU (especially in PIIGS and the Baltic States) shows the necessity of doing something to stop existing negative trends (rise in public debt, unemployment, fall and/or slow GDP growth recovery) as well as the need for a reorientation of growth drivers (from domestic to foreign demand).

The countries that suffered the worst consequences of the economic crisis are PIIGS and the Baltic States, most of which needed financial assistance from international creditors. They faced a decline in competitiveness due to wage increases during the 2000s that were higher than productivity growth. The Troika has played an important role in providing assistance, but also in determining the conditions of that help. The economic programmes were based on fiscal consolidation, fiscal austerity, and labour market flexibility, with the aim of reducing the budget deficit and public debt. These measures did reduce the current account deficit but caused unemployment, low growth rates, etc. This research highlights the differences in the main drivers of GDP growth. The common characteristic is that in the whole EU, productivity and investment are push factors of economic growth. However, ULC positively influences GDP growth in PIIGS but is not significant in the EU new member states and EU core countries. Budget deficit is not significant in PIIGS, but in the EU core and the new member states it has a positive impact on growth. This is why the most developed EU member states, not taking into account the difference between economies, advocated and imposed a

fiscal austerity policy and internal devaluation, believing they would have a good outcome.

Our analysis shows that the Troika is too heavily oriented towards internal devaluation, regardless of each country's specific situation and structural problems. The emphasis at the EU level should be towards greater fiscal cooperation (transfers); rethinking the ECB policy of price stability (should it be changed in some circumstances? The ECB should be tolerant of higher inflation in core countries because it represents an appreciation in peripheral countries); and political support for the euro area, as it is composed of heterogeneous countries. The last crisis has highlighted these differences, and even though it seems that the problems have been solved (except in the case of Greece), there is no guarantee that a new crisis will not appear in the near future. The EU should be prepared to cope with it, and not wait until it happens to find a solution.

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Table 1. Determinants of GDP growth rate in PIIGS (Dependent variable - real GDP growth rate) – fixed effect models with Driscoll-Kraay standard errors

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Productivity	0.9224283 (0.0971962)***	1.522146 (0.0945317)***	1.524031 (0.0884379)***	1.40873 (0.1369373)***	0.7304526 (0.1400881)**		
Current account			-0.1115277 (0.1486846)	-0.1182394 (0.1436618)			
ULC		0.7554814 (0.1050081)**	0.7111126 (0.0939449)**	0.6558767 (0.131835)**	0.2704656 (0.1070051)		
Consumption				0.0792905 (0.0846256)	0.0239157 (0.0335507)	0.0194442 (0.0190213)	0.0342429 (0.0281947)
GFCF					0.2520365 (0.0301045)***	0.2457409 (0.0299183)***	0.2233791 (0.0279276)***
Public debt							-0.0440764 (0.0110616)**
Budget deficit						0.0733024 (0.0719587)	
FDI intensity	0.005526 (0.1343833)	0.0913217 (0.1185812)	0.0975736 (0.1153009)	0.1063704 (0.1074664)	0.1062044 (0.046954)	0.1176562 (0.0731051)	0.1380834 (0.055849)
Dummy - crisis						-1.79412 (0.4686342)**	-2.061545 (0.3530852)**
Number of observations	63	63	63	63	63	63	63
Number of groups	5	5	5	5	5	5	5
R-sq	0.21	0.53	0.54	0.57	0.85	0.78	0.85
F test (p value)	57.44 (0.000)	88.15 (0.000)	113.76 (0.000)	121.75 (0.000)	120.08 (0.000)	122.66 (0.000)	288.43 (0.000)

Standard errors in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%

Source: Author's calculation.

Table 2. Determinants of GDP growth rate in EU new member states (Dependent variable - real GDP growth rate) – fixed effect models with Driscoll-Kraay standard errors

<i>Variable</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>	<i>Model 6</i>	<i>Model 7</i>
<i>Productivity</i>	0.9634879 (0.208427)***	0.9856376 (0.1977706)***	0.8750601 (0.1844147)***	0.567832 (0.1403197)***	0.4232906 (0.1062881)***		
<i>Current account</i>			-0.2770003 (0.0568581)***	-0.1175309 (0.0440526)**			
<i>ULC</i>		-0.0976597 (0.046949)	-0.0280932 (0.0203945)	-0.0064917 (0.0146078)	0.0217179 (0.0098107)		
<i>Consumption</i>				0.410798 (0.0559521)***	0.295374 (0.0421853)***	0.4015255 (0.0255334)***	0.3528594 (0.198171)***
<i>GFCF</i>					0.1348219 (0.0211755)***	0.1474827 (0.025752)***	0.1374355 (0.0217473)***
<i>Public debt</i>							-0.0724837 (0.0146879)***
<i>Budget deficit</i>						0.2325466 (0.0687801)**	
<i>FDI intensity</i>	0.0531838 (0.029718)	0.0456789 (0.0244805)	0.0375954 (0.0111557)**	0.0238605 (0.0076534)**	0.0046975 (0.0101083)	-0.0086207 (0.123046)	-0.0102117 (0.0113514)
<i>Dummy - crisis</i>						-2.180454 (0.7203778)***	-2.571181 (0.7140616)**
<i>Number of observations</i>	165	159	159	158	153	156	156
<i>Number of groups</i>	13	13	13	13	13	13	13
<i>R-sq</i>	0.54	0.57	0.64	0.76	0.84	0.82	0.83
<i>F test</i>	10.99	8.74	14.37	87.80	317.29	447.76	819.44
<i>(p value)</i>	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Standard errors in parentheses. *significant at 10%, ** significant at 5%, *** significant at 1%

Source: Author's calculation.

Table 3. Determinants of GDP growth rate in EU core (Dependent variable - real GDP growth rate) – fixed effect models with Driscoll-Kraay standard errors

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Productivity	1.036841 (0.1229285)***	1.024215 (0.1760759)***	1.041413 (0.1714303)***	0.08203231 (0.1742159)***	0.6027472 (0.0589679)***		
Current account			0.0738825 (0.0379348)	0.0782069 (0.0351628)			
ULC		-0.01546 (0.0837802)	0.0193463 (0.0791006)	-0.0505274 (0.0737792)	-0.0675249 (0.0831307)		
Consumption				0.3866523 (0.0661764)***	0.1701849 (0.0699046)*		0.2362786 (0.1361634)
GFCF					0.2024039 (0.0212134)***	0.3050373 (0.0569904)***	0.2624694 (0.0389275)***
Public debt							-0.0188038 (0.0114668)
Budget deficit						0.1414155 (0.0578168)*	
FDI intensity	0.0004584 (0.002025)	0.0004174 (0.001909)	0.0009327 (0.00197)	-0.0014051 (0.001233)	-0.00428 (0.0026577)	-0.0052496 (0.0051849)	-0.0051476 (0.0046541)
Dummy - crisis						-2.188072 (0.3822779)***	-2.254934 (0.5217929)*
Number of observations	125	125	125	125	125	125	125
Number of groups	10	10	10	10	10	10	10
R-sq	0.74	0.74	0.75	0.79	0.89	0.78	0.78
F test (p value)	39.03 (0.000)	47.23 (0.000)	36.12 (0.000)	104.80 (0.000)	384.06 (0.000)	130.08 (0.000)	82.89 (0.000)

Standard errors in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%

Source: Author's calculation.