

Working Paper

Research Division EU Integration
Stiftung Wissenschaft und Politik
German Institute for International
and Security Affairs



Ognian Hishow

Stimulus packages in the old member states of the EU: more growth in the new entrants

SWP Working Papers are online publications of SWP's research divisions which have not been formally reviewed by the Institute. Please do not cite them without the permission of the authors or editors.

Ludwigkirchplatz 3-4
10719 Berlin
Phone +49 30 880 07-0
Fax +49 30 880 07-100
www.swp-berlin.org
swp@swp-berlin.org

Working Paper FG 1, 2009/ 11, August 2009
SWP Berlin

Introduction

The global crisis did not bypass the new member states of the European Union (NMS) which acceded in 2004 and 2007. The current economic shake-up seems to put in question their topmost political goal: the integration of the NMS' economies into the economy of the EU. The NMS refers to Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic and Slovenia.

As anti-crisis measures took place in the old member states in their attempt to counter the loss of aggregate demand caused by the crisis it is interesting to assess their effect on the performance of the NMS' economy. Given the deepening integration of the new entrants the stimulus efforts undertaken by the old member states are expected to affect positively both parts of the EU, i.e. the old and the new member states.

The paper is organized as follows: The first section assumes that the old member states spent some 3% of their combined GDP on stimulus measures. A model to gauge the effect of that spending on the NMS economic performance during the crisis is introduced. The methodology applied draws upon the multiplier theory, i.e. the model is capturing changes in the NMS' GDP attributed to changes of the economic performance in the old members. The conclusion is that measures to reinvigorate the financial sector of the old member states have translated into some 0.7 percent additional output growth (or, what is the same, less GDP loss) in the NMS.

In a second section the question is raised if the NMS have behaved just as free riders during the crisis relying on the rescue efforts of their Western partners. The conclusion is they have undertaken their own efforts to mitigate the consequences of the downturn. Again, a traditional multiplier approach is used to show that without such efforts the economic performance of the NMS would have been worse by some 2.66 percentage points.

The data used are taken from Eurostat and the EU Commission and are hence preliminary. Also, no long term statistical rows have been used for econometric purposes. The period observed is limited to the two years the crisis has been, and still is, the heaviest – 2009 and 2010. That adds uncertainty to the results which should be interpreted with caution and should be understood as estimates, not as final facts.

On the outcome of the global economic crisis in the NMS

Starting in the early 1990s, the NMS have opened-up to trade and investment, sold-off the banking industry to foreign investors, closed sectors to better exploit their comparative advantages and implemented the *Acquis Communautaire*. The intention behind the entire integration endeavor was not just to modernize and catch-up in terms of standard of living, but also to be better protected against economic shocks. Yet the sober observation is that despite their efforts to integrate they were strongly hit by the

crisis. Regarding financial sector integration it can even be argued that the dependence of most NMS on Western European banks has further facilitated the spill-over of the crisis from the West to the East.¹

Disillusion and disappointment started to reverberate across Eastern Europe whereas in the old member states a feeling emerged that the NMS are oblivious of the support they get.² Not a few observers started wondering whether the enlarged EU would stay together or rather break apart with the old member states abandoning the poor Eastern relatives. In Bulgaria, Hungary Latvia and Lithuania angry citizens took to the streets to protest the neo-liberal policies of their governments in early 2009.³ Although there hasn't been a direct blame of the EU for interference into their domestic affairs yet, there is a mounting feeling Brussels and the European institutions are at the core of the deterioration of the economic situation. Hungary has been notorious for street riots since Prime Minister Gyurcsany admitted in 2006 the government had lied the public about the state of the country.⁴ Eurostat, the European Statistics office, added gloom to the overall pessimistic picture by forecasting a dire outcome of the crisis in 2009 and 2010 especially in the NMS. There has been enough justification for the general skepticism. After all, the NMS are deficit economies with current accounts in the red between a few percentage points and dramatic one quarter of their respective GDP.

But not so much later a "miracle" occurred. In spring 2009 the EU Commission corrected its GDP projections for the NMS as a group upward.⁵ On average, the NMS have done better than the OMS during the financial and economic crisis. In terms of GDP performance the 2009 output loss was some 3 percent in the NMS versus 4 percent in the old members (Graph 1).

¹ Kai-Olaf Lang/Daniela Schwarzer, Krisen, Crashes und Hilfspakete. Die neuen EU-Mitgliedsländer sind von der Finanzkrise besonders betroffen. SWP-Aktuell 12, März 2009, at: http://www.swp-berlin.org/common/get_document.php?asset_id=5843; Vasily Astrov, Josef Pöschl, [CEECs Falling Prey to the International Crisis](#), WIFO-Monatsberichte, by (wiiw), May 2009, no 5/2009, at www.wifo.ac.at/www/jsp/index.jsp?fid=23923&id=35764&typeid=8&display_mode=2

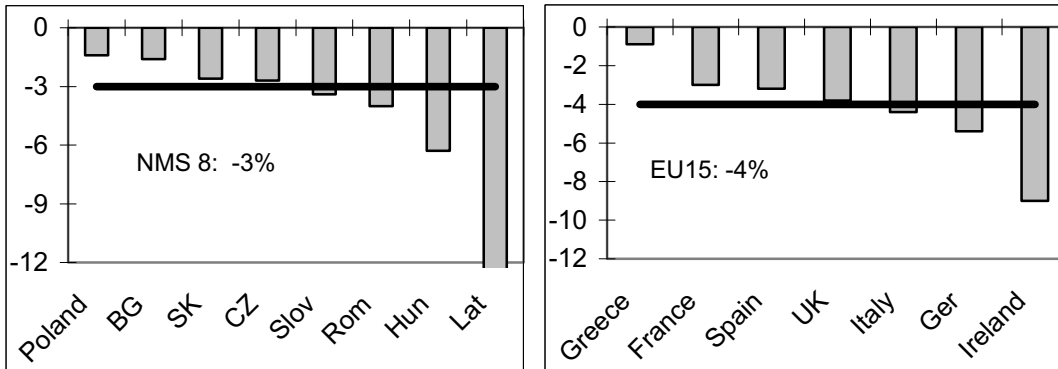
² Stefan Bos, EU Rejects Multi-Billion Dollar Rescue Plan For Eastern Europe, VOA News, March 1, 2009

³ Riots in Eastern Europe as Crisis Bites, Business Week Europe, January 21, 2009, at: http://www.businessweek.com/globalbiz/content/jan2009/gb20090121_794144.htm

⁴ Budapest clashes, BBC News, at: <http://news.bbc.co.uk/2/hi/europe/6081974.stm>

⁵ EU COM, DG EcFin, Statistical Annex of European Economy SPRING 2009, Table 10, at: http://ec.europa.eu/economy_finance/publications/publication15050_en.pdf

Graph 1: GDP change by country in 2009 and weighted average new* and old member states, percent



*NMS 8: As shown in the graph. The Baltic States are represented by Latvia. Source: Eurostat

Other sources have come to the same positive assessment. ZEW, the Centre for European Economic Research, Mannheim, and Erste Group Bank AG, Vienna, which carry out a monthly survey for Central and Eastern Europe, Austria, as well as for the Eurozone recently concluded the new member states have performed better than the old EU members. Deutsche Bank Research, the research unit of one of Germany's largest private banks, figured Central and Eastern Europe has managed the economic crisis better than Western Europe. Thanks to the availability of official financing (and implied EU protection) systemic EM Europe crisis is off the table, so the finding.⁶

Moreover, other important indicators are better in the East too, or they are not much worse. For instance, unemployment rate is projected to reach 11.1 percent in the EU15 in 2010, but to stop short of that figure in NMS 8. Only the inflation rate (consumer price index based) is expected to be some higher in the Eastern part of the European Union. Fortunately, even so it is forecasted to stay close to the inflation target of some 2 percent per year of the European Central Bank, i.e. the indicator is still not worrisome.

⁶ ZEW and Erste, Economic expectations for Central and Eastern Europe turn positive again, Financial Market Report CEE, Volume 3, 2009; CEEC in the global crisis. Clouded outlook, but no doom and gloom across the board. Deutsche Bank Research, BACEE Annual General Meeting, July 6-7, 2009, Minsk, at: http://www.dbresearch.com/PROD/DBR_INTERNET_EN-PROD/PROD000000000244215.pdf

The multiplier

The EU15 countries spent some 3% of GDP on stimulus measures⁷ and it is intriguing to learn what has been the effect of that fiscal stimulus on the NMS. As spending in the OMS increase aggregate demand across the *entire* EU economy the NMS are affected by that same demand expansion depending on their output share. Increase in demand causes production and income to expand in rounds: demand growth entails an increase in output which would facilitate a further increase in demand, and so forth. What is important is that consumption and income growth would depend on how effectively money and capital is transferred to the economies of the NMS.

Intuitively, the smaller the size of the NMS GDP, the larger the effect of spending programs in the West may be expected. However, this assumption is wrong. The opposite is true: the bigger the NMS economies, the greater the (positive) effect. A simple model using the traditional multiplier approach gives an idea why spending programs in the OMS tend to benefit the NMS more.

We start with a basic equation stating that the economy E of the enlarged EU is made up of the combined output EE of Eastern Europe (the NMS of the EU) and the combined output WE of Western Europe (OMS of the Union):

$$E = EE + WE \quad (i)$$

E can be expressed in terms of EE: $E = \varepsilon EE$, where ε is the factor by which E is bigger than EE. Inserting into (i)

$$\varepsilon EE = EE + WE$$

and rearranging $\varepsilon EE - EE = WE \quad (ii)$

produces $EE(\varepsilon - 1) = WE. \quad (iii)$

Then EE only is

$$EE = 1/(\varepsilon - 1)WE, \quad (iv)$$

or, $EE = mWE \quad (v) \quad , \text{ i.e}$

Eastern Europe (the NMS) is economically linked to Western Europe (OMS of EU) by a multiplier of the form $1/(\varepsilon - 1)$ with $\varepsilon = GDP_{EU}/GDP_{EE}$.

⁷ Calculations of the overall stimulus package are given the lack of final data not unanimous. However, most observers tend to estimate them around 3 percent of GDP over a two-year period. For a good short overview see for instance Saha, D. and J. von Weizsäcker : Estimating the size of the European stimulus packages for 2009: An Update, BRUEGEL Policy Contribution, 2009,

<http://www.bruegel.org/Public/PublicationPage.php?ID=1174#14541/>. Another estimate is published by the EU Commission: : Simonis, Emmanuelle Maincent, Jonas Fischer and Markus Schulte, The EU's response to support the real economy during the economic crisis: an overview of Member States' recovery measures. European Commission, EUROPEAN ECONOMY Series, OCCASIONAL PAPERS 51, July 2009, Brussels, at: http://ec.europa.eu/economy_finance/publications/publication15666_en.pdf

Conversely, $1/\varepsilon$ is the share of the NMS of the EU GDP. Applying a dynamic approach, ε is the *marginal catch-up factor*. It is obtained when differentiating function (i) for small changes in the OMS' GDP:

$$\varepsilon EE = EE + WE$$

$\varepsilon' dEE = dEE + dWE$, or $dEE = 1/(\varepsilon'-1)dWE$. Replacing differentials by differences gives

$$\Delta EE = 1/(\varepsilon'-1)\Delta WE$$

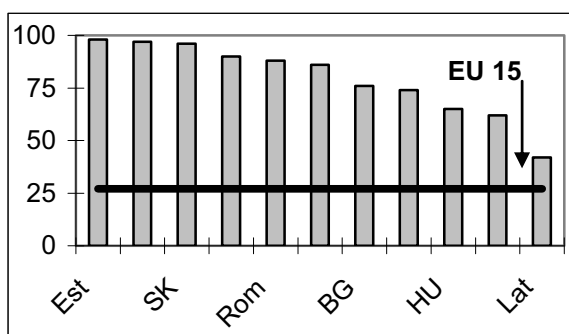
The finding is that additional spending in the OMS causes the output in the NMS to rise dependent on ε' .

(Notice that as the NMS' share of the EU economy is increasing, ε is decreasing over time, slowly though).

The financial sector link

As the current crisis began as a full blown financial catastrophe around the globe many observers in the NMS started to wonder whether the financial integration within the enlarged EU has made things worse. NMS finances are heavily dependent on West European investment and loans. Many sectors simply would not exist without a massive financial flow from abroad. For instance, bank capital and assets in the NMS are up to 98% owned by West European bank institutions (Graph 2). On average, foreign capital share in the sector is more than twice the foreign capital share in the old member states.

Graph 2: Foreign ownership of NMS banking systems by assets, percent (pre-crisis level)



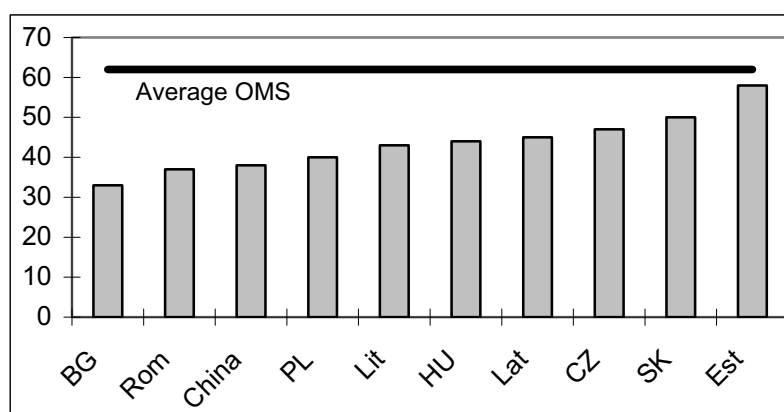
Source: Deutsche Bank Research

Moreover, over time economic and financial integration between both parts of the EU – the old and new member states - have become more deep and broad. After severe deterioration and shake-up, the financial and banking industry in the NMS started to grow in mid 1990s and has been catching up with the financial industry in Western Europe since then. Regarding quality, there were improvements too: now financial and

banking services in most new member countries are up to date, and their efficiency and productivity increasingly match international standards. The World Economic Forum has surveyed the quality of financial markets by country and has produced a score system to rank the efficiency and sophistication of individual markets. With respect of the NMS the average ranking is still below the level of the OMS. Some countries in Eastern Europe are catching-up though, Graph 3.

On the one hand a deeper financial integration is welcome. But since financial links with EU15 is crucial for the economic health of the NMS, deeper integrated financial markets mean quick transmission of shocks on the other hand. Given that ambiguity, an important question is: How would financial sector changes in the West, i.e. the OMS, affect the NMS?

Graph 3: The level of sophistication of financial markets by country (10 = poor by international standards, 70 = excellent by international standards)



Source: World Economic Forum, Global Competitiveness Report 2008-09, Data Tables, p. 449, at: <http://www.weforum.org/documents/GCR0809/index.html>

Again, the link is modelled based on the multiplier theory. As before, we start from a basic equation stating that the OMS economy is made up of two sectors: the banking sector BWE and the rest of the economy RWE:

$$WE = BWE + RWE \quad (vi)$$

The rest of the economy can be expressed in terms of the banking sector in the form

$$RWE = \beta BWE \quad (vii),$$

where β is a factor by which the rest of the OMS economy is bigger than the OMS financial sector.

$$\rightarrow WE = BWE + \beta BWE, \quad (viii), \quad \text{or}$$

$$WE = (1+\beta)BWE. \quad (ix)$$

Accordingly, $1/\beta$ is the financial sector share of the rest of the economy in the OMS (EU15).

Inserting into (v) gives

$$EE = m(1+\beta)BWE \quad \text{and thus}$$

$$EE = \mathbf{M} * \mathbf{BWE} \quad (x), \quad \text{with}$$

$$M = (1+\beta)/(\varepsilon-1).$$

By differentiating (viii) β is the *marginal share of the financial (banking) sector*, i.e. it reflects how the banking sector changes upon (small) changes of the entire Western European economy. In the case of individual OMS β is supposed to be stable within individual countries. However it can vary in value between countries: intuitively, it is smaller in the UK and bigger in other OMS with larger manufacturing or agricultural sectors.

Apparently, M is a function of both, β and ε . As stated, β captures changes of the banking sector share of a country's economy given small changes of output (GDP growth). It is supposed stable. But as economic structure is not static, it may vary over longer periods of time. Similarly, ε may take different values. Any combination between them is possible, as shown in the table below. However, as a rule of thumb we can assume m is in the new member states currently some 0.05 and β is some 10. That puts M around 0.7 (Table 1).

Table 1: Combinations between factors and multipliers (most likely values of M in bold)

ε	m	β	M
20	0.05	12	0.7
17	0.06	10	0.7
15	0.07	8	0.6

Calculated using Eurostat data

Considering changes (while abstracting from very small ones) we obtain the basic equation

$$\Delta EE = \mathbf{M} * \Delta BWE \quad (xi).$$

In general, stabilizing and rebuilding the banking sector in the old member states is supposed to positively affect the economy of the NMS.

Recall, EU is channelling some 3 percent of GDP/GNI in 2009 and 2010 (automatic stabilizers not included) into its stimulus package. Of it, some one third, or 1 percent of GDP/GNI, went to the financial (mostly banking) sector. Therefore, according to the model, we can - tentatively - conclude that spending on the banks in the West has boosted the NMS' economy by 0.7 percent within two consecutive crisis years – 2009 and 2010.

Are the NMS free riders?

For a number of reasons the NMS haven't been able to engage in sizable spending programs to boost aggregate demand and fend off the consequences of the crisis. As shown in Table 2 they have in fact done nothing to support their financial sector, whereas the old member states have undertaken more noticeable measures on that front (middle column of Table 2).

Table 2: Short term stabilization measures, % of GDP

Country	Financial Sector (a)	Fiscal easing (b)
Bulgaria	0	-1.9
CZ	0	-3.4
Estonia	0	-0.9
Latvia	<5	-9.7
Lithuania	0	-4.7
Hungary	<5	-0.5
Poland	0	-3.4
Romania	0	-0.2
Slovakia	0	-3.2
Slovenia	0	-5.5
NMS c	0	-3.3
EU15 c	1	-6.0

a: Bank recapitalization and actual acquisition of toxic assets

b: Deficit spending and tax relief to the private sector (households and businesses)

c: weighted average

Source: Simonis, Emmanuelle Maincent, Jonas Fischer and Markus Schulte, The EU's response to support the real economy during the economic crisis, op. cit.

The pegged currencies of Bulgaria, Estonia, Latvia, and Lithuania limit their room for spending. Similarly, as Hungary, Poland, Romania, and the Czech Republic want to enter the ERM II they cannot afford an even larger

depreciation of their currency than it already took place. Also, the Stability and Growth Pact calls all NMS to keep their budget deficit in check. Another reason is the high degree of openness of almost all NMS economies. Save for Poland and Romania they report an export share of their GDP of some 70%. The mirror picture is a similar share of imports which would cause the spending to take effect mostly abroad and would limit its contribution to the domestic sector. Hence, the conclusion might be the NMS simply have waited the old member states economies to recover to take advantage of that - foreign - pick-up. But are they pure free riders, after all?

As seen in Table 2 (last column) the new entrants have extended their fiscal deficit, although less than the Western European members. Partly that extension is caused by the automatic stabilizers, as less tax revenues and more spending on items that cannot be cut easily (e.g. social programs) begin to tell. The size of the automatic stabilizers is some 0.50 in the old member states, i.e. out of the 6% fiscal easing some three percent are caused by the automatic stabilizers and another three percent are spent on discretionary stimulus measures.

The automatic stabilizers vary in the NMS, however. For the purposes of this paper they are assumed on (weighted) average some 0.40. In that case, as the fiscal easing is 3.3 percent of the NMS GDP, some 1.3 percent is attributed to them while the rest of roughly 2 percent is additional spending to stimulate the economy. This is consistent with the data provided by the EU Commission.⁸

Stimulus decisions usually address both, the revenue and expenditure side of government's activities. While the revenue and expenditure side of the fiscal package 2009-2010 in the old member states is estimated on average evenly split (some 0.48 expenditure and 0.52 revenue side)⁹, they vary among the NMS. According to the EU Commission within the group of NMS one third of all spending have been additional expenditure on increased investment. Therefore two thirds is spent on tax measures - tax credit and various waivers, some of them temporary, aimed at businesses to hire or not to lay-off, etc.

Based on that, now we can guess the effect of those policies on the output in the period 2009 through 2010. A step by step approach and a standard type multiplier is applied:

$$M = 1/(1-c(1-t))$$

Here c is the marginal propensity to consume and t is the tax rate.

M, the multiplier, is estimated at 1.56 based on a marginal propensity to consume of 0.6 and an average tax rate, payroll taxes included, of 0.4.

⁸ Simonis, Emmanuelle Maincent, Jonas Fischer and Markus Schulte, The EU's response to support the real economy during the economic crisis, op. cit., Table 2

⁹ Andrew Watt with the collaboration of Mariya Nikolova: A quantum of solace? An assessment of fiscal stimulus packages by EU Member States in response to the economic crisis, European Trade Union Institute, Working Paper 2009.05, Table 1, ETUI aisbl, Brussels, 2009

We start with the effect of changes in the autonomous demand such as investment spending and government transfers on output. Looking first at the additional investment spending encouraged by the various anti-crisis programs and applying a multiplier approach we establish the well known link of the form

$$dY = MdI.$$

According to the data available so far the NMS will spend some 0.8 percent of their aggregate GDP on investment initiatives which translates into 1.25 percent contribution to growth. However, because of data uncertainty we can state with some precaution that the contribution to growth of the investment measures implemented within the 2009-2010 period will be somewhat greater than one percent of NMS' GDP. Within the group of new entrants the effect of crisis related investment programs spreads from zero in Lithuania and Hungary, 0.16 percent in Bulgaria, and 1.88 percent in Poland and Slovenia. All other countries are in between. This finding sheds light particularly on the better performance of Poland compared to the other East European partners.

Using the same technique and keeping investment fixed we look at the effect of the measures aimed at households during the crisis which usually take the form of either new or increased government transfers. As transfers are part of the autonomous spending in the economy they encourage growth and are expected to have somewhat mitigated the hardship of the current downswing. And yes, this is the case in the NMS. Additional transfers are estimated at up to 0.9 percent of the aggregate NMS GDP which makes them a significant part of the aggregate discretionary stimulus in the new members.¹⁰ Applying the same multiplier they seem to have produced an additional output of up to 1.4 percent of the GDP (again, all other indicators kept unchanged).

Next we keep the autonomous demand fixed while changing the tax rate since most countries have engaged in (temporary or permanent) tax reforms. On average, taxation reduction reaches some 0.3 percent of GDP with more significant cuts in the Czech Republic (-1.5 percent) and Slovenia (-1 percent). On the bottom side of the list are Bulgaria, Hungary and Lithuania with no tax cuts at all. Across the group of all NMS the result is a reduced tax burden and hence a bigger multiplier. As stated, using data by the Commission, the pre-crisis multiplier of the whole NMS group is calculated at 1.5625. That means a percentage change in autonomous demand has translated in a 1.6 percent additional output in the NMS. After the implementation of tax cut measures the multiplier changed somewhat to 1.5669. All other indicators fixed, tax cuts translate into a greater GDP growth given a change of the autonomous demand. However, the contribution of all the tax cuts turns out to be small: GDP changed only by a fraction of the percent in 2009 and almost by zero in 2010.

¹⁰ Simonis, Emmanuelle Maincent, Jonas Fischer and Markus Schulte, The EU's response to support the real economy during the economic crisis, op. cit., Table 2

Finally, using the greater multiplier and the anti-crisis spending we can calculate the overall effect of the stimulus package. With some precaution it seems to reach some 2.66 percent of GDP made up of the contribution of the investment spending, the expanded government's transfers, and less tax burden due to various tax cut initiatives. Latter enlarged the multiplier and thus the effect of the other measures on growth. The process of calculation of the overall contribution to growth is summarized in Table 3.

Table 3: Overall contribution to growth by factor/indicator

c	t	Multiplier M	Change in Investment dI	Change in transfers dTR	Change in autonomous demand dA	Change in output dY
0.60	0.400	1.5625	<u>0.80</u>	0.00	0.80	1.25
0.60	0.400	1.5625	0.00	<u>0.90</u>	0.90	1.40
0.60	0.400	1.5625	<u>0.80</u>	<u>0.90</u>	1.70	2.65
0.60	0.397	<u>1.5669</u>	0.80	0.90	1.70	2.66

Own calculations

To put it into perspective, without those activities on the side of the NMS the GDP performance would have been worse. The economy would have shrunk by 6 percent instead of 3 percent as has been recently estimated by Eurostat. In that sense the own fiscal efforts in the region have contributed to some anti-crisis effect. This defies the assumption they have been free riders on the ticket of the West.