European Commission

COHESION POLICY 2007-2015: THE RHOMOLO EX-POST ASSESSMENT

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- The European Cohesion Policy 2007-2015 was implemented in challenging times due to the economic and financial crisis and widespread cuts to public investment.

- Cohesion Policy has been used to reach objectives related to employment, R&D, energy sustainability, education, and poverty and social exclusion.

- Policy simulations using the RHOMOLO dynamic CGE model show positive macro-economic effects of the policy at the EU level, with significant differences between less developed regions, transition regions, and more developed ones.

- Cohesion Policy funds mainly targeted the less developed regions which received 60% of the total investments, while transition regions and more developed ones received 24% and 16% of the total, respectively.

- RHOMOLO simulations estimate the long-run GDP impact of Cohesion Policy to be equal to +0.7% at the EU level, with peaks in some less developed regions above +5%.

- The cumulative multipliers associated with the Cohesion Policy funds are above one in most EU regions by 2030.

1. Policy context

The European Commission's 2007-2015 programming period has been characterised by the economic and financial crisis which was followed by a sustained period of fiscal austerity in most Member States (MS). When the crisis was at its worst, the European Cohesion Policy (ECP) prevented a total collapse in public investment and in many cases it became the main national public investment instrument. This was particularly dramatic in countries such as Slovakia, Hungary, Bulgaria, and Lithuania, to name a few.

The economic crisis negatively affected the process of convergence of GDP and unemployment rates within the EU and made it more difficult to reach the 2020 targets set at the beginning of the programming period. The Commission and the EU MS responded to the crisis by using the ECP in a flexible way, redirecting some investments to areas with a more immediate impact on economic activity and employment. In particular, 13% of total funds had been reallocated by the end of 2013 (European Commission, 2014).

The ex-post macroeconomic impact assessment of the investment policies of the EU is seen as an important step in the policy making process. The European Commission's Joint Research Centre (JRC) is routinely involved in a number of impact assessment exercises. In this case, the dynamic spatial Computable General Equilibrium (CGE) model RHOMOLO has been used for the ex-post evaluation of the ECP 2007-2015. The RHOMOLO model is parametrized on 267 NUTS2 regions of the EU and has been developed by the JRC for territorial impact assessment (Lecca et al. 2018).

This Policy Insight refers to the ex-post evaluation of the macroeconomic impact of the ECP 2007-2015 which is explained fully in Di Comite et al. (2018). This Insight reports only its main features and results.

2. The RHOMOLO simulations

Modern macroeconomic models such as RHOMOLO provide coherent and internally consistent frameworks to analyse the channels through which macroeconomic policies affect national and regional economies. In particular, RHOMOLO provides sector-, region- and time-specific results to support EU policy making and investment programs. The version of RHOMOLO used for this analysis covers all EU NUTS2 regions, each regional economy being disaggregated into six economic sectors.

The ECP investments were categorised in 86 priority themes which, for the purposes of the RHOMOLO analysis, were aggregated into six main groups of policies: transport infrastructure investments, other infrastructure investments, investments in human

capital, investments in R&D, aid to the private sector, and technical assistance.

Up to eleven policy variables were used to simulate the effects of the six categories of ECP investments identified above. The aim was to capture both the structural long-lasting effects of the policy and its short-run demand-driven effects. The former are driven by changes in transport costs and increases in productivity, while the former effects are driven by changes in government consumption, public investments, and subsidies.

One of the main points of interest of the ECP is the regional distribution of funds. Figure 1 shows the annual average ECP funds received by each region over the period 2007-2015 as a share of regional GDP. It emerges that some regions located in Eastern Europe benefited significantly from the ECP funding in proportion to their GDP. In fact, those regions were net recipients, as they contributed less than they obtained in terms of ECP investments. Most central and Northern European regions were net contributors instead.

Figure 1: Regional distribution of ECP funds (share of regional GDP)
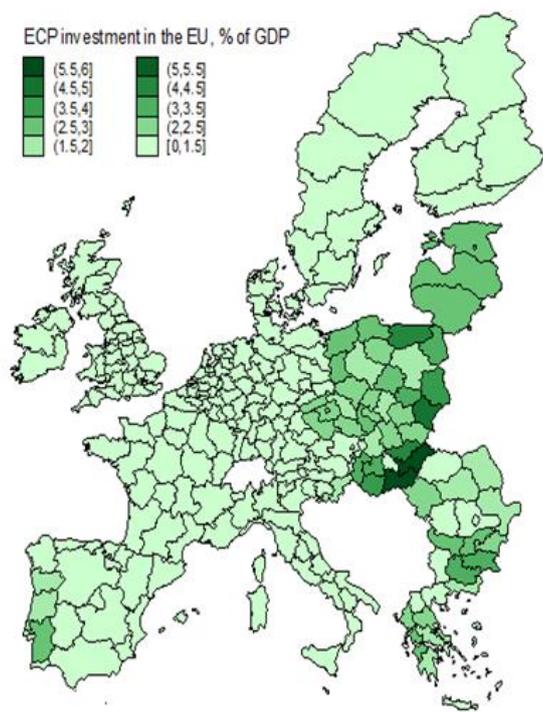
For the sake of clarity, it is worth referring to three groups of regions from now on: the less developed regions (with GDP per capital less than 75% of the EU average), transition regions (with GDP per capita between 75% and 90% of the EU average), and more developed regions (with GDP per capita above 90% of the EU average). For the 2007-2015 period, we

identified 65 regions in the first group, 51 in the second, and 151 in the third one. ECP funds mainly targeted the first group of regions. Over time, the ECP funds were allocated as shown in Figure 2.

Figure 2: Average ECP allocation per region group (share of regional GDP)
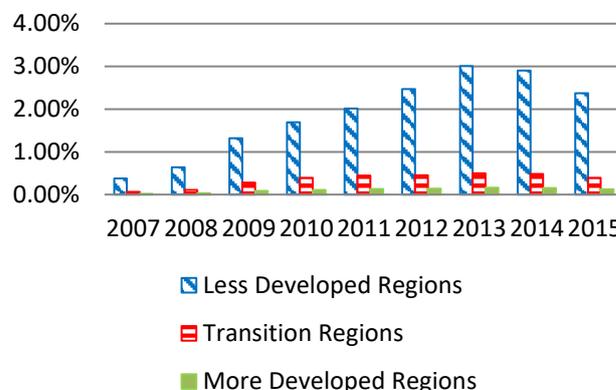
The policy impact of this research

The results of this analysis are featured in the document on the ex post evaluation of the European Regional and Development Fund (ERDF) and Cohesion Fund published on the 19th of September 2016 by the European Commission (2016). The evaluation was carried out by a number of consortia and the RHOMOLO model was used in this context to provide evidence with a NUTS2 regional level of detail.

3. Main results

The results of the RHOMOLO simulations suggest a permanent increase in the aggregate EU GDP for the entire programming period and beyond, with evidence of long-lasting effects. In the long-run, EU GDP increases by 0.5% from its baseline value (that is, the GDP in the absence of the ECP). Besides the aggregate results, it is of interest to look at the regional distribution of such an economic effect.

Figures 3, 4, and 5 report the GDP impact of the ECP as well as the shock, that is the investment funds received by the regions during the programming period. In all cases, the benefits of the policy become higher than the investment cost only five years after the beginning of the ECP. Given the focus of the policy on less developed regions, the macroeconomic impact of the ECP with respect to GDP is larger in such regions.

Figure 3: ECP investments (bars) and GDP impact (line) in less developed regions (share of regional GDP)
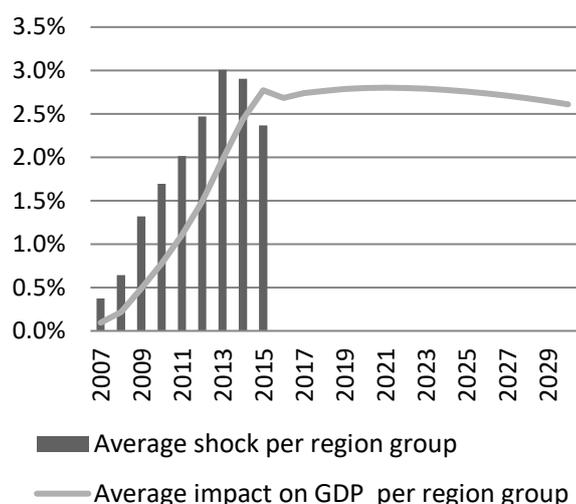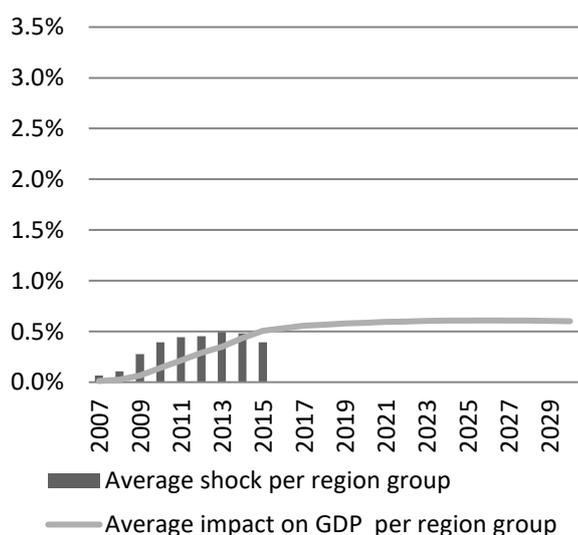

Figure 4: ECP investments (bars) and GDP impact (line) in transition regions (share of regional GDP)


Considering the evolution over time of both the ECP investments and their GDP effects constitutes the first step to calculate the overall macroeconomic impact of the policy. One measure that can help gauging such impact is the cumulative multiplier, which tells us by how many euros the GDP increased following an investment of one euro. For instance, if the multiplier is equal to 1.2, it means that one additional ECP euro introduced into the economy generates a rise of GDP of 1.2 euros.

Since it takes time for the positive structural effects of the ECP to materialise, the multipliers calculated in 2015 (at the end of the programming period) are small, and even negative for some net recipient regions. However, already by 2023, the cumulative

multipliers of the EU regions are on average larger than one, and up to 6.5 in some regions.

Figure 5: ECP investments (bars) and GDP impact (line) in more developed regions (share of regional GDP)
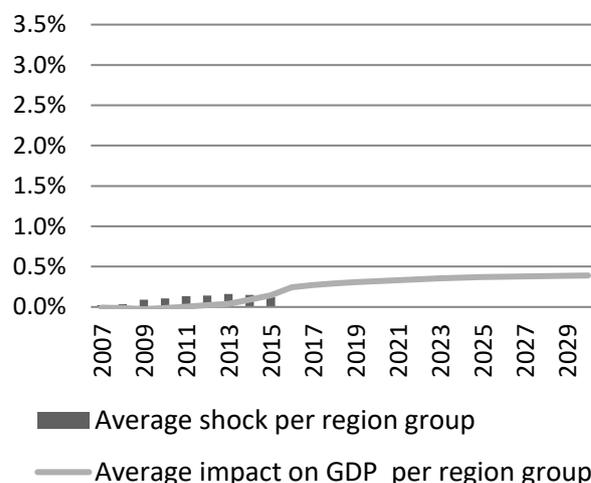
4. Conclusions

The RHOMOLO analysis summed up in this Policy Insight concludes that the ECP 2007-2015 contributed positively to the development of the EU. The full analysis explores more aspects than just the GDP impact of the ECP and it is reported in Di Comite et al. (2018).

To conclude, not only the long-run effects of the ECP are positive, but even in the very short run the EU GDP has accelerated as a result of the ECP investments. Unsurprisingly given that they were the main targets of the policy, the less developed regions of the EU benefited significantly with respect to their GDP. However, the whole EU is better off thanks to the policy, as demonstrated by the positive long-run multipliers which are above one for the majority of the EU regions.

Read more

Di Comite, F., Lecca, P., Monfort, P., Persyn, D., and Piculescu, V. (2018). The impact of Cohesion Policy 2007-2015 in EU regions: Simulations with the RHOMOLO Interregional Dynamic General Equilibrium Model. JRC Working Papers on Territorial Modelling and Analysis No. 03/2018, European Commission, Seville, 2018, JRC114044.

European Commission (2014). Investment for jobs and growth – Promoting development and good governance in EU regions and cities. Sixth report on economic, social and territorial cohesion. Luxembourg: Publications Office of the European Union.

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Lecca, P., Barbero, J., Christensen, M., Conte, A., Di Comite, F., Diaz-Lanchas, J., Diukanova, O., Mandras, G., Persyn, D. and Sakkas, S. (2018). RHOMOLO V3: A spatial modelling framework. JRC Technical Reports JRC111861, EUR 29229 EN. Publications Office of the European Union, Luxembourg.

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RHOMOLO

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