European Commission

THE THIRD PILLAR OF THE INVESTMENT PLAN FOR EUROPE: THE RHOMOLO ASSESSMENT

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- The Investment Plan for Europe aims at removing obstacles to investment, providing visibility and technical assistance to investment projects, and at making smarter use of financial resources.
- The Investment Plan is made up of three pillars: the European Fund for Strategic Investment (EFSI); the European Investment Advisory Hub and the European Investment Project Portal; and the removal of regulatory barriers to investment.
- Policy simulations using the RHOMOLO dynamic CGE model show positive aggregate macro-economic effects of the EFSI.
- This Policy Insight contains the result of an additional set of RHOMOLO simulations aimed at quantifying the macroeconomic impact of the legislative proposals contained in the third pillar of the Investment Plan.
- The EU GDP is expected to be 1.5% higher by 2030 thanks to the removal of barriers to investment in the areas of the Capital Markets Union, the Single Market Strategy, the Digital Single Market, and the Energy Union.
- This entails the creation of about one million of jobs across the entire EU.

1. Policy context

The European Commission's 2014-2020 programming period has been characterised by the need to sustain economic growth following the 2008 financial and economic crisis. One of the main instruments used in order to fulfil such objective is the Investment Plan for Europe which was launched at the end of 2014. It is a combination of public and private investments which, by October 2018, has triggered €344 billion, surpassing the initial objective of €315 billion. The initiative is structured along three pillars: i) the European Fund for Strategic Investments (EFSI), providing an EU guarantee to mobilise private investment; ii) technical assistance and visibility for investment opportunities through the European Investment Advisory Hub and the European Investment Project Portal; iii) the removal of regulatory barriers to investment both nationally and at the EU level.

The macroeconomic impact assessment of the first pillar of the Investment Plan is routinely carried out jointly by the European Investment Bank (EIB) and the European Commission's Joint Research Centre (JRC). The dynamic spatial Computable General Equilibrium (CGE) model RHOMOLO, parametrized on 267 NUTS2 regions of the EU and developed by the JRC for territorial impact assessment (Lecca et al. 2018), is used in this context. The results contained in EIB (2018) showed that the EFSI has already increased EU GDP by 0.6%, and it is expected to increase it by 1.3% by 2020 (European Commission 2018a).

This Policy Insight refers to the analysis carried out to evaluate the macroeconomic impact of the legislative measures contained in the third pillar of the Investment Plan and encompassing the following four main areas: the Capital Markets Union (CMU), the Single Market Strategy (SMS), the Digital Single Market (DSM), and the Energy Union. The analysis has been carried out both with the full RHOMOLO model and with RHOMOLO-IO (which is the inter-regional Input-Output version of the model) and is explained fully in Christensen et al. (2018). This Insight reports only its main features and results.

2. The RHOMOLO simulations

We performed the policy simulations related to the third pillar of the Investment Plan using the RHOMOLO CGE model developed by the JRC (Lecca et al., 2018). 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 current version of RHOMOLO covers all EU NUTS2 regions, each

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regional economy being disaggregated into ten economic sectors.
Each of the four areas covered by the third pillar requires a unique combination of shocks to simulate the effects of the EU policies. In general, the aim is to capture potential structural long-lasting effects stemming from changes in productivity as well as short-run demand side effects.

The model simulations estimate the policy's potential effects in a controlled environment; simulations are carried out assuming that there are no ex-post implementation inefficiencies. Some caution should be used when referring to the results of the analysis because a number of assumptions have been made in order to simulate the effects of the policies. This is the first attempt at quantifying the macroeconomic impact of the third pillar of the Investment Plan.

3. Main results

Under the CMU initiative, several proposals aim at stimulating investment thanks to deeper and more integrated European capital markets. Such proposals include, but are not limited to, the regulation on crowdfunding, the proposal to facilitate the cross-border distribution of investment funds, and the proposals to improve legal security for cross-border investment. Within the RHOMOLO model, the increased financial openness resulting from the implementation of the CMU is assumed to stimulate productivity and therefore yield positive economic results.

Table 1 reports the estimated effects of the CMU on GDP and employment by 2030 in terms of changes with respect to 2018. A range of results (going from Low to High) are reported in order to cope with the uncertainty related to certain modelling assumptions, with the Central scenario to be considered as the reference estimate in all cases. The CMU proposals contained in the third pillar of the Investment Plan are expected to increase EU GDP by 0.5% by 2030, with the creation of about 350 thousand jobs.

Table 1: CMU economic impact by 2030 with respect to 2018

	Low	Central	High
GDP (%)	+0.21	+0.48	+0.75
Employment (thousands jobs)	+147	+353	+547

The SMS is also made up of several proposals, but for the purpose of this Policy Insight we only consider the start-up and scale-up initiative for a favourable environment for innovation, entrepreneurship, and competitiveness, and the procurement package helping national governments and local authorities in managing large procurement projects. The former, which includes measures to improve access to finance to start-ups and simpler tax filings to reduce tax compliance costs across the EU, is assumed to reduce the cost of capital in RHOMOLO, thus stimulating investment. As for the procurement package, the idea is that it will reduce the inefficiencies related to the management of large projects, therefore within RHOMOLO its effects are assumed to act through an increase in the efficiency of public capital.

Table 2 reports the estimated effects of the SMS on GDP and employment by 2030 with respect to 2018. The SMS proposals briefly mentioned above are expected to exert a positive impact on EU GDP of 0.03%, entailing the creation of 44 thousand jobs.

Table 2: SMS economic impact by 2030 with respect to 2018

	Low	Central	High
GDP (%)	+0.0.24	+0.034	+0.043
Employment (thousands jobs)	+33	+44	+55

The policy impact of this research

The results of this analysis are featured in the communication to the European parliament, the Council, the European Central Bank, the European and Social Committee, the Committee of Regions, and the European Investment Bank of the 22nd of November 2018 by the European Commission (2018b) on the Investment Plan for Europe: stock-taking and next steps.

The DSM strategy has the objective of improving the digitalization of the economy by reinforcing the ICT sector through a set of proposals to strengthen and advance cross-border digital activities for both consumers and businesses. The direct annual impact on GDP of the DSM has been estimated by the Boston Consulting Group (2016) to be about €415 billion.

We complement such an evaluation of the direct impact of the DSM by focusing on the indirect economy-wide structural effects of changing the regulation for cross-border digital activities. Within the RHOMOLO model, two main channels are assumed for such regulation to affect the economy. The first is a reduction in the non-tariff trade barriers

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among EU regions. The second is an increase in total factor productivity. Such effects are assumed to be caused by proposals such as those on Artificial Intelligence, on the regulation on a European electronic communication code, on the free flow of non-personal data, and on the re-use of public sector information.

Table 3 reports the estimated indirect effects of the DSM on GDP and employment by 2030 with respect to 2018. It is important to bear in mind that such effects are additional to the estimated direct impact of the DSM mentioned above. The estimated effects amount to an increase in EU GDP of 0.63%, entailing the creation of 435 thousand jobs.

Table 3: DSM indirect economic impact by 2030 with respect to 2018

	Low	Central	High
GDP (%)	+0.44	+0.63	+0.82
Employment (thousands jobs)	+307	+435	+561

The Energy Union strategy consists of the following five pillars: energy security and cooperation, an integrated energy market, decarbonising the economy, research and innovation in low carbon and clean energy technology, and energy efficiency. The latter is considered to be key for the transition to a low carbon economy and to sustain growth and job creation.

In RHOMOLO-IO we simulated the effects of the 30% reduction in the consumption of energy as per target set by the European Commission. The results are to be interpreted as stemming from behavioural changes of the EU households driven by the policy framework developed with the Energy Union, rather than from direct investment and expenditure.

Table 4 reports the estimated effects of achieved energy efficiency targeted by the Energy Union on GDP and employment by 2030 with respect to 2018. The estimated effects amount to an increase in EU GDP of 0.38%, entailing the creation of 178 thousand jobs.

Table 4: Energy Union economic impact by 2030 with respect to 2018

	Low	Central	High
GDP (%)	+0.25	+0.38	+0.48
Employment (thousands jobs)	+118	+178	+225

4. Conclusions

The RHOMOLO analysis summed up in this Policy Insight concludes that the policy measures of the third pillar of the Investment Plan for Europe are likely to exert positive effects in terms of EU GDP growth and employment. The full analysis is available in Christensen et al. (2018).

In particular, we study a number of proposals related to the CMU, the SMS, the DSM, and the Energy Union. The likely economic effect of the proposals contained in the third pillar of the Investment Plan analysed with the RHOMOLO model amounts to an increase in EU GDP of 1.5% by 2030, meaning that about one million jobs are created in the process.

Due to the uncertainty related to the quantification of the effects of proposals which do not envisage any direct monetary injection in the economy, a number of assumptions have been made to obtain the results. The provision of a range of estimates (which in the case of the GDP impact lies between +0.9% and +2.1%) aims at ensuring a certain degree of certainty on the expected sign and magnitude of the estimated macroeconomic impacts.

For more technical details on the analysis briefly reported in this Insight, please refer to Christensen et al. (2018).

Read more

Boston Consulting Group (2016). Digitizing Europe. Available here.

Christensen, M., Conte, A., Di Pietro, F., Lecca, P., Mandras, G., and Salotti, S. (2018). The third pillar of the Investment Plan for Europe: an impact assessment using the RHOMOLO model. JRC Working Papers on Territorial Modelling and Analysis No. 02/2018, European Commission, Seville, 2018, JRC113746.

EIB (2018). Assessing the macroeconomic impact of the EIB group. Economics - Impact Studies. European Investment Bank, June 2018.

European Commission (2018a). Juncker Plan exceeds original E315 billion investment target. Press release IP-18-4469. Available here.

European Commission (2018b). Investment plan for Europe: stock-taking and next steps. COM(2018) 771 final. Brussels, 22.11.2018.

The views expressed are purely those of the authors and may not in any circumstances be regarded as stating an official position of the European Commission.

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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Web: https://ec.europa.eu/jrc/en/research-topic/regional-economic-analysis-and-modelling

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