

Summary of the workshop

“Micro- and macro-based methods in assessing the impact of investment”

On Wednesday, April 5th 2017, the European Investment Bank Group (EIB Group, EIB and EIF) together with Bruegel think tank organized a workshop on “Micro- and macro-based methods in assessing the impact of investment”. The one-day event was held at Bruegel’s premises in Brussels and attracted a lot of attention from various policy institutions, including European Commission and European Parliament, think tanks, impact evaluation practitioners and journalists. Overall more than 80 people participated in the sessions. Overall, the expert debates suggested that the methods on which the EIB and its related institution the European Investment Fund (EIF) rely on for the impact assessment of their activities (including the Juncker Plan) were among the most robust in the literature. These include computable general equilibrium models, difference-in-difference estimators, propensity score matching methods and possibly DSGE models. The workshop was split into two main parts focusing on micro- and macro aspects of the topic, respectively. The event was on-the-record.

Workshop summary

The workshop was opened by **Debora Revoltella (EIB)** and **Guntram Wolff (Bruegel)**. It was highlighted that impact assessment has gained a lot of attention in the recent years, following the need to accurately evaluate the performance of public and private investment initiatives. By organizing this joint workshop, the EIB and Bruegel have shown their readiness to proactively trigger an open evaluation of these methods so as to rely on those that are the best fit to objectively account for the additionality of investment and the desirability of public intervention.

The first session on the use of micro methods for macro assessment was chaired by **Zsolt Darvas (Bruegel)** and included four presentations. The first one, hosted by **Helmut Kraemer-Eis (EIF)** and **Simone Signore (EIF)**, covered the topic of EIF impact assessment methodologies. To address the EIF business model, the institution takes a micro-based impact evaluation approach. The speakers highlighted the importance of detailed knowledge of the background and types of financing instruments of the EIF in the impact exercise. In their assessments they apply difference-in-difference estimators and propensity score matching methods on the sample of European companies. Based on the analysis of the CIP guarantee program, the researchers showed that these guarantees led to a significant increase in employment by beneficiaries compared to counterfactuals and to a significant rise in turnover within the first five years after signature date. They also observed a temporary setback in productivity, partially absorbed in the medium run, particularly in smaller and riskier businesses. The speakers stressed that the EIF also plays a crucial role in catalyzing the equity and venture capital investments across Europe, having direct influence on European investment dynamics in this market segment. EIF’s activities supported the build-up of vibrant, interacting VC hubs, supporting in particular cross-border investments and the internationalization of VC markets. Results of the econometric model showed that EIF activities had significant crowding-in effects, particularly in areas with less developed VC markets (approximated by tertiary education levels).

The second presentation was held by **Robert P. Lieli from the Central European University**. The topic covered the assessment of the Funding for Growth Program (NHP) set by the Central Bank of Hungary. In June 2013 the National Bank of Hungary introduced the 1st phase of program to reinvigorate business lending and growth. The size was estimated at HUF 700 billion (EUR 2.3 billion, approx. 2.3% of GDP) that was made available to banks and financial intermediaries at no cost. Banks were asked to re-lend the amount to SMEs at an interest rate of 2.5% or less. Nominal purpose of loan must have been to re-finance existing loans, finance working capital or finance new long term investment. First phase ended in December 2013 but was extended a number of times afterwards. The main findings stressed that participating firms did invest more: 30% of their total investment in 2013 can be attributed to the program leading to a 6% increase in investment in the SME sector (3% in the private sector as a whole). The results also highlight strong heterogeneity in program effectiveness by firm size: the program effect was proportionally larger for smaller firms; virtually non-existent for medium-sized firms. Theoretical interpretation of heterogeneity can be explained by the fact that before the program small firms were facing a steep aggregate credit supply curve and larger firms were facing a flat one and larger firms were relatively more rationed in the program, compared to small firms.

The third presentation in the session was delivered by **Simon Mizrahi (African Development Bank)**. The speaker stressed the challenging context of impact evaluation of the development programs in Africa. Traditional “results” approaches have shown their limitations and there is a clear need for conceptual and methodological innovations and a shift narrative from “results” to “development impact”. Mr Mizrahi demonstrated the value of using impact-output models for impact assessment in developing organizations as an example of going beyond the traditional results measurement frameworks. Each project should be assessed on the basis of its direct, indirect and induced effects. Input-output models serve a valid tool in this context, however, they also have limitations that one needs to be very candid about and carefully validate the results. The impact of AfDB investments in East Africa between 2013 and 2015 was estimated to have created 383,000 jobs and around USD 1,265m in value added.

The last presentation was hosted by **Amine Ouazad (Ecole Polytechnique in Palaiseau)**. The presentation focused on the use of micro data for macro assessment. On the example of the detailed data set for the US housing market Mr Ouazad demonstrated that the variability of house prices stems not only from the time but also from the cross-sectional dimensions. He argued that given the availability of micro data one is much better endowed to study the aggregate dynamics and public intervention. Granular data sets make it possible to better design and calibrate the simulation models, which can serve as a useful forecasting and planning tool for policy makers.

The second session of the workshop dealing with general equilibrium frameworks was chaired by **Natacha Valla (EIB)** and also included four presentations. It was opened by **Marcin Wolski (EIB)** and **Francesco Di Comite (JRC)** with a presentation on measuring the impact of European Fund for Strategic Investments (EFSI) through the prism of a Computable General Equilibrium (CGE) framework. The presentation was divided in two parts: descriptive and technical. In the former, the speakers highlighted the need for a comprehensive impact assessment framework, including the direct, indirect and induced effects. Mr Wolski stressed that the specificities of the EIB business model dictate the assessment methodology as one would like to guarantee that all the EIB stakeholders and relations are taken into account. Consequently, on the basis of a set of criteria (granularity, flexibility, credibility and time horizon) the EIB decided to develop a macroeconomic impact assessment framework based on the so-called "RHOMOLO" model, developed by the JRC, and adjust it to match the characteristics of the EIB business model (in particular that the EIB is an investment bank and not a grant institution). The approach, called RHOMOLO-EIB, was further described by Mr Di Comite. EIB investments cascade through the economy through two main channels: investment and structural. The former adjusts the income structure of economic agents whereas the latter improves structural efficiencies of the economy. The RHOMOLO model has been already applied in several studies of the European Commission, yielding credible and practical results. It has also been applied to assess the impact of the EIB operations during the capital increase phase between 2013 and 2015. Furthermore, the model matches the EIB business model as it allows distinguishing between the short- and long-term impacts. The approach attracted a lot of attention from the audience and generated interesting discussions on the methodology but also on the intended use of the model to evaluate the impact of

EFSI. With respect to the latter, a point was made regarding modelling of the additionality of the EIB investments and the speakers stressed that the model was as agnostic as possible in this respect. The financing structure of the investments is, by construction, funded from an existing source explicitly modeled in the general equilibrium framework. The purpose of the EIB investments is to mobilize private resources into productive investments which is directly reflected in the RHOMOLO-EIB model.

The second presentation was delivered by **Kim Swales (University of Strathclyde in Glasgow)**. It described the use of a CGE framework to evaluate the economic consequences for the UK after the country leaves the EU bloc. The simulations were carried out for three 'Brexit' scenarios: Norway, Switzerland and WTO trade model with the EU, assuming different tariffs and public transfers to the EU budget. Under each scenario the exports and trade with the EU decrease. However, they decrease the most under the WTO model, followed by the Switzerland and Norway models, respectively. Furthermore, the reduction in trade appeared to be a permanent shift in trade structure of the UK. This can have a negative effect on the UK GDP ranging from -4pp up to -12pp in the long-run, under different 'Brexit' scenarios. The main conclusions highlight that all conventional models indicate that leaving the EU has negative economic impacts on the UK and that these impacts are likely to vary across space.

Aron Gereben (EIB) hosted the third presentation. It described the use of Dynamic Stochastic General Equilibrium (DSGE) models in impact assessment. Mr Gereben delivered evidence that DSGE models with financial frictions have been successfully applied in impact assessment of unconventional monetary policy measures – such as quantitative easing - and they can be further extended to cover various public interventions, covering also public investments. In the DSGE framework public policy works through market frictions. Measuring the impact of any public policy hinges on understanding and modelling the market frictions it addresses. The speaker pointed out the complementariness between the DSGE and CGE models and he stressed that to get comprehensive results one should exploit the synergies between the approaches. The comments from the audience highlighted that it is of crucial importance to properly estimate the DSGE models, rather than rely on purely calibrated parameters. Furthermore, the level of granularity of DSGE models is low and they have been usually applied in explaining the mechanisms of public intervention rather than exact impact.

The last presentation was delivered by **Gregory Claeys (Bruegel)**. The presentation focused on the main assumption and implications of EFSI. Mr Claeys explained the history, channels and the main mechanisms through which EFSI can affect the economic dynamics. He stressed that these should be included in any impact assessment exercise. He also suggested many of the effects of EFSI are not directly observable and that there is a clear need to properly design the counterfactual scenario against which the impact is measured. The counterfactual should include not only the changes in aggregate dynamics but also the public budget composition and the use of unutilized resources.

Key Takeaways

The workshop was praised as a success. The main lessons learned from the event spread across a range of topics, but the most important lessons for the policy makers and impact modellers can be summarized as follows:

- 1) There is no one-fits-all methodology and the business case dictates which approach is the most accurate one to evaluate the impact.
- 2) This being said, general equilibrium and difference-in-difference approaches are well established and robust methods that are fit for the assessment of the macroeconomic impact of policy interventions such as public investment or central bank intervention.
- 3) There are substantial complementarities between the micro and macro approaches, and it is of crucial importance to study how the micro relations translate into the macro dynamics.

The event stressed the difficulties behind the impact assessment topic, but it also provided the participants with a roadmap on the best practices in the area. The speakers tried to exploit the synergies between presented approaches and demonstrated the need for the further development of the methodologies in the direction supported by the event.