Macroeconomic Impact of the Next Generation EU Instrument: Analysing Recovery and Resilience Facility Funds by Country, Industry, and Policy Pillars

Topic: CGE and Econometric Input-output Modelling (1)
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The European Commission's Recovery Plan for Europe includes the Next Generation EU (NGEU) funds, which came into effect in 2021. A key component of this initiative is the Recovery and Resilience Facility (RRF), with a total budget of â‚¬723.8 billion, comprising both loans and grants. The primary objective of the RRF is to help EU Member States (MS) recover from the pandemic's economic and social impact while promoting a green and digital transition, by supporting six key policy pillars.

Given the limited academic research on RRF's potential impact, this study aims to evaluate its macroeconomic effects across the EU-27 and within each MS. The analysis considers both the direct impact of investments outlined in each MS's Recovery and Resilience Plan (RRP) and the spillover effects of RRF-funded projects in other MS.

To achieve this, the study assesses the economic impact of RRF using the FIDELIO (Fully Interregional Dynamic Econometric Long-term Input-Output) model, which offers a high level of industrial disaggregation across 64 sectors. This enables an in-depth examination of how investments influence both national economies and the broader EU economic landscape, with particular emphasis on major EU economies such as Germany. To the best of our knowledge, this is the first attempt to capture the direct and spillovers of the RRF with such a disaggregated sectorial level. While studies such as Barbero et al. (2024) have analysed the macroeconomic and distributional impact of the RRF at a regional level, they have done so with a very low level of disaggregation, including only 10 industries. Moreover, the analysis of this study can be disaggregated to consider the impact of the RRF within each European Commission pillar, with a particular focus on the green transition and digital transformation.

The RRF allocates financial resources up to a total value of â‚¬655 billion to EU MS, consisting of â‚¬364 billion in grant funding and â‚¬291 billion in loan assistance. Grants are non-repayable financial contributions that directly boost national economies, whereas loans must be repaid but are offered at favourable terms, including low interest rates and extended repayment periods. The allocation of grants considers the pandemic's economic impact on each country, along with their specific reform and investment needs.

Each MS must develop an RRP detailing how funds will be invested until 2026. This study analyses the distribution of grants and loans by country, sector, and policy pillar, using data from the European Commission's Directorate General for Economic and Financial Affairs (ECFIN). The FIDELIO model, a multi-sector Dynamic General Equilibrium economic model developed by the European Commissionâ€™s Joint Research Centre, simulates the economic and sectoral effects of RRF investments. Version 4 of FIDELIO has been used, incorporating improvements over previous versions.

As an Input-Output model, FIDELIO is able to capture all sectoral spillover and dependency effects of any policy under analysis due to its granularity in terms of economic sectors and regions. In fact, the model is based on official statistics from Eurostat's FIGARO, with a breakdown of 64 NACE industries and covering 45 countries (EU 27 Member States, its main 18 EU trading partners, and an aggregate region of RoW). The model's granularity in terms of economic sectors, coupled with its capacity to capture sectoral spillover and dependency effects, renders it a valuable asset for conducting policy impact assessments.

The simulation models a demand-driven economic shock of â‚¬655 billion from the RRF, allocated across countries and industries between 2020 and 2026, differentiating between grants and loans. The model incorporates a 30-year repayment period for loans, with a seven-year grace period and

an interest rate aligned with the European Central Bank's refinancing operations.
The study assesses the impact of RRPs on key economic indicators such as GDP. By examining both direct and spillover effects, the analysis provides insights into how national investment plans contribute to economic recovery and sectoral transformation.
In consideration of the unprecedented and substantial significance of the RRF funds, this analysis is of paramount importance, as it provides scientific evidence of their impact, not only on individual countries but also at the industry level, thanks to the characteristics of the FIGARO database and the FIDELIO model.
Furthermore, it provides insight into both the direct effects and the spillover impacts generated when an investment in one country affects another, due to the linkages between them. The spillover effects of such investments are frequently not immediately apparent, and thus this analysis is instrumental in revealing the true impact of the funds. Additionally, the ability to assess the impact of the funds considering each industry as well as the six policy areas pillars is highly valuable.