

Evaluating Challenges in the Implementation of EU Cohesion Policy: Critical Issues for Policy Makers

A policy Brief

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1. Executive Summary

The European Regional Development Fund (ERDF) aims at strengthening economic, social, and territorial cohesion in the European Union (EU) by correcting imbalances within and between its Member States (MSs). This fund can support a wide range of activities designed to make small to medium-sized enterprises (SMEs) more competitive and sustainable, by fostering the adoption of Information and Communication Technologies (ICTs), inducing the reduction of greenhouse gas emissions (GHG), and supporting firms in the development of research and innovation (R&I).

As of 2014, MSs were required to assess the efficacy, efficiency, and impact of each program's objective. In effect, evaluation assumes a prominent role in cohesion policy formulation because it helps support policy design and implementation, also providing sound evidence regarding the results and impact of the actions undertaken.

In this context, this work (developed in the framework of project – ADEPT) aimed primarily at employing novel methodologies in the assessment of the efficiency of the implementation of different Operational Programs (OPs) from different beneficiary countries and regions of the European Union (EU), under the ERDF, dedicated to thematic objectives TOs 1 - R&I, 2 - ICTs and 4 – Low-Carbon Economy (LCE). To this end, data made available on the websites of the European Commission (EC) and the Organization for Cooperation and Development (OECD) were used. These data involve financial, procedural, result and contextual implementation indicators for the Structural Funds implemented in the period 2014-2020, mainly dedicated to SMEs, within the ERDF.

Hence, this policy brief highlights the various challenges that currently arise in the assessment of EU funds, particularly, in the context of the three TOs under scrutiny herein.

Keywords: ERDF, Operational Programs, Low-Carbon Economy, Research & Innovation, ICTs, evaluation

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2. Introduction

The assessment of the OPs is still a largely discussed topic. In this regard, the EC identified two main assessment problems with the system of indicators (Nigohosyan and Vutsova, 2018): difficulties in establishing the cause-and-effect relationships between actions, results, and impacts, due to the influence of external factors; and difficulties in measuring the impacts, because they are usually the cumulative effect of many actions, affect diverse populations, and it takes time for them to show their actual effects.

For the 2014–2020 period the EC tried to overcome these difficulties in the ERDF context by discarding the concept of impact indicators and introducing a new intervention logic. Despite these changes, some of the identified problems with the indicators were not solved. In effect, Nigohosyan and Vutsova (2018) suggested that the system of common output indicators should be re-examined, while the requirements for the result indicators should not be contradictory.

In the current programming period (2021-2027), the lessons learned from other programming experiences within and beyond the European Structural and Investment Fund (ESIF) framework can make a difference, since ESIF operates in very different local contexts and handles very heterogeneous economic and social regional environments. This means that even if the Cohesion Policy has a unified regulatory framework, it should address different national and regional circumstances embedded in a variety of institutional arrangements, bearing in mind that its operations comprise a multiplicity of measures and a diversity of national, regional, and local rules and systems (Bachtler and Wren, 2006).

In this vein, Nigohosyan and Vutsova (2018) emphasized that the EC should try, in the next programming period (i.e., 2021-2027), to expand the current list of common output indicators and the feasibility of developing a list of common direct result indicators for post-2020 ERDF and CF interventions.

With the foregoing in mind, we investigate the current major issues inherent to the assessment of ESIFs committed to three TOs: R&I, LCE, and ICTs.

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3. Major Challenges

3.1 Data and variables selection

The lack of data and the heterogeneous definitions of relevant indicators further complicate the analysis of the OPs funded by ERDF (Henriques et al., 2022a,b). Both, policy, and economic performance/outcome indicators can be measured/proxied by different variables and the choice of these proxies may have important implications for the results of the various analyses (Pastor et al., 2010). For example, the use of actual policy 'expenditure' data instead of 'commitments', means having to consider the duration of the entire OP (Crescenzi and Giua, 2016).

Additionally, the data available to perform the assessments varies considerably with the type of TO under scrutiny. In the case of R&I (TO1), policymakers face additional challenges in the assessment of R&I policies, notably because of the scarcity of suitable data (Ortiz and Fernandez, 2022; Henriques et al., 2022a).

The sparsity of regional-level research and data on ICTs (TO2) at the firm level has also been highlighted by Ruiz-Rodríguez et al. (2018), Reggi and Gil-Garcia (2021) and Henriques and Viseu (2022a,b). For example, despite the ample set of data available in the latest European Innovation Scoreboard (Hollanders, 2021) with some indicators on ICTs (e.g., Digital skills and business sector ICTs specialists), Henriques and Viseu (2022a,b) only managed to consider three indicators for assessing the OPs related to boosting ICTs adoption in SMEs (i.e., operations supported, eligible costs decided, and eligible spending).

An additional difficulty refers to the identification of EU ICTs targeted investments (Sörvik and Kleibrink, 2016). Aside from being an economic sector, ICTs is still an essential portion of many other activity-related sectors (for example, e-Health) and a tool to assist other activities. Since ESIF actions might have multiple aims, it can be hard to pinpoint the ICTs-related activities within the designated categories when the OPs are planned. The OPs' financial metrics are organized into intervention categories, TOs, and priority domains. Moreover, although the EU guidelines advocate that planned ICTs initiatives should be classified primarily underneath TO2, these obtain funds under distinct TOs, and they are also integrated into various smart specialization strategies. For example, to consider the support of ICTs in SMEs, there are only two dimensions of intervention that can be considered (Sörvik and Kleibrink, 2016; Reggi and Gil-Garcia, 2021; Henriques and Viseu, 2022a,b) under codes 4 and 82, that correspond to €1.7 billion and €304 million of planned investments, respectively (Sörvik and Kleibrink, 2016). These totals are available under multi-TO (€810 million), TO2 (€790 million), and TO3 (€349 million) and to a smaller level under TO1 and TO8 (Sörvik and Kleibrink, 2016). As a direct consequence, national and regional policymakers should use additional specific criteria that account for ICTs results; tag expenditure that falls under other TO (rather than TO2) but has an ICTs component; enhance the quality and completeness of ICTs performance data at the regional and SME levels; and unify different data from diverse data sources (Henriques and Viseu, 2022 a, b).

Furthermore, as noticed by Henriques et al. (2022a, b), despite the performance framework providing a set of implementation indicators, the data provided is frequently incomplete, and as a result, assessments end up considering a limited number of indicators and OPs.

Finally, it is not possible to reach a complete match between the data obtained for the OPs' achievements and their financial implementation. This is especially true for the investment priority dedicated to SMEs (investment priority 4b), under TO4 (i.e., LCE), which is meant to increase energy efficiency and renewable energies and includes statistics for the accomplishment metrics but not for their financial implementation.

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3.2 Methodologies

The literature review identified desk research, monitoring data/data analysis, interviews, focus groups/facilitated workshops, surveys, and case studies as the major applied techniques to analyze ERDF TOs (Henriques et al. 2022a, b). Notwithstanding, the MSs efforts to improve cohesion policy appraisal, only very few evaluations use more reliable methodologies, such as statistical methods or other mathematical techniques (Henriques et al. 2022a, b). Non-parametric approaches, like DEA, are a valuable methodological alternative to the traditional approaches employed in similar contexts. The key advantage of utilizing this mathematical approach is the type of information that it can provide to Management Authorities (MAs) on the inefficiency of the OPs when compared to their counterparts. The benchmarks of inefficient OPs are also determined through DEA, and significant information about the best practices to follow to reach efficiency may be obtained. Non-parametric approaches, such as DEA, may readily manage many assessment criteria. Furthermore, DEA can help identify the key reasons that hamper efficiency, supplying policymakers with relevant knowledge on how to solve them. For example, Gómez-García et al. (2012) evaluated the efficiency of the implementation of ESIF allocated to TO1 in this context. Furthermore, Gouveia et al. (2021) used the Value-Based DEA method to evaluate the implementation of ESIFs aimed at enhancing the competitiveness of SMEs throughout multiple OPs (national and regional). In addition, Henriques et al. (2022b) evaluated 102 OPs from 22 EU MSs dedicated to supporting an LCE in SMEs using the output-oriented variant of the slack-based measure (SBM) model paired with cluster analysis. Additionally, Henriques et al. (2022a) evaluated 53 OPs from 19 MSs committed to boosting R&I in SMEs using the non-oriented form of the network SBM approach in conjunction with cluster analysis. Finally, Henriques and Viseu (2022 a, b) assessed 51 OPs from 16 countries dedicated to foster the adoption of ICTs by SMEs through the Slack-Based Measure (SBM) and the Weighted Russel Directional Distance (WRDD) models combined with Stochastic Frontier Analysis (SFA). Furthermore, DEA models are easily adaptable to evaluate different TOs if the basic rule of thumb proposed by Golany and Roll (1989) is followed, namely, the number of DMUs (in this case, the OPs, EU funds, regions, countries, etc.) under evaluation should at least double the number of inputs (resources) and outputs (achievements or results), i.e., the indicators used in the evaluation. Though DEA offers undeniable benefits over other conventional methods (for example, microeconomic analyses that utilize control groups and case study analysis), there is currently a dearth of academic interest in its application in the context of ESIF efficiency appraisal.

This form of analysis is especially important if the programs are still in progress since it allows MAs to evaluate the influence that prospective changes in output/input levels would have on the levels of efficiency attained by the OPs. Unlike other approaches and methodologies that are specially applied for ex-post or ex-ante evaluation of cohesion policies, the DEA approach allows us to assess the efficiency of OPs' deployment across the programmatic time horizon (thus allowing us to perform midterm/terminal assessments), so that the required initiatives can be implemented within the time necessary for producing the appropriate changes during the programmatic period.

Due to the lack of more robust approaches during midterm/terminal assessments, the adoption of non-parametric methodologies can be particularly beneficial and suitable, mostly because the existing metrics for appraising the Cohesion Policy can be employed with other methodologies and contextual indicators. This can be done by combining this sort of analysis with Stochastic Frontier Approach (SFA), for example, thus allowing us to understand if the inefficient results obtained are mainly related to managerial failures or to the contextual environment or statistical noise (Henriques and Viseu, 2022a, b)

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4. Conclusion and policy implications

The main conclusions and policy implications are highlighted, according to the following issues:

1. selection of the variables/indicators in the assessment of ERDF funds

Overall, there is a lack of data availability that makes it difficult to assess all the OPs targeted to be funded. Besides, there is no full match between the financial data and the corresponding achievements per TO and dimensions of intervention. We were also able to ascertain that the data available to perform the evaluations differ significantly with the type of TO under scrutiny. In this sense, there is scarce data availability on ICTs (TO2) both at the regional and firm levels.

We were able to conclude that the best practices highlight the necessity for indicator harmonization and simplification. It would be desirable to further enhance the quality and comprehensiveness of ICTs performance data both at the regional and SME levels. Finally, it would be preferable to have more comparable statistics based on the usage of fewer metrics than those established from 2014 to 2020.

2. the main gaps found in the methodologies

Only a small number of assessments employ more consistent methodologies, such as statistical analyses or other mathematical tools. Non-parametric methods, such as DEA, have emerged as a significant quantitative option to the standard methodologies used in comparable circumstances. The primary advantage of employing this mathematical technique is the source of data that it can supply to MAs on the inefficiency of the OPs when compared to their peers.

DEA also determines the benchmarks of inefficient OPs, and relevant data on the best procedures to follow to achieve efficiency may be gathered. Non-parametric techniques, such as DEA, may handle multiple evaluation criteria. Additionally, DEA can assist in identifying the primary causes of inefficiency, providing policymakers with helpful information on how to address them. Moreover, the DEA approach is easily adaptable to assess various TOs. This type of analysis is particularly relevant if the programs are already in progress because it enables MAs to foresee the impact on the efficiency of future changes in output/input levels. Because more robust techniques are lacking during midterm/terminal evaluations, the use of this non-parametric methodology can be especially advantageous and appropriate, because the current metrics for evaluating the Cohesion Policy can be combined with other methods and contextual factors. This may be accomplished by integrating this type of study with the Stochastic Frontier Approach (SFA), for example, enabling us to determine if the inefficient outcomes achieved are mostly due to managerial failings, the contextual environment, or statistical noise.

All in all, our findings emphasize the need for harmonization and simplification of the usage of indicators to evaluate the funded OPs. Besides, an important effort should be placed on the reporting of results to allow for better assessments and to avoid poor outcomes. Finally, we have identified a trade-off between the required detail of the achievements reported and the number of indicators used to support their description, i.e., comprehensiveness vs. simplicity.

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5. References

Bachtler, J., & Wren, C. (2006). Evaluation of European Union Cohesion policy: Research questions and policy challenges. *Regional studies*, 40(02), 143-153. <https://doi.org/10.1080/00343400600600454>

Crescenzi, R., & Giua, M. (2016). The EU Cohesion Policy in context: Does a bottom-up approach work in all regions? *Environment and Planning A: Economy and Space*, 48(11), 2340–2357. doi: 10.1177/0308518X16658291

Golany, B., & Roll, Y. (1989). An application procedure for DEA. *Omega*, 17(3), 237-250. [https://doi.org/10.1016/0305-0483\(89\)90029-7](https://doi.org/10.1016/0305-0483(89)90029-7)

Gómez-García, J., Enguix, M. D. R. M., & Gómez-Gallego, J. C. (2012). Estimation of the efficiency of structural funds: a parametric and nonparametric approach. *Applied Economics*, 44(30), 3935-3954. <https://doi.org/10.1080/00036846.2011.583224>

Gouveia, M. C., Henriques, C. O., & Costa, P. (2021). Evaluating the efficiency of structural funds: An application in the competitiveness of SMEs across different EU beneficiary regions. *Omega*, 101, 102265. <https://doi.org/10.1016/j.omega.2020.102265>

Henriques, C., Viseu, C., Neves, M., Amaro, A., Gouveia, M., & Trigo, A. (2022a). How Efficiently Does the EU Support Research and Innovation in SMEs? *Journal of Open Innovation: Technology, Market, and Complexity*, 8(2), 92. <https://doi.org/10.3390/joitmc8020092>

Henriques, C., Viseu, C., Trigo, A., Gouveia, M., & Amaro, A. (2022b). How Efficient Is the Cohesion Policy in Supporting Small and Mid-Sized Enterprises in the Transition to a Low-Carbon Economy? *Sustainability*, 14(9), 5317. <https://doi.org/10.3390/su14095317>

Henriques, C., & Viseu, C. (2022a). Are ERDF devoted to boosting ICT in SMEs inefficient? Insights through different DEA models. In *EU Cohesion Policy Implementation - Evaluation Challenges and Opportunities. Proceedings of the 1st International Conference on Evaluating Challenges in the Implementation of EU Cohesion Policy (EvEUCoP 2022)*, Henriques, C. e Viseu, C. (Eds.), pp. 23 –32, Springer.

Henriques, C., & Viseu, C. (2022b). Are ERDF devoted to boosting ICT in SMEs inefficient? Further insights through the joint use of DEA with SFA models. In *EU Cohesion Policy Implementation - Evaluation Challenges and Opportunities. Proceedings of the 1st International Conference on Evaluating Challenges in the Implementation of EU Cohesion Policy (EvEUCoP 2022)*, Henriques, C. e Viseu, C. (Eds.), pp. 33 –43, Springer.

Hollanders, H. (2021). *Regional Innovation Scoreboard 2021*. European Commission. <https://doi.org/10.2873/674111>

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Nigohosyan, D., & Vutsova, A. (2018). The 2014–2020 European regional development fund indicators: the incomplete evolution. *Social Indicators Research*, 137(2), 559-577. <https://doi.org/10.1007/s11205-017-1610-8>

Ortiz, R., & Fernandez, V. (2022). Business perception of obstacles to innovate: Evidence from Chile with pseudo-panel data analysis. *Research in International Business and Finance*, 59, 101563. Doi: 10.1016/j.ribaf.2021.101563

Pastor, J., Pons, E., & Serrano, L. (2010). Regional inequality in Spain: permanent income versus current income. *The Annals of Regional Science*, 44(1), 121–45. <https://doi.org/10.1007/s00168-008-0236-9>

Reggi, L., & Gil-Garcia, J. R. (2021). Addressing territorial digital divides through ICT strategies: Are investment decisions consistent with local needs? *Government Information Quarterly*, 38(2), 101562. <https://doi.org/10.1016/j.giq.2020.101562>

Ruiz-Rodríguez, F., Lucendo-Monedero, A. L., & González-Relaño, R. (2018). Measurement and characterisation of the Digital Divide of Spanish regions at enterprise level. A comparative analysis with the European context. *Telecommunications Policy*, 42(3), 187-211. <https://doi.org/10.1016/j.telpol.2017.11.007>

Sörvik, J., & Kleibrink, A. (2016). Mapping EU investments in ICT-description of an online tool and initial observations. Publications Office of the European Union, Luxembourg. Available online at: <https://op.europa.eu/en/publication-detail/-/publication/6fd75d00-44d0-11e6-9c64-01aa75ed71a1/language-en> (Accessed 30/05/2022).

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