

# Assessing the impact of EU financial support on regional convergence: A Systematic Literature Review

## Abstract

The European Union aims to reduce regional disparities and promote economic growth through substantial investment among its member states. Despite major investments, the impact of EU financial support on regional convergence remains unclear. The authors employed a Systematic Literature Review (SLR) to analyze the assessed impact and identify assessment gaps in evaluation of EU financial support on regional convergence, based on 33 articles published between 2012 and 2024. The findings reveal that the impact on regional convergence is often considered merely a spillover effect in the examined papers. Key findings suggest the need for more granular analyses of individual funds, such as the European Social Fund (ESF), and their targeted assessment in areas such as unemployment, social inclusion, education, and public services. Existing research predominantly focuses on NUTS-2 level regions, leaving NUTS-3 level unexplored. Future prospects: to assess the impact of individual funds rather than aggregated allocations on regional convergence, such as the impact of European Social Fund (ESF) investments on regional convergence by aiming to analyze specific target areas; to develop an economic specification that incorporates terms for fund allocations, the corresponding target areas, and their interactions, to assess the influence of these factors on reducing regional disparities through target areas rather than through expenditure effects; focus on smaller regions, such as the NUTS-3 level.

**Keywords:** European union (EU), EU financial support, European Social Fund (ESF), Regional Convergence, Regional disparities, Economic Growth, Systematic literature review (SLR)

**JEL Classification:** R58 , F15 , E62 , O47

## 1 Introduction

The main goal of the European Union is to reduce regional disparities, improve living conditions, and protect the environment among its member states. The overall objectives of the Cohesion Policy for the 2014–2020 period were to prioritize investments in growth and jobs, as well as European territorial cooperation. To achieve these aims, the

European Structural and Investment Funds (ESIFs) allocated €731 billion (([Commission, 2023](#))) to reduce regional disparities and bring them closer to EU averages ([Mogila et al., 2022](#)). ESIFs appear to be a significant source for enhancing quality of life and advancing the processes of regional convergence in Europe ([Vukasina et al., 2022](#)). The EU Cohesion Policy (CP) plays a vital role in promoting regional convergence by fostering economic growth and supporting less developed regions, although challenges such as uneven fund distribution and persistent disparities remain ([Smékalová and Kučera \(2022\)](#); [Maris \(2024\)](#); [Crucitti et al. \(2024\)](#); [Minarčíková \(2015\)](#)). Efforts remain focused on achieving balanced development to ensure that all regions, including less attractive and lagging ones, can compete economically ([López-Bazo, 2022](#)).

While prior systematic literature reviews, such as [Klarin et al. \(2023\)](#) study on convergence processes, have focused on developing a broad taxonomy and typology of convergence across various industries, technologies, and markets, this research takes a more targeted approach by examining the impact of European Union financial support on regional convergence. Unlike the interdisciplinary scope of [Klarin et al. \(2023\)](#) which analyzes convergence as a global phenomenon influenced by scientific, technological, and market dynamics, this review narrows its focus to evaluate the specific role of EU cohesion policies in addressing regional disparities. Similarly, [Sharma and Sharma \(2023\)](#) conducted a bibliometric analysis of the convergence hypothesis using records from Scopus database (2000–2020), emphasizing convergence studies in developed economies and identifying a significant research gap concerning emerging economies. This article distinguishes itself by focusing on the specific impact of EU financial support on regional convergence within member states. Systematic reviews of the literature, including those of [Klarin et al. \(2023\)](#) and [Sharma and Sharma \(2023\)](#), have analyzed convergence as a process and identified a lack of regional analysis in underdeveloped areas. Moreover, previous studies do not reach a consensus on whether EU financial support has a positive or negative impact on regional convergence. Considerable uncertainties persist with respect to the efficacy of regional assistance, and some studies show that the influence of structural funds on GDP and employment convergence is negligible or even adverse. This underscores the need for profound transformations in regional support frameworks ([Dall’erba and Le Gallo \(2007\)](#); [Brendenbach et al. \(2019\)](#)). Although EU financial support is intended to promote regional convergence, its tangible impact varies due to factors such as institutional quality and project management efficiency ([Butkus et al., 2020b](#)).

Given the extensive body of literature analyzing the impact of EU financial support on regional convergence and the lack of conclusive evidence regarding its impact, we employed the adopted PRISMA method ([Page et al., 2021](#)) and the protocol outlined by [Tranfield et al. \(2003\)](#) to conduct a systematic literature review (SLR). This review seeks to identify research gaps and provide direction for future studies in this area.

The main aim of this study is to identify gaps in the existing literature on the impact of EU financial support on regional convergence and to present the findings of an SLR. To achieve this, three key objectives are addressed. First, it is necessary to determine whether authors explicitly analyze the impact of EU financial support on regional convergence, consider it a spillover effect, or prioritize economic growth as the main outcome. Second, the review examines the research models employed and

identifies which specific funds are analyzed. Third, it is essential to understand which regions are not thoroughly examined in the existing literature. This article lays the groundwork for further analysis of European Union funds aimed at fostering regional cohesion.

## 2 Method

This review used a systematic approach, following the PRISMA 2020 (Page et al., 2021) guidelines and protocol outlined by Tranfield et al. (2003). The PRISMA method defines clear steps from the formulation of research questions to the presentation of results, allowing a structured literature search, selection, and analysis process. PRISMA guides authors in justifying their review process, specifying the techniques applied, and presenting the conclusions reached, which ultimately strengthens the reliability and repeatability of systematic reviews. The method was adopted to ensure the quality of the selected articles, the adherence to inclusion and exclusion criteria, the selection process, and the summarization of results. However, we focused on qualitative information and excluded steps specific to meta-analysis or quantitative measurements. Meanwhile, the Tranfield et al. (2003) protocol complements the PRISMA method by outlining a three-stage process for article selection: planning the review, conducting a review, and reporting the data. In essence, the SLR framework is based on an exhaustive literature search, a systematic selection process, data collection process, and synthesis of the findings. The main focus is to answer the common question: What is the impact of EU financial support on regional convergence, according to articles from the Scopus or Web of Science databases? And to identify gaps in the literature for future research.

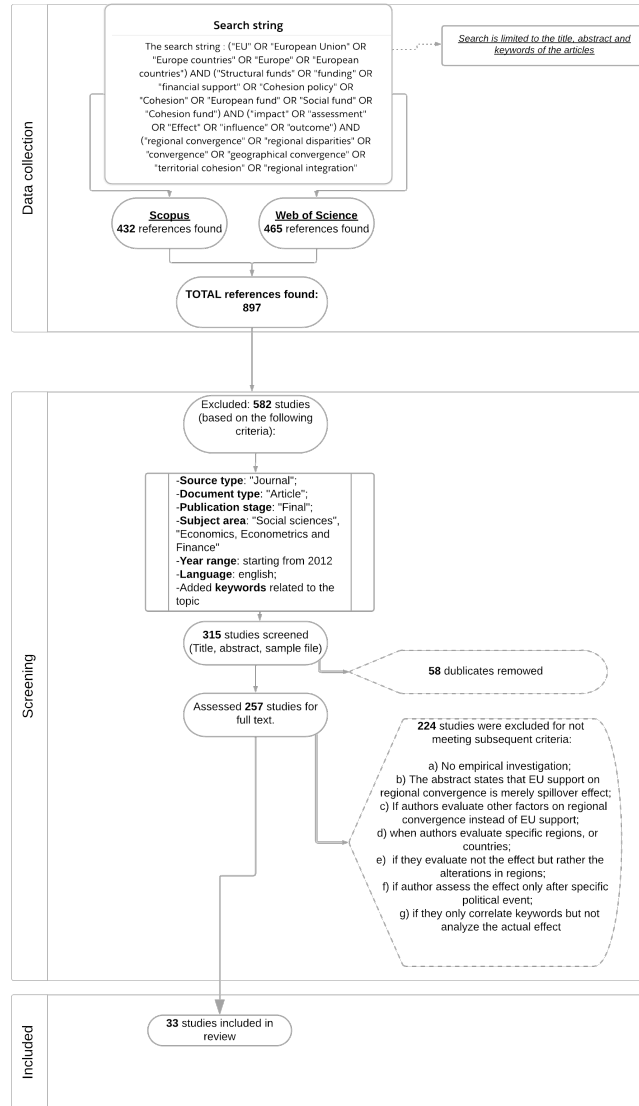
This approach will assist in elucidating the primary question and will seek to elucidate the subsequent objectives:

1. To ascertain whether the authors explicitly scrutinize the influence of EU financial support on regional convergence or if it constitutes a spillover effect while evaluating economic growth.
2. Investigate the research frameworks and variables employed, including defining which EU funds are examined.
3. Identify regions that are inadequately addressed in the prevailing literature.

The inclusion and exclusion parameters depend on the subsequent dimensions: the subject matter, the type of publication, the date of publication, the language, and the database. The articles must be relevant to the subject of the impact of the EU's financial support on regional convergence and must be peer-reviewed journal articles published between 2012 and 2024 in English and cataloged in the Scopus or Web of Science (WoS) database. Articles that do not satisfy these parameters are omitted from the review.

The search strategy uses keywords and Boolean operators to retrieve the relevant articles from the Scopus and WoS databases. The keywords are derived from the research question, and the literature is grouped into three categories: the EU's financial support, regional convergence, and assessment. The Boolean operators are

used to combine the keywords and refine the search results. The search string is as follows: (“EU” OR “European Union” OR “Europe countries” OR “Europe” OR “European countries”) AND (“Structural funds” OR “funding” OR “financial support” OR “Cohesion policy” OR “Cohesion” OR “European fund” OR “Social fund” OR “Cohesion fund”) AND (“impact” OR “assessment” OR “effect” OR “influence” OR “outcome”) AND (“regional convergence” OR “regional disparities” OR “convergence” OR “geographical convergence” OR “territorial cohesion” OR “regional integration”). The search is limited to the articles’ title, abstract, and keywords and was conducted on 28/08/2024 – 432 documents were received in the Scopus database. To exclude unnecessary articles from the list, we apply limits to source type “Journal”, document type – “Article”, publication stage – “Final”, subject area – “Social sciences” and “Economics, Econometrics and Finance”, and keywords such as: “European Union, Territorial Cohesion, Europe, Convergence, Cohesion Policy, Regional Development, Economic Growth, Regional Economy, EU Cohesion Policy, Regional Disparities, Structural Funds, Economic Development, Regional Integration, Regional Growth, Cohesion, Territorial Cooperation, Regional Convergence, European Funds, EU Structural Funds, EU Funds, Regional Cohesion, Funding, European Cohesion Policy, Europe 2020”, with a year range starting from 2012-present and language – English. After applying these limits, we received 186 documents in the Scopus database and grouped them according to relevance. To assess the effectiveness of EU support, it is necessary to look at the situation before the implementation of the 2014-2020 EU support program and during and after its conclusion. Published articles from 2012 onwards provide sufficient information to understand the situation in earlier periods. An identical inquiry was executed in the WoS database. After the implementation of these constraints, we proceed with 129 articles. Using Zotero software, we excluded 58 duplicate records from the total (from Scopus: 186; WoS: 129) articles. It should also be noted that a significantly lower number of research articles examines the influence of EU financial assistance on regional convergence compared to its influence on economic growth. Even though the authors mention in the abstract that the research is about the impact on regional convergence, they describe economic growth in the results. If we apply the same search to articles in the Scopus and WoS databases but replace the focus on ‘regional convergence’ with ‘economic growth’ using analogous filtering, we get twice as many articles. To ensure transparency and clarity in our SLR methodology, the complete selection process is illustrated in **Fig. 1** (the figure created using Lucidchart).



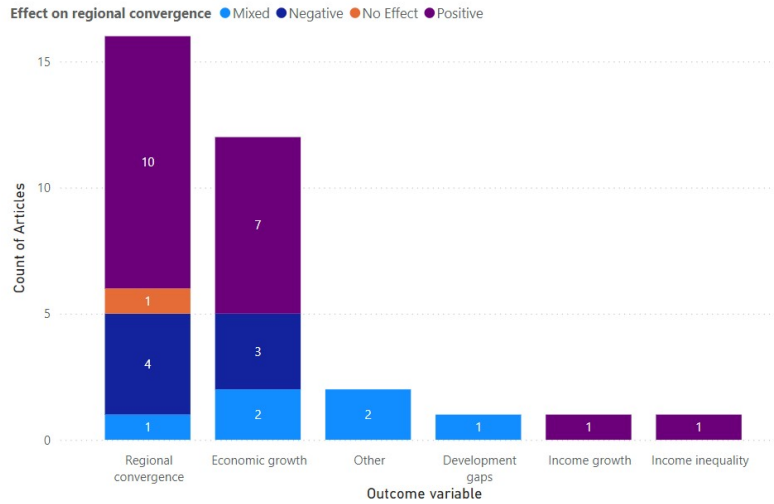
**Fig. 1** Articles selection process, created by Authors

To select suitable articles for SLR, it is essential to assess the criteria by which appropriate articles are included in the analysis. Articles that did not fulfill the research objectives were excluded if they did not satisfy the subsequent criteria: a) no empirical investigation was performed, b) the abstract explicitly articulates that the EU support effect on regional convergence is merely a spillover effect, c) the authors did not evaluate the effect of EU financial assistance but rather examine the influence of other determinants on regional convergence, d) authors evaluated specific regions, or

countries, e) they evaluated not the effect but rather the alterations in regions, f) they assessed the effect solely after a particular political occurrence, g) they only correlated keywords but did not analyze the actual effect. After applying these exclusion criteria, the final 33 articles were included for further study (see Appendix II 6). According to our PRISMA 2020 (Page et al., 2021) guidelines and the proposed methodology by Tranfield et al. (2003), all relevant characteristics from chosen articles should be extracted into a data extraction form (6). This table should include author characteristics, publication date, research period, type of funding, region, method, outcome variable, and effect on regional convergence.

### 3 Results

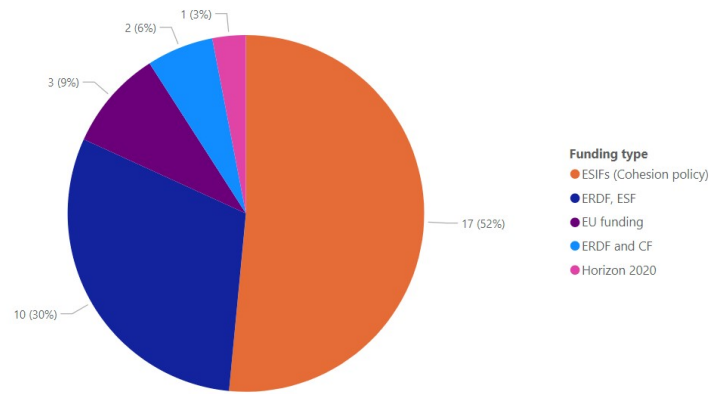
The SLR analyzed 33 publications focusing on the influence of EU financial support on regional convergence. The analysis provides no definitive conclusion regarding the impact of EU financial support on regional convergence. Of the 33 articles reviewed, 58% report a positive impact, 21% a negative impact, 18% a mixed impact, and 3% no impact on regional convergence. Various reasons are proposed by the authors to explain these differences. For instance, the impact of cohesion investment tends to be lower in more developed regions and may even be negative in some cases, as these regions receive fewer investments relative to their GDP and a smaller share of the budget (Crucitti et al., 2024). Maynou et al. (2016) argues that regional disparities have decreased over the last twenty years, but the analysis results heavily depend on the variables used to evaluate the impact. Economically stronger regions tend to utilize EU funding more efficiently, benefiting from advanced technology, human resources, and organizational capacity to manage projects effectively (Mogila et al., 2022). Bourdin (2019) highlights that the effects of the Cohesion Policy vary significantly across regions, reflecting spatial heterogeneity. This suggests that in some areas, the policy may positively influence development, while in others, the impact may be less pronounced or even adverse, depending on regional circumstances and contexts. While certain EU regions are experiencing convergence, significant disparities persist, underscoring the challenges of achieving uniform social cohesion across the union (Lafuente et al., 2020).



**Fig. 2** Count of Articles by Outcome variable and Effect on regional convergence, created by Authors

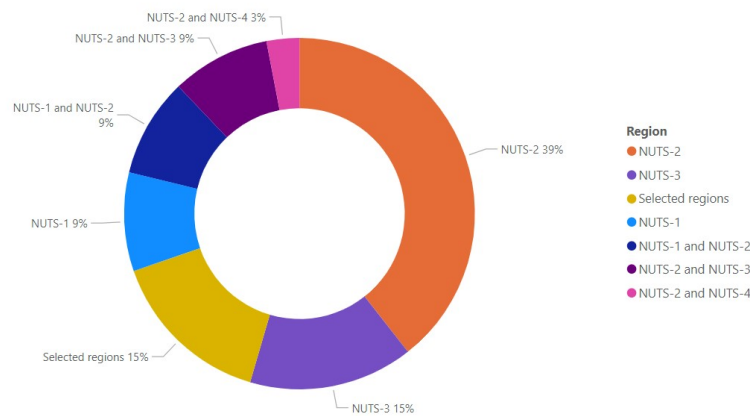
The analysis reveals a strong emphasis on economic growth outcomes in the existing literature, while the specific focus on regional convergence appears less prominent. For instance, the analysis reveals that almost half (42%) of the reviewed articles examined the impact of EU financial support on regional convergence as a secondary role or spillover effect (**Fig. 2**). Articles have examined financial support's direct impact on economic growth (Bouayad-Agha et al. (2013); Bourdin (2019); Breidenbach et al. (2019); Crucitti et al. (2024); Diukanova and López-Rodríguez (2014); Dotti (2016); Maynou et al. (2016); Medeiros et al. (2023); Morollón and García (2023); Pinho et al. (2015); Surubaru (2021); Vukasina et al. (2022)), income growth (Bolea et al., 2018), income inequality (Doran and Jordan, 2013) and development gaps (Czudec et al., 2019). Meanwhile, 47% of studies have attempted to measure and evaluate the effectiveness of the EU's interventions in promoting regional convergence (Butkus et al. (2019); Butkus et al. (2020); Calejari et al. (2023); Dawid et al. (2014); Furceri et al. (2022); Kyriacou and Roca-Sagalés (2012); Koudoumakis et al. (2021); López-Villuendas and del Campo (2024); Mogila et al. (2022); Novosak et al. (2015); Savoia (2024); Smetkowski (2013). Butkus et al. (2020b) and Bouayad-Agha et al. (2013) highlight the spillover implications of EU cohesion policies, often recognizing economic growth as a direct outcome while regional convergence is suggested as a subsequent effect. Investigations utilizing a variety of frameworks, such as spatial dynamic models and general equilibrium models, reveal that growth serves as the principal metric, overshadowing convergence indicators.

The review also highlights that existing research on the impact of EU financial support on regional convergence often aggregates different funds, such as the Cohesion Fund (CF) and the European Regional Development Fund (ERDF), the European Social Fund (ESF) and the ERDF, or the broader Cohesion Policy (ESIFs) and EU funding. 52% of the articles examined assess the impact of the ESIFs (**Fig. 3**). While these studies provide valuable insights, they lack granular analysis of individual funds,



**Fig. 3** Count of Articles by Funding type, created by Authors

which hinders a comprehensive understanding of their specific contributions. [Savoia \(2024\)](#) indicates that the impact of the Cohesion Policy is multifaceted and shaped by various structural factors, such as human capital, governance quality, and territorial capital, all of which enhance policy effectiveness. As a result, while the overall effect of the Cohesion Policy on convergence is generally positive, its efficacy varies significantly depending on regional characteristics and the socioeconomic context. This underscores the importance of conducting in-depth analyses of targeted funds and specific areas to accurately assess their impact.



**Fig. 4** Count of Articles by Region level, created by Authors



While investigations frequently evaluate regional inequalities at the NUTS-2 level or concentrate on particular areas aligned with research aims, there is a significant deficiency in studies exploring inequalities at the more detailed NUTS-3 level. Given the potential lack of NUTS-3 level information in certain areas, authors may have been obliged to conduct their evaluations at the NUTS-2 level. In **Fig. 4**, the authors highlight that the analyses mostly focus on the NUTS-2 regional level. Of the 33 articles reviewed, 13 analyzed NUTS-2 level regions, and only 5 examined NUTS-3 level regions. [Butkus et al. \(2020\)](#) emphasize the importance of focusing on smaller territorial units, like NUTS-3 regions, to effectively address regional disparities. This is crucial because significant disparities exist within these smaller regions, which are often overlooked in broader analyses.

## 4 Discussion and future directions

SLR analysis of 33 selected articles revealed that the impact of EU financial support on regional convergence is not uniform. Even authors who have analyzed the impact on regional convergence, upon closer examination, have, in fact, assessed economic growth. [Crucitti et al. \(2024\)](#) found a positive long-term impact of the European Structural Funds on regional cohesion. However, their calculations explicitly state that the impact is on regional economic growth. They measure the outcome of regional convergence in terms of GDP variation, the standard deviation of regional GDP, GDP per capita distribution ratios, and the "Theil" index. Meanwhile, [Mogila et al. \(2022\)](#) argue that, while the Cohesion Policy significantly impacts regional convergence, this effect diminishes in the long term.

The specific areas that need improvement and which funds could enhance them were not assessed. The funds evaluated by the authors in their research covered a wide range of factors, making it difficult to conclude why the goal of regional convergence was not achieved. [López-Villuendas and del Campo \(2024\)](#), in their study, included structural funds in the analysis as eligibility criteria for regions. Eligibility for structural funds is indicated by a dummy variable in the model. This variable is set to 1 when a NUTS-3 region is eligible for funds in a specific year and 0 otherwise. However, it is crucial to acknowledge that this variable reflects only the policy status of regions and not the actual expenditure or the effective funding received by the regions. [Mogila et al. \(2022\)](#) employed the Hermin model, which is less common in the analyzed literature and is often used to evaluate the impact of public policies. This model covers general policy and how this policy affects macroeconomic factors and whether this increases or decreases convergence, but it does not specifically identify which areas are most involved or have the most significant impact on improving regional convergence.

Since the goal of a SLR is to determine the future direction of research, the existing results show that authors have not examined the impact of ESF on regional convergence. The ESF focuses on improving people's well-being and was created to enhance social inclusion. The ESF aims to reduce disparities by improving four areas such as unemployment, social inclusion, education, and public services. For the 2014-2020 programming period, the EU allocated €125 billion to the ESF, which is 17% of the ESIF budget. [Kersan-Skabic and Tijanic \(2017\)](#) identify unemployment rates and education

levels as key determinants of fund utilization, i.e., regions with higher education levels tend to manage funding projects more effectively.

To determine the impact of ESF investments on regional convergence in the future, we propose conducting a study that analyzes how fund investments allocated to specific areas such as unemployment, social inclusion, education, and public services affect convergence. Since the EU aims to increase convergence, we propose creating an economic specification to assess whether fund investments in a focused area affect regional convergence. The specification could be based on the beta-convergence model. It would include the areas where the fund invests and seeks to reduce regional disparities (e.g., education, employment, etc.) as a growth factor, ESF investments, and interactions between them and initial per capita GDP. For example, one could consider how the level of education influenced by the ESF affects regional beta-convergence.

## 5 Limitations

Like any other SLR, this one has its limitations. We used the Scopus and Web of Science databases to perform precise keyword searches. While these are the most extensive databases for our topic, this approach inevitably excludes articles published elsewhere. Our analysis was limited to articles published between 2012 and 2024, ensuring relevance to recent policies and developments, but potentially excluding earlier studies that might provide valuable historical context. Our keyword searches yielded varying results, but they accurately reflect our research topic. In addition, we limited our search to English-language articles. This choice excludes studies in other languages, but we believe that this has a minimal impact on our overall findings because the majority of scientific articles are in English.

## 6 Conclusion

The motivation for conducting the study was the abundance of literature on the impact of EU financial support on reducing regional disparities, but this literature analyzes vastly different areas. It is difficult to assign or classify the articles to a particular group for comparison. Thus, it is essential to understand which area has not yet been analyzed. Of the 33 selected articles, it was found that EU financial support has had a varied impact on regional convergence and there is no unanimous consensus. A positive effect was observed in regions with higher absorptive capacities and a negative effect was observed in those lacking institutional quality and project management. The SLR revealed a lack of scientific literature that analyzes ESF investments in targeted areas, such as unemployment, education levels, social inclusion, and public services. The authors mostly analyze the NUTS-2 regional level, although they argue that focusing on smaller regions, such as the NUTS-3 level, is essential for effectively understanding regional problems. Future research should focus on evaluating the impact of individual funds, such as the ESF, on regional convergence by employing detailed economic models that consider factors such as targeted investment areas, funding, and interactions between them.

## Appendix I

### *Full Scopus database code*

```
( TITLE-ABS-KEY ( "EU" OR "European union" OR "Europe countries" OR
"Europe" OR "European countries" ) AND TITLE-ABS-KEY ( "Structural funds"
OR "funding" OR "financial support" OR "Cohesion policy" OR "Cohesion" OR
"European fund" OR "Social fund" OR "Cohesion fund" ) AND TITLE-ABS-
KEY ( "impact" OR "assessment" OR "Effect" OR "influence" OR "outcome" )
AND TITLE-ABS-KEY ( "regional convergence" OR "regional disparities" OR "con-
vergence" OR "geographical convergence" OR "territorial cohesion" OR "regional
integration" ) ) AND PUBYEAR > 2011 AND ( LIMIT-TO ( SRCTYPE , "j" ) ) AND
( LIMIT-TO ( PUBSTAGE , "final" ) ) AND ( LIMIT-TO ( SUBJAREA , "SOCT" )
OR LIMIT-TO ( SUBJAREA , "ECON" ) ) AND ( LIMIT-TO ( DOCTYPE , "ar" )
) AND ( LIMIT-TO ( LANGUAGE , "English" ) ) AND ( LIMIT-TO ( EXACTKEY-
WORD , "European Union" ) OR LIMIT-TO ( EXACTKEYWORD , "Territorial
Cohesion" ) OR LIMIT-TO ( EXACTKEYWORD , "Europe" ) OR LIMIT-TO
( EXACTKEYWORD , "Convergence" ) OR LIMIT-TO ( EXACTKEYWORD ,
"Cohesion Policy" ) OR LIMIT-TO ( EXACTKEYWORD , "Regional Development"
) OR LIMIT-TO ( EXACTKEYWORD , "EU Cohesion Policy" ) OR LIMIT-TO (
EXACTKEYWORD , "Economic Growth" ) OR LIMIT-TO ( EXACTKEYWORD
, "Regional Economy" ) OR LIMIT-TO ( EXACTKEYWORD , "Regional Dispari-
ties" ) OR LIMIT-TO ( EXACTKEYWORD , "Structural Funds" ) OR LIMIT-TO
( EXACTKEYWORD , "Economic Development" ) OR LIMIT-TO ( EXACTKEY-
WORD , "Regional Integration" ) OR LIMIT-TO ( EXACTKEYWORD , "Cohesion"
) OR LIMIT-TO ( EXACTKEYWORD , "Regional Growth" ) OR LIMIT-TO (
EXACTKEYWORD , "European Funds" ) OR LIMIT-TO ( EXACTKEYWORD ,
"Regional Convergence" ) OR LIMIT-TO ( EXACTKEYWORD , "Territorial Coop-
eration" ) OR LIMIT-TO ( EXACTKEYWORD , "EU Funds" ) OR LIMIT-TO (
EXACTKEYWORD , "Regional Cohesion" ) OR LIMIT-TO ( EXACTKEYWORD ,
"Funding" ) OR LIMIT-TO ( EXACTKEYWORD , "Europe 2020" ) OR LIMIT-TO (
EXACTKEYWORD , "European Cohesion Policy" ) OR LIMIT-TO ( EXACTKEY-
WORD , "EU Structural Funds" ) OR LIMIT-TO ( EXACTKEYWORD , "Regional
Policy" ) )
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### *Full Web of Science database code*

```
TS=("EU" OR "European Union" OR "Europe countries" OR "Europe" OR
"European countries") AND TS=("Structural funds" OR "funding" OR "financial
support" OR "Cohesion policy" OR "Cohesion" OR "European fund" OR "Social
fund" OR "Cohesion fund") AND TS=("impact" OR "assessment" OR "effect"
OR "influence" OR "outcome") AND TS=("regional convergence" OR "regional
disparities" OR "convergence" OR "geographical convergence" OR "territorial cohe-
sion" OR "regional integration") AND PY=(2012-2024) AND LA=("English") AND
DT=("Article") AND (AK=("European Union" OR "Territorial Cohesion" OR
"Europe" OR "Convergence" OR "Cohesion Policy" OR "Regional Development"
OR "EU Cohesion Policy" OR "Economic Growth" OR "Regional Economy" OR
"Regional Disparities" OR "Structural Funds" OR "Economic Development" OR
"Regional Integration" OR "Cohesion" OR "Regional Growth" OR "European Funds"
```

OR "Regional Convergence" OR "Territorial Cooperation" OR "EU Funds" OR  
"Regional Cohesion" OR "Funding" OR "Europe 2020" OR "European Cohesion Policy"  
OR "EU Structural Funds" OR "Regional Policy") OR KP=("European Union"  
OR "Territorial Cohesion" OR "Europe" OR "Convergence" OR "Cohesion Policy"  
OR "Regional Development" OR "EU Cohesion Policy" OR "Economic Growth"  
OR "Regional Economy" OR "Regional Disparities" OR "Structural Funds" OR  
"Economic Development" OR "Regional Integration" OR "Cohesion" OR "Regional  
Growth" OR "European Funds" OR "Regional Convergence" OR "Territorial Cooperation"  
OR "EU Funds" OR "Regional Cohesion" OR "Funding" OR "Europe 2020"  
OR "European Cohesion Policy" OR "EU Structural Funds" OR "Regional Policy"))  
and Economics (Web of Science Categories)

## Appendix II: Summary of selected studies

Citation	Period	Effect	Region	Funding Type	Method	Outcome Variable
<a href="#">Bolea et al. (2018)</a>	2000-2014	Positive	NUTS-1	ESIFs (Cohesion policy)	Input-Output model	Income growth
<a href="#">Bouayad-Agha et al. (2013)</a>	1980-2005	Positive	NUTS-1 ; NUTS-2	ESIFs (Cohesion policy)	Beta convergence models	Economic growth
<a href="#">Bourdin (2019)</a>	2000-2016	Positive	NUTS-3	ESIFs (Cohesion policy)	Spatial dynamic models	Economic growth
<a href="#">Breidenbach et al. (2019)</a>	1997-2007	Negative	NUTS-2	ERDF, ESF	Growth model	Economic growth
<a href="#">Butkus et al. (2020b)</a>	2007-2013	Positive	NUTS-2 ; NUTS-3	ESIFs (Cohesion policy)	Beta convergence models	Regional convergence
<a href="#">Butkus et al. (2020a)</a>	2000-2006	Positive	NUTS-3	ERDF, ESF	Quasiexperimental models	Regional convergence
<a href="#">Butkus et al. (2020)</a>	2000-2013	Positive	NUTS-2 ; NUTS-3	ESIFs (Cohesion policy)	Quasiexperimental models	Regional convergence
<a href="#">Butkus et al. (2019)</a>	2007-2013	Positive	NUTS-3	ERDF and CF	Quasiexperimental models	Regional convergence
<a href="#">Butkus et al. (2020)</a>	2000-2006	Negative	NUTS-2 ; NUTS-4	ERDF and CF	Quasiexperimental models	Regional convergence
<a href="#">Calegari et al. (2023)</a>	2007-2013	Positive	Selected regions	ESIFs (Cohesion policy)	Other	Regional convergence
<a href="#">Crucitti et al. (2024)</a>	2014-2020	Positive	NUTS-2	ERDF, ESF	Spatial dynamic models	Economic growth

Citation	Period	Effect	Region	Funding Type	Method	Outcome Variable
<a href="#">Czudec et al. (2019)</a>	2004-2015	Mixed	Selected regions	ERDF, ESF	Traditional panel regression models	Development gaps
<a href="#">Dawid et al. (2014)</a>	all data	Positive	Selected regions	ERDF, ESF	Other	Regional convergence
<a href="#">Diukanova and López-Rodríguez (2014)</a>	2014-2020	Positive	NUTS-2	ESIFs (Cohesion policy)	Spatial dynamic models	Economic growth
<a href="#">Doran and Jordan (2013)</a>	1980-2009	Positive	NUTS-2	ESIFs (Cohesion policy)	Sigma convergence models	Income inequality
<a href="#">Dotti (2016)</a>	2000-2006	Positive	NUTS-1 ; NUTS-2	ERDF, ESF	Other	Economic growth
<a href="#">Furceri et al. (2022)</a>	1990–2014	Positive	Selected regions	EU funding	Traditional panel regression models	Regional convergence
<a href="#">Kersan-Skabic and Tjjanic (2017)</a>	2000-2013	Mixed	NUTS-2	EU funding	Traditional panel regression models	Other
<a href="#">Kyriacou and Roca-Sagalés (2012)</a>	1995-2006	Positive	NUTS-2	ESIFs (Cohesion policy)	Traditional panel regression models	Regional convergence
<a href="#">Koudoumakis et al. (2021)</a>	1986-2016	Positive	NUTS-2	ESIFs (Cohesion policy)	Beta convergence models and Sigma convergence models	Regional convergence
<a href="#">Lafuente et al. (2020)</a>	2005-2018	Mixed	NUTS-1	ESIFs (Cohesion policy)	Traditional time series models	Other
<a href="#">López-Villuendas and del Campo (2024)</a>	2000–2019	Negative	NUTS-3	ERDF, ESF	Traditional panel regression models	Regional convergence
<a href="#">Maynou et al. (2016)</a>	1990-2010	Positive	NUTS-2	ESIFs (Cohesion policy)	Beta convergence models	Economic growth

Citation	Period	Effect	Region	Funding Type	Method	Outcome Variable
<a href="#">Medeiros et al. (2023)</a>	2005-2020	Negative	NUTS-2 ; NUTS-3	ESIFs (Cohesion policy)	Other	Economic growth
<a href="#">Mogila et al. (2022)</a>	2021-2027	Negative	Selected regions	EU funding	Sigma convergence models	Regional convergence
<a href="#">Morollón and García (2023)</a>	2008-2019	Negative	NUTS-2	Horizon 2020	Beta convergence models	Economic growth
<a href="#">Novosak et al. (2015)</a>	2007-2013	Mixed	NUTS-1	ESIFs (Cohesion policy)	Traditional panel regression models	Regional convergence
<a href="#">Pinho et al. (2015)</a>	1995-2009	Mixed	NUTS-1 ; NUTS-2	ERDF, ESF	Growth model	Economic growth
<a href="#">Savoia (2024)</a>	1989-2013	Positive	NUTS-2	ESIFs (Cohesion policy)	Traditional panel regression models	Regional convergence
<a href="#">Smetkowski (2013)</a>	2000-2008	Negative	NUTS-3	ESIFs (Cohesion policy)	Other	Regional convergence
<a href="#">Surubaru (2021)</a>	2007-2017	Mixed	NUTS-2	ERDF, ESF	Other	Economic growth
<a href="#">Vukasina et al. (2022)</a>	2008-2016	Positive	NUTS-2	ERDF, ESF	Beta convergence models	Economic growth
<a href="#">Wójcik (2021)</a>	1990-2017	No Effect	NUTS-2	ESIFs (Cohesion policy)	Sigma convergence models	Regional convergence

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