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on the 9th Cohesion Report

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9

THE IMPACT OF COHESION

Macro-economic model simulations indicate that the 2014–2020 and 2021–2027 programmes of Cohesion Policy investment will have increased EU GDP by almost 1 % by 2030, at the end of the implementation period.

The same model indicates that all EU regions – including the most developed ones, benefit from the investment financed under Cohesion Policy

This shows that Cohesion has delivered on its mission to promote convergence and harmonious development, as well as contributed to support EU competi- tiveness and investment to help create a greener, more connected and socially integrated Europe. It also helped finance the response in EU Member States to the COVID-19 pandemic.

A great many studies and evaluations have shown that Cohesion Policy has had a significant impact on the socio-economic development of EU regions, especially in the less developed ones. The increase is particularly large in less developed regions; in several less developed regions GDP is expected to be 10 to 13 % higher by 2030 than it would have been without Cohesion Policy. Cohesion Policy therefore contributes to reducing regional disparities, both at EU level and within Member States.

The conditions imposed on the receipt of Cohesion Policy funding starting from the 2014–2020 period, along with the technical assistance provided, have helped to improve institutional capacity across the EU, the overall investment environ- ment, and the ability of Member States to make the best use of EU support. They have also helped speed up reforms, by raising political awareness of their need and reinforcing the commitment of governments to them.

Chapter 9

The impact of Cohesion Policy

1. Introduction

The sustainable development of all regions in the EU is important for its prosperity economic, social and territorial cohesion. Cohesion Policy has con- tributed substantial funding to support Member States and regions to overcome obstacles to their socio-economic development and reduce territorial disparities across the EU. Cohesion Policy is firmly place-based, which means that most programmes are adapted to the specific needs of individual re- gions, so providing tailored responses to develop- ment challenges to the local context.

This chapter reviews the features of Cohesion pol- icy and the evidence relating to its impact. It high- lights the place-based nature of the policy and summarises some of the main achievements of the 2014–2020 programming period. It also ex- amines the 2021–2027 programmes and the way that they support the political priorities of the EU. It ends by assessing the impact of the 2014–2020 and 2021–2027 programmes on GDP across the EU, and on less developed regions in particular.

2. Achievements and evaluation of the 2014–2020 programme

Under the EU budget's 2014–2020 Multiannual Fi- nancial Framework, Cohesion Policy was the EU's main means of funding investment in economic and social development across the EU. As of De- cember 2023, EUR 405 billion of support[1] had been committed under the 2014–2020 programmes, which, with national (public and private) co-financ- ing, is estimated to have resulted in EUR 551 bil- lion of investment. The support came from three funds: the European Regional Development Fund (ERDF), the Cohesion Fund (CF) and the Europe- an Social Fund (ESF), supplemented by the Youth Employment Initiative (YEI). Financing from these was aimed at 11 Thematic Objectives, 10 of which for the 2021–2027 period were transformed into five Policy Objectives (see Box 9.1 and Figure 9.1). To enable comparisons to be made between the two periods, these 10 Thematic Objectives, and the expenditure under them, have been mapped for the analysis here to the five Policy Objectives.

The ERDF financed projects under all 11 Thematic Objectives listed in Box 9.1, but predominantly those under the first seven. Four Objectives (the first four in the box) – 'Strengthening research, technological development and innovation (RTDI)', 'Enhancing ac- cess to, and the use and quality of, ICT', 'Enhancing the competitiveness of SMEs' and 'Supporting the shift towards a low-carbon economy' – accounted for between 50 % and 80 % of total ERDF expendi- ture in Member States, the share varying according to the level of development. A larger share went on these four Objectives in the more developed coun- tries and regions, and a larger share on the other three in the less developed ones, particularly on environmental and transport infrastructure, under Thematic Objectives 6 and 7, which was the focus of the CF. Although the ERDF also financed investment under Thematic Objectives 8–11 (on employment, social inclusion, education and training, and institu- tional capacity), current expenditure, as opposed to capital expenditure, was financed by the ESF.

The following sections review the progress made up to the end of 2022 in spending the funding allocated for the 2014–2020 period, the output and results so far achieved, and the findings from evaluations car- ried out up to now by Member States. A more detailed presentation of the implementation of 2014–2020 programmes is contained in the Commission's 2023 annual summary of implementation reports, while more details of national evaluation findings are set out in the Commission's annual summary[2]. The ex post evaluation of the 2014–2020 programmes is being carried out at present and will be published between end–2024 and mid–2025 (see Box 9.2).

During this period, the Union faced several crises which required exceptional measures to support Member States and regions. This implied adjusting the policy objectives to changing priorities and, in a some cases, targets are likely to underachieved and in other case overachieved compared to the original programmes.

Box 9.1 Thematic priorities

In the 2014–2020 programming period, the invest- ment financed under Cohesion Policy was aimed at supporting 11 broad priorities or Thematic Objec- tives, as follows.

2. Greener Europe (including a low-carbon econo- my, climate action, protecting the environment, and clean urban transport - corresponds to the 2014-2020 thematic objectives 4, 5 and 6).

1 2014–2020 figures include Interreg (UK, and REACT-EU).

2 European Commission (2024).

1. Strengthening RTDI.
2. Enhancing access to, and the use and quality of, ICT.
3. Enhancing the competitiveness of SMEs.
4. Supporting the shift towards a low-carbon economy.
5. Promoting climate change adaptation, risk pre- vention and management.
6. Preserving and protecting the environment and promoting resource-efficiency.
7. Promoting sustainable transport and removing bottlenecks in key network infrastructures.
8. Promoting sustainable and high-quality em- ployment and supporting labour mobility.
9. Promoting social inclusion, and combating pov- erty and discrimination.
10. Investing in education, training and vocational training for skills and lifelong learning.
11. Enhancing the institutional capacity of public authorities and efficient public administration.

In the 2021–2027 programming period, the first 10 Thematic Objectives have been replaced by five Policy Objectives, as follows.

1. Smarter Europe (including RTDI, digital econ- omy, and SME competitiveness - corresponds to the 2014-2020 thematic objectives 1, 2 and 3).
3. More connected Europe – the trans-European transport network (TENT-T) and other trans- port priorities (corresponds to the 2014-2020 thematic objective 7).
4. Social Europe (employment and labour market measures, social inclusion, and human capital).
5. Europe closer to citizens.

For the sake of consistency and to facilitate compar- ison between the two programming periods, in this chapter the 11 Thematic Objectives are mapped, approximately, to the new Policy Objectives as listed above.

Following the COVID-19 crisis, in 2021–2022 an additional Objective of 'Fostering crisis repair and resilience' was introduced, financed from REACT-EU with a budget of EUR 50 billion as part of the Next-GenerationEU (NGEU) recovery package.

For the 2014–2020 period, the present chapter sets out figures for the EU shares of planned invest- ments, the amounts allocated to the projects select- ed for funding, and expenditure on the five Policy Objectives. The financing and indicator data go up to the end of 2022 (the latest date for which data are available). It should be noted that the amount allocated to projects selected for funding can ex- ceed the EU funding available since it is often the case that more projects are selected than can be financed so as to ensure that all the funding avail- able is ultimately spent, given a belief that not all projects selected will actually come to fruition.

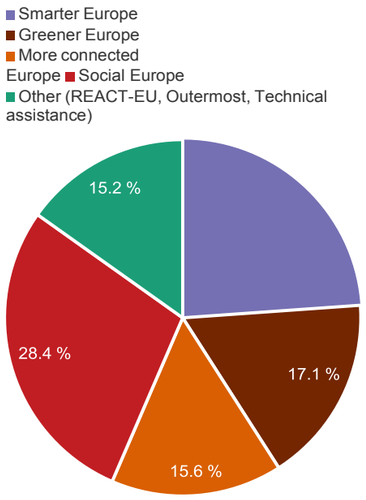
The common indicators give an indication of the outputs across the EU from this investment and how they relate to the targets set.

2.1 Policy Objective: Smarter Europe

The Smarter Europe Policy objective aims to con- tribute to a more competitive and smarter Europe by promoting innovative and smart economic transformation and regional ICT connectivity."

In 2014–2020, Cohesion Policy provided ERDF support of EUR 96 billion (24 % of total Cohesion Policy funding) to enhance RTDI, ICT infrastruc- ture and services, and SME competitiveness. Up to the end of 2022, estimated expenditure on these amounted to around 94 % of the total allocated to them.

Figure 9.1 EU Cohesion Policy budget (2014–2020) approximated to 2021–2027 Policy Objectives



	2014–2020 EU planned (EUR mn)	Estimated spending end-2022 (EUR mn)	Estimated as % of planned
Smarter Europe	96 669.8	90 807.4	94 %
Greener Europe	69 060.8	55 332.8	80 %
More connected Europe	62 967.1	57 361.8	91 %
Social Europe	114 802.5	100 215.4	87 %
Other (REACT-EU, Outermost, Technical assistance)	61 413.2	30 852.0	50 %
Cohesion Policy total 2014–2020	404 883.5	338 821.2	84 %

Notes: The funding allocated to the 11 Thematic Objectives (and multithematic priorities) for 2014–2020 is mapped to the 4 main Policy Objectives for 2021–2027 (see Box 9.1). Data as at 31 December 2022 (which are not final values as spending is ongoing; formal closure of programmes will occur only in 2025).
Source: DG REGIO calculations based on Cohesion Open Data.

- Over 2.36 million enterprises had received sup- port by the end of 2022 (109 % of the target).
- Nearly 370 000 jobs were directly created as a result of the expenditure (98 % of target).
- 228 000 new enterprises were created (101 % of target).
- 84 000 enterprises developed new-to-market or new-to-firm-products/services (102 % of target).
- 7.88 million additional households had access to broadband (66 % of target). The final achieve- ment will be closer to the target if the projects already selected for funding are completed.

Funding for research and innovation went most- ly to increasing collaboration between compa- nies, particularly SMEs, and universities and oth- er research centres. The evaluations carried out in Member States have identified positive results from the support provided, such as in Romania, where support for research and development (R&D) and innovation increased the capacity of SMEs to develop new products and processes and improve worker competences; in Wallonia, where between 2014 and 2018 support helped increase

Box 9.2 Progress in the Commission's ex post evaluation of 2014–2020 programming

The Commission launched its ex post evaluation of 2014–2020 ERDF and CF programmes with a view to completing it in 2025. The evaluation is com- posed of: four cross-cutting work packages – on Interreg, Integrated Territorial Investment (ITI), the response to the COVID-19 pandemic, and the mac- ro-economic effects of Cohesion Policy; seven work packages covering all the 2014–2020 Thematic Ob- jectives; and a work package for creating a database of projects to be used in the evaluation. A synthesis report will summarise the results of the evaluation.

The thematic work packages adopt a theory-based approach to evaluating the effects of the invest- ments financed. For each Thematic Objective, the theory of change – or logic – underlying the policy instruments used to pursue the policy aims is first spelled out, identifying the various steps by which each instrument is assumed to achieve these aims and the links between them, as well as the condi- tions that need to prevail for this to be successful. The evaluation then assesses how far the various steps in the theory of change can be observed in practice and how far the aims have actually been achieved, based on the evidence available or that can be collected. In the process, the performance of the programmes implemented by means of the poli- cy instruments will be judged in terms of their effec- tiveness, efficiency, relevance (in terms of meeting the needs identified), coherence (both internally and with other policy measures) and the EU added-val- ue they have generated. The work packages are be- ing carried out by independent contractors and the Commission is supported by experts who critically assess the reports that the contractors produce and the soundness of their findings.

The final reports of the work packages will be pub- lished in the second half of 2024, providing as- sessments of how the various programmes have performed over the period, which will be used to prepare proposals for the next period. They will also assess the contribution of Cohesion Policy to the pursuit of its ultimate goals. The final synthesis re- port is scheduled to be published in spring 2025. The Commission's conclusion on the evaluation, in the form of a staff working document, will then be finalised later in 2025.

The Commission is in parallel carrying out an ex post evaluation of the ESF and YEI for the 2014–2020 period. It will assess the performance of the pro- grammes financed in the same way as for the ERDF and CF – i.e. in terms of their effectiveness, effi- ciency, relevance, EU added-value, and coherence with policy measures financed in other ways. It will consider the pursuit of all ESF priorities, including

the survival rate of companies; and in Slovakia, where start-up SMEs had a significantly higher growth of value-added and employment over the period than those not supported.

Cohesion Policy funding has also helped to boost digitalisation and the development of ICT servic- es. In Corsica, it has enabled the development of new ways of learning adapted to students' per- sonal needs, which have increased their motiva- tion and helped to reduce social and territorial di- visions. Equally, in Lithuania, it has increased the availability of e-services, with estimated savings of EUR 1.89 billion, mostly from people not having to travel to physical locations.

2.2 Policy Objective: Greener Europe

The Greener Europe Policy Objectives contributes to a greener, low-carbon transitioning towards a net zero carbon economy and resilient Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate change mitigation and adaptation, risk prevention and management, and sustainable urban mobility.

Cohesion Policy provided EUR 69 billion from the ERDF and CF for investment in the Greener Europe Objective in 2014–2020. This funding targeted in- creases in: energy-efficiency and renewable ener- gy; improvements in environmental infrastructure; the development of the circular economy; miti- gation of, and adaptation to, climate change; risk prevention; biodiversity; and clean urban transport (Box 9.3). The amount allocated represented 17 % of the total funding available under Cohesion Policy for the period. By the end of 2022 the expenditure amounted to

around 30 % of the total EU allocation

funding initiatives in response to the COVID-19 pan- demic and the effects of Russia's war of aggression against Ukraine – i.e. the Coronavirus Response In- vestment Initiative (CRII), Coronavirus Response In- vestment Initiative Plus (CRII+), REACT-EU, and Co- hesion's Action for Refugees in Europe.

The evaluation is based on a range of data sources to reach its conclusions, including monitoring sys- tems, national statistical offices, surveys, targeted interviews and public consultation, as well as case studies and focus groups.

The findings of the ESF evaluation will be published before the end of 2024.

and projects already selected by Member States, if they are completed, will absorb the amount avail- able. The common indicators reported by the end of 2022 show significant achievements, including:

- 17.3 million people benefiting from the flood protection measures supported (83 % of target);
- 3.4 million hectares of habitats conserved (76 % of target);

Box 9.3 Tracking support for climate action, biodiversity and improving air quality

For the period 2014–2020, the EU established an overall target that at least 20 % of funding should be spent on climate-related measures. Cohesion Policy funds allocated nearly 15 % of the total budget to climate action objectives[1] with 18 % of the ERDF and 28 % of the CF being used for these. The measures include investment in the low-carbon economy, the circular economy, risk prevention, en- vironmental protection, clean urban mobility, and re- search and innovation activities. By the end of 2022, an estimated EUR 46.8 billion from the ERDF, CF and ESF had gone into the projects concerned.

A separate tracking mechanism has been estab- lished for the ERDF and CF as regards ly 4 % of ERDF/CF funding or EUR 10.7 billion was planned for activities protecting and enhancing bio- diversity, nature protection and green infrastructure, including Natura 2000 sites, and reducing pressure on habitats (e.g. purifying wastewater). By the end of 2022, an estimated EUR 8 billion of the planned funding had been invested.

For reporting under the National Emission Reduction Commitment Directive (NECD), DG BUDG, DG REGIO and DG ENV have developed a method of tracking similar to the one for climate and biodiversity. The first NECD implementation report indicates that an estimated EUR 21.2 billion from the ERDF and

1 The Cohesion Open Data tracking tool provides a description of the climate tracking method and available data: https://cohe- sion-data.ec.europa.eu/stories/s/a8jn-38y8.

2 The Cohesion Open Data tool for tacking biodiversity can be found at this link:

- Nearly 6 000 megawatts of renewable energy capacity created (69 % of target);
- 9.1 million people given access to completed wastewater treatment systems (45 % of target);
- 6.9 million people given access to an improved water supply (50 % of target); and
- 257 kilometres (km) of new or improved met- ro or tram lines completed in various EU cities (47 % of target).

The final achievements (by end–2023) will only be reported in the Final reports in 2025–2026. Those reports are likely to reports achievements approaching the targets set, as the great majority of projects selected for funding are expected to be completed.

The substantial funding allocated to increasing energy-efficiency and renewable energy sources has helped further the shift towards a low-carbon and less polluting economy. In Poland, for example, heating systems using high-efficiency cogenera- tion were modernised in 34 % of district heating systems, while in the Opolskie region low-emission transport projects have helped to expand the use of public transport, to extend the cycle path net- work and to increase the attraction of walking and cycling in urban areas.

At the same time, support for investment in envi- ronmental infrastructure in Hungary, for instance, has helped reduce the number of water supply are- as not complying with the Drinking Water Directive to only 4 % of the total and led to a substantial ex- pansion of wastewater treatment. In the Auvergne and Rhône-Alpes regions in France, ERDF-financed investment has helped to improve energy-effi- ciency in public buildings and social housing, so reducing greenhouse gas emissions, while under the Czechia-Poland Interreg programme joint risk management measures have increased the ca- pacity of the authorities concerned to tackle crises and emergency situations.

2.3 Policy Objective: More connected Europe

The Connected Europe Policy Objective contributes to a more connected Europe by enhancing mobil- ity, in particular on the Transport Trans European Network.

Nearly EUR 63 billion from the ERDF and CF was allocated to the Connected Europe Objective in 2014–2020 to improve rail and road networks and other strategic transport and energy infra- structure. This represents 16 % of total Cohe- sion Policy funding for the period. By the end of 2022, projects selected suggest that an estimated EUR 57.4 billion, 91 % of the total allocated, was spent on the pursuit of this Objective. The invest- ment was mainly in the less developed Member States (those receiving support from the CF) and in less developed and transition regions elsewhere.

According to the common indicator, the achieve- ments by the end of 2022 include:

- 3 560 km of new roads being constructed by the end of 2020 (99 % of target), mostly on the TEN-T network, with another 8 400 km of road being renovated (76 % of target); and
- 2 100 km of rail being reconstructed (47 % of target) again mostly on the TEN-T network.

As regards the latter, while the funding set aside for selected projects suggests that the target for the rail might be achieved, these are complex projects which often experience some difficulty in being completed within the set deadline.

Support under Cohesion Policy in the 2014–2020 period, as in earlier years, has led to tangible im- provements in transport links both between coun- tries and within them. In Warmińsko-Mazurskie in Poland, for example, co-financed investment has had a significant impact on increasing the ease of movement in the region. It has led to improve- ments in road safety and reductions in CO2 emis- sions through facilitating the use of railways and public transport.

In Czechia, projects have helped to save an esti- mated 1 hour 25 minutes on average per person in travel time a year in the five urban agglomera- tions. They have also helped to increase the num- ber of passengers using public transport and their safety. Similarly, in Bulgaria, connectivity to the TEN-T has been improved significantly, while trav- el time has been reduced at the same time as the adverse effects of transport on the environment have been mitigated.

2.4 Policy Objective: Social Europe

The Social Inclusion Policy Objective contributes to a more social and inclusive Europe implementing the European Pillar of Social Rights.

Cohesion Policy funding of nearly EUR 115 billion, mainly from the ESF and YEI but also from the ERDF (for infrastructure and equipment), was al- located to the 'Social Europe' Objective targeting support for employment and labour market inte- gration, education and training, and social inclu- sion. Funding represents 28 % of the overall Cohe-sion Policy budget for 2014–2020. By the end of 2020, estimated expenditure was around 87 % of the amount available.

The common indicators covering all EU Member States in respect of the ESF (including the YEI in the 20 Member States where it is applied) show that up to the end of 2022:

- there had been 64.5 million participants in the measures supported, including nearly 22.2 mil- lion who were unemployed and nearly 25 mil- lion who were inactive (in the sense of not ac- tively seeking employment);
- 7.4 million participants in EU-funded schemes had found a job and 10.2 million had obtained a qualification;
- up to 2 030 000 firms had been supported un- der the ESF; and
- 46 % of participants had a low level of educa- tion (only up to compulsory schooling or less), and 14 % were migrants, had a foreign back- ground, or were from ethnic minorities.

ERDF common indicators on support for invest- ment in social infrastructure, which was mainly in less developed and transition regions in eastern and southern Member States, show that:

- 63 million people had benefited from improved health service facilities (72 % of target) up to the end of 2022; and
- nearly 24.6 million children and young people had benefited from the childcare facilities and education infrastructure that had been built (132 % of target).

The ESF and ERDF combined over the period to support social inclusion across the EU, the former through funding measures to increase employa- bility and for job-search, education at all levels, healthcare, long-term care and community ser- vices of various kinds, and the ERDF by financing investment in the infrastructure and equipment involved. In Portugal, for example, measures un- der the YEI increased the probability of being in employment three years after participation by up to a third depending on the measure, while in Lazio, the *'Torno subito'* work experience scheme raised the probability by 11 percentage points (pp) 18 months afterwards. In Slovakia, the employ- ment rate of people with disabilities was increased by 20 pp by subsidies to employers to take them on, while in Marche, traineeships for disadvan- taged people helped to increase their employment rate six months later by 6–8 pp more than those not receiving training.

In Poland, ESF support helped to improve the qual- ity of medical training; in Portugal, to increase the standard of vocational education; and in Slovakia, to reduce early school- leaving among the Roma community.

The results of an updated[3] meta-analysis[4] of the available ESF and YEI counterfactual impact eval- uations carried out in the 27 Member States and the UK showed that participants in ESF/YEI meas- ures had, on average over the 2014–2020 period,

a higher likelihood of being in employment aft er-

wards than comparable non-participants, amount- ing to 6–8 pp (depending on the method used).

2.5 Policy Objective: a Europe closer to citizens

The Europe Closer to the Citizen Policy Objectives contributes to bring Europe closer to citizens by fostering the sustainable and integrated develop- ment of all types of territories and local initiatives.

Unlike the other 2021–2027 Policy Objectives, 'a Europe closer to citizens' has no direct equiva- lent under the Thematic Objective categorisation used for 2014–2020. Nevertheless, it is evident that this Policy Objective includes investments in community- led local development (CLLD), support for ITI and other territorial measures relating to urban regeneration, which were funded under mul- tiple Thematic Objectives in 2014–2020. Support of EUR 32 billion from the ERDF, ESF and CF was allocated for integrated approaches to local and territorial development for the period, around 8 % of the overall Cohesion Policy budget. At the end of 2022, expenditure under the projects selected for funding was around 65 % of the amount al- located. The level of expenditure relative to the amount allocated is lower than for the other Policy Objectives, reflecting the fact that much of the in- vestment involved mobilisation of local communi- ties and/or the formulation of development plans involving different sectors or aspects, which tend to need more time to be carried out.

The common indicators show that achievements by end–2022 include:

- 27.75 million people benefiting from integrated urban strategies (71 % of target);
- 20 million square metres of open space being created or rehabilitated through the investment undertaken (63 % of target); and
- 1.7 million square metres of buildings being constructed or renovated in urban areas (78 %

The final achievements by the end of 2023 are expected to be close to the targets, given the large number of projects selected for funding that are likely to be completed.

Cohesion Policy funding for local development took the form especially of helping to redevelop degraded areas. In Puglia, for example, financing was directed to the renewal of urban infrastruc- ture, refurbishing abandoned buildings, and im- proving cultural sites. This was accompanied by strengthening public services, so increasing the quality of life for residents and attracting both businesses and people to move in and encourag- ing those already there to stay. In Toscana, urban regeneration measures in towns and small cities in the region led to the extension of green areas and of cycle paths as well as to improvements in public safety.

Support also went into CLLD and ITI to ensure both the involvement of residents in the redevel- opment of their local area and the coherence of the projects undertaken. In Středočeský, in Czechia, for example, CLLD projects took place in almost 100 smaller municipalities, leading to the renewal of local roads and infrastructure, especially school buildings. At the same time, ITI projects were used to improve public transport and road connections to reduce the isolation of rural areas farthest from large cities.

3. Response to the COVID-19 pandemic and to Russia's war of aggression against Ukraine

In response to the COVID-19 pandemic, the EU reacted in two main phases. The initial response was to provide much needed financial support by reorienting the existing 2014–2020 programmes through the CRII and CRII+. These allowed Mem- ber States to support the healthcare response to COVID-19, provide working capital for SMEs, and assist vulnerable groups. Around EUR 23 billion of EU funding was mobilised under CRII for these measures. The rationale for repurposing Cohesion Policy funding in this way was to avoid long-term socio-economic consequences in Member States that could exacerbate existing disparities. It was, in particular, to support more vulnerable, and more affected, regions, that had limited capacity to sup- port the economy, health services, and vulnerable workers and households.

The second phase of the Cohesion Policy response was the adoption of the NGEU recovery package, for the EU to emerge more resilient from the cri- sis and to support its digital and green transition. NGEU included the REACT-EU with funding of EUR 50.6 billion programmed through the ERDF, ESF and Fund for European Aid to the Most De- prived (FEAD)[5]. In parallel, the core of NGEU was the Recovery and Resilience Facility (RRF) delivered through the Recovery and Resilience Programs (RRPs) (see Box 9.4).

Member States reported using Cohesion Policy support for COVID-19-specific measures up to the end of 2022 in the following ways[6]:

- to purchase EUR 3.7 billion of personal protec- tive equipment;
- to procure around 12 500 ventilators;
- to procure nearly 97 million vaccination doses and to vaccinate 49 million people; and
- to provide financial and other support to over 920 000 enterprises.

According to the preliminary evaluation of the support provided by the ESF and FEAD under CRII and CRII+[7], the two initiatives represented an ef- ficient way of using funding that remained to re- spond to the COVID-19 pandemic and for integrat- ing the funding into national strategies for tackling the crisis.

of target).

5 For more details on the use of REACT-EU see this Cohesion Open Data story: https://c

ohesiondata.ec.europa.eu/stories/s/26d9-dqzy.

6 An overview of the reported outputs from COVID-19-related measures under CRII/CRII+ and REACT-EU are presented on this dashboard: https://cohesiondata.ec.europa.eu/stories/s/c63b-b6in.

3 Joint Research Centre (JRC), Competence Centre on Microeconomic Evaluation calculations.

4 European Commission (2022).

7 Preliminary evaluation of the support provided by ESF and FEAD under the CRII and CRII+, SWD(2023) 249 final, European Commission, Brussels, 2023.

Box 9.4 The Recovery and Resilience Facility

The Recovery and Resilience Facility (RRF) was es- tablished in February 2021 by Regulation (EU) 2021/241[1] to help the EU recover from the COV- ID-19 crisis and make the EU more resilient and bet- ter prepared for the future. It was set up as a new, demand-driven performance-based instrument in which financial support to Member States is provid- ed upon the fulfilment of milestones and targets in relation to reforms and investments. In the RRF mod- el, reforms, rather than being a precondition for the disbursement of funds, are themselves embedded in the programmes, and their implementation is an integral part of the deployment of the facility. With a total funding of EUR 724 billion (at current prices) in the form of loans and grants, the scale of financial support provided by the RRF is unprecedented.

To access support under the RRF, Member States have had to prepare Recovery and Resilience Plans (RRPs) setting out a national agenda of reforms and investments to be implemented by the end of 2026. The plan needs to meet minimum green and digital targets (respectively 37 % and 20 % of the total made as part of the European Semester.

The RRF is a performance-based instrument under which payments are made against the satisfacto- ry fulfilment of relevant milestones and targets. Once a Member State has fulfilled those for a par- ticular instalment, it submits a justified payment request to the Commission, which then has two months to assess whether the milestones and tar- gets have been fulfilled.

The establishment of the RRF has brought the issue of the link between structural reforms and EU fund- ing for public investment to the forefront.

1 European Union

In the aftermath of Russia's war of aggression against Ukraine, the EU put forward the three initi- atives for Cohesion's Action for Refugees in Europe (CARE/CARE+ and FAST-CARE) to provide emer- gency shelter and basic social support to people fleeing the war. This resulted in the reallocation of EUR 1.7 billion and increased liquidity of EUR
13.6 billion, targeting primarily the Member States bordering Ukraine and with greatest influx of refu- gees. To support SMEs and vulnerable households affected by the high energy prices and finance short-time work schemes to keep people in jobs, the Supporting Affordable Energy Initiative (SAFE), reallocated around EUR 4 billion.

4. Institutional capacity and the role of reforms

As shown in Chapter 7, the quality of institutions, in terms of technical capacity but also transparen- cy, accountability, rule of law, and effective gov- ernance structures, is essential for the creation of a healthy business environment and for economic and social development. The quality of managing authorities, and of government more generally, has proven to be an important determinant of the performance of Cohesion Policy, in terms of the capacity to absorb the funding, the effectiveness and efficiency of the investment financed, and the impact on socio-economic development. The past two decades have seen increased scientific evidence on the effect of institutional and admin- istrative factors, particularly the quality and ca- pacity of public administration, in accounting for asymmetries in the performance of Cohesion Poli- cy across EU regions. There is a general consensus in the literature that the ability of national, region- al and local authorities to design robust strategies, allocate resources effectively, and administer EU funding efficiently is a major contributor to the overall effectiveness of the policy[8].

Both the European Commission and Member States have given increased attention to the re- form of public administration and administrative capacity-building to assist national and sub-na- tional bodies improve their management of the European Structural and Investment Funds. This has led, on one side, to the Commission imposing certain ex ante conditions on Member States for the receipt of funding, starting from the 2014–2020 programming period. On the other side, the Commission has supported the strengthening of the administrative capacity of regional authorities in Member States through a dedicated budget.

Ex ante conditionalities were introduced in the 2014–2020 programming period. Member States were required to comply with a series of conditions in relation to regulation compliance, governance and administrative capacity before the program- ming period started, with the aim of ensuring that the investments funded were effective. These con- ditionalities were both 'horizontal' (relating to pub- lic procurement, State aid, anti-discrimination, gen- der equality, disability, environmental legislation and statistical systems); and thematic, setting out sector-specific conditions. These gave an incentive for Member States to implement structural chang- es and policy reforms, including those linked to relevant country-specific recommendations (CSRs) made as part of the European Semester process.

Ex ante conditionalities were also aimed at im- proving the targeting of public investment through better and more strategic policy frameworks, prior- itisation of projects, and ensuring complementarity with other sources of funding. They were, in addi- tion, expected to contribute to improving the insti- tutional and administrative capacity of public insti- tutions and to stimulate co-ordination within public administrations and with relevant stakeholders.

8 Bachtler et al. (2016).

In case of the non-fulfilment of ex ante condition- alities, Member States were required to include in their programmes and partnership agreements ac- tion plans setting out how they intended to fulfil them. The evidence is that the majority of these plans were put in place to meet general condi- tions in respect of public procurement and com- pliance with State aid regulations. As regards pub- lic procurement, the fulfilment of conditionalities entailed:

- adoption of national strategies and the estab- lishment of legislation in several Member States (including Bulgaria, Hungary, Italy, Romania and Slovakia);

- establishment of an adequate control system (as in Bulgaria and Romania);

- introduction of e-procurement (e.g.in Hungary, Italy and Latvia);

- simplification of procedures and increased effi- ciency (e.g. in Italy and Slovenia);

- creation of a specific advisory unit and consul- tation groups for identifying key issues and pro- posing improvements (e.g. in Slovenia);

- development of guidelines (e.g. Romania, Italy and Slovenia); and

- training and capacity-building (as in Bulgaria, Greece, Croatia, Hungary, Italy, Malta, Romania, Slovenia and Slovakia).

Romania developed a comprehensive action plan, while six Member States reported action plans on State aid. These included the adoption of legisla- tion, the setting-up of a central State aid electronic register and database, the publication of a list of aid recipients on the website, and the implementa- tion of dedicated training programmes.

As regards thematic ex ante conditionalities, sev- eral Member States designed and implemented action plans in respect of smart specialisation, digitisation and digitalisation, energy, healthcare,

education and institutional capacity. Many of the plans adopted involved both national and regional authorities and, though in varying degrees of de- tail, the evidence shows that in many cases they were instrumental in improving the effectiveness and efficiency of programmes.

For some environmental areas such as air qual- ity, ex ante conditionalities were not desirable or possible. However, in cases where air pollution ex- ceeded EU limits, it proved useful to have concrete references to air quality plans, which were man- datory in such situations, in the text of partnership agreements and Operational Programmes.

In addition, ex ante conditionality required partner- ship agreements to address the CSRs relevant to Cohesion Policy made by the Council as part of the European Semester.

Overall, the introduction of ex ante conditional- ity has improved the investment environment in the EU and the targeting of EU and other public funding. It has also accelerated the transposition and implementation of EU legislation and helped speed up reforms, reinforcing the commitment of governments to them and raising political aware- ness about them. In addition, by requiring public authorities to formulate development strategies, it has improved institutional capacity across the EU.

The 2021–2027 programming period has seen the introduction of enabling conditions under which investments are supported by Cohesion Policy fund- ing. As in the case of ex ante conditionalities, they are either horizontal (e.g. compliance with the EU Charter of Fundamental Rights, public procurement and State aid rules) or thematic (e.g. governance of smart specialisation strategies to build local in- novation ecosystems, compliance with 2020 binding national renewable energy targets, the planning of investments in environmental and transport infra- structure, the establishment of strategic policy frameworks for active labour market measures in the light of the employment guidelines, and for social inclusion, poverty reduction, and Roma inclusion). They are rules establishing preconditions for funding, which have to be complied with throughout the program- ming period. There are fewer enabling conditions than ex ante conditionalities, and they benefit from a simplified procedure for reporting on their fulfil- ment. Unlike in the case of ex ante conditionalities, the regulation sets the fulfilment of enabling con- ditions as a prerequisite for the disbursement of funds: if enabling conditions are not fulfilled at the time of submission of a payment application to the Commission for the specific objective concerned, the related expenditure will not be reimbursed from the Union budget until the Commission as- sesses those enabling conditions as fulfilled. Ena- bling conditions have to remain fulfilled during the whole programming period.

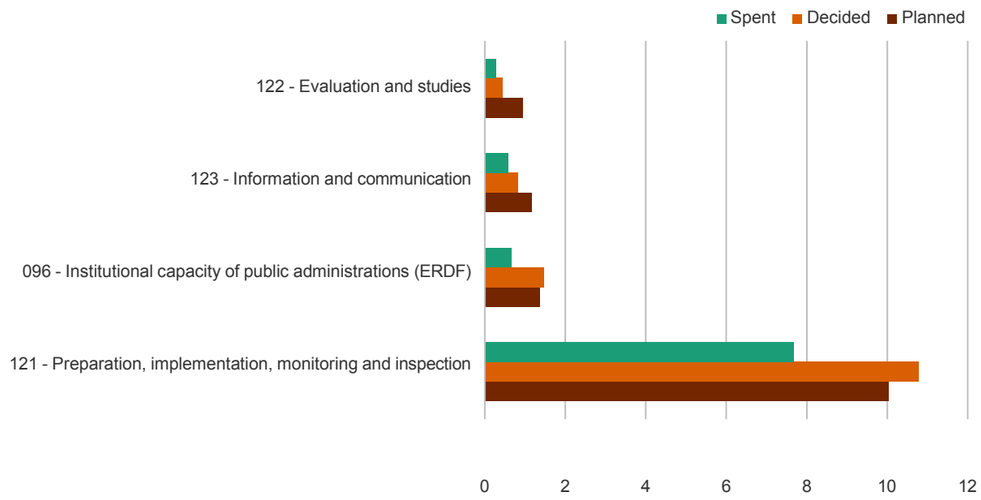
In the case of the horizontal enabling conditions in cross-cutting areas, all Member States have ful- filled those relating to public procurement, State aid, and the UN Convention on the Rights of Per- sons with Disabilities; all but one, have fulfilled the condition on the Charter of Fundamental Rights.

As regards thematic conditions, i.e. those linked to specific Thematic Objectives and investment prior- ities, such as the existence of appropriate strate- gies/plans/frameworks in the policy areas covered by Cohesion Policy[9], two thirds were fulfilled at the time of adoption of programmes and 90 % were fulfilled as of first of March 2024.

In addition to establishing conditions for funding, financing under Cohesion Policy has also gone to strengthening the administrative capacity to imple- ment the policy. This has entailed making availa- ble to Member States a set of tools for building administrative capacity, such as guidance on how to develop roadmaps for this, a means for peer exchange, communities of good practice, and ac- tivities (including training) focused on key strategic issues, such as public procurement, State aid, Integ- rity Pacts, and prevention of fraud and corruption.

In the 2014–2020 programming period, support for administrative capacity was used by Member States on activities for strategic capacity-building, scaling up existing practices, introducing innova- tions, and improving management of human re-

Figure 9.2 Planned, decided and spent amounts by field of intervention (EUR billion)



Source: DG REGIO based on Cohesion Open Data.

sources. Overall, over EUR 13.5 billion of EU fund- ing was allocated to such activities (Figure 9.2, which distinguishes between planned, decided and already spent amounts)[10].

Preliminary evidence from administrative capaci- ty-building activities carried out in the 2014–2020 period shows that ERDF-financed investments have had a positive impact on public authorities, beneficiaries and stakeholders. Pilot case studies carried out in Romania, Greece, Spain and Italy provide a first indication of the effectiveness of these investments. In Romania, a digital regis- ter of properties and land was created to facili- tate interaction between property owners and the authorities. In Spain, the governance of ERDF-fi- nanced projects in specific areas was digitalised. In Greece the emphasis has been on administra- tive and organisational reform, e-government and public sector management, while in Italy there is a commitment to bridging the digital divide and optimising administrative procedures using ERDF financing for digitalising governance.

The ESF provided support under the institution- al capacity-building objective (TO11) for some

840 000 participants in lifelong learning and training and 3 000 projects targeting national, re- gional or local authorities or public services. For example, with ESF support, the National Customs Agency in Bulgaria implemented a series of pro- jects to simplify and rationalise legislative proce- dures and improve the efficiency of customs oper- ations, including by establishing a fully electronic working environment.

The ex post evaluation now underway will shed fur- ther light on how Cohesion Policy funding contrib- uted to the implementation of reforms in Member States and on whether programme strategies, ex ante conditionalities and horizontal principles have led, directly or indirectly, to CSRs being taken up.

9 These include smart specialisation, broadband, energy-efficiency, responding to climate change, prevention and alleviation of risks and disas- ters, water supply and wastewater treatment, waste management, transport, labour market policies, education, social inclusion, alleviation of poverty, support for Roma and other minorities, and improving health and social services.

5. Cohesion Policy funding 2021–2027

Cohesion Policy funding for the 2021–2027 pe- riod amounts to a third of the EU's long- term budget under the Multiannual Financial Frame- work. The EUR 378 billion[11] of support is expected to result in EUR 542 billion of investment once na- tional (public and private) co-financing is included.

10 Based on data from the system for fund management in the EU at 31 December 2022 for the following fields of intervention: 'institutional capacity of public administrations and public services related to implementation of the ERDF or actions supporting ESF institutional capacity initiatives'; 'preparation, implementation, monitoring and inspection'; 'evaluation and studies'; and 'information and communication'.

11 2021–2027 figures cover shared management, including Interreg programming, and funds managed directly and indirectly by the Commission.

Table 9.1 EU Cohesion Policy allocations under shared management by Policy Objective (2021–2027)

Goal / Policy objective	EU planned amount	Total planned amount	% of total EU planned
PO1 Smarter Europe	73 830	114 692	19.6 %
PO2 Greener Europe	93 356	128 930	24.8 %
PO3 More connected Europe	40 474	53 504	10.8 %
PO4 Social Europe	112 351	167 079	29.9 %
PO5 Europe closer to citizens	19 554	26 907	5.2 %
Just Transition Fund specific objective	18 049	25 363	4.8 %
Technical assistance	9 267	13 436	2.5 %
Goal: Investment in jobs and growth	366 882	529 911	97.6 %
Goal: Territorial co-operation (Interreg)	9 041	12 032	2.4 %
Total	375 923	541 943	100.0 %

Note: The table covers the budget delivered through shared management programming and excludes initiatives managed directly and indirectly by the Commission.
Source: DG REGIO calculations based on shared management programmes adopted and Cohesion Open Data.

The less developed regions are the main benefi- ciaries, 70 % of the ERDF and ESF+ being allocat- ed to them. In addition, the CF provides support to 15 Member States[12], and is targeted at investment in environmental infrastructure and trans-Euro- pean networks. Moreover, a new facility, the Just Transition Fund, has been set up to address the impact of the transition towards climate neutrality.

These funds are invested in the pursuit of two high-level Cohesion Policy goals, jobs and growth (national and regional programming) and European territorial co-operation (Interreg). These two goals, as indicated above, are pursued, in turn, predominantly through the five Policy Objectives, indicated earlier, which are aimed at creating a more competitive, smarter, greener, more connected, and more social and inclusive Europe, closer to citizens (Table 9.1)[13].

6. Cohesion Policy as a placed-based policy

Cohesion Policy is the main EU instrument for sup- porting regional development. The policy follows a place-based approach to pursuing EU-wide overar- ching policy priorities. Such an approach is essen- tial for tailoring policy interventions to local char- acteristics, preferences and circumstances, which tend to differ very significantly across space and time within the EU and Member States, as high- lighted in previous chapters.

A first indication of the place-based nature of the policy is reflected in the way funding under Cohe- sion Policy is allocated[14], which is based on catego- rising regions in terms of their level of development, as indicated by their GDP per head. The 'less devel- oped' category includes regions with GDP per head below 75 % of the EU average (PPS); the 'transition' category includes those with GDP per head between 75 % and 90 % of the EU average for the 2014–2020 period and of between 75 % and 100 % for the 2021–2027 period; and the 'more developed' category includes all the other regions. Several ad- ditional indicators are then used to fine-tune the allocation according to the situation of individual regions, specifically, to reflect socio-economic, en- vironmental, and demographic challenges – overall unemployment, youth unemployment, low levels of education, greenhouse gas emissions, and outward migration. The allocation for each Member State is the sum of allocations for its eligible regions.

As indicated above, most funding under Cohesion Policy goes to the less developed regions and Mem- ber States, in line with the policy's mandate of re- ducing regional disparities. The rationale for policy intervention is to provide more direct development support to those areas that need it the most but have less capacity to fund the investment required themselves. Some support is also provided to re- gions with higher level of GDP. Importantly, national co-financing is required for all types of regions, al- though at much lower rates for less developed ones.

Aid intensity (i.e. the amount of support per inhab- itant per year) is a useful indicator to show how Cohesion Policy funding provides more support to less developed regions, in line with aim of the pol- icy to reduce regional disparities. The direct alloca- tion of funding, however, does not fully reflect the overall impact of the policy. To grasp the benefits it brings fully, the allocation of funding needs to be considered in conjunction with taking account of the effects of interventions on the EU econo- mies, including not only the local and immediate impact of programmes but also the many spill- over effects that they generate. Several studies

Table 9.2 Cohesion Policy aid intensity, GDP per head, and Cohesion Policy funding, in Member States, average 2014–2020

	Aid intensity (EUR per head)	GDP per head (at PPS)*	Cohesion Policy funding (% GDP)*
Austria	25.80	37 172.80	0.06 %
Belgium	33.20	34 568.50	0.09 %
Bulgaria	163.50	14 759.80	2.21 %
Cyprus	149.40	25 664.10	0.65 %
Czechia	310.10	26 365.10	1.72 %
Germany	37.60	35 968.90	0.10 %
Denmark	20.10	37 429.00	0.04 %
Estonia	404.30	23 320.90	2.22 %
Greece	245	19 475.10	1.50 %
Spain	139.30	26 185.60	0.57 %
Finland	41.40	32 342.90	0.10 %
France	42	30 628.70	0.12 %
Croatia	318.90	18 412.60	2.73 %
Hungary	332.60	20 602.90	2.60 %
Ireland	39.70	52 696.20	0.06 %
Italy	115.80	28 227.70	0.41 %
Lithuania	358.20	23 277.20	2.40 %
Luxemburg	46.70	77 993.30	0.05 %
Latvia	346.80	19 652.30	2.50 %
Malta	243.60	28 918.40	1.02 %
The Netherlands	15.80	37 672.60	0.04 %
Poland	295.70	20 540.80	2.43 %
Portugal	322.20	22 537.20	1.72 %
Romania	175.90	18 440.60	1.84 %
Sweden	34.30	35 728.50	0.07 %
Slovenia	236.60	24 934.50	1.14 %
Slovakia	380.60	21 240.40	2.44 %

12 The CF is available to those Member States with gross national income per head below 90 % of the EU average. The 15 Member States eligible in 2021–2027 are Bulgaria, Czechia, Cyprus, Estonia, Greece, Croatia, Hungary, Lithuania, Latvia, Malta, Poland, Portugal, Romania, Slovenia and Slovakia.

13 For a more complete summary of the Objectives and contents of the programmes adopted, see European Commission (2023).

14 Regulation 2021/1060 (Annex XXVI) of the European Parliament and of the Council.

United Kingdom	25.90	31 347.50	0.07 %
EU-28	112.70	29 143.50	0.38 %

*Average 2014–2020, except for the EU-28 and UK for which the figures correspond to average 2014–2019. Note: Aid intensity is defined as the amount of funding per inhabitant per year.
Source: Eurostat, DG REGIO.

emphasises[15] that the programmes implemented in the main beneficiary regions also benefit more developed regions. Indeed, for some of them, these indirect spill-over effects can be larger than the di- rect effects of funding, in large part because of the goods and services that more developed regions export to less developed ones. These effects are examined in detail in Section 8 below.

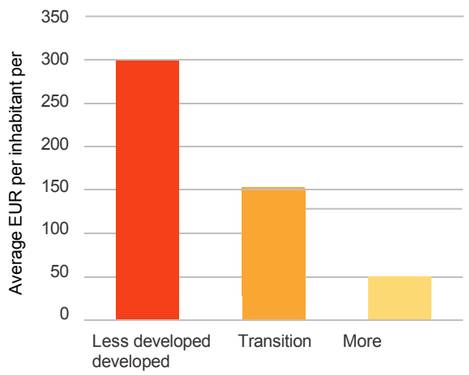
Table 9.2 shows the aid intensity (funding per head) implied by the investments financed by the ERDF, ESF and CF for the 2014–2020 period, the average level of GDP per head over the period and Cohesion Policy funding in relation to GDP.

As is evident, aid intensity is highest in the less developed Member States, amounting to EUR 404 per inhabitant per year in Estonia and EUR 381 in Slovakia. Funding represents a substantial injec- tion into all the less developed economies, reach- ing 2.7 % of GDP in Croatia, 2.6 % in Hungary, and 2.4 % in Poland, Slovakia and Lithuania.

Reflecting its mandate to reduce the extent of re- gional disparities across the EU, support, as noted above, goes predominantly to the regions with the greatest development needs and smallest financial means for meeting these. Aid intensity, therefore, averaged EUR 297 per inhabitant per year over the 2014–2020 period in the less developed regions, much more than the EUR 127 in the transition re- gions and well over 5 times more than the EUR 55 in more developed ones (Figure 9.3).

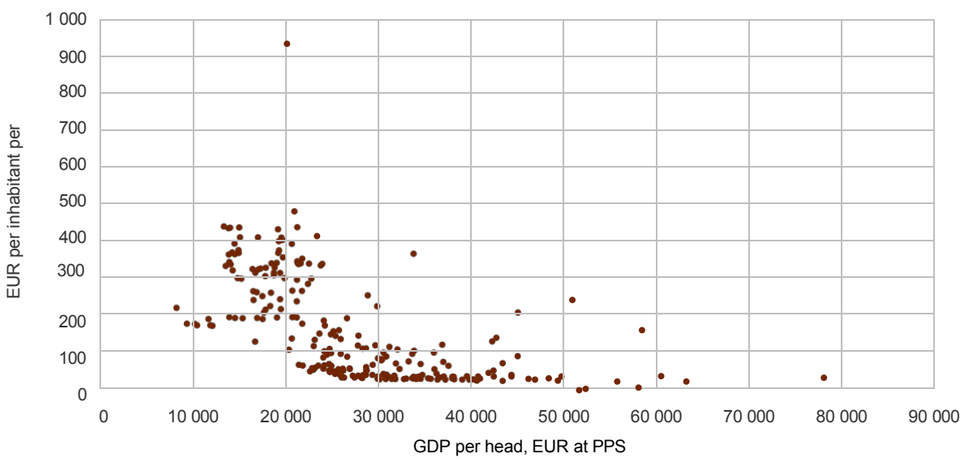
In general, there is a clear inverse relationship between aid intensity at regional level and GDP per head, reflecting the relative concentration of funding on the less developed regions (Figure 9.4).

Figure 9.3 Aid intensity in categories of regions, 2014–2020



Source: Eurostat and DG REGIO.

Figure 9.4 Aid intensity in relation to GDP per head, NUTS 2 regions, averages 2014–2020



Source: Eurostat and DG REGIO.

Box 9.5 Research into the regional impact of Cohesion Policy

A 2013 study[1] used a regression discontinuity design on a dataset covering the 1994–2006 period to find a substantial positive impact of Cohesion Policy on regional economic growth. Two other studies[2] also used a regression discontinuity approach to test for the impact of Cohesion Policy on Objective 1 regions (i.e. the least developed ones, receiving the most support) using a dataset including programmes from 1989 to 2013. They find a positive effect on GDP growth, every 1 EUR spent on Objective 1 trans- fers leading to EUR 1.20 of additional GDP.

A 2020 study[3] used a spatial regression discontinui- ty approach on a database covering the 2000–2013 period to find that Cohesion Policy has a positive impact on growth, though the scale varies across re- gions. A 2019 study[4] found a positive effect of the policy in about 40 % of Objective 1 regions, depend- ing on their human capital endowment and quality of institutions.

For the evaluation of the 2007–2013 period, the Commission also relied on these kinds of approach, with counterfactual analysis based on propensity score matching (PSM), which attempts to match re- gions receiving support with those not receiving it in terms of their relevant characteristics, and a regres- sion discontinuity design. These pieces of analysis also point to a positive and statistically significant impact of EU funding on the growth of the regions supported. For instance, the analysis using PSM esti- mates that funding raised the growth rate of the re- gions supported by 0.5 to 0.7 pp on average. Coun- terfactual impact evaluations have also been used by Member States to analyse their programmes (see for instance, the meta-analysis of the ESF counter- factual impact evaluations carried out by Member States)[5].

Model simulations constitute another strand of research to assess the impact of Cohesion Poli- cy. While this used to be conducted mostly at the national level[6], sub-national models have become more developed in recent years. For instance, a 2017 study[7] found a positive effect of smart spe- cialisation strategies on regions, though the extent differed between them. A 2020 study[8] applied a dy- namic spatial computable general equilibrium mod- el to NUTS 2 regions in Poland, Estonia, Lithuania and Latvia and found that Cohesion Policy invest- ments have resulted in substantial welfare gains. The JRC of the Commission, in collaboration with DG REGIO, has developed the 'RHOMOLO' model, which is regularly used to assess the impact of Cohesion Policy[9] and to address more specific issues such as the international spill-over effects of the policy[10].

In general, model-based simulations indicate a size- able and long-lasting impact of the policy on the performance of EU regions, particularly on the main beneficiaries. However, this rests on a number of assumptions, some of which can legitimately be considered as optimistic. For instance, it is generally assumed that funding is spent efficiently on all pro- jects, which clearly is not necessarily the case. Model simulations, therefore, should be taken as estimates more of the potential impact of the policy than of the actual impact, and interpreted in close conjunc- tion with counterfactual impact evaluations and empirical estimates of macro-economic multipliers.

1 Pellegrini et al. (2013).

2 Becker et al. (2013, 2018).

3 Crescenzi and Giua (2020).

4 Di Caro and Fratesi (2019).

5 European Commission (2022).

6 See for instance: Bradley et al. (2003); Bayar (2007); Allard et al. (2008); Varga and in 't Veld (2011a and 2011b); or Monfort et al. (2017).

7 Varga (2017).

8 Korzhenevych and Bröcker (2020).

9 See for instance Di Comite et al. (2018) or Crucitti et al. (2023b).

10 Crucitti et al. (2023a).

Aid intensity is particularly high in less developed regions located in Member States with low GDP per head. Accordingly, it is highest in eastern and southern Europe, where it reaches levels above
€400 per inhabitant per year in most regions of Slovakia, Hungary and Estonia. It is also high- er in outermost regions that benefit from a top- up linked to their specificities. It is much lower in north-west Europe.

7. Place-based policies and economic performance

This section reviews the latest empirical econom- ic literature on the impact of Cohesion Policy on EU regions, bringing together studies using a va- riety of methods and with different geographical and temporal coverage, to provide an overall view of the issue, the availability of larger, and more reliable, complete and detailed data-sets (part- ly as a result of stricter performance monitoring requirements introduced in the 2007–2013 and 2014–2020 programming periods), together with progress made in analytical methods, has led to improvements in the way the effectiveness of the policy is assessed. In particular, there has been a more thorough application of econometric tech- niques to micro-level data and more sophisticated approaches to identifying the counterfactual situ- ation, i.e. what would have happened without Co- hesion Policy-financed investment[16].

In methodological terms, these studies have moved largely away from trying to assess the impact of Cohesion Policy on growth at the macro-economic level, at which it is especially difficult to isolate the effect of the policy from the many other fac- tors that can affect outcomes, to focus on the micro-level impact of funding. By and large, this strand of research tends to find that Cohesion Pol- icy has a positive impact on beneficiary regions and, through spill-over effects, on Member States in general (see Box 9.5).

Simulations of macro-economic models are an- other means of investigating the effects of Cohe- sion Policy and, in recent years, regional versions of these have been developed. These have shown positive effects of smart specialisation strate- gies on regions and of EU-funded investment on welfare. They have also shown that the effect is sizeable and long-lasting, especially on the less developed regions receiving the largest amount of support. It should be noted, however, that the mod- els concerned rest on a number of assumptions, not least that the investment funded is effective in achieving its immddediate objectives, which may not necessarily hold in reality.

Overall, the large majority of the research stud- ies, from the financial crisis onwards, find an over- all positive effect of Cohesion Policy on regional development[17]. They suggest, moreover, that the place-based focus of the policy and its redistribu- tive effect have not come at the expense of overall economic growth in the EU and that the positive impact is not confined to the less developed re- gions but has occurred in more developed ones as well.

8. The macro-economic impact of Cohesion Policy

8.1 How to assess the impact of the policy

According to the Treaty establishing the European Community, the objective of Cohesion Policy is to: *'promote economic and social progress as well as a high level of employment, and to achieve bal- anced and sustainable development'* (Article 2) and '*… reduce the disparities between the levels of development of the different regions and the back- wardness of the least favoured regions or islands, including rural areas'* (Article 174).

16 More specifically, increasingly in the last decade, studies have applied techniques such as difference-in-difference or regression discontinu- ity design to quantifying the impact of Cohesion Policy, attempting, for example, to estimate the effect of the interventions by comparing similar regions just above and below the threshold for eligibility for funding see e.g. Crescenzi and Giua (2016). The studies rely in the main on identifying a counterfactual situation, in which beneficiaries of the support are compared with a control group in a quasi-experimental

Cohesion Policy is aimed at promoting conver- gence and an harmonious development, fostering sustainable growth and improving the well-being of people living in the EU. It is the EU's main long- term instrument to achieve these objectives, with the main instruments, the ERDF, the ESF and the CF, achieving its objectives through channels such as increasing R&D, supporting companies, and public investment in education, transport, telecom- munications, or public infrastructure.

The impact of Cohesion Policy entails a combina- tion of direct and indirect effects. For instance, out- put and employment may increase in SMEs receiv- ing support. At the same time, the SMEs concerned may also increase their demand for intermediate inputs and hence boost activity in firms that are not the direct beneficiaries of the support. The policy may generate significant spatial spill-over effects and externalities outside the economies benefiting from the programmes. In particular, the increase in local demand stemming from the programmes implemented in less developed regions is likely in some degree to be met by imports from more de- veloped regions, which therefore end up indirectly benefiting, in some cases to a considerable extent.

At the same time, economic performance is affect- ed by a wide range of other developments that coincide with the investment financed under Cohe- sion Policy, including other policy action or changes in the business cycle. The specific impact of the policy can, therefore, not be identified simply by looking at the data in the national and regional ac- counts. In order to identify the impact that can be attributed to the policy, the world as it is needs to be compared with what it would have been with- out the policy, which obviously cannot be observed in reality.

Macro-economic models enable these issues to be addressed in a consistent way. Firstly, models can be used to simulate developments without the pol- icy and so provide a counterfactual base against which the impact of the policy can be assessed.
Secondly, models enable both the short- and long- term effects of the policy to be simulated, taking explicit account of the interaction between direct and indirect effects. Thirdly, models can account for spill-over effects and externalities and so en- able the full impact of the policy to be assessed. Fourthly, models help to trace back the effects of policy interventions and to shed light on the chan- nels through which the policy produces its impact on the economy.

Over the past few decades Cohesion Policy has been the second most important line in the EU budget, accounting for around a third of the Multiannual Financial Framework. Between 1990 and 2024, the funding allocated increased over 10-fold in relation to EU GDP, from 0.03 %, on average, for the 1989–1994 programming peri- od to 0.3 % for the 2014–2020 period, and 0.4 % if REACT-EU is included. This increase reflects the need to accompany the deepening and widening of EU integration, the strengthening of the Single Market and successive rounds of enlargement, which have meant addressing the needs of a growing number of less developed regions. For the 2014–2020 period, EUR 356 billion was allocated to Cohesion Policy (EUR 405 billion with REACT-EU) and for 2021–2027, EUR 376 billion (less than in the previous period, reflecting the exit of the UK). While, as indicated above, this funding is allocat- ed to all regions across the EU, it goes predomi- nantly to the less developed regions and Member States, in some of them representing close to 3 % of GDP. For the 2014–2020 period, Cohesion Poli- cy funding corresponded to around 13 % of public investment in the EU as a whole and to 51 % in the Member States eligible for the CF.

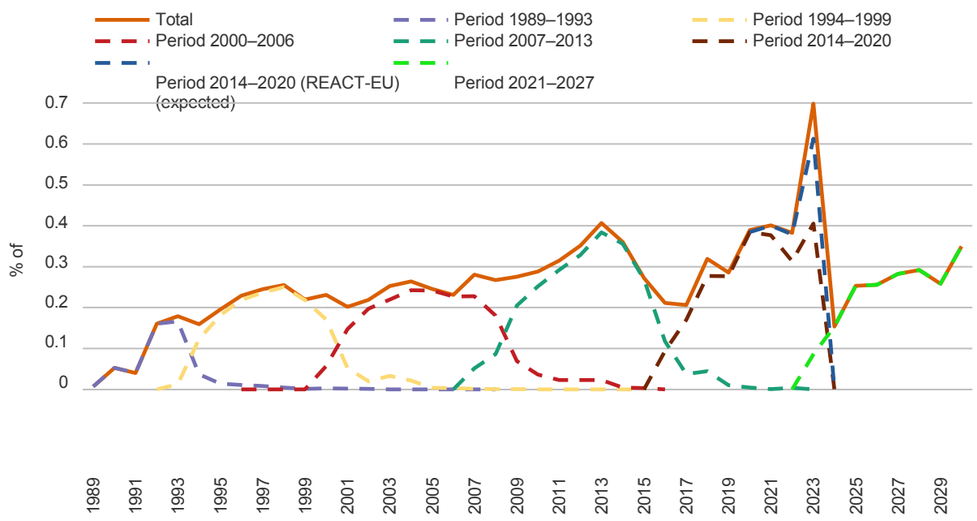
As Figure 9.5 shows, spending tends to be concen- trated at the end of implementation periods[18], but is not discontinued between programming periods. Indeed, the objective of the policy to reduce the development gap between EU regions is a long- term one, which is maintained throughout the EU budget cycle. The overlapping of funding between programming periods means that there is no in- terruption to the support provided. Accordingly, in the analysis below programming periods are not

considered in isolation but as continuous sources of support.

17 McCann (2023).

18 The N+3 rule allows funds to be used up to three years after they have been committed, which implies that the programmes are actually implemented over a period of 10 years rather than seven.

Figure 9.5 Cohesion Policy funding 1989 to 2030



Note: Figures relate to EU payments except for 2021–2027, where they are planned amounts. The timing of payments for 2021–2027 is estimated from that for 2014–2020, net of REACT-EU funding.
Source: DG REGIO.

8.2 Model and results

The impact of the policy is assessed using the European Commission's spatial computable gen- eral equilibrium model, RHOMOLO[19]. In this type of model, policy interventions – disbursements of funding for specific purposes – are modelled as shocks to an economic system, generating, on the

basis of a set of assumptions, responses that are reflected in changes in macro-economic variables, such as GDP, employment, investment, and house- hold consumption.

The economic foundations of the model lie in the literature on general equilibrium models[20]. The model itself is featured in numerous articles contributing to this literature[21], and it is regularly used for policy impact assessment purposes. The model covers all EU NUTS 2 regions and divides the economies in these into 10 (NACE[22]) produc- tion sectors. It incorporates input-output matrices

to represent the flow of raw materials and goods and services between these sectors and their dis- tribution to final users. It also incorporates capital and labour as factors of production, households as final consummers, and governments that im- pose taxes and borrow to finance their expenditure (see Box 9.6 for a description of the model).

In the present analysis, Cohesion Policy expenditure is regrouped into six fields of intervention. In order to simulate the impact of the policy, each field of intervention is assumed to generate a set of mod-

el 'shocks', which are intended to capture the eco- nomic transmission mechanisms through which the expenditure concerned is most likely to have effects. Specifically, one or more model shocks are used to simulate the spending categories relating to the six fields of interventions. The shocks can be broadly separated into demand-side shocks, with temporary effects, and supply-side shocks, with more permanent structural effects on the econo- my. The shocks – i.e. the demand and supply-side effects – assumed to be associated with expendi- ture in the six fields of intervention are as follows.

- Transport infrastructure (TRNSP) – Invest- ments in transport infrastructure are assumed to generate both demand- and supply-side ef- fects. Demand-side effects are produced by the temporary increases in government consump- tion, i.e. in the purchase of goods and services required to build the infrastructure concerned. On the supply side, the investments are as- sumed to reduce transport costs, so reducing

Box 9.6 Model description

The model is calibrated on a set of fully integrated

EU regional social accounting matrices (SAMs) for all the EU NUTS 2 regions and for the year 2017[1], which is taken as the baseline state of the econo- my. The SAMs include all the standard information of input-output tables on the production and use of goods and services, as well as information on the secondary distribution of income, detailing the roles of labour and households.

The model economies are disaggregated into 10 sectors (based on the NACE rev. 2 industry clas- sification)[2]. Firms are assumed to maximise profits and produce goods and services according to a con- stant elasticity of substitution production function[3].

The other agents in the model are households and a government that collects taxes and spends money on public goods and transfers. Capital and labour are used as factors of production (public capital enters the production function as an unpaid factor). Trade in goods and services – within and between regions – is assumed to be costly, with transport costs in- creasing with distance. The estimate of transport costs is based on a transport model (see below). Re- gional economies are typically more open than na- tional ones, due to their smaller size, and this is tak-

en into account in the model through regional trade flows and the relatively high elasticity of substitu- tion between domestic and imported goods and ser- vices[4]. (This is set to 4, based on empirical estimates using European data[5].) The presence of significant inter-regional spill-overs is an important feature of the model. This borrows from economic geography by incorporating a notion of spatial equilibrium cor- responding to a balance between agglomeration forces (pushing economic activity to concentrate in particular places) and dispersion forces (pushing economic activity to be less concentrated).

RHOMOLO is used for scenario analysis, in the sense that shocks mimicking the effects of policies are

introduced to disturb the initial assumed steady state calibrated with the SAMs, resulting in different values for the endogenous variables of the model, such as GDP, employment, imports and exports, and

prices. The model is solved in a recursively dynamic process, where a sequence of static equilibria linked to one another through the law of motion of state variables. This implies that economic agents are not forward-looking and their decisions are solely based on current and past information.

1 Thissen et al. (2019).

2 The 10 (NACE) sectors are: agriculture, forestry and fishing (A); mining and quarrying, electricity, gas, steam, and air conditioning, water supply, sewerage, waste management and remediation activities (B, D, and E); manufacturing (C); construction (F); wholesale and retail trade, repair of motor vehicles and motorcycles, transportation and storage, accommodation and food service activities (G-I); information and communication (J); financial and insurance activities, and real estate activities (K-L); professional, scientific and technical activities, and administrative and support service activities (M-N); public administration and defence, and compulsory social security, education, human health and social work activities (O-Q); and arts, entertainment and recreation, other service activities, activities of the households as employers, undifferentiated goods- and services- producing activities of households for own use, and activities of extraterritorial organisations and bodies (R-U).

3 Constant elasticity of substitution is a class of production functions frequently used in applied economics. It describes the rela- tionship between production and production factors in the technological production process. It accounts for various substitution possibilities across inputs and determines demand for the various types of factors of production.

4 This elasticity specifies the degree of substitution in demand between similar products produced in different countries.

5 See: Németh et al. (2011); and Olekseyuk and Schürenberg-Frhosch (2016).

mates obtained from the fully fledged transport cost model[23] used to assess the investments in transport infrastructure financed under Cohe- sion Policy for the 2014–2020 period.

19 https://joint-research-centre.ec.europa.eu/tedam/rhomolo-model_en. See also: Christou et al. (2024).

20 For the full mathematical description of the model, see: Lecca et al. (2018).

21 See, among others: Lecca et al., 2020; and Di Pietro et al. (2021).

22 Nomenclature statistique des activités économiques (statistical classification of economic activities).

the prices of goods and stimulating trade flows. The induced reduction is based on the esti-

- Other public infrastructure (INFR) – Investment in non-transport infrastructure, such as electric-

23 Persyn et al. (2022 and 2023).

ity networks, water treatment plants and waste management facilities, are modelled as public investments when associated with industrial processes, and otherwise as government con- sumption. In the latter case, only temporary de- mand-side effects are produced. Public invest- ments not only trigger an increase in demand, but also have supply-side effects, since they increase the stock of public capital used to pro- duce goods and services. (The output elasticity of public capital, i.e. the goods and services it produces, is set to 0.1, in line with the existing literature[24]). A congestion parameter of public capital, set to 0.5 (equivalent to a medium level of congestion[25]) captures the fact that, to some extent, the use of public infrastructure by a user prevents other users from using it as well.

- Research and technological development (RTD) – Subsidies to R&D are modelled as in- creases in private investments as a result of a reduction in the risk premium, which increase the stock of private capital[26]. Moreover, these investments are assumed to increase total fac- tor productivity (TFP) according to an elasticity that depends on the importance of spending on R&D in the region relative to GDP, and which is based on the literature[27].

- Human capital (HC) – Investments in human capital are assumed to increase demand via government current expenditure. They are also assumed to have two alternative supply-side ef- fects, depending on the nature of the interven- tions. The spending categories associated with human capital development, such as training to improve the skills of the workforce and simi- lar active labour market policies, are assumed to generate an increase in labour productivity. The main assumption is that an additional year of training leads to an increase in productivity, which is set at 7 % based on the literature[28]. The cost of education per pupil or student is used to calculate the amount of training implied by Cohesion Policy funding going to investment in human capital, with country-specific efficiency adjustments based on PISA scores[29]. On the other hand, interventions aimed at promoting the socio-economic integration of marginalised communities, participation in the labour market, or the modernisation of labour market institu- tions, are assumed to generate an increase in aggregate labour supply. In this case, a higher cost per trainee is assumed, and it is further as- sumed that it takes two to three years of train- ing to integrate a worker into the labour force.

- Aid to private sector (AIS) – Aid to the private sector is modelled as an increase in private in- vestment via a reduction in the risk premium, as in the case of RTD investment, but without any impact on TFP.

- Technical assistance (TA) – Technical assistance is modelled as a demand-side shock increasing public current expenditure with no supply-side effects.

It is further assumed that a fixed interest rate of 4 % applies across regions[30], and that all long-run supply-side effects diminish over time. Specifical- ly, increases in labour productivity and TFP, and reductions in transport costs, are assumed to di- minish at a rate of 5 % a year. In addition, stocks of private and public capital are assumed to have a depreciation rate of 15 % and 5 %, respectively (a higher rate for private than public capital is a common assumption in the literature and reflects the typically longer life of public infrastructure[31]). This implies that, in the absence of further invest- ment, the structural effects from Cohesion Policy gradually vanish and the economy is assumed eventually to return to its initial steady state[32].

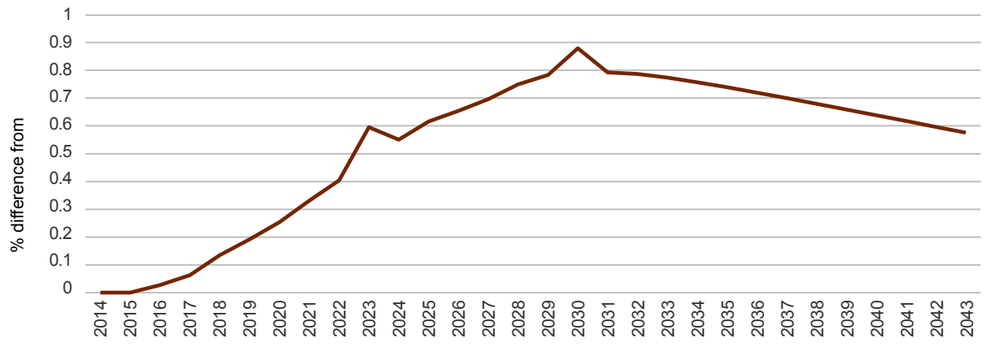
The model simulations take into account the fact that Cohesion Policy is financed by the *pro rata* con- tribution of Member States to the EU budget, which is assumed to be proportional to their share of EU GDP. Member State contributions to the funding of Cohesion Policy are assumed to be financed by a lump-sum tax that reduces household disposable in- come, so adversely affecting economic performance and partly offsetting the positive impact of the pro- grammes[33]. This implies that a larger share of Mem- ber State contributions to Cohesion Policy comes from the more developed parts of the EU, while the bulk of the interventions take place in the less developed parts. The next section presents the results of the analysis based on the assumed effects of the different kinds of intervention described above.

8.3 Impact at EU level

The impact of the policy is estimated by comparing the results of the model under a scenario exclud- ing Cohesion Policy interventions (the 'baseline' scenario) with a scenario including these. The dif- ference between the two scenarios for a given variable, such as GDP, indicates the impact of the policy, which is expressed as the percentage differ- ence from the baseline[34].

The results of the simulation suggest that Cohe- sion Policy interventions are likely to have a pos- itive and significant impact on the EU's economy (Figure 9.6)[35]. The impact of Cohesion Policy builds

Figure 9.6 Impact of Cohesion Policy programmes 2014–2020 and 2021–2027 on EU GDP, 2014–2043



Note that if the 2007–2013 programmes had been included in the analysis, their impact would have been visible in the initial years of the graph and the cumulative impact would have been larger. Similarly, starting from 2030, the effects of post-2027 programmes would be expected to progressively kick in.
Source: RHOMOLO simulations (GDP impact) and DG REGIO (Cohesion Policy data).

24 See: Ramey (2020). Note that 0.1 is slightly below the average of 0.12 found by the meta-study by Bom and Lightart (2014).

25 Alonso-Carrera et al. (2009). A value of zero would make public capital a pure public good (i.e. one for which one person's use has no effect on its availability to others).

26 In the production function, the capital-labour elasticity of substitution is 0.4, in line with, among others: Chirinko (2008) and Leon-Ledesma et al. (2010).

27 See: Kancs and Siliverstovs (2016).

28 De la Fuente and Ciccone (2003); and Canton et al. (2018).

29 Programme for international student assessment, which measures 15-year-old students' reading, mathematics, and science literacy in different countries.

30 Following Smets and Wouters (2003).

[31] See: Bolt (2017).

32 Various pieces of sensitivity analysis (not reported here) have been conducted to check the robustness of the results for the values selected for some of the key parameters.

33 This means that, in the model, the EU regions are not constrained to run a balanced budget and can have deficits or surpluses. The EU budget is constrained to be balanced, as the amount of spending incurred by regions that is financed from Cohesion Policy is repaid through an equal amount of lump-sum transfers from households.

34 The baseline is established on the basis of assuming that observed trends in key variables continue, which is common practice in modelling exercises. The results, which correspond to the difference between the baseline and the 'with-policy' scenario, are largely independent of the baseline assumptions.

35 The UK is excluded when reporting results because of its exit from the EU. The aggregate effects are also reported net of the UK. Including the UK in the analysis does not alter the substance of the results.

Box 9.7 Recent estimates of fiscal multipliers

Estimates of the impact multiplier associated with EU funding differ widely according to approach adopted, the time horizon considered, and the programmes an- alysed. In the macro-economic literature, (fiscal) mul- tipliers are usually assessed using two broad families of method. The first is based on econometrics, span- ning a wide range of approaches – including spatial panel data analysis, structural vector autoregression (VAR), instrumental variables and local projections models. For instance, a 2022 study[1] reports multi- pliers associated with the ERDF of between 0.2 and 1.4 while a 2021 study[2] finds multipliers at Member State level of between 1.2 and 1.8. A 2019 study[3] estimates multipliers on EU structural fund spending ranging between 0.9 and 1.8. Based on VAR, a 2023 report[4] identifies a long-run value of the multiplier associated with the structural funds of around 2.6. Focusing on government spending (which may be less focused on structural investment than that supported by Cohesion Policy), another 2023 study[5] finds a lon- grun multiplier of around 1.9, while yet another[6] re- ports multipliers in the range 1.5 to 2. The short- and long-run multipliers obtained with RHOMOLO (around 6.13 15 years after the start of the programmes. Using the same model, the same authors report[9] val- ues of the cumulative multiplier of around 2.6 for the 2007–2013 period 10 years after the end of the pro- grammes' implementation for the 12 Member States that had recently joined the EU, while a 2017 study[10] finds cumulative multipliers of 0.8 at the end of the implementation period and 2.7 10 years after the programmes' end. These estimates are close to those obtained with RHOMOLO[11].

The second methodological strand in assessing mul- tipliers is built on macro-economic models such as dynamic stochastic general equilibrium models or new-Keynesian models. Using QUEST[7], a 2011 study[8] estimates cumulative multipliers for the EU Member States that were the main beneficiaries of the 2000– 2006 programmes ranging from 0.44 to 1.49 at the end of the implementation period and from 1.96 and

Even though estimates of the multiplier associated with Cohesion Policy vary from one study to another, depending of the scope of the analysis and on the methodological approach

1 Canova and Pappa (2022).
2 Durand and Espinoza (2021).
3 Coelho (2019).
4 Destefanis and Di Giacinto (2023).
5 Brueckner et al. (2023).
6 Duque Gabriel et al. (2030).
7 QUEST is a micro-based dynamic general equilibrium model used by DG ECOFIN for economic policy analysis.
8 Varga and in 't Veld (2011a).
9 Varga and in 't Veld (2011b).
10 Monfort et al. (2017).
11 The value of the cumulative multiplier for 2040, i.e. 10 years after the end of the implementation period, is estimated

up over time, especially when the two program- ming periods overlap between 2021 and 2023. The impact is the greatest in 2030, when GDP in the EU is estimated to be 0.9 % higher as a result of the combination of the 2014–2020 and 2021–2027 interventions[36]. The cumulative impact of these programmes is particularly significant in less de- veloped Member States and especially in Croatia (an increase of 8 % in GDP), Poland and Slovakia (an increase of 6 %) and Lithuania (a 5 % increase).

In the short run, a substantial part of the impact stems from the increase in demand, which is as- sumed to be partly crowded out through increases in wages and prices. In the medium and long run, productivity-enhancing effects of Cohesion Policy investment as well as increases in the stock of public and private capital materialise, so boosting both current and future GDP as production capaci- ty is increased. The policy-induced increases in po- tential output leave room for increases in GDP free of inflationary pressures from 2031 onwards. The interventions therefore continue to stimulate eco- nomic activity long after the interventions come to an end, as would be expected from a policy aimed at strengthening EU regional economies.

The policy yields a positive return at EU level. The cumulative multiplier, i.e. the ratio of cumula- tive changes in GDP to the amount of expenditure, is estimated at 1.29 in 2030 and 2.97 in 2043. This means that 30 years after the start of the programmes, for each 1 EUR invested under Cohe- sion Policy, EU GDP is increased by almost EUR 3, which is equivalent to an annual rate of return of around 4 %.

These results are consistent with the literature on the impact and the effectiveness of public policies and spending. The vast majority of the studies con- cerned rely on econometrics and provide estimates of impact multipliers, i.e. the ratio of the change in GDP to a change in government spending in the periods directly following the one in which the spending takes place. Most of them, however, do not go beyond a time horizon of more than four years, whereas model-based analysis can inves- tigate the long-term, lasting effects. Most studies, therefore, provide estimates of cumulative multi- pliers calculated at a given, relatively short, time after the policy shock, which can be considered to be a short-run estimate of the multiplier, while models can also estimate the long-run multiplier over an infinite time horizon[37] (see Box 9.7 for a review of recent studies).

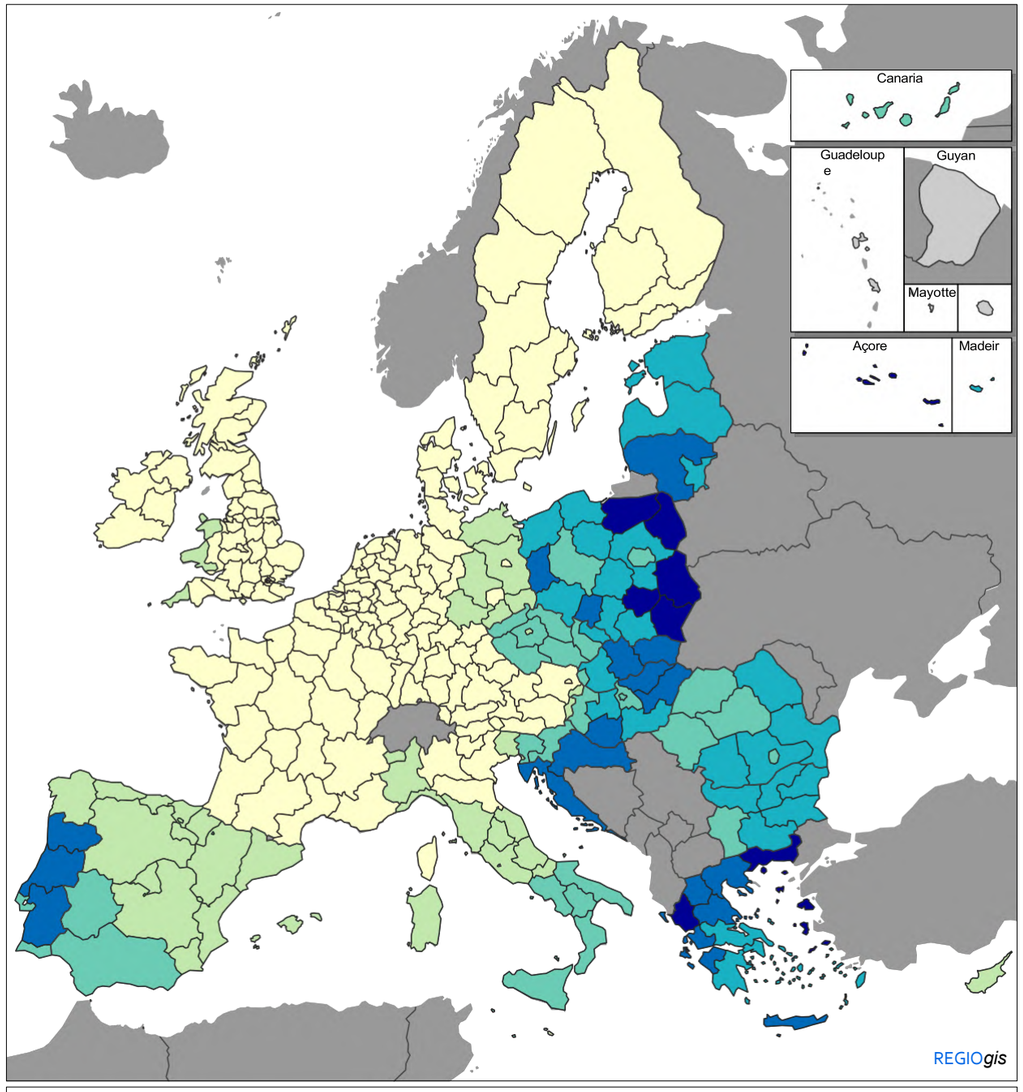
8.4 Impact at regional level

Cohesion Policy is a place-based policy aimed at fostering convergence, with both the amount and composition of expenditure it finances differing between regions according to their characteris- tics, notably their level of development and their economic and social circumstances. As a con- sequence, the impact on GDP is heterogeneous across regions. Maps 9.1 and 9.2 show the effect of Cohesion Policy on GDP in EU regions in 2023 – the last year for which the two programming pe- riods overlap – as the percentage difference from the baseline. The impact increases over time in all regions up to 2030. In both 2023 and 2030, the largest increases occur in less developed regions, such as those in Bulgaria, Greece, Hungary, Por- tugal, Poland and Slovakia. The increase is par- ticularly large in Voreio Aigaio in Greece (12.7 % in 2030), the Portuguese Açores (12.0 %), and Swietokrzyskie (117 %) and Warminsko-Mazur- skie (103 %) in Poland. There are also significant differences between regions in the same country. For example, in Poland the increase in GDP ranges from 3.8 % to 11.7 %, and in Hungary from 2.2 % to 8.0 %.

In the more developed regions, the short-run im- pact of the Policy is smaller and more difficult to estimate[38]. However, in the medium to long run, the differences in the impact on GDP between re- gions diminishes and it is positive in all regions. This is partly because of the strong positive spatial spill-over effects generated by the policy, which stem mostly from the fact that the main bene- ficiaries are often small, open economies with

36 The long-term cumulative impact on GDP is positive for both the EU as a whole and for all Member States.
37 See, for instance: Tesfaselassie (2013); or Ilzetzki et al. (2011).

38 As noted above, it is assumed that regions finance the policy proportionally to their share of the GDP.



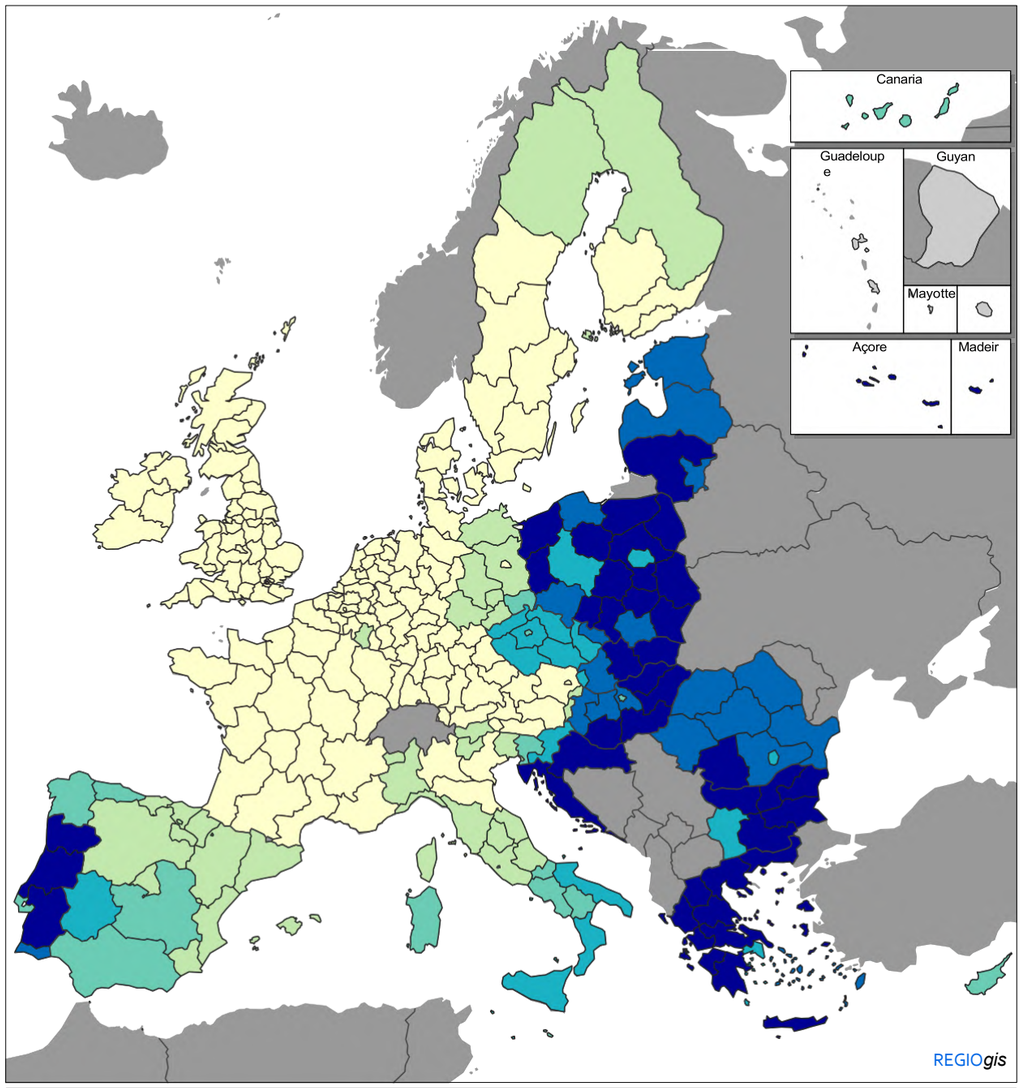
Map 9.1 Impact of Cohesion Policy programmes 2014–2020 and 2021–2027 on GDP in NUTS 2 regions, 2023 (% increase relative to the baseline)

% above baseline

- <= 0.5
- 0.5 – 1.5
- 1.5 – 3.0
- 3.0 – 4.5
- 4.5 – 6.0
- > 6.0
- no data

Source:

0 500 km



Map 9.2 Impact of Cohesion Policy programmes 2014–2020 and 2021–2027 on GDP in NUTS 2 regions, 2030 (% increase relative to the baseline)

% above baseline

- <= 0.5
- 0.5 – 1.5
- 1.5 – 3.0
- 3.0 – 4.5
- 4.5 – 6.0
- > 6.0
- no data

Source:

0 500 km

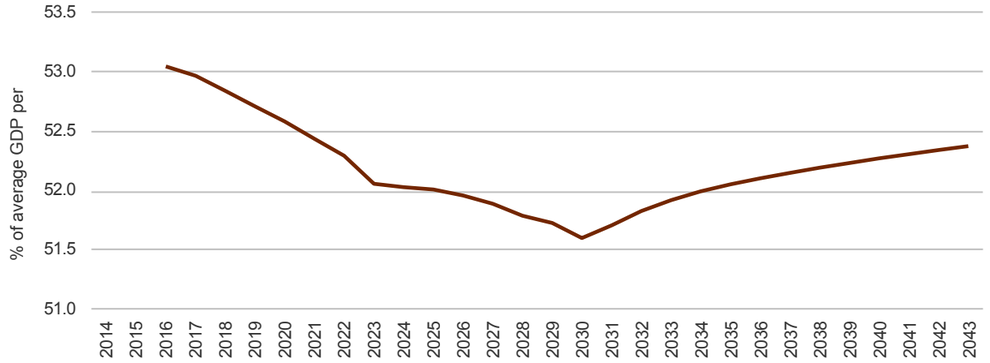
narrow industrial bases and limited R&D capacity. Many goods or services needed for the implemen- tation of Cohesion Policy programmes are, there- fore, not produced domestically and so need to be imported, to a large extent, from more developed regions[39].

8.5 Impact on regional disparities

Cohesion Policy helps to reduce regional dispari- ties significantly. The coefficient of variation, which measures the extent of regional disparities in GDP per head, is estimated to decline by around 3 % 10 years after the beginning of the 2021–2027 programming period (Figure 9.7). It increases after that as the supply-side effects of the interventions diminish. The same pattern is observed in other measures of dispersion such as the ratio of the 80th to the 20th percentile of the distribution of regional GDP per head (the top 20 % and bottom 20 % of regions in these terms). However they are meas- ured, regional disparities are estimated to be much lower than without Cohesion Policy for many years to come even if the policy were to come to an end.

Cohesion Policy also helps to increase internal convergence and reduce regional disparities within Member States. The extent of regional disparities (again as measured by the coefficient of variation) is estimated to decline in all Member States as a result of policy interventions (Figure 9.8). In Hun- gary, it is reduced by 2.5 pp compared with a situa- tion without Cohesion Policy, and by around 2.0 pp in Portugal and Poland.

Figure 9.7 Impact of Cohesion Policy programmes 2014–2020 and 2021–2027 on the coefficient of variation in GDP per head in EU NUTS 2 region, 2014-2043



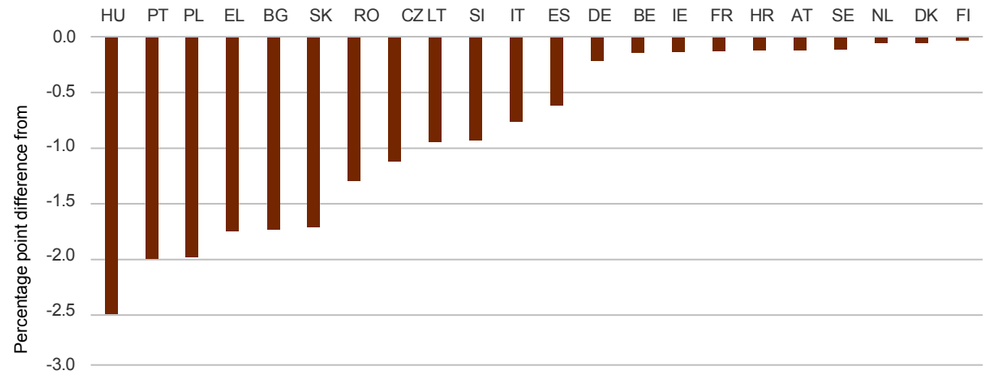
Source: RHOMOLO simulations.

Table 9.3 Impact of Cohesion Policy programmes 2014–2020 and 2021–2027 on GDP per head in NUTS 2 regions according to the Theil index

	2017 Theil index	Change in 2023	Change in 2030	Change in 2043
Within	0.03	-3.52 %	-5.36 %	-2.61 %
Between	0.11	-5.34 %	-7.89 %	-3.98 %
Overall	0.14	-4.95 %	-7.35 %	-3.69 %

Note: Only Member States with more than four NUTS 2 regions are included to enable the Theil index to be calculated. Source: RHOMOLO simulations.

Figure 9.8 Impact of Cohesion Policy programmes 2014–2020 and 2021–2027 on the coefficient of variation, GDP per head in 2030, NUTS 2 regions



Source: RHOMOLO simulations.

The impact of the policy on regional disparities is confirmed by changes in the Theil index, an- other measure of dispersion, which enables be- tween-country and within-country differences to be distinguished[40], which is estimated to decline by over 7 % by 2030 (Table 9.3). Both the 'between' and the 'within-country' components of the index decline, implying that disparities in GDP per head in regions within Member States are reduced (by 5.4 %), as well as disparities between Member States (by 7.9 %).

8.6 Some considerations

The analysis suggests that Cohesion Policy has significant positive effects on the EU economy and those of the Member States and regions. The mag- nitude of the impact is particularly large in the less developed regions of the EU, but more developed regions also benefit from the policy, especially in the long run. This, to some extent, is explained by the strong spatial spill-over effects generated by the policy, as interventions implemented in the less developed regions also benefit more developed ones. This is notably the case in more developed regions with strong trade links with less developed ones or those with companies with a strong competitive advantage in sectors that benefit from Cohesion Policy investment, whether directly or indirectly.

Research suggests that investing in the less devel- oped regions tends to reduce regional disparities within countries while at the same time boosting national growth (see Box 9.8 for a review of the literature on this).

The evidence is that Cohesion Policy plays an im- portant role in reducing regional disparities in the EU in line with its mandate. It helps the less devel- oped regions to catch up with the more developed ones, while fostering aggregate growth at EU level and in all Member States.

39 See: Crucitti et al. (2023a).

40 The index enables the extent of regional disparities across the EU to be decomposed into those that arise from disparities between Member States and those that arise from disparities within them.

Box 9.8 Where do we need to invest to support the least developed regions?

It is sometimes argued that the support provided to less developed regions under Cohesion Policy comes at the expense of economic performance at the na- tional or EU level since it implies that, without it, investment could have been higher in more devel- oped areas. The empirical evidence on this is mixed. Examining the economic impact of Cohesion Policy in Bulgaria and Romania, two studies[1] find that, for certain categories of investment, the returns tend to be higher if the investment takes place in the most developed capital city regions than if it occurs in oth- er regions. However, the evidence varies depending on the type of investment and the spill-overs it gen- erates. For instance, support for non-transport infra- structure and business investment yields the highest returns when implemented in less developed regions, notably because of the spill-overs to the rest of the country. In such cases, investments in less developed regions both reduce intra-country disparities and have the largest impact on national GDP.

Bulgaria, Czechia, Greece, Spain, Hungary, Italy, Po- land, Portugal and Romania. The results indicate that both country characteristics and types of in- vestment determine whether cohesion and growth go hand-in-hand or not. While investments in more developed regions generally yield higher returns, they also generate very few spill-over effects. These are much larger for certain types of investment when implemented in less developed regions, lead- ing in some cases to a larger national impact.

The results also suggest that the growth trickling down from investments in more developed regions to less developed ones is limited, which implies that, in order to reduce regional disparities, investments need to take place in the less developed regions. This is particularly relevant in central and eastern Member States where capital cities have grown much faster than the national average over the

1 Crucitti et al. (2021, 2022).

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