Monitoring, Ex-ante and Ex-post Evaluations to Support Policy Development

Building the Future: Collaboration for Sustainable Transformative Innovation

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Policy context

Objectives of the Better Regulation Agenda

- EU Action Based on Evidence
- Making Simpler and Better EU Laws
- Involving stakeholders in the decision-making process

Societal / political needs

- Long-term historical trends (anticipation, foresight)
- Efficiency / effectiveness of policy choices / design
- Recent major economic and geo-political crises (i.e. COVID19, Russian invasion of Ukraine)

Territorial Intelligence

- Beyond the historical development related to regional policies
- Heterogeneity of both the “problem” and the “policy choices”
- Multi-dimensionality: Sector / territorial / policies interplay

Better regulation toolbox

PAGE CONTENTS

I. General principles of better regulation

- TOOL #1. Principles, procedures & exceptions
- TOOL #2. The Regulatory Fitness Programme and the REFIT Platform
- TOOL #3. Role of the Regulatory Scrutiny Board
- TOOL #4. Evidence-based better regulation
- TOOL #5. Legal basis, subsidiarity and proportionality
- TOOL #6. Planning and validation of initiatives
- TOOL #7. Drafting roadmaps, evaluation roadmaps and inception Impact assessments

II. How to carry out an impact assessment

- Introduction
- TOOL #8. What steps should I follow for an impact assessment?
- TOOL #9. When is an impact assessment necessary?
- TOOL #10. Financial programmes and instruments
- TOOL #11. Social partner initiatives
- TOOL #12. Format of the impact assessment report
- TOOL #13. How to undertake a proportionate impact assessment
- TOOL #14. How to analyse problems
- TOOL #15. Risk assessment and management
- TOOL #16. How to set objectives
- TOOL #17. How to identify policy options
- TOOL #18. The choice of policy instruments

Better Regulation Toolbox

PAGE CONTENTS

III. Identify impacts in impact assessments, evaluations and fitness checks

- TOOL #19.Identification / screening of impacts
- TOOL #20.Sectoral competitiveness
- TOOL #21.Research & innovation
- TOOL #22.The "SME test"
- TOOL #23.Competition
- TOOL #24.Internal market
- TOOL #25.Prevention of fraud
- TOOL #26.External trade and investment
- TOOL #27.The digital economy and society & ICT issues
- TOOL #28.Fundamental rights & human rights
- TOOL #29.Employment, working conditions, income distribution, social protection & inclusion
- TOOL #30.Education and training, culture and youth (ETCY)
- TOOL #31.Health impacts
- TOOL #32.Consumers
- TOOL #33.Territorial impacts
- TOOL #34.Developing countries
- TOOL #35.Resource efficiency

Territorial Data Analysis and Modelling

RHOMOLO

Spatial Computable General Equilibrium (CGE) model

Ex-ante Macro-economic Impact Assessments

1. Funding Programmes
   - NextGenerationEU - SWD(2020)98 final
   - Multiannual Fin. Fram. - EIB, EMPL, REGIO, RTD
2. Regulatory Reforms
   - GROW, FISMA, CNECT
3. Structural / Value Chain / Trade in Value Added (TiVA)
   - ENER, TRADE, EMPL, S3

More comprehensive support along the entire policy cycle

Monitoring and Ex-post economic Impact Assessments

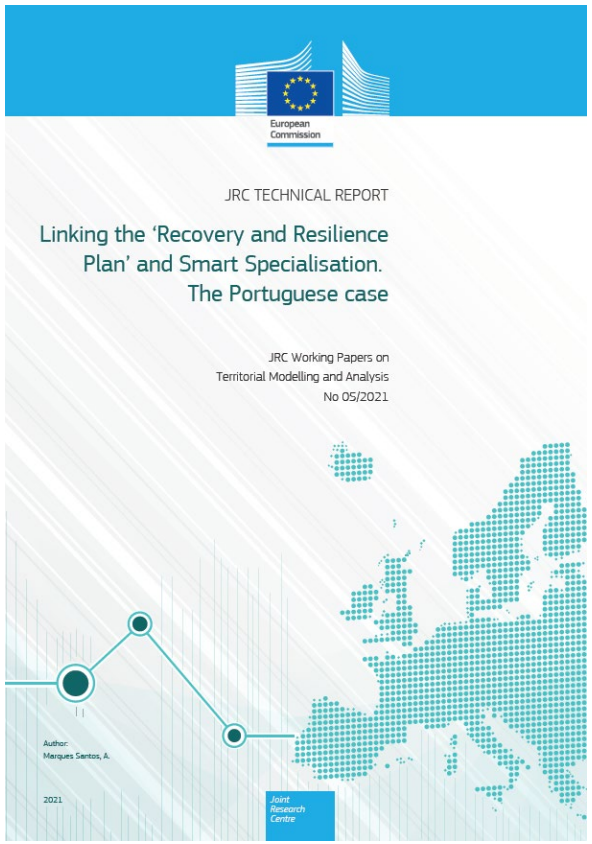
1. Funding programmes
   - Support to the country analyses of the recovery and resilience plan (i.e. Covid-19 effect on innovation and growth)
   - Thematic Mapping of ERDF projects: RTD (low-carbon technologies and circular economy)
   - Complementarities between funding programmes (i.e. ESIF and H2020; ESIF and RRF)

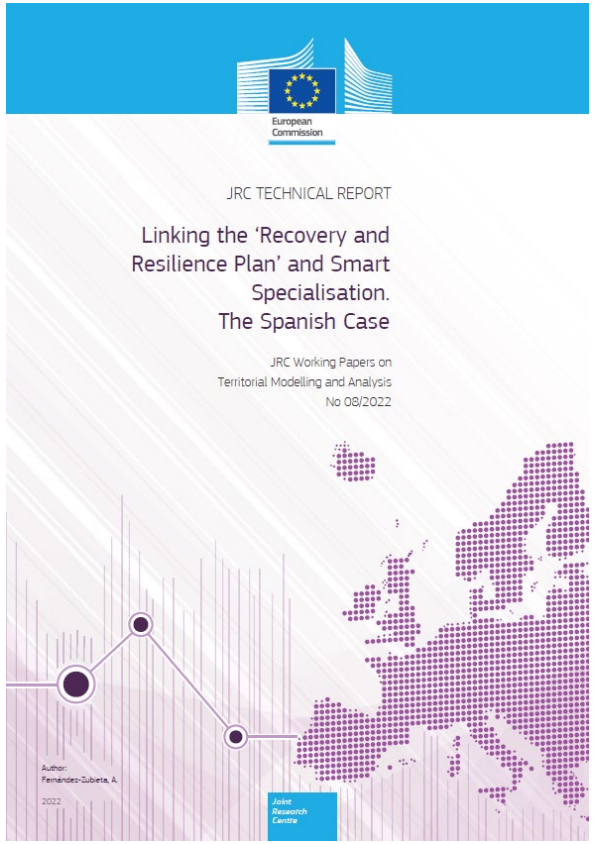
➢ Territorial Economic Data viewer

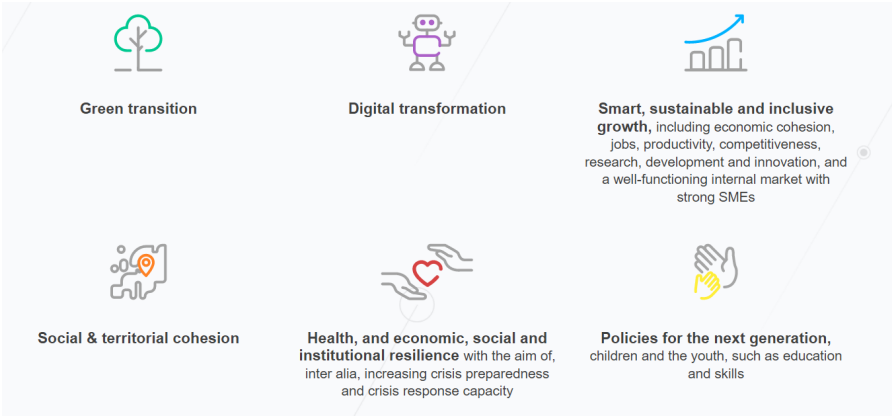
REMO

Linking funding programmes: RRF and S3

Maximum financial contribution per EU Member State		
	Share as % of total	*Amount (million, 2018 prices)*
BE	1,55	4821
BG	1,98	6131
CZ	1,51	4678
DK	0,56	1723
DE	6,95	21545
EE	0,32	1004
IE	0,39	1209
EL	5,77	17874
ES	19,88	61618
FR	10,38	32167
HR	1,98	6125
IT	20,45	63380
CY	0,35	1082
LV	0,70	2170
LT	0,89	2766
LU	0,03	101
HU	1,98	6136
MT	0,07	226
NL	1,68	5197
AT	0,95	2950
PL	8,65	26808
PT	4,16	12905
RO	4,36	13505
SI	0,55	1693
SK	1,98	6140
FI	0,71	2196
SE	1,24	3849
Total	100,00	310000







European Commission

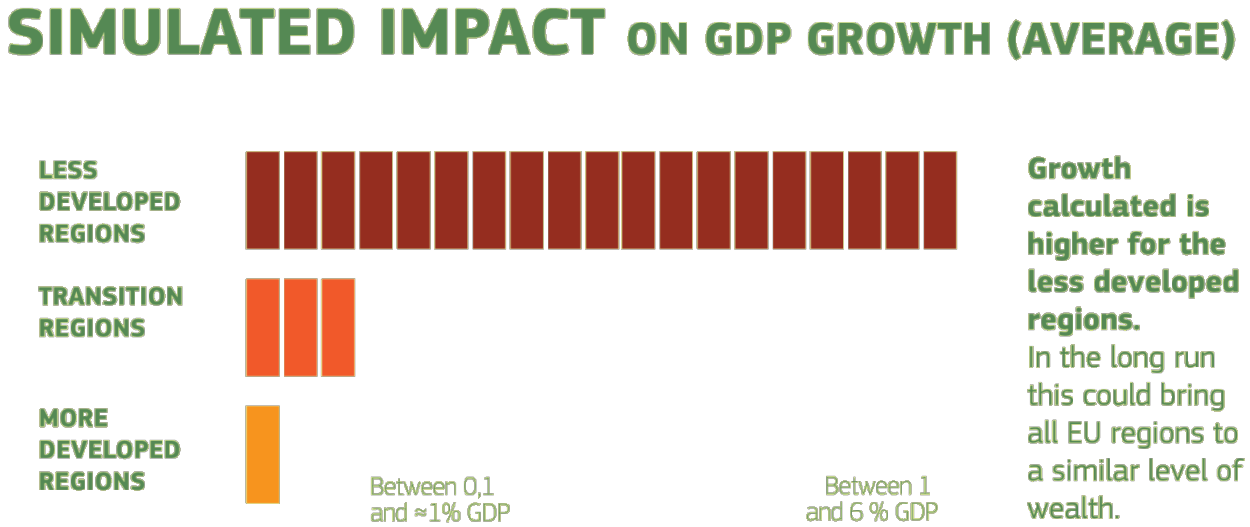
How JRC is supporting the **EX-ANTE EVALUATION?**

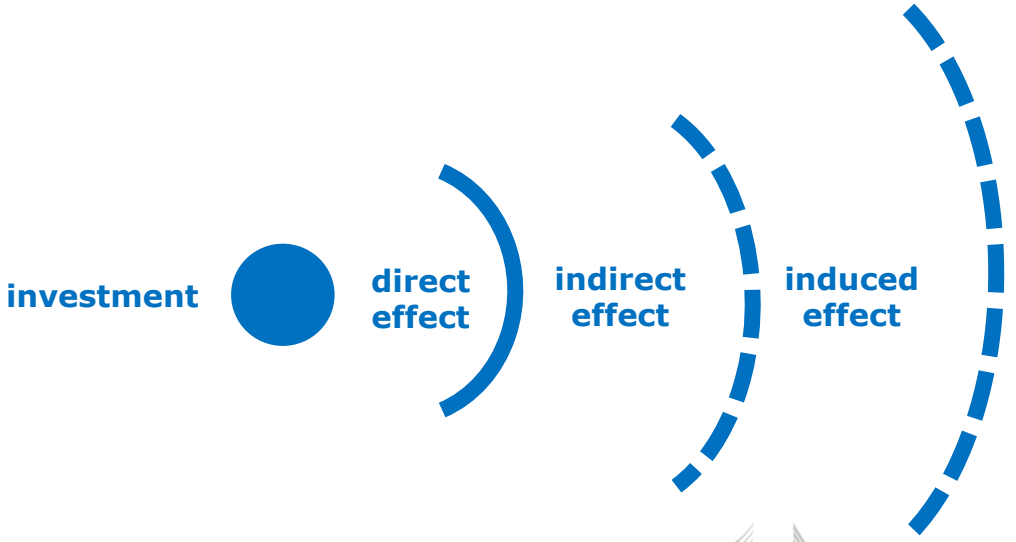
European Commission

RHOMOLO

Dynamic Spatial General Equilibrium Model developed by JRC for impact assessments of EU Policies

- Geographical coverage: 27 EU Member States + ROW ; 235 NUTS2 regions
- 10 sectors disaggregation (+ higher detail making use of auxiliary sectoral analyses)
- Policy shocks affect economic variables (deviation from baseline)
- Well-established scientific tool for policy support
  - Contributions to support 5 DGs & other EU institutions (2019 onwards)
  - 10 articles in peer-reviewed int. journals & 2 book chapters (2019 onwards)





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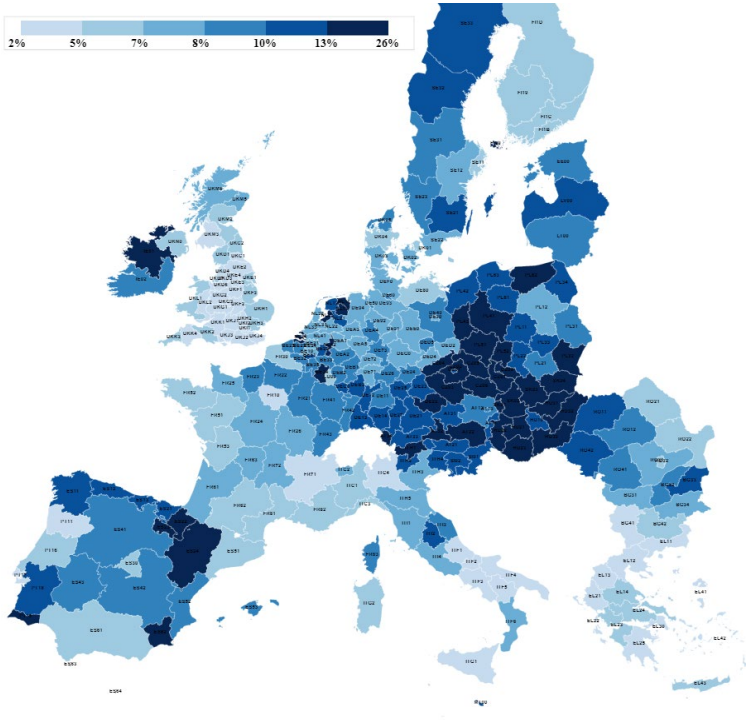
Capturing the spatial distribution of economic activities

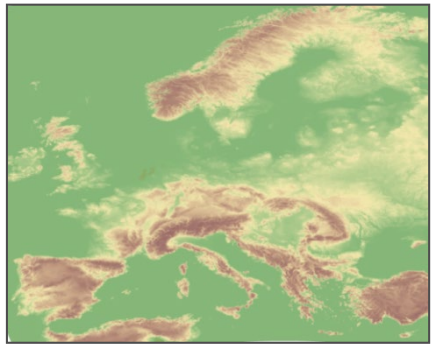
Sector composition

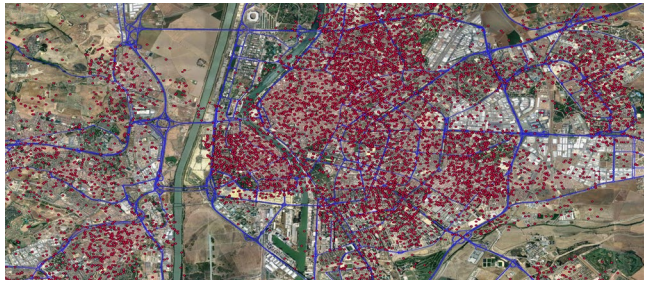
- through ***regional I/O tables*** and Social Accounting Matrices



Spatial configuration

- through ***territorial accessibility*** via asymmetric sector-region specific trade costs (Generalised Transport Cost - ***GTC***)





Source: OpenStreetMap

European Commission

2021: Portugal 2020 Macroeconomic Impact Assessment – with the Agência Para O Desenvolvimento E Coesão, I.P.

Portugal 2020 Macroeconomic Impact Assessment (Barbero and Salotti, 2021) - Final report based on RHOMOLO and QUEST simulations

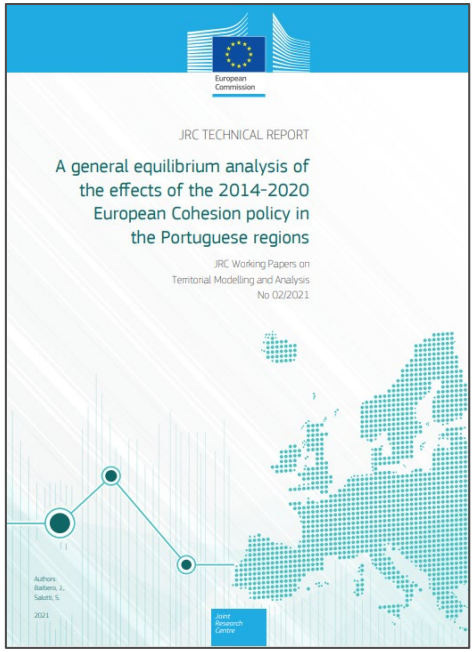


Table 6. GDP and employment impact (% deviations from the baseline) in the seven Portuguese NUTS 2 regions (10, 20, and 30 years after the beginning of the policy)

	GDP (% deviation from baseline)			Employment (% deviation from baseline)		
	2023	2033	2043	2023	2033	2043
PT11	4.03%	2.30%	1.43%	2.09%	1.24%	0.78%
PT15	1.82%	1.31%	0.91%	0.94%	0.80%	0.57%
PT16	3.74%	2.11%	1.31%	1.65%	0.98%	0.62%
PT17	1.14%	0.65%	0.43%	0.45%	0.34%	0.24%
PT18	5.10%	3.39%	2.28%	2.48%	1.77%	1.22%
PT20	5.14%	3.82%	2.64%	2.41%	1.97%	1.42%
PT30	2.86%	2.36%	1.73%	1.52%	1.42%	1.09%

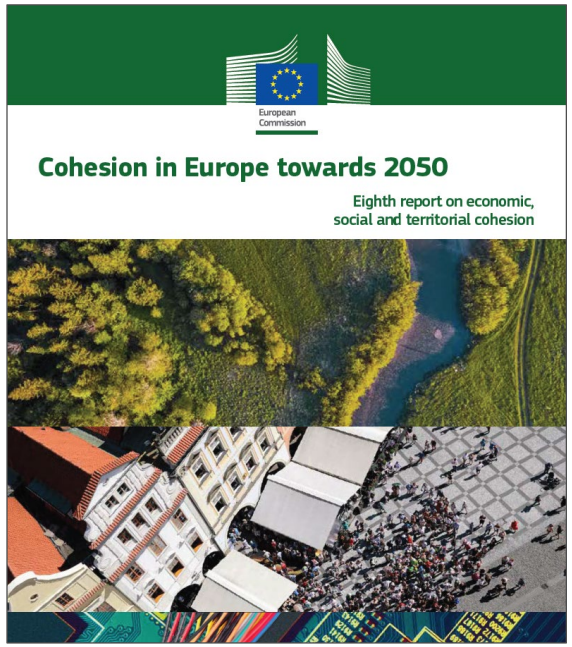
Source: RHOMOLO simulations.

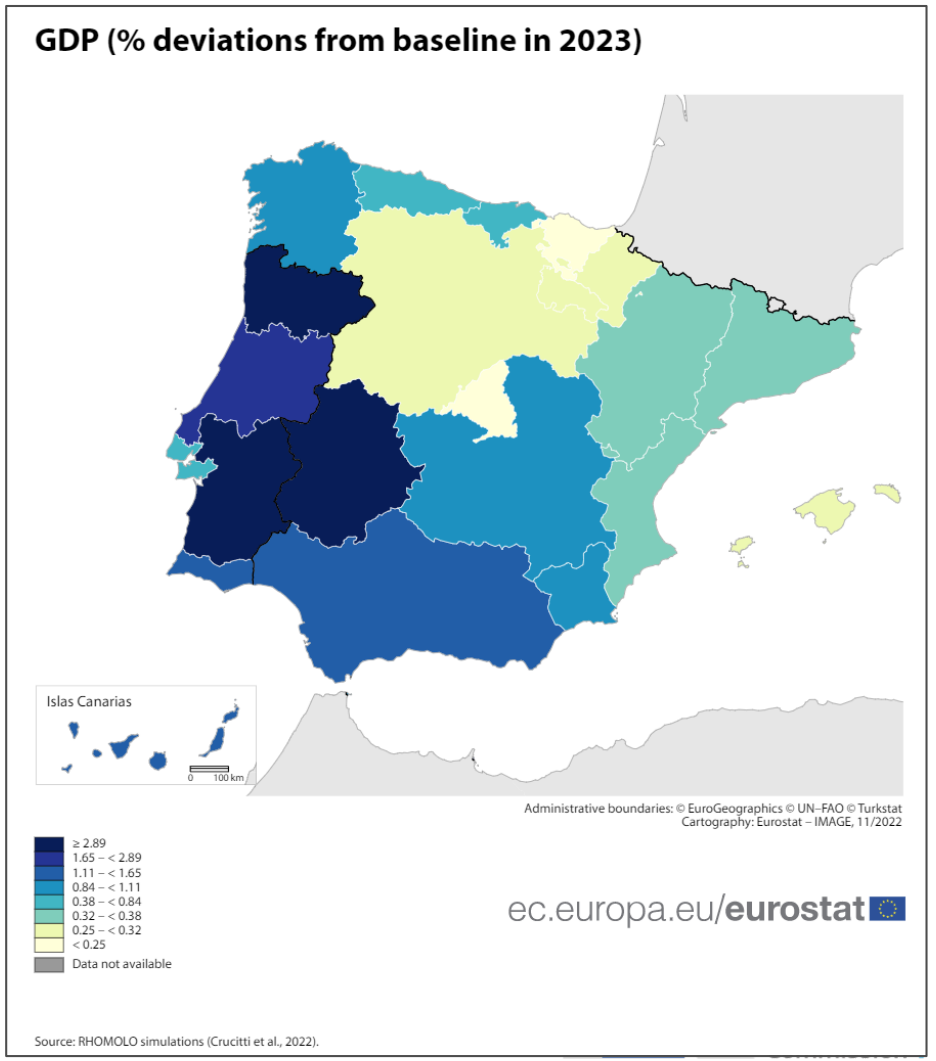
European Commission

2022: 2014-2020 Cohesion policy impact assessment
(featured in the 8th Cohesion Report by DG REGIO)

2014-2020 Cohesion Policy Impact Assessment (Crucitti et al., 2022)

	GDP (% deviations from baseline)	
	2023	2033
ES	0.58%	0.43%
PT	1.98%	1.29%





2022: Impact assessment of the Youth-related measures of the RRF
(featured in the 2022 Employment and Social Developments in Europe Report by DG EMPL)

Impact of RRF Youth-related measures (Lazarou et al., 2022)

Territorial Development – JRC Policy Insights

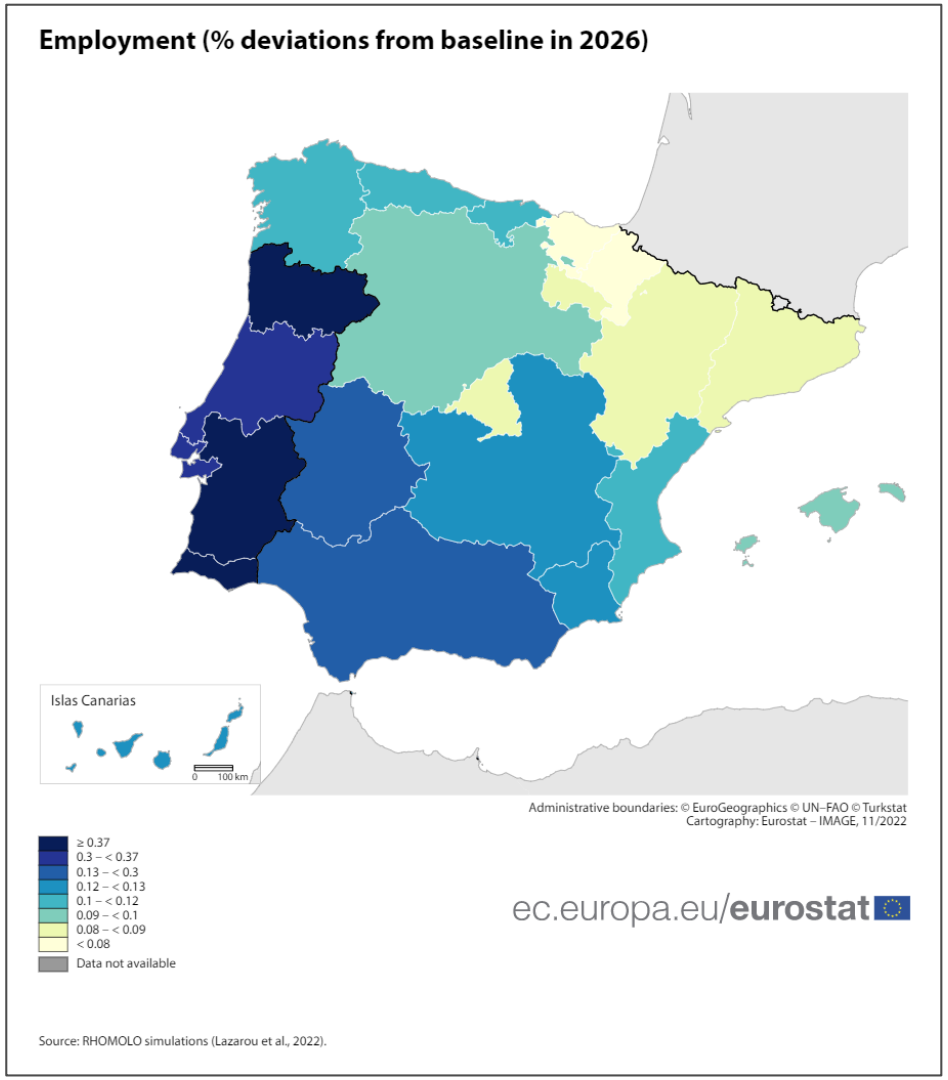
European Commission

TERRITORIAL DEVELOPMENT INSIGHTS SERIES – JULY 2022

YOUTH RELATED MEASURES OF THE RECOVERY AND RESILIENCE FACILITY. A RHOMOLO ANALYSIS

NICHOLAS LAZAROU, ANABELA MARQUES SANTOS, JUAN CARLOS DEL RIO, STYLIANOS SAKKAS

- Young people (15-29 years old) were the most impacted by the Covid-19 pandemic crisis due to their specific labour market situation.
- In response to the crisis, the European Commission launched the Recovery and Resilience Facility (RRF), which became operative through Member States' (MS) Recovery and Resilience Plans (RRPs).
- About 9% of the measures included in the RRPs approved by March 2022 are youth-related.
- Youth-related measures comprise investments to improve labour productivity and labour supply, as well as public infrastructures investments.
- The RHOMOLO analysis reported here quantifies the potential impact of these measures on GDP and employment at the NUTS2 level.
- RRF youth-related measures have the potential to increase GDP and employment by 0.8% and 0.5% respectively. The regions with the highest youth unemployment rates should benefit the most.



How JRC is supporting the **MONITORING** of R&I funds?

European Commission

TEDv: Scope

Territorial Economic Data viewer (TEDv)

Data RESEARCH

- Identifying needs
- Following trends
- Looking for new data

Data COLLECTION

- Eurostat
- Cohesion data
- Orbis
- e-Corda
- … Others

Database CONSTRUCTION

- Cleaning
- Harmonisation
- Merging
- Enrichment (text mining)

Data ANALYSIS

- Indicator
- Monitoring

⬇

- Evaluation

Data VISUALISATION

- Maps
- Graphs
- Interactive reporting
- Tailor-made statistics

Data SHARING

- Policy decision making
- Academia

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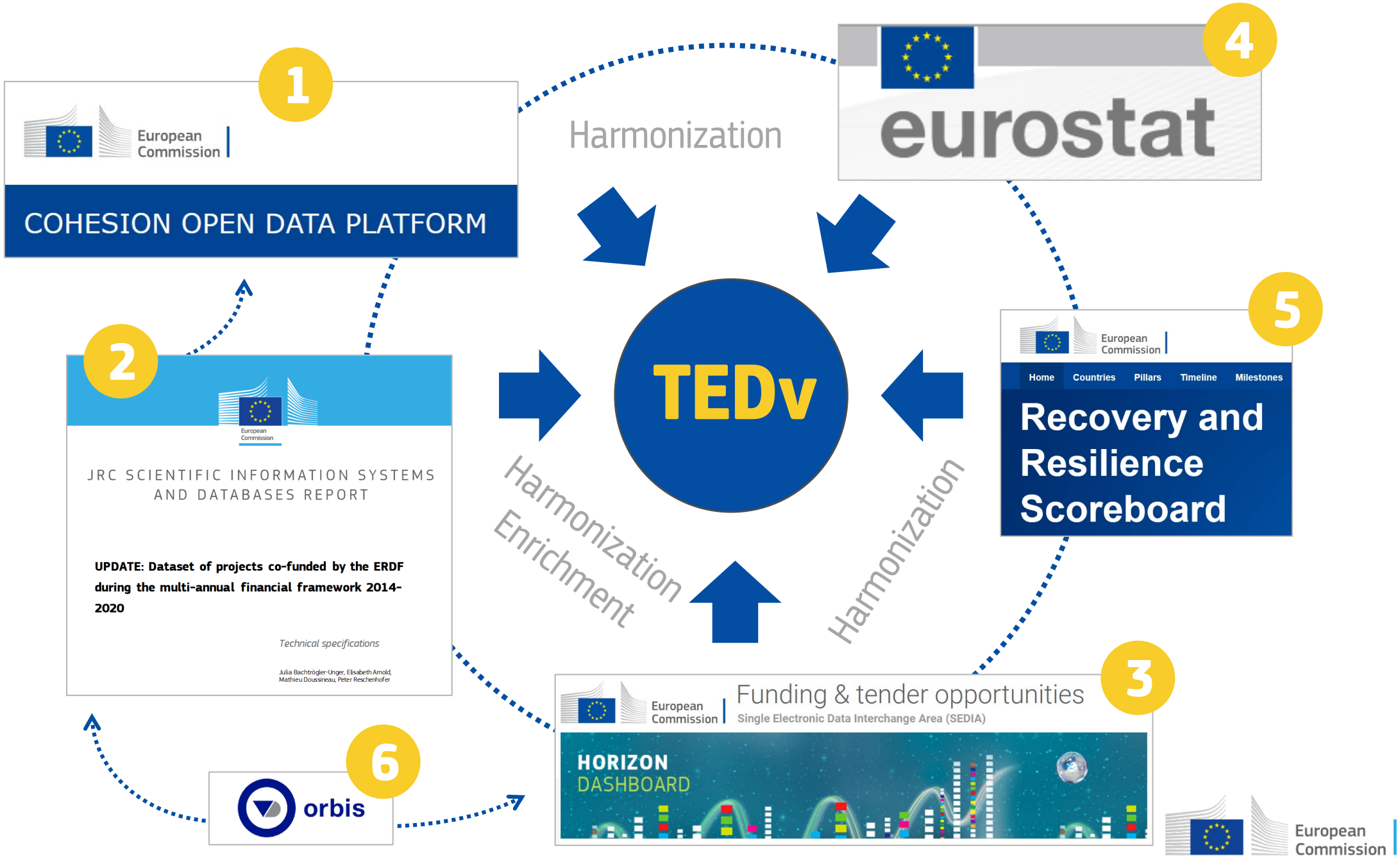
TEDv: Data source



European Commission

TEDv: Data source

3 ≠ R&I FUNDING PROGRAMMES

PROGRAMMING PERIOD 2014-2020
(Decided / selected projects or operations
Spending / project execution) – EU contribution

PERIOD 2021-2026
(Estimated costs)

European Structural and Investment Funds (ESIF)

- To correct territorial inequalities, to enhance investment in job creation and a sustainable and healthy European economy and environment
- Research and Innovation (R&I) is one of the main focus area – Thematic Objective 1

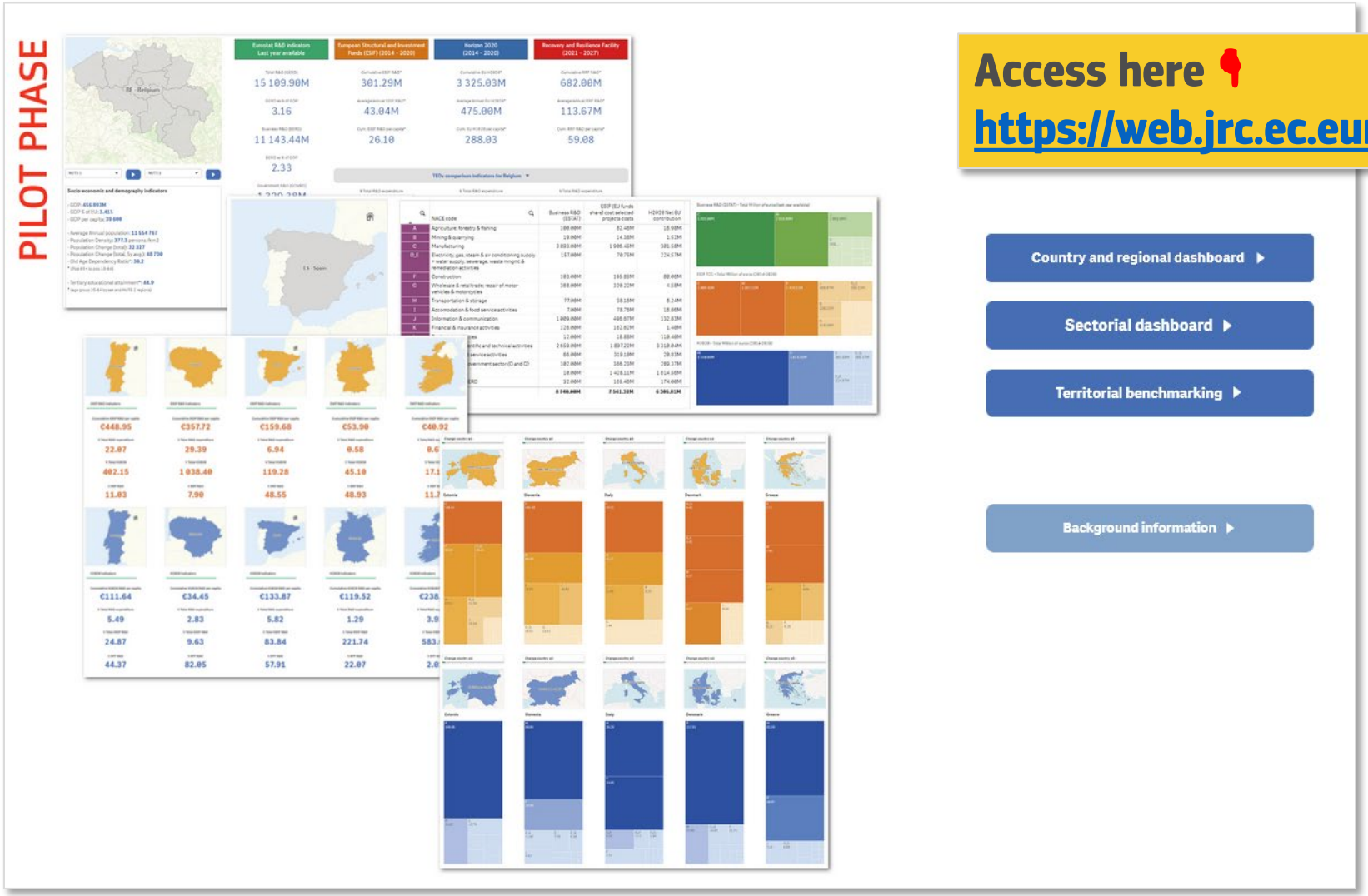
Horizon 2020 (H2020)

- Horizon 2020 is a financial instrument aiming to drive economic growth and create jobs
- It supports research and innovation with an emphasis on excellent science, industrial leadership and tackling societal challenges

Recovery and Resilience Facility (RRF)

- Temporary recovery instrument, aiming to mitigate the economic and social impact of the coronavirus pandemic
- To make European economies more sustainable, resilient and better prepared for the green and digital transitions
- R&I plays a key role in the recovery and twin transition

Territorial Economic Data viewer (TEDv): A tool to support policy cycle



Access here

https://web.jrc.ec.europa.eu/dashboard/TEDV/

European Commission

Pilot phase

Territorial Economic Data viewer

Example: Portuguese' regions (Overview)

EU27

ESIF R&D indicators

Cum. ESIF R&D per capita
84.56

% total R&D expenditure
1.7%

% total H2020
71%

% RRF R&D
63%

H2020 indicators

Cum. H2020 per capita
118.67

% total R&D expenditure
2.4%

% total ESIF R&D
140%

% RRF R&D
100%

Portugal

ESIF R&D indicators

Cum. ESIF R&D per capita*
448.95

% total R&D expenditure
22.07%

% total H2020
402.15%

% RRF R&D
302.15%

H2020 indicators

Cum. EU H2020 per capita*
111.64

% total R&D expenditure
5.49%

% total ESIF R&D
24.87%

% RRF R&D
75.13%

Norte

ESIF R&D indicators

Cum. ESIF R&D per capita*
611.11

% total R&D expenditure
32.10%

% total H2020
655.41%

% RRF R&D
-

H2020 indicators

Cum. EU H2020 per capita*
93.24

% total R&D expenditure
4.90%

% total ESIF R&D
15.26%

% RRF R&D
-

Centro (PT)

ESIF R&D indicators

Cum. ESIF R&D per capita*
635.63

% total R&D expenditure
37.00%

% total H2020
702.57%

% RRF R&D
-

H2020 indicators

Cum. EU H2020 per capita*
90.47

% total R&D expenditure
5.27%

% total ESIF R&D
14.23%

% RRF R&D
-

Alentejo

ESIF R&D indicators

Cum. ESIF R&D per capita*
564.56

% total R&D expenditure
54.26%

% total H2020
1283.30%

% RRF R&D
-

H2020 indicators

Cum. EU H2020 per capita*
43.99

% total R&D expenditure
4.23%

% total ESIF R&D
7.79%

% RRF R&D
-

Algarve

ESIF R&D indicators

Cum. ESIF R&D per capita*
195.40

% total R&D expenditure
29.64%

% total H2020
383.21%

% RRF R&D
-

H2020 indicators

Cum. EU H2020 per capita*
50.99

% total R&D expenditure
7.73%

% total ESIF R&D
26.10%

% RRF R&D
-

Commission

Note: RRF indicators for EU27 exclude values from Bulgaria, Hungary, Netherlands, Poland and Sweden.

Pilot phase

Territorial Economic Data viewer

Example: Spanish' regions (Overview)

EU27

ESIF R&D indicators

Cum. ESIF R&D per capita
84.56

% total R&D expenditure
1.7%

% total H2020
71%

% RRF R&D
63%

H2020 indicators

Cum. H2020 per capita
118.67

% total R&D expenditure
2.4%

% total ESIF R&D
140%

% RRF R&D
100%

Spain

ESIF R&D indicators

Cum. ESIF R&D per capita*
159.68

% total R&D expenditure
6.94%

% total H2020
119.28%

% RRF R&D
68.66%

H2020 indicators

Cum. EU H2020 per capita*
133.87

% total R&D expenditure
5.82%

% total ESIF R&D
83.84%

% RRF R&D
57.56%

Galicia

ESIF R&D indicators

Cum. ESIF R&D per capita*
250.81

% total R&D expenditure
15.42%

% total H2020
349.22%

% RRF R&D
-

H2020 indicators

Cum. EU H2020 per capita*
71.82

% total R&D expenditure
4.42%

% total ESIF R&D
28.64%

% RRF R&D
-

Castilla y León

ESIF R&D indicators

Cum. ESIF R&D per capita*
161.55

% total R&D expenditure
6.89%

% total H2020
226.86%

% RRF R&D
-

H2020 indicators

Cum. EU H2020 per capita*
71.21

% total R&D expenditure
3.04%

% total ESIF R&D
44.08%

% RRF R&D
-

Extremadura

ESIF R&D indicators

Cum. ESIF R&D per capita*
269.52

% total R&D expenditure
29.34%

% total H2020
1982.62%

% RRF R&D
-

H2020 indicators

Cum. EU H2020 per capita*
13.59

% total R&D expenditure
1.48%

% total ESIF R&D
5.04%

% RRF R&D
-

Andalucía

ESIF R&D indicators

Cum. ESIF R&D per capita*
255.68

% total R&D expenditure
20.15%

% total H2020
623.63%

% RRF R&D
-

H2020 indicators

Cum. EU H2020 per capita*
41.00

% total R&D expenditure
3.23%

% total ESIF R&D
16.04%

% RRF R&D
-

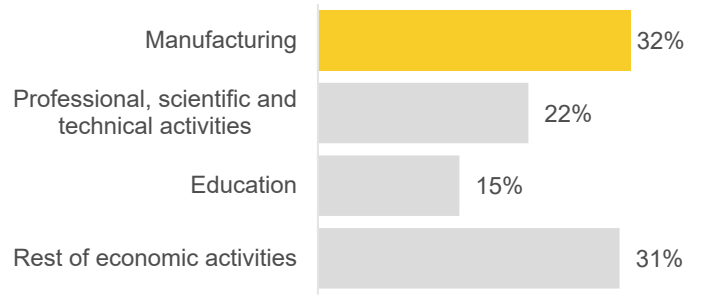
Note: RRF indicators for EU27 exclude values from Bulgaria, Hungary, Netherlands, Poland and Sweden.

Territorial Economic Data viewer (TEDv) - (forthcoming)

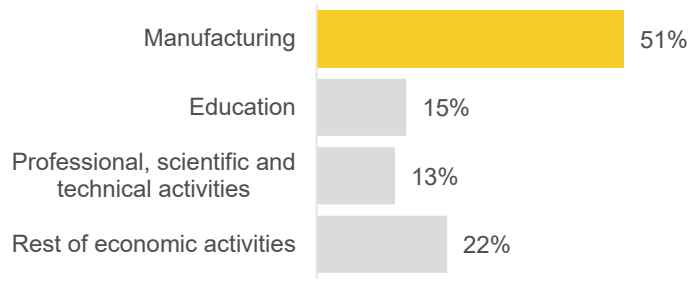
Example: Portuguese' regions (Sectorial concentration)

ERDF R&I

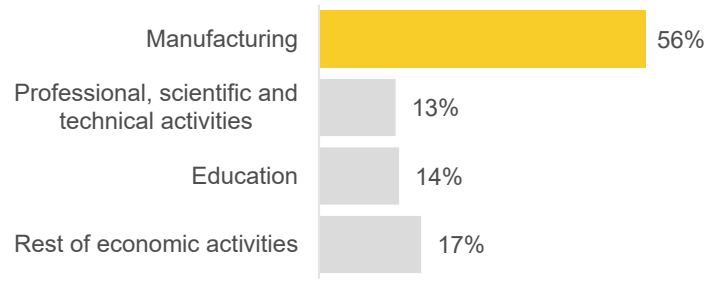
EU27



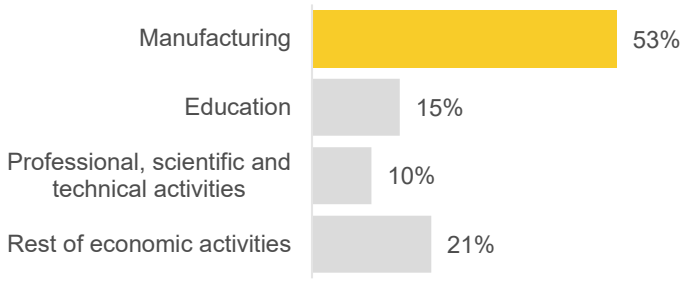
Portugal



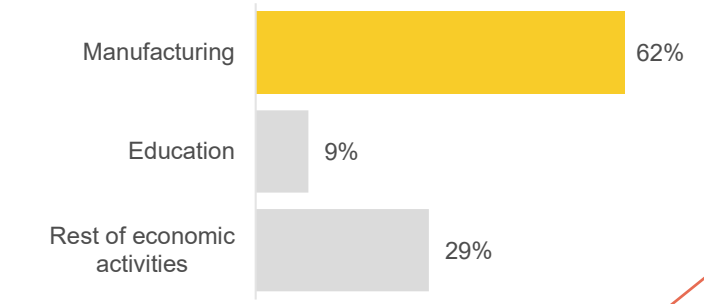
Norte (PT11)



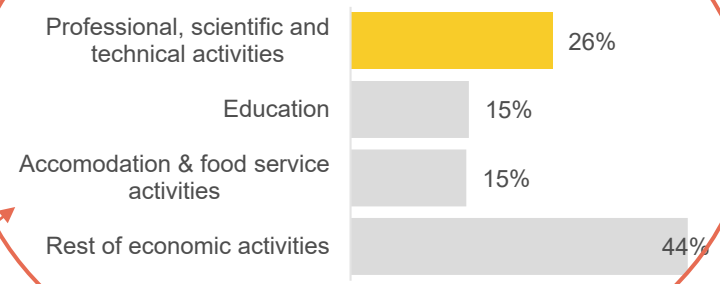
Centro (PT16)



Alentejo (PT18)



Algarve (PT15)



Source: Territorial Economic Data viewer (TEDv) (*forthcoming*)

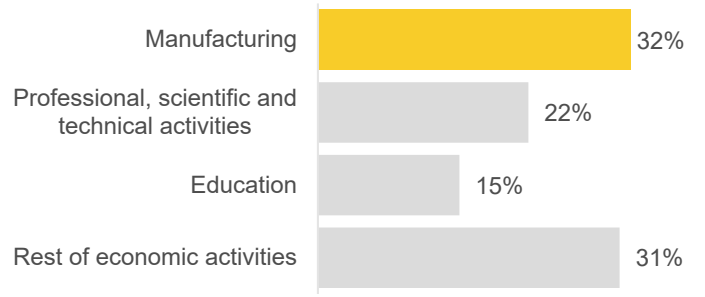
European Commission

Territorial Economic Data viewer (TEDv) - (forthcoming)

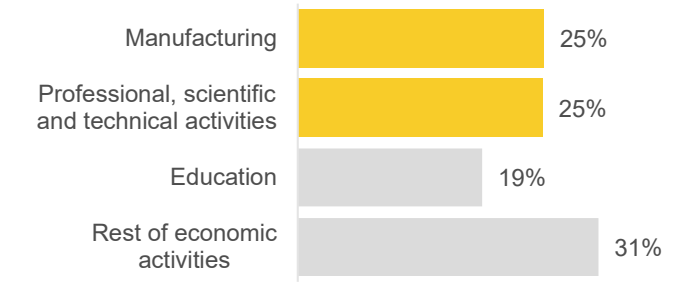
Example: Spanish' regions (Sectorial concentration)

ERDF R&I

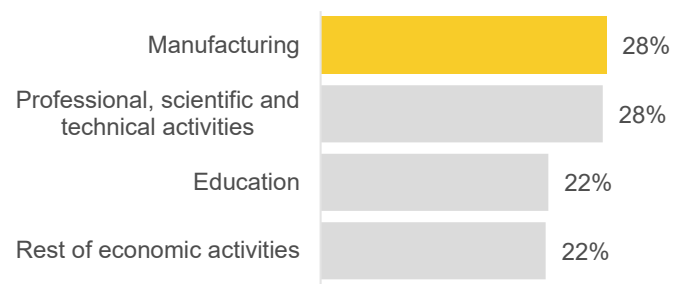
EU27



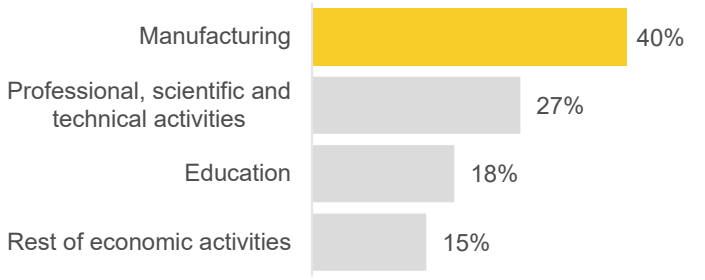
Spain



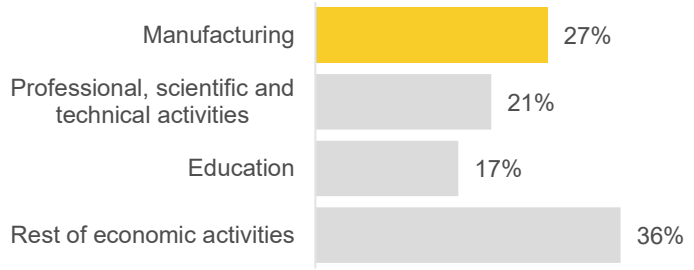
Galicia (ES11)



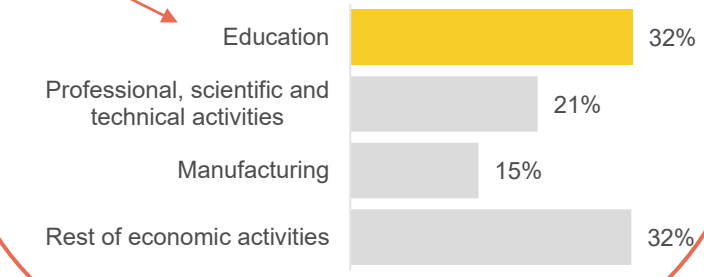
Castilla y León (ES41)



Extremadura (ES43)



Andalucía (ES61)



Source: Territorial Economic Data viewer (TEDv) (*forthcoming*)

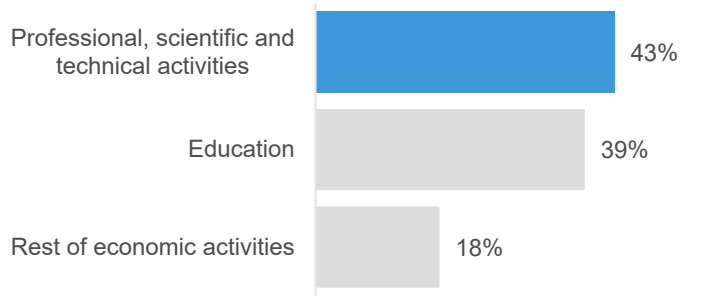
European Commission

Territorial Economic Data viewer (TEDv) - (forthcoming)

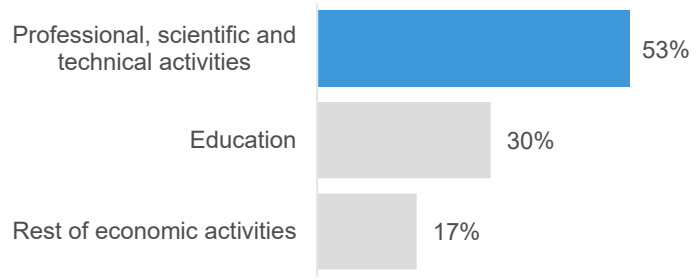
Example: Portuguese' regions (Sectorial concentration)

H2020

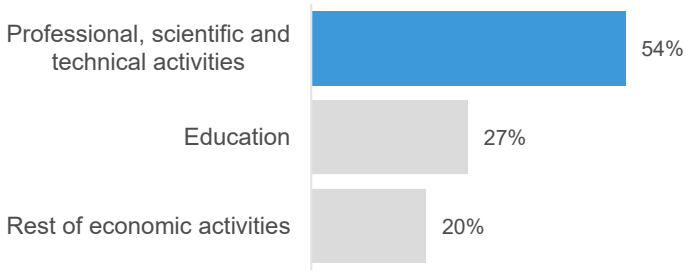
EU27



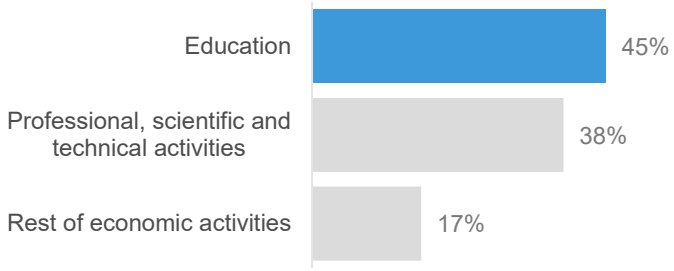
Portugal



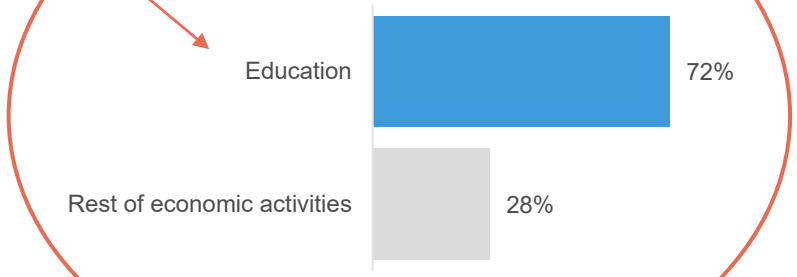
Norte (PT11)



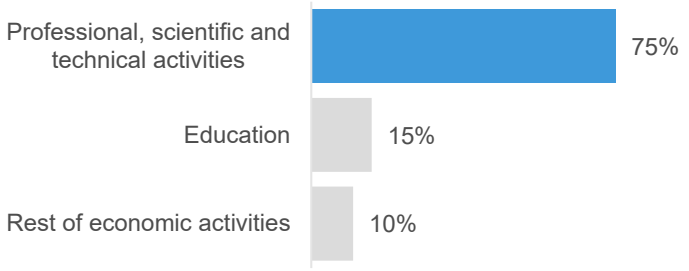
Centro (PT16)



Alentejo (PT18)



Algarve (PT15)



Source: Territorial Economic Data viewer (TEDv) (*forthcoming*)

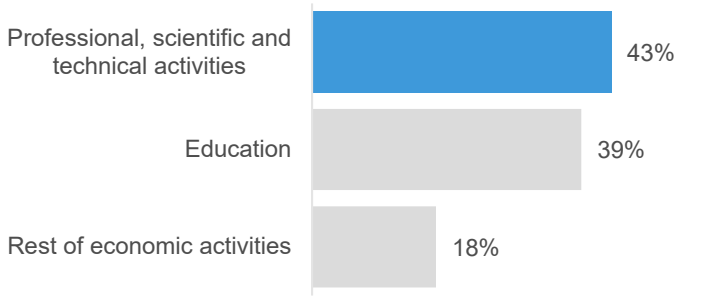
European Commission

Territorial Economic Data viewer (TEDv) - (forthcoming)

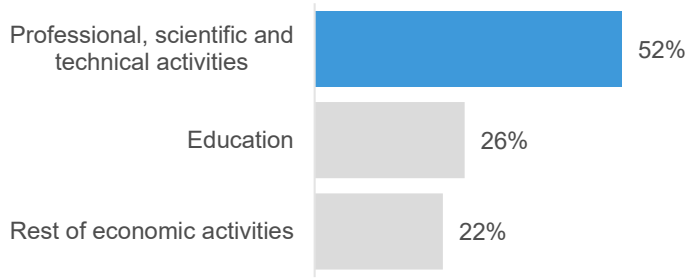
Example: Spanish' regions (Sectorial concentration)

H2020

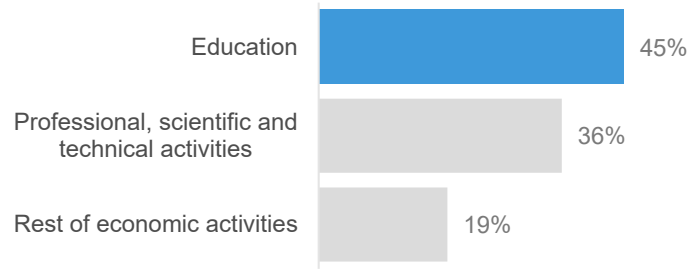
EU27



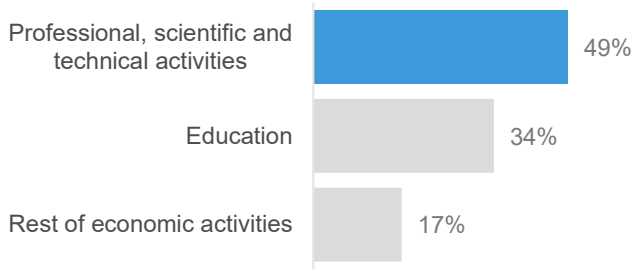
Spain



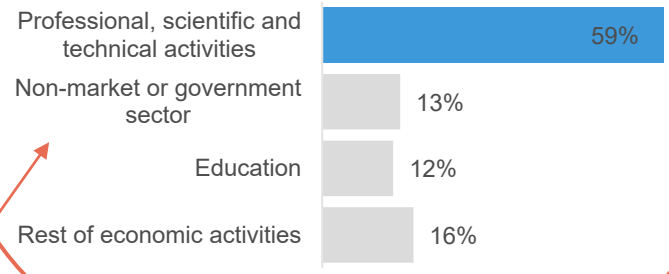
Galicia (ES11)



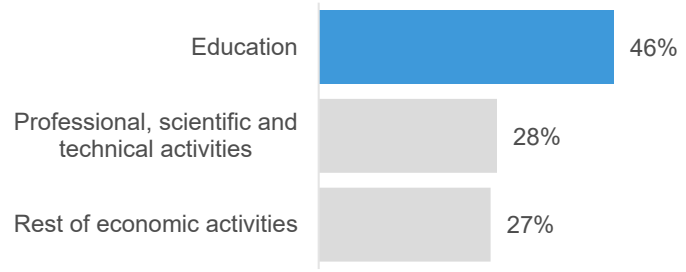
Castilla y León (ES41)



Extremadura (ES43)



Andalucía (ES61)



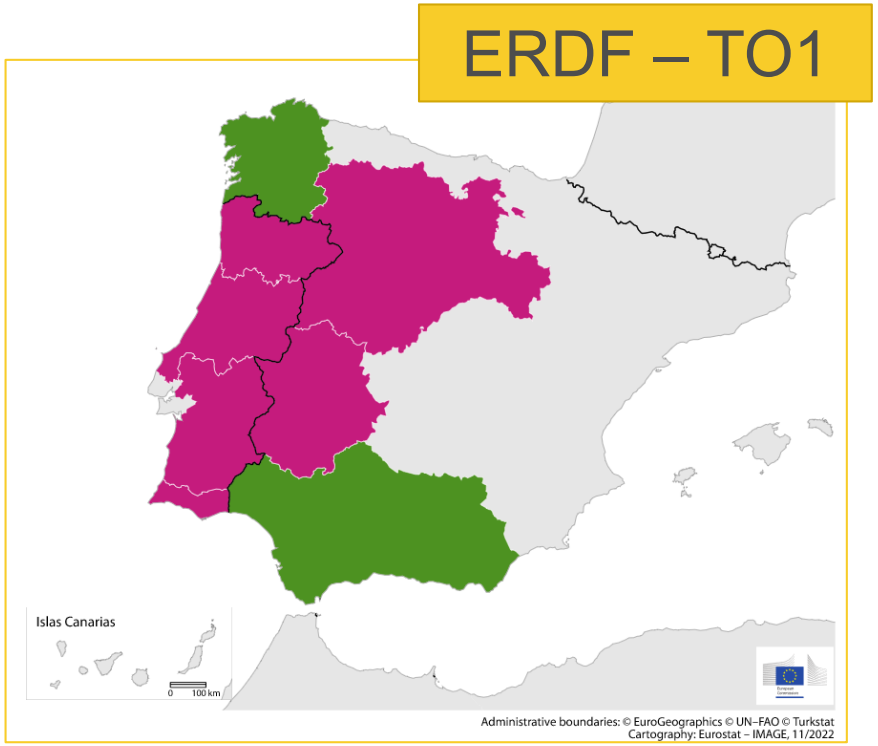
Source: Territorial Economic Data viewer (TEDv) (*forthcoming*)

European Commission

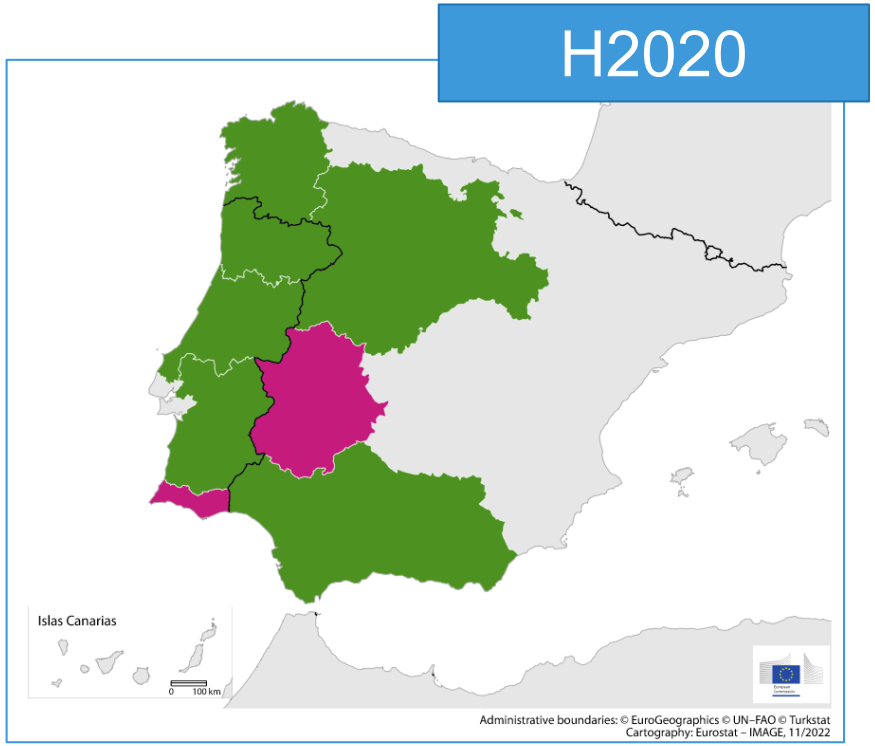
Territorial Economic Data viewer (TEDv) - (forthcoming)

Example: Portugal and Spain – Climate Change Concentration Index (Thematic specialisation)

ERDF – TO1



H2020



Fund specialisation in climate change

No specialisation

Source: JRC-B7 TEDAM team estimation based on Bachtrögler-Unger et al. (2021) | Territorial Economic Data viewer (TEDv) (*forthcoming*)

Note: Estimated using the concentration index. This index is equal to 100 for EU27 average and for the other territories it expresses their specialisation patterns (= share of funds in climate change projects in a territory over the average of this share in the EU27 x 100). Values higher than 100 indicates a concentration face EU reference.

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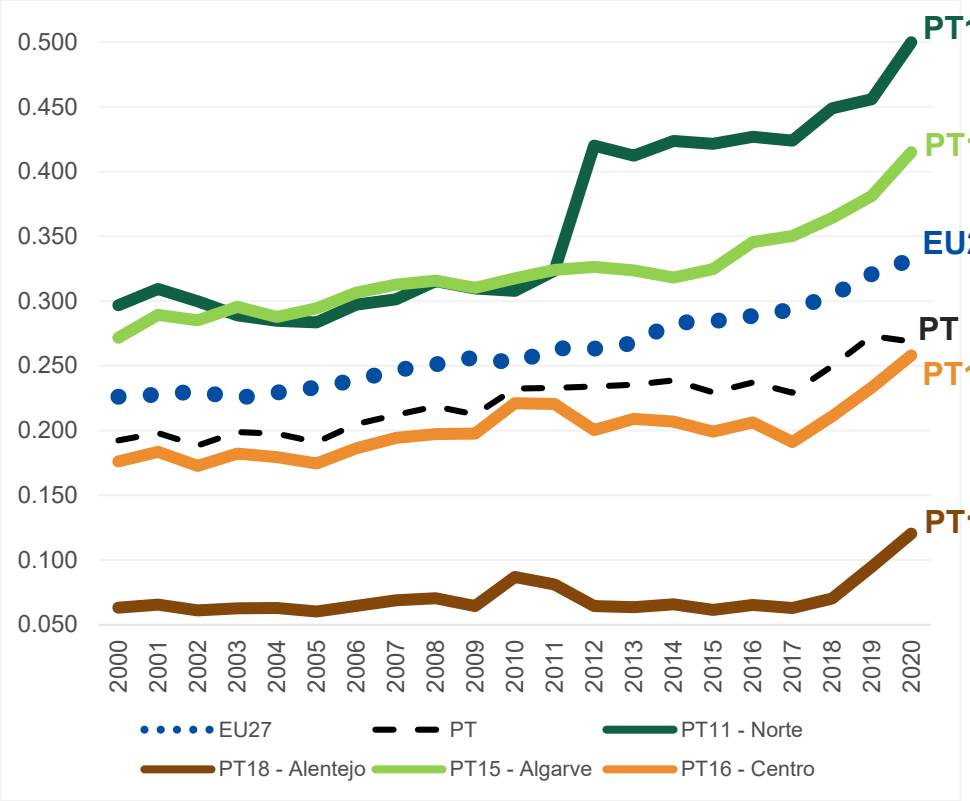
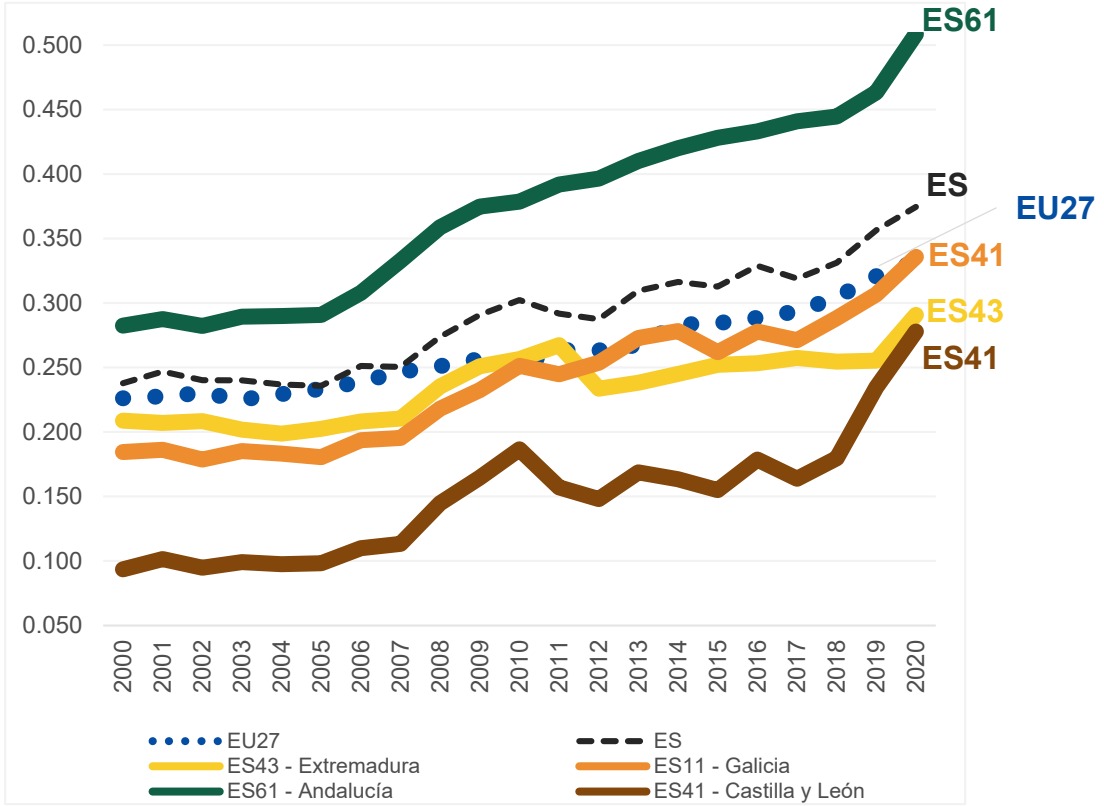
Territorial Economic Data viewer (TEDv) - (forthcoming)

Example: Portugal and Spain (Eco-efficiency)

Evolution eco-efficiency: Portuguese regions



Evolution eco-efficiency: Spanish regions



Source: JRC-B7 TEDAM team estimation based on ESTAT (GDP) and JRC-EDGAR (emissions)
Territorial Economic Data viewer (TEDv) (*forthcoming*)

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Support in policy **EX-POST EVALUATION**

European Commission

S3 (ex-post) evaluation in Portugal

MAIN FINDINGS:

- Additional effect of RDI subsidies in the period 2014-2020 (under S3 framework) ➡ **potential positive effect of S3 in Portugal in regional productivity**
- Existence of **complementarities and synergies** between RDI financing instruments

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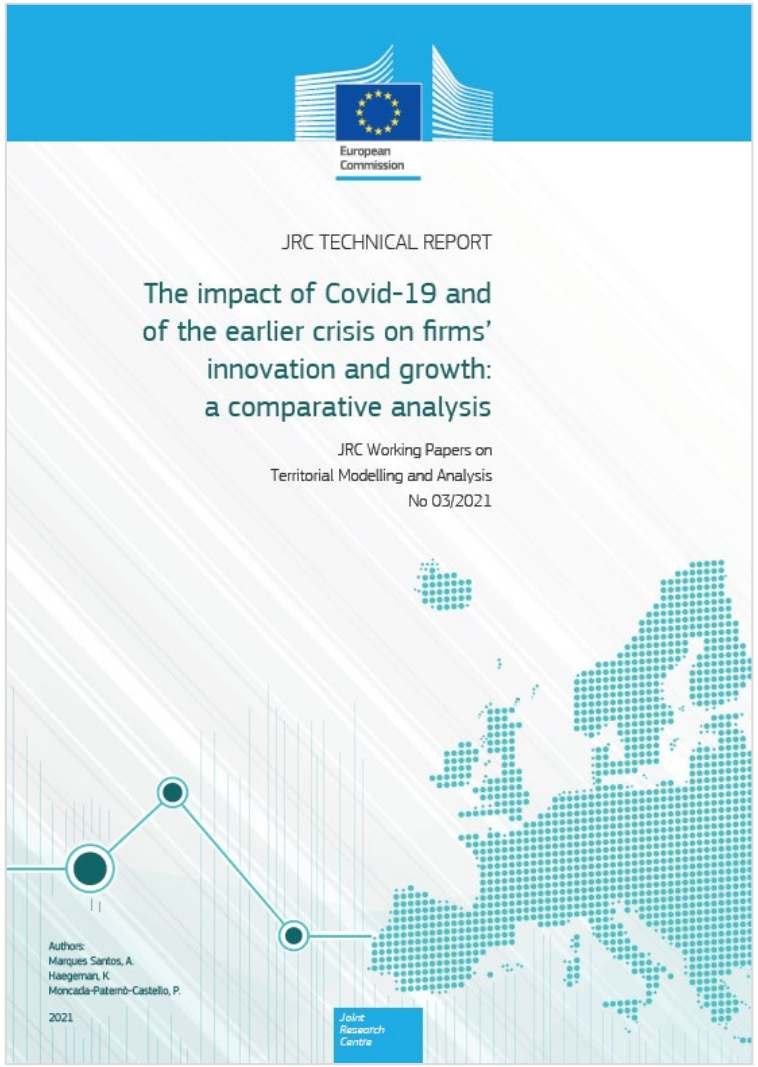
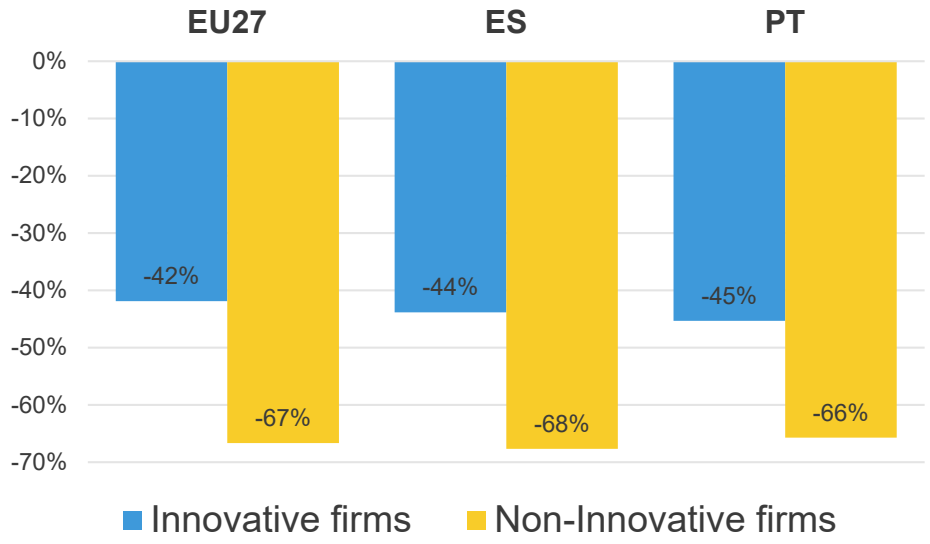
Covid-19 effect on Innovation and Growth



Growth likelihood of innovative firm less impacted by Covid-19



Note: Values refer to change in the estimated probability of firm's turnover growth between 2018-2019 and 2020

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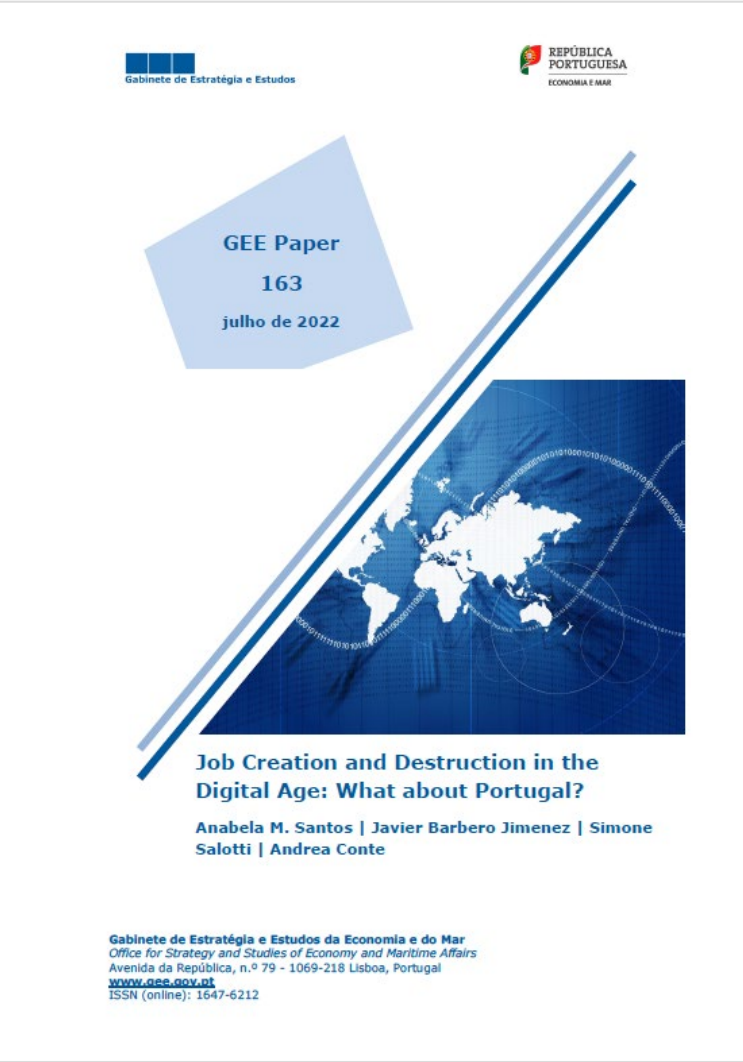
Effect of digitalisation on employment



- Increase of investment in digitalization EU27 and PT (1995-2019)
- Growth trend is driven by non-machine-based digital investment
- Change in employment structure
- **Positive net effect of digitalization on EU27 and PT employment**
- Increase of €100.000 in the stock of digital technologies ➡ Increase of 1.3 to 3.1 jobs (EU27) and 4.6 jobs (PT)

European Commission

Thank you

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