



On the road to regional ‘Competitive Sustainability’ The role of the European structural funds

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Context, motivation and objectives

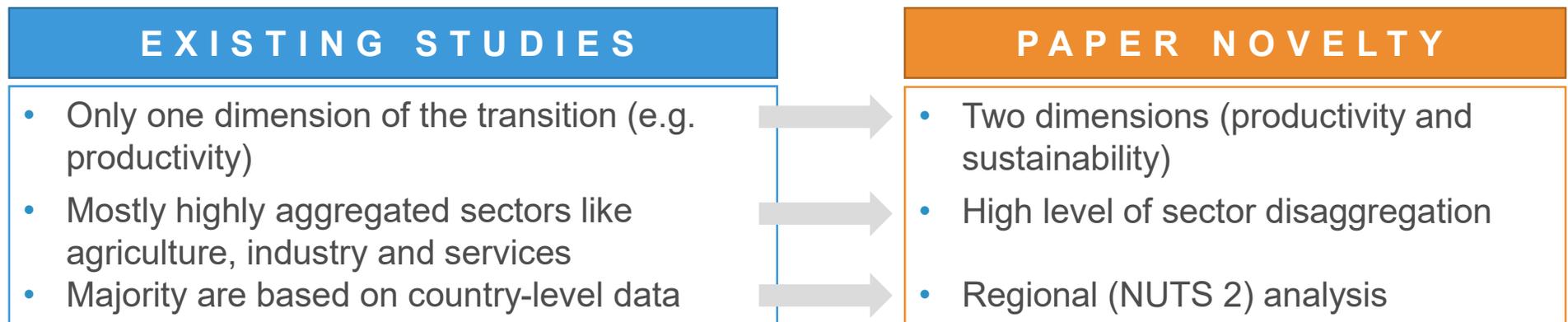
- **Covid-19, Recovery and EU funds**
 - Covid-19 outbreak drastically affected the EU economies
 - Crisis hit the world when the EU was concentrating efforts to achieve a more competitive sustainability economy
 - EU recovery package (Next Generation EU): emphasis on green and digital transition
- **Objectives**
 - Develop a new regional indicator (NUTS 2-level) to measure transition towards a competitive and sustainable economy
 - Assessing the role of EU funds in supporting the transitions
- **Scope:** EU27 + UK (2008-2018)

Literature review and novelty of the study

- **Background theory:**

- Theory on economic development (Lewis, 1954; Todaro and Smith, 2015; Herrendorf et al., 2014)
- Determinants of long-run growth including capital accumulation, technological progress and investment in human capital (McMillan and Rodrik, 2011; Martins, 2019)

- **Novelty/contribution:**



Methodological approach

Regional Competitive Sustainability (RCS) indicator

- **Regional Competitive Sustainability (RCS) indicator**

- Data: Eurostat (2008-2018)
- Coverage: EU27 + UK regions (NUTS 2 level) + 61 economic activities (NACE 2-digits)
- Each activity j in region i is classified according to its relative positioning in terms of
 - i) **Competitiveness**: “High (Low) productivity” if the economic activity shows an above- (below)-average performance within the country (productivity is proxied by wages and salaries per employee)
 - ii) **Sustainability**: “Low (High) emissions intensity” if the economic activity is characterised by a below- (above)-median air emissions intensity (greenhouse gases emissions – GHG – per gross value added) (➔ limitations only NACE-country data are available)

Methodological approach

Regional Competitive Sustainability (RCS) indicator

$$RCS_{i,t} = \frac{Empl_{i,t}^{CompSust}}{Empl_{i,t}^{Total}}$$

- $Empl_{i,t}^{CompSust}$: sum of employment in activities that are simultaneously classified as “High productivity” and “Low emissions”
- $Empl_{i,t}^{Total}$: total employment in a region
- $RCS_{i,t}$: measures the proportion of employees working in those competitive and sustainable NACE 2-digits sectors in region i in time t

$$RCS \text{ Transition} = RCST_{i,t} = \frac{Empl_{i,t}^{CompSust}}{Empl_{i,t}^{Total}} - \frac{Empl_{i,t-1}^{CompSust}}{Empl_{i,t-1}^{Total}}$$

Methodological approach

Fixed effect model: Transition and EU structural funds relationship

WORK IN PROGRESS

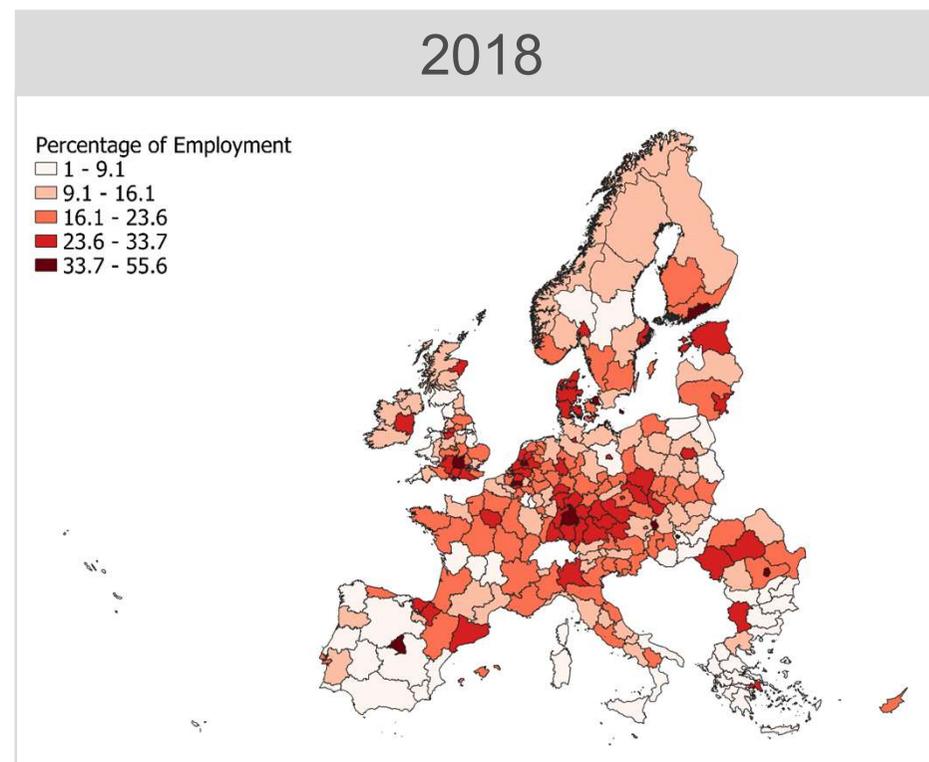
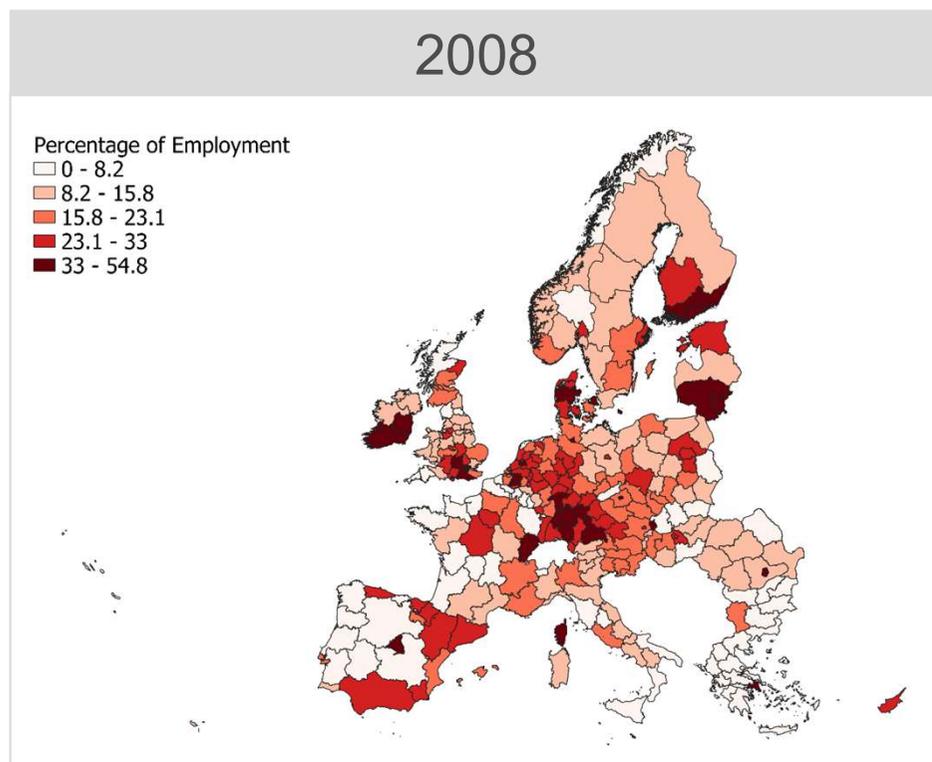
$$RCST_{i,t} = \beta_0 + \beta_1 \ln(\text{EUfundsStockPC}_{i,t-1}) + RCS_{i,t-1} + \beta_2 G_{Empl_{i,t}} + \beta_3 G_{ProdPC_{i,t}} + \mu_i + \tau_t + u_{i,t}$$

- Dependent variable: *RCS Transition* = $RCST_{i,t}$
- Explanatory variables:
 - Stock of EU funds (ERDF + ESF + CF) per capita in t-1 ($\text{EUfundsStockPC}_{i,t-1}$)
 - RCS/RC/RS indicator level in t-1
 - Growth rates of regional employment ($G_{Empl_{i,t}}$)
 - Growth rates of regional productivity ($G_{ProdPC_{i,t}}$)
- Fixed regional effects (μ_i), annual time fixed effects (τ_t), and error term ($u_{i,t}$)
- Data source: EUROSTAT and Cohesion data portal

Results and discussion

Regional **Competitive Sustainability** (RCS) indicator

PRELIMINARY RESULTS

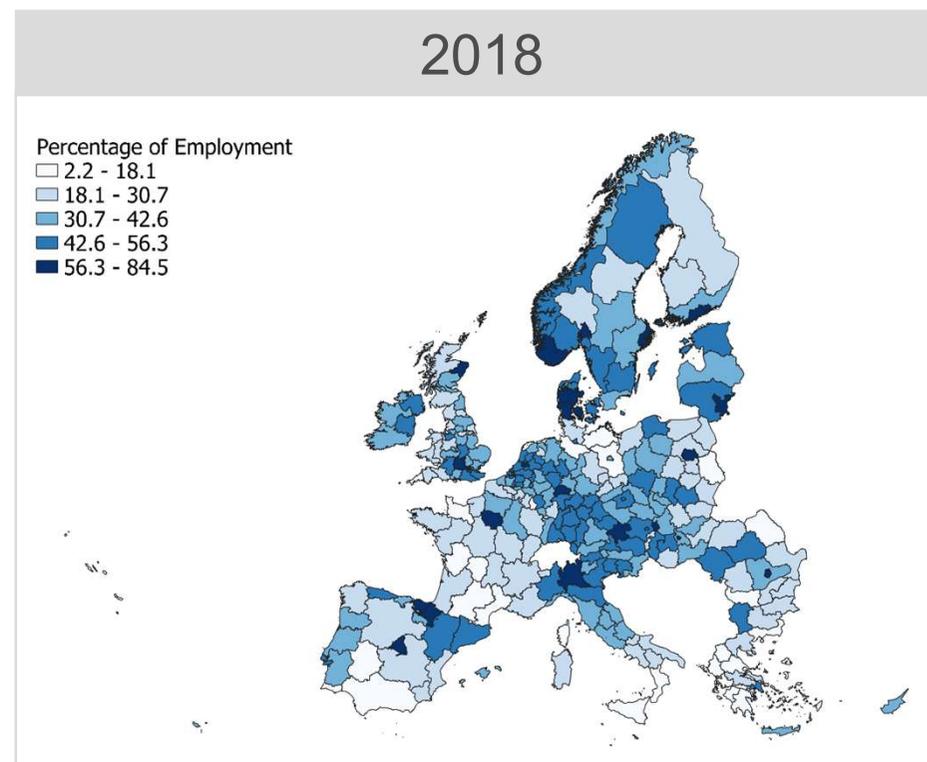
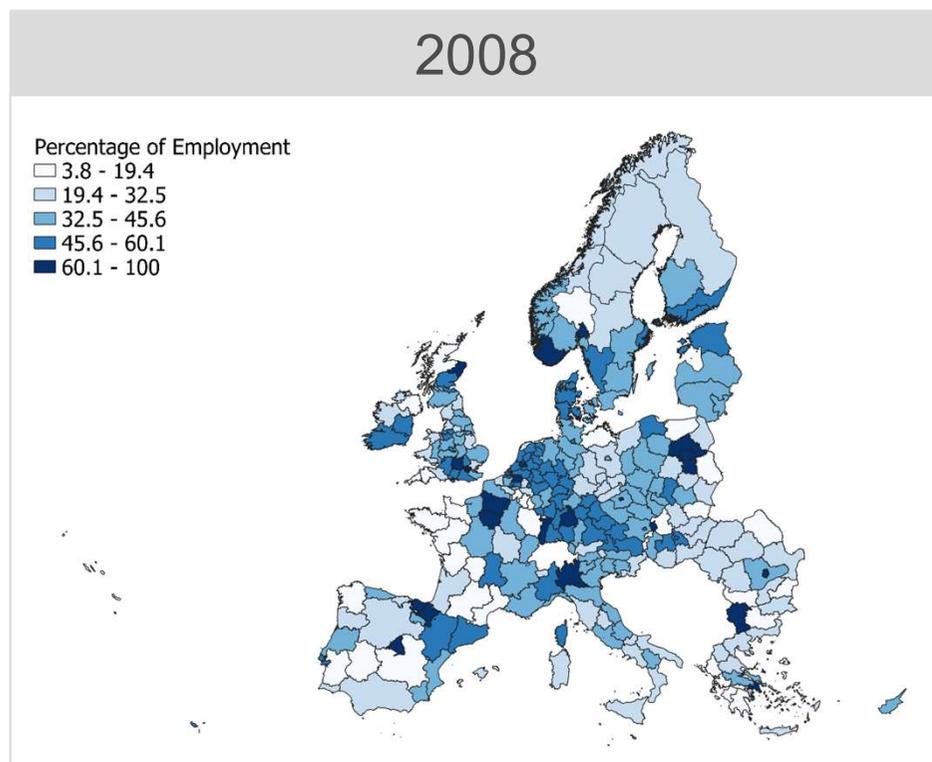


Source: Own elaborations based on Eurostat data.

Results and discussion

Regional **Competitive** (RC) indicator

PRELIMINARY RESULTS

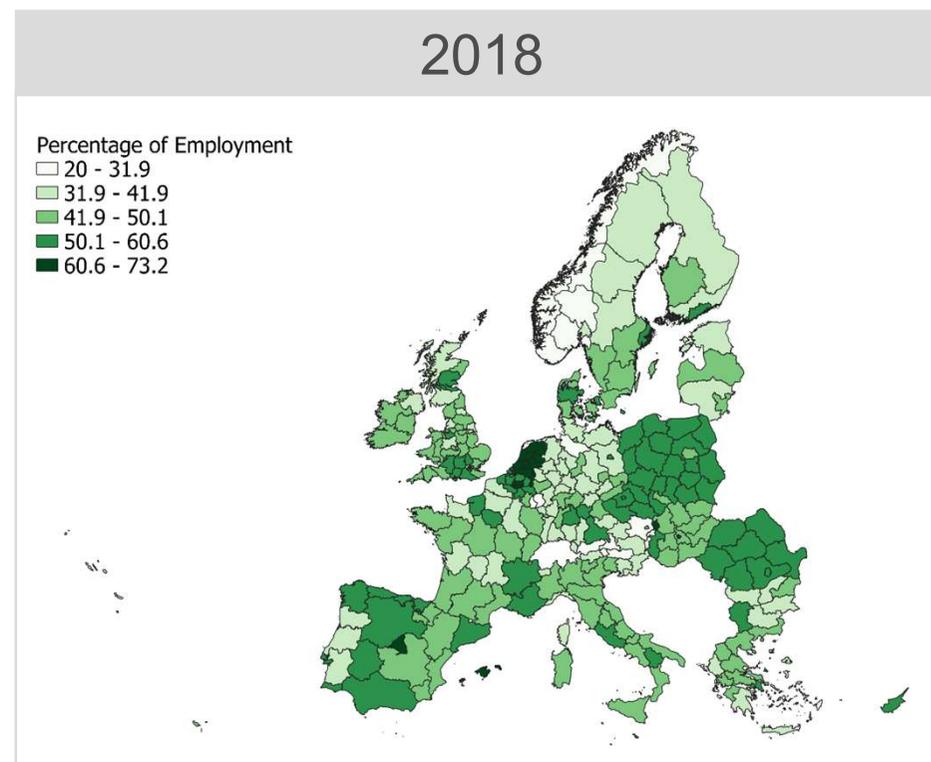
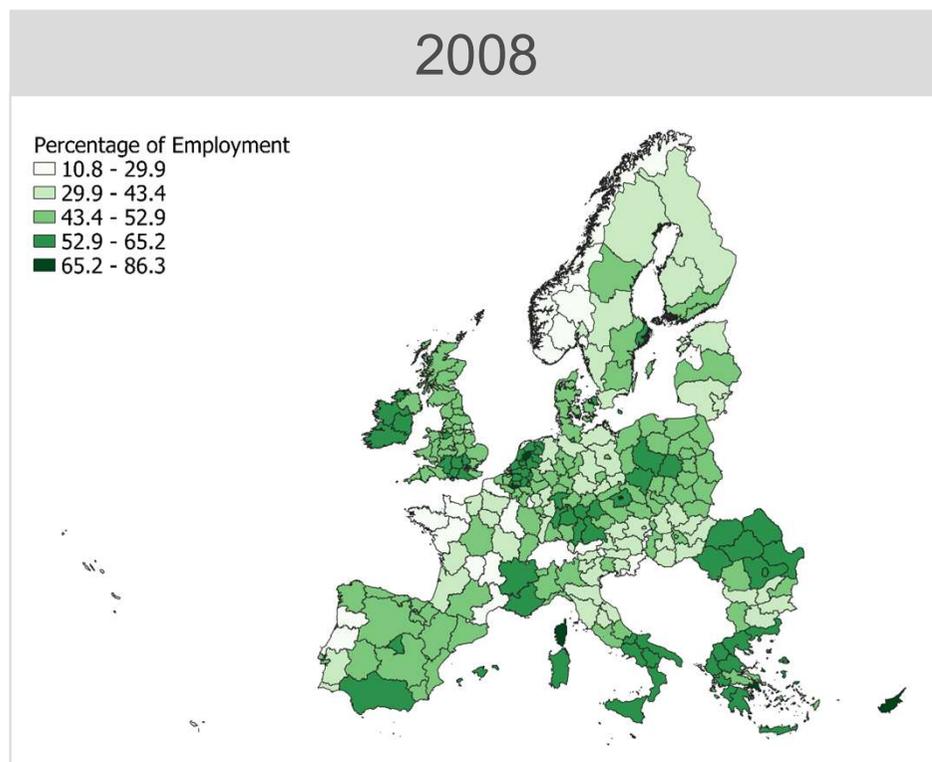


Source: Own elaborations based on Eurostat data.

Results and discussion

Regional **Sustainability** (RS) indicator

PRELIMINARY RESULTS



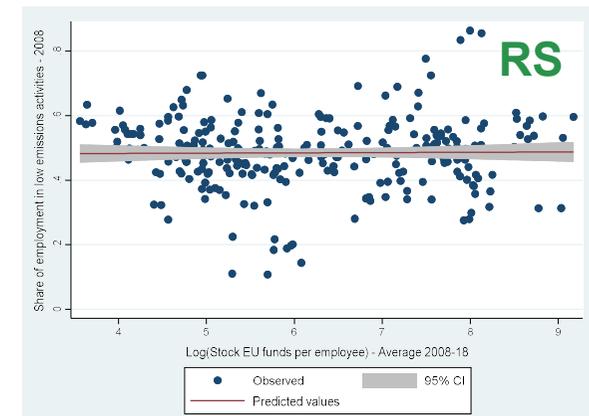
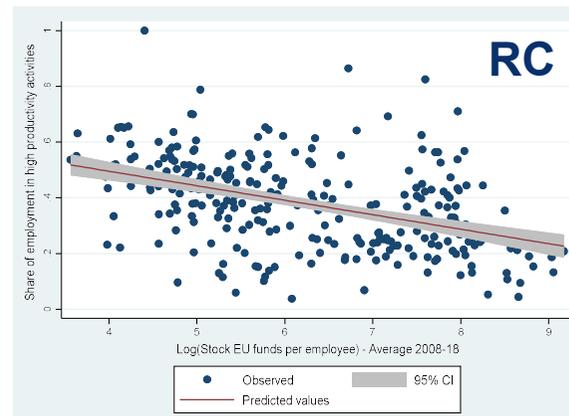
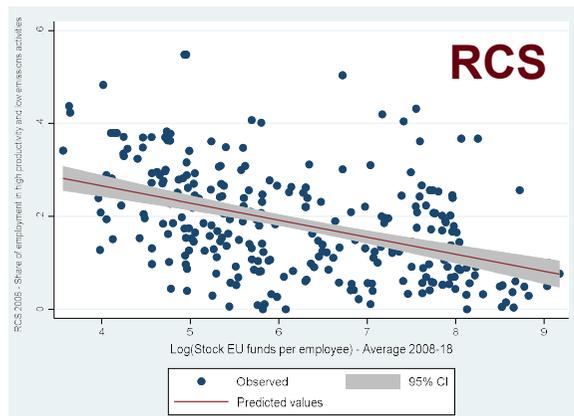
Source: Own elaborations based on Eurostat data.

Results and discussion

Where European Structural Funds were allocated?

- The EU structural funds mainly target the less developed regions of the EU with the objective of enhancing convergence and cohesion
- The regions characterised by relatively lower values of the *RCS* indicator in 2008 are among the main beneficiaries of the funds

Two-way Scatterplots: RCS, RC and RS indicators in 2008 beginning (vertical axis) *versus* stock of EU funds per employee (in logs) 2008-2018



Source: Own elaborations based on Eurostat data.

Results and discussion

Did the funds support the transition?

PRELIMINARY RESULTS

Table 1. Fixed Effects estimates, dependent variables: changes in the indicators - RCST (1), RCT (2), and RST (3)

Explanatory variables	RCST (1)	RCT (2)	RST (3)
<i>RCS/RC/RS</i> Indicator _{<i>i,t-1</i>} (level)	-0.720*** (0.0371)	-0.678*** (0.0469)	-0.696*** (0.0354)
$\ln(\text{EUfundsStockPC}_{i,t-1})$	0.0427 (0.0340)	0.0545*** (0.0189)	0.0218* (0.0132)
Control variables	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Constant	-1.604*** (0.189)	-1.024*** (0.0907)	-0.661*** (0.0543)
Observations	2,504	2,504	2,504
Number of id	280	280	280
Wald test for joint significance	0.0000	0.0000	0.0000
R ²	0.397	0.340	0.372

Lower (higher) the shares of employees in competitive and/or sustainable sectors in a region, the more probable it is for that region to experience an increase (a decline) in the value of the indicator

Results suggest that the injection of **EU funds is helping regions** to restructure their employment across sectors in order to **become more competitive and sustainable** within each country of the EU

Source: Own elaborations.

Note: Robust standard errors in parentheses.

Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Dependent variable is calculated as $\ln(\text{RCS}_{i,t}) - \ln(\text{RCS}_{i,t-1})$ in order to interpret the coefficient of the EU funds variable as an elasticity.

Conclusion

- ***Regional competitive sustainability (share of employment)***
 - Strong regional heterogeneity
 - Higher value in Northern and Western Europe
- ***European Structural Funds and support to transition***
 - Less developed regions of the EU show relatively worse values ← Cohesion policy is targeting these regions
 - Funds have a positive effect on both pillars of the transition faced by the EU regions

Next steps

- Finding an alternative indicator to measure sustainable dimension
- To test other model specification (e.g. dynamic panel regression model)
- Explore spillover effect (spatial econometrics)

Thank you



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