**How effective are the regional policies in Europe? The role of European Funds**

*Efficacia delle politiche regionali in Europa. Il ruolo dei Fondi Europei*

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**Abstract** The European Structural and Investment Funds are the leading policy instrument through which the EU encourages growth-enhancing conditions for less well-off regions in order to make territorial cohesion within countries. In this work, we perform the Difference in Differences technique to assess the effectiveness of the 2007-2013 EU funding in achieving the convergence in employment levels across NUTS2 regions. Controlling for the socio-economic background at the regional level, a special focus is devoted to Italy. Some empirical results suggest that the EU funding was not effective enough to help the convergence for most countries.

**Abstract** *I Fondi Strutturali e di Investimento Europei rappresentano il principale strumento attraverso cui l’UE promuove la crescita delle regioni meno sviluppate e indirizza il processo di coesione territoriale nei singoli paesi. Con l’ausilio del metodo delle differenze nelle differenze, il lavoro valuta il contributo dei fondi europei, relativi al periodo di programmazione 2007-2013, alla convergenza dei livelli di occupazione tra le regioni NUTS2. Particolare attenzione è dedicata al caso Italia tenendo conto del background socio-economico delle regioni. Si rileva un ruolo non sempre decisivo dei fondi europei nella realizzazione del processo di convergenza territoriale interno ai diversi paesi dell’Unione.*

**Key words:** Employment, EU funding,Diff-in-Diff, Regional convergence

1. Introduction

Narrowing socio-economic disparities between richer and poorer regions is one of the key principles on which the European Union (EU) has been based ever since its inception (Art. 158 of the founding Treaty, art. 130a of the Maastricht Treaty). From this perspective, the EU policies promote growth-enhancing conditions for the least-developed regions and the European Structural and Investment Funds (ESI Funds) are the most intensively instruments used by the EU institutions for encouraging the territorial convergence. During the last programming cycles (2000-2006, 2007-2013, 2014-2020), most of the ESI Funds is channelled through the European Fund for Regional Development (EFRD), the European Social Fund (ESF) and the Cohesion Fund (CF) with the aim of leading the less well-off regions to a real convergence within countries [10] and making the EU’s system of market integration viable [5].

As regards employment, territorial convergence consists in lowering disparities in employment rates between regions through a spiral of economic growth. In the current programming period (2014-2020), a new legislative framework for these funds has been brought forward and a new set of rules clearly links the ESI Funds with the EU 2020 Strategy for smart, sustainable and inclusive growth [10]. Indeed, at least three of the five headline goals of the EU 2020 Strategy relate directly to employment and productivity, with a focus on the target of “new skills for new jobs”. In particular, within the Strategy’s objective of sustainable growth, EU 2020 fosters a high-employment economy that delivers social and territorial cohesion. In this respect, the European Commission sets the first target that 75% of the population aged 20-64 should be employed by 2020, and within the seven flagship initiatives, the Commission puts forward “an agenda for new skills and jobs” [9] to empower people by developing skills throughout the lifecycle with a view to better match labour supply and demand.

In this paper, having regard to the close links between the different programming periods of the ESI Funds (the progress reached in a period lays the basis for the time after), we investigate the impact of the EU funding on employment at regional level within each EU country over the period 2007-2013. Some researchers have analysed the relationship between the structural funds of the previous programming cycles and the economic convergence at national and regional levels with conflicting results (see, among others, [4], [13], [5]), which often also depend on the empirical strategy used [2]. By performing the Difference-in-Differences (DiD) strategy, we assess the extent to which the EU funding has supported the convergence for employment between 2007 and 2013, paving the way for the first headline goal of the EU 2020 Strategy. Later, controlling for the socio-economic background at the regional level, a special concern is devoted to Italy with the aim of exploring the main reasons behind the controversial impact of EU funds on regional employment.

With specific reference to the 2007-2013 funding period, NUTS2 regions with a per capita GDP lower than 75% of the EU average were eligible under the convergence objective[[2]](#footnote-2). Because of the enlargement to EU-25, a phasing-out support was assured to regions[[3]](#footnote-3) that were below the threshold of 75% of GDP for the EU-15 while they were above the same threshold for the EU-25. Based on the Council Regulations (No 1080/2006 and 1083/2006), the convergence objective concerned 84 regions within 18 Member States of EU-27 with a total of 154 million inhabitants, and on the “phasing-out” basis, other 16 regions within 8 countries with a population of 16.4 million. The amount allocated for ESI Funds was assigned to the convergence regions (70.47%) and “phasing-out” regions (4.95%), while the remaining part concerned the Cohesion Fund (24.58%).

1. Methods and data

The effect of the regional funds on local employment and their contribution to convergence across EU NUTS2 regions is exploited by the DiD strategy [3]. This method evaluates the differential effect of a treatment by comparing the change over time in the outcome for the treated group with the change that has occurred in the same timespan for the control group.

The DiD strategy allows us to compare the NUTS2 regions that received the EU funding (treated group) between 2007 and 2013 with those regions that did not (control group). Both groups of regions are analysed before (2000-2006) and after (2014-2016) the 2007-2013 funding period. The DiD model is drawn as follows:

$y=α\_{0}+α\_{1}S+δ\_{0}T+δ\_{1}T∙S+Xβ+u $(1)

where *y* is the *Nx1* vector of the outcome variable. *S* is a dummy variable that takes on value 1 for the recipient regions and 0 otherwise; $α\_{1}$ accounts for the difference between the two groups prior to treatment; $α\_{0}$is the intercept. *T* is a dummy whose value is 1 for the period of treatment and 0 otherwise; $δ\_{0}$captures the time effects, and thus the changes in the outcome variable in the absence of the treatment. The interaction term $(T∙S)$ is the same as a dummy equal to 1 for those treated units in the treatment period; $δ\_{1}$ represents the treatment effect. *X* is the *NxK* matrix of covariates and $β$ the vector of coefficients. Finally, $u\~N(0,σ\_{u}^{2})$ is the *Nx1* vector of uncorrelated errors.

Formally, $δ\_{1}$is given by the following difference in differences:

$$δ\_{1}=\left[E\left(y|x,S=1,T=0\right)- E\left(y|x,S=0,T=0\right)\right]- $$

 $\left[E\left(y|x,S=1,T=1\right)-E\left(y|x,S=0,T=1\right)\right] (2)$

 Let $\overbar{y}\_{S,T}$ be the average of the outcome variable in the group of regions *S* at time *T*, the estimation of the treatment effect (diff-in-diff) is:

 $\hat{δ}\_{1}=\left(\overbar{y}\_{1,0}-\overbar{y}\_{0,0}\right)-\left(\overbar{y}\_{1,1}-\overbar{y}\_{0,1}\right)= \hat{∆}\_{0}^{\overbar{y}}+\hat{∆}\_{1}^{\overbar{y}} (3)$

Thus, $\hat{∆}\_{0}^{\overbar{y}}$ is the difference of the averages of the outcome variable *before* the EU funding between recipient andcontrolregions, and $\hat{∆}\_{1}^{\overbar{y}}$ is the difference of the averages *after* the EU funding between recipient andcontrolregions.

The DiD model requires that the assumption of parallel paths is satisfied. It postulates that the average change in the control group represents the counterfactual change in the treated group if there was no treatment. In other words, without treatment, the average change for the treated would have been equal to the observed average change for the controls (for details, see [14]).

Our analysis draws upon official data from Eurostat, Istat, and SIEPI[[4]](#footnote-4). The data, which are related to NUTS2 regions, cover a seventeen-year period, spanning from 2000 to 2016. The outcome variable, the Total Employment Rate (EMRT), is the percentage of employed persons aged 20-64 in relation to the working-age population. The covariates are: *i*) Total Population by Educational Attainment Level (PEALT), which represents the share of the total population with tertiary education (ISCED 5-8); *ii*) Active Labour Market Policies (ALMP), expressed as the average annual number of beneficiaries of active policies; *iii*) per capita Gross Domestic Product (per capita GDP); *iv*) Total Early Leavers from Education and Training (ELETT), which is the share of 18 to 24 year olds having attained ISCED 0-2 level and not receiving any formal or non-formal education or training; *v*) People at-Risk-of-Poverty or Social Exclusion (PRPSE), which is the percentage of the total population below either the poverty threshold (60% of the national median equivalised disposable income after [social transfers](http://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Social_transfers)) or [severely materially deprived](http://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Severe_material_deprivation_rate) or [living in a household with a very low work intensity](http://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Persons_living_in_households_with_low_work_intensity); *vi*) five dimensions of the Institutional Quality Index (IQI), which are Corruption, Government effectiveness, Regulatory quality, Rule of law, Voice and accountability. More specifically, Corruption measures the degree of corruption of those performing public functions and crimes against the public administration; Government effectiveness evaluates the quality of public service and the policies of local governments; Regulatory Quality measures the ability of government to promote and formulate effective regulatory interventions; Rule of law quantifies the crime levels, shadow economy, police force, and magistrate productivity; Voice and accountability assesses the degree of freedom of the press and association [15].

1. Empirical findings

We analyse the role of the EU funding in fostering homogeneity in employment across NUTS2 regions within countries. Once the treated group (regions exposed to convergence objective) and the control group (regions not included in the objective) are defined, we perform the DiD estimations. In doing so, we compare the average employment rates across the two groups of regions before and after the provision of EU funds. First, we test the effectiveness of the EU funding in 10 EU countries[[5]](#footnote-5) for a total of 256 NUTS2 regions (84 treated and 172 untreated) through DiD null models (Section 4.1). Second, we estimate the DiD model for Italian regions (5 treated and 16 untreated) by controlling for a set of covariates (Section 4.2).

* 1. The European context

Before assessing the effect of EU funds on the convergence objective, we verify the parallel-path assumption by using the Mora&Reggio’s approach [14]. It tests whether, in the absence of the EU policy, the averaged EMRTs of the two groups of regions follow the same trend. Based on our results, the parallel-trend assumption is met for each country covered (Tables 1-2), which means that the group of control regions may be considered as a suitable counterfactual for the group of treated regions[[6]](#footnote-6).

Tables 1-2 show the estimations of DiD models by country without controlling for covariates. They allow us to evaluate exclusively the differential effects of EU funds on EMRTs between the treated and untreated regions. Our evidence suggests that the EU funding did not influence significantly the convergence process for employment in most countries. In fact, except for Germany and Italy, the insignificance of $\hat{δ}\_{1}$ coefficients shows that, on average, the differences between the employment rates of the control and treated groups look much the same before and after the provision of EU funds. It could be assumed that in some countries (Austria, Czech and Slovak Republics, and the United Kingdom) convergence processes were already underway, though at different timing and extent, before the entry into force of the EU policy. However, between 2007 and 2013, the average employment levels have even raised faster in the untreated regions of Belgium and Hungary while they have decreased for both groups of regions in Spain and Portugal, widening in either case the territorial divergence within country.

**Table 1:** Diff-in-Diff estimates by country. Model without covariates, 2000-2016

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | ***Austria*** | ***Belgium*** | ***Czech Republic*** | ***Germany*** | ***Spain*** |
| **Before** |  |  |  |  |  |
|  Control Treated  Diff (T – C) **After**  Control Treated Diff (T – C)**Diff-in-Diff** | 70.8070.84 0.05(1.12)74.6773.83-0.84(.94)-0.89(1.46) | 66.2957.60-8.69\*\*\*(1.79)68.2058.62-9.58\*\*\*(1.50)-0.89(2.34) | 77.2670.04-7.17\*\*\*(1.18)77.3571.82-5.53\*\*\*(.99)1.65(1.54) | 69.8066.57-3.24\*\*\*(.59)76.3875.63-0.73(.45)2.51\*\*\*(.74) | 67.3858.58-8.81\*\*\*(.87)66.1957.20-8.99\*\*\*(.73)-0.18(1.14) |
| **Parallel Assumption**  | 3.52 | 4.86 | 0.74 | 1.89 | 0.18 |

*\*Significant at 10%; \*\*Significant at 5%; \*\*\*Significant at 1%; Standard errors in brackets.*

**Table 2:** Diff-in-Diff estimates by country. Model without covariates, 2000-2016

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | ***Hungary*** | ***Italy*** | ***Portugal*** | ***Slovak Republic*** | ***United Kingdom*** |
| **Before** |  |  |  |  |  |
|  Control Treated  Diff (T – C) **After**  Control Treated Diff (T – C)**Diff-in-Diff** | 66.6460.33-6.31\*\*\*(2.18)68.3361.87-6.46\*\*\*(1.82)-0.15(2.84) | 64.3448.18-16.17\*\*\*(1.03)66.7147.10-19.61\*\*\*(.85)-3.45\*\*\*(1.33) | 72.2072.38 0.18(1.08)68.5869.37 0.79(.90) 0.62(1.40) | 75.9462.18 -13.76\*\*\*(1.30)76.1065.01 -11.09\*\*\*(1.08) 2.66(1.69) | 75.4572.34 -3.11\*\*\*(.89)75.7474.31 -1.42\*(.74) 1.68(1.16) |
| **Parallel Assumption** | 1.51 | 0.41 | 0.50 | 6.94 | 3.21 |

*\*Significant at 10%; \*\*Significant at 5%; \*\*\*Significant at 1%; Standard errors in brackets.*

Italy and Germany show opposite effects of the 2007-2013 funding. In Germany, the employment divide between the treated and untreated regions is practically disappeared after the treatment, and more importantly, the EU target of 75% of the population employed has been reached, on average, in both groups of regions long before the date appointed by the EU 2020 Strategy. Instead, in Italy, the two groups of regions show an increased gap in average rates of employment such that the diff-in-diff estimate is even negative. Italian regions exposed to convergence retain, on average, significant lower levels of employment than those of the control group: they still have a long way to go before converging in employment.

* 1. The Italian context

With the aim of exploring the main reasons behind the potential failure of the EU funding policies in Italy and how much of the lack of regional convergence can be attributed to the incapacity of the Country and its recipient regions to generate economic growth, we perform a DiD model by including a set of control variables (see Section 2). In fact, the impact of EU funds on economic development cannot avoid some institutional, political, and socio-economic factors.

The analysis is carried out by using a log-log model in which each coefficient (except for those of the IQI dimensions) represents the percentage change in the employment rate for a percentage change in the given covariate (i.e., elasticity of the dependent variable with respect to covariates). In the preliminary step, we resort to the instrumental variables (IV) method to overcome the endogenous relationships between the employment rates and per capita GDP and some specific dimensions of IQI. In detail, we use exogenous covariates and their lagged versions as instruments. The Sargan-Hansen’s *J* test leads to conclude with the exogeneity, and thus, the validity of these instruments.

**Table 3:** Diff-in-Diff estimates, Italy. Model with covariates, 2004-2012

|  |  |  |
| --- | --- | --- |
|  | ***Coeff*** | ***S.E.*** |
| per capita GDP | 0.280\*\*\* | .023 |
| PEALTALMP ELETTPRPSECorruption Government EffectivenessRegulatory QualityRule of lawVoice and Accountability | -0.041-0.005\*-0.036\*\*-0.016\*\*\*0.135\*\*\*0.162\*\*\*0.115\*\*\*-0.012-0.066\* | .026.003.016.005.021.026.032.016.037 |

*\*Significant at 10%; \*\*Significant at 5%; \*\*\*Significant at 1%;*

The employment growth is positively related to the GDP level (Table 3) in accordance with the literature that investigated this topic for the most developed countries (see, among others, [6; 16; 18]). It is definitely clear the negative effect on regional performance of low human capital and poor/deprived/excluded people. However, the active labour market policies, which could be regarded as a proxy of the degree of unionisation of a country [12], seem not to help the unemployed in finding jobs. A significant share of the observed gap in employment between regions is also attributable to differences in the quality of institutions [1; 17; 8]. In particular, three out of the five dimensions of institutional quality (i.e. corruption, government effectiveness and regulatory quality) suggest that a more efficient legal system and a lower propensity to corruption improve the employment performance of regions.

1. Conclusions

Except for Germany, the convergence process seems not to be closely linked to the EU funding. Countries whose labour markets are characterised by hybrid patterns (either polarised or upgraded) with a joint contraction of low-, middle- and high-skill jobs [7; 11] even show wider divergences at the end of 2007-2013 period. Italy experienced a reduction in employment rates throughout the entire territory and an increasing territorial divergence that states the failure of EU funding. Inefficiencies of national policies and the poor quality of institutions reflected in bureaucracy and [mismanagement](http://context.reverso.net/traduzione/inglese-italiano/mismanagement) of funds, which enable synergies between different funding sources with restriction in national funds when a larger availability of EU funds existed [5].

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2. The entire national territories of Bulgaria, Estonia, Latvia, Lithuania, Malta, Poland, Romania and Slovenia were eligible for funding. Instead, a selection of NUTS2 regions was eligible for the following EU countries: Czech Republic (Střední Čechy, Jihozápad, Severozápad, Severovýchod, Jihovýchod, Střední Morava, Moravskoslezsko); Germany (Brandenburg-Nordost, Mecklenburg-Vorpommern, Chemnitz, Dresden, Dessau, Magdeburg, Thüringen); Greece (Anatoliki Makedonia, Thraki, Thessalia, Ipeiros, Ionia Nisia, Dytiki Ellada, Peloponnisos, Voreio Aigaio, Kriti); Spain (Andalucía, Castilla-La Mancha, Extremadura, Galicia); France (Guadeloupe, Guyane, Martinique, Réunion); Hungary: Közép-Dunántúl, Nyugat-Dunántúl, Dél-Dunántúl, Észak-Magyarország, Észak-Alföld, Dél-Alföld); Italy (Calabria, Campania, Puglia, Sicilia); Portugal (Norte, Centro, Alentejo, Região Autónoma dos Açores); Slovakia (Západné Slovensko, Stredné Slovensko, Východné Slovensko); the United Kingdom (Cornwall and Isles of Scilly, West Wales and the Valleys). [↑](#footnote-ref-2)
3. Belgium (Province du Hainaut); Germany (Brandenburg-Südwest, Lüneburg, Leipzig, Halle); Greece (Kentriki Makedonia, Dytiki Makedonia, Attiki); Spain (Ciudad Autónoma de Ceuta, Ciudad Autónoma de Melilla, Principado de Asturias, Región de Murcia); Austria (Burgenland); Portugal (Algarve). Italy Basilicata; the United Kingdom (Highlands and Islands). [↑](#footnote-ref-3)
4. Società Italiana di Economia e Politica Industriale. [↑](#footnote-ref-4)
5. We exclude France and Greece from the analysis for reasons of data availability. [↑](#footnote-ref-5)
6. This is a quite remarkable when one considers that the economic recession reached its highest intensity before the end of 2009 in most EU countries in the middle of the 2007-2013 programming cycle and that these EU funds were not designed to offset the adverse effects of the crisis. Therefore, although some Member States have been more vulnerable than others (i.e., the countries of southern Europe), the parallel-trend test claims that the averages of employment rates of the treated regions would follow the same trend of those of the control regions even during the years of the crisis. Probably, the crisis has had a quite pervasive impact on employment levels within each country without significant differences in the averages of employment rates between the less- and more-developed regions. [↑](#footnote-ref-6)