

Can state aid policy conflict with regional economic convergence?

Evidence across the Italian regions

Raffaele Spallone

National Research Council of Italy, CNR-ISSiRFA

Andrea Filippetti

National Research Council of Italy, CNR-ISSiRFA and Birkbeck College – University of London

Fabrizio Tuzi

National Research Council of Italy, CNR-ISSiRFA

Abstract

Within the European Union all policies should be modulated to take into account cohesion, including competition policies. We investigate the presence of a conflict between competition policy, State Aid, and the objective of cohesion policy focusing on differences between Northern and Southern regions in Italy in 1999-2016. We find that: *i.* state aid has followed an *anticyclical* pattern in the North regions and a *cyclical* pattern in the South; *ii.* in the South that trend has been reinforced by a demand effect, proxied by private investment. The results are consistent with the presence of a conflict between the overarching objective of regional economic convergence and competition policy, due to the presence of a deep pocket distortion and a lack of compensation from the central government. This has several implications for policy, including a trade-off between European cohesion policy and competition policy for the least developed regions.

Keywords: state aid; cohesion policy; Italian territorial divide; regional economic convergence.

1. Introduction

In the policy design of the European Union (EU), the prevalence of the cohesion policy has been restated until the foundation of the policy itself back in 1986:¹ all other policy interventions in the EU should not hamper the overarching aim of economic convergence among the European regions (see art. 175 TFUE). To achieve cohesion the EU spends considerable funds in supporting structural actions – about EUR 278 billion in the programming period 2007-2013. As such all the policies should be modulated to take into account cohesion (see Article 175 TEC), including competition policies.

However, there is evidence of cases in which this did not happen. Since the European Council of Barcelona (2002), the European institutions have raised concerns about the capacity of less prosperous Member states or regions to compete with the richer ones to attract mobile investment. The existence of a possible “deep pocket distortion”² has called for a reflection about the necessity of reconciling the State Aid (hereafter SA) spending with the objective of economic and social cohesion (European Commission 2003; 2005; 2012; 2014; Nicolaides, 2004).

This paper investigates the presence of a conflict between competition policy and the overall objective of cohesion policy within Italy, focusing on the differences between the North-central regions (North) and the Southern regions (South) during the period 1999-2016. We address the following research question: did we observe a conflict between competition policy (namely SA) and the objective of economic convergence? After controlling for several relevant drivers, we find that: *i.* SA has followed an *anticyclical* pattern in the North-central regions and a *cyclical* pattern in the Southern regions; *ii.* in the case of the South, that trend has been reinforced by a demand effect, proxied by the level of investment. Overall the results are consistent with the presence of a conflict between the aim of economic convergence and competition

¹ Cohesion policy was first enshrined in the Treaties with the adoption of the Single European Act in 1986, e.g. (Méndez et al., 2006; on the history and more recent debate on EU competition policy see Akman and Kassim, 2010; Smith, 1998; Warlouzet, 2016). Both competition policy in general and state aid in particular have been studied in relation to the enlargement process in Eastern countries (e.g. Hölscher et al., 2017).

² Former Commissioner Almunia has referred to the resulting distortions in the location of economic activity as the “deep-pockets distortions”. J. Almunia, Doing more with less – State aid reform in times of austerity: Supporting growth amid fiscal constraints, Speech given at King’s College, London, 11 January 2013

policy within Italy due to the presence of a deep pocket distortion and a lack of compensation from the central government.

We contribute to the debate on SA policy in the EU in two ways. Firstly, we shed some light on the presence of a conflict between two core policies of the EU. Secondly, while most research on this issue has taken a cross-country perspective (e.g. Tunali and Fidrmuc, 2015), we focus instead on the territorial dynamic of SA within a single country. Investigating the presence of a divergence mechanism ingrained in the EU policy is relevant particularly in the light of the increasing socio-economic disparities and income inequality that are arising in Europe not only between Member states, but also *within* the Member states (Iammarino et al., 2017).

Italy is a country characterized by a long-term socio-economic divide between the North and the South (Albanese and De Blasio, 2016), further exacerbated since the burst of the Great Recession in 2008 along with negative social consequences (Baldini and Ciani, 2011; Colloca, 2015; Lagravinese, 2015). Cohesion policy is thus particularly rich in the South comparing with the North. However, during the period under scrutiny here convergence did not occur, and, in fact the economic gap has further increased.

The presence of this asymmetry of SA between the North (counter-cyclical SA) and the South of Italy (pro-cyclical SA) may suggest the existence of “deeper pocket distortion”, that is, during dire financial straits richer regions spent more than less developed regions given to their larger budgets. This raises a concern about a possible conflict between competition policy and cohesion policy, which depends on the strategic design of the European policy, and the relative importance that Cohesion has with respect to cross-cutting objectives of the European Union, particularly competitiveness. In the Framework of the State aid modernization reform (SAM, 2014), and with the adoption of the New General Block exemption regulation (GBER, 2014), the European Commission has adopted some measures to mitigate these problems. We discuss the consequences of the asymmetric trends of SA concerning the overall dynamic of convergence versus divergence for the Italian context, and provide some insights to design competition policy consistent with the overall objective of economic convergence.

The analysis is carried out on a novel dataset built on purpose consisting of a panel covering the whole amount of aid provided to business activities granted by the Italian regions over the considered years, including European structural funds, national funds and regional resources. In order to have a reliable estimation of the total aid expenditure at regional level, we have considered the following forms of aid: i) capital grants and grants related to income and interest rate subsidies; ii) fiscal incentives (tax credits, fiscal exceptions, etc.); iii) combinations of direct grants and tax incentives.

2. State aid and cohesion

One of the fundamental objectives of the European Union is the “economic and social cohesion” [see Articles 3 of the EU Treaty and 174 of the Treaty on the Functioning of the European Union]. To achieve this objective Member States devote substantial resources in supporting structural actions aimed at financing employment, innovation, education, inclusion and environmental sustainability (Art. 174). Member states are required to conduct their economic policies, and coordinate them, as to attain the objectives of development, cohesion and reduction of regional disparities (Art. 175).

Article 107 of the Treaty on the Functioning of the European Union (TFEU), in particular paragraph 3 (a) and (c), suggest that state aid, and especially Regional state aid, can exert a positive effect on convergence since in most cases higher amount of resources are granted in "disadvantaged areas", i.e. in those regions with lower than average income levels or with very high levels of unemployment.³

³ 1. ‘a’ areas — Article 107(3)(a) TFEU

The Guidelines stipulate that the following can be designated as ‘a’ areas:

- NUTS 2 regions with a gross domestic product (GDP) per capita in purchasing power standards (PPS) that is equal to or less than 75% of the EU-27 average;
- Outermost regions.

The ceilings for maximum aid intensity in ‘a’ areas are as follows:

- 50% gross grant equivalent (GGE) in NUTS 2 regions with a GDP per capita less than or equal to 45% of the EU-27 average;
- 35% GGE in NUTS 2 regions with a GDP per capita between 45% and 60% of the EU-27 average;
- 25% GGE in NUTS 2 regions with a GDP per capita above 60% of the EU-27 average.

2. ‘c’ areas — Article 107(3)(c) TFEU

The Guidelines distinguish between two categories of ‘c’ area:

- Predefined ‘c’ areas: areas fulfilling pre-established conditions that can be designated by Member States without any further justification; this category includes NUTS 2 regions that were designated as ‘a’ areas in the 2011-2013 period and sparsely populated NUTS 2 and NUTS 3 regions, as well as parts of or areas adjacent to NUTS 3 regions, under certain conditions;

If the flow of aid were inversely proportional to the economic potential of the region, then indirect effects on convergence would also be produced to the extent that, in fact, part of the aid is financed through general taxation. Since less developed areas tend to have a lower tax burden compared to highly developed areas, a redistribution of financial resources would take place favoring the former.

Research on the relationship between convergence policies and State aid policies does is not limited to the quantitative analysis of the expenditure, but it is also concerned with the qualitative analysis of the effects. Two divergent hypotheses on the effect of state aid on cohesion have been put forward. The neoclassical hypothesis suggests that, due to the decline in marginal productivity, regions would converge because the impact of investments on the income of the poorest regions is proportionally greater than the effects that would be generated in the richer regions that are characterized by having greater capital stocks (see g. Myrdal, 1957; Hirschman, 1958, Barro, 1990). Therefore, the rationale for the public intervention has to be found in the shortcomings of the supply side of the economy that hamper economic performance. The aim of the intervention is raising the level of productivity by means of boosting public investments for entrepreneurship and medium size enterprises (for some evidence against see Tunali and Fidrmuc, 2015).

Research in new economic geography has led to opposite predictions. Here the impact of aid in the advanced regions would be greater thanks to the effects of agglomeration economies and the greater externalities that characterize the "core" regions.⁴ This hypothesis seems to be confirmed by the fact that subsidized investments have not been able to prevent polarization phenomena at the regional level (Boldrin and Canova, 2001; Iammarino et al. 2018).

State aid refers to a series of interventions that are very different in nature and characteristics. Both the form of aid (loan, guarantees, tax incentives) and the goals can be different. Horizontal aid, with general development objectives, is expected to produce a positive effect of cohesion, whereas sectoral aid, as well

-
- Non-predefined 'c' areas: areas that may be designated by a Member State provided that they fulfil certain socio-economic criteria.

⁴ See Piattoni and Polverari 2016, for a comprehensive review.

as aid for *Rescue and Restructuring* aid (R&R), is instead expected to have a positive effect on the targeted beneficiaries and location.

A point on which there is some consensus is the presence of heterogeneity of effects, depending upon the characteristics of the intervention – such as its duration - but also according to the economic and social context where the action has taken place. The quality of institutions and the public administrations has been considered a fundamental variable in the capacity of governments in delivering successful public interventions (e.g. Bachtler et al., 2003; Ederveen et al., 2006; Horvat 2005; Lodge and Wegrich, 2012; Crescenzi and Guida, 2016; Loiero, Meoli, 2018). In Italy, the considerable disparities of the regional administrative capacity have been identified as a cause for the heterogeneous impact of policies (Barca, 2009; Sapir 2005; Charron et al. 2014).

The European policy on State Aid has remained for a long time oriented to preserve competition within the single market, at least until the 2012 State Aid Modernization Reform. The objective of the European Commission was primarily aimed at preventing subsidy races between Member States, rather than at avoiding *conflicts* between regions. This problem has emerged during the Great Recession, where both Member States and regions with greater economic potential, or with less stringent spending constraints, have intensively used public incentives to boost the economic performances of private enterprises. This asymmetrical behavior among States or regions may have weakened, or even neutralized, the effectiveness of the structural funds in support the least developed regions, compromising the reduction of disparities and further slowing down the convergence process.

In what follows we investigate this issues on the Italian case, a country in which the lack of convergence between North and South has been, and still is, a crucial element for national and European politics, and in particular to the effectiveness of Cohesion policy.

3. The economic divide in Italy over the years 1999-2016

This section briefly contextualizes our analysis within the economic situation of the Italian regions in the observed time period, i.e. 1999-2016

We divide Italy into two areas, or macro-regions: South, or Mezzogiorno, and North. Such a territorial division of Italy is customary adopted in the literature and can be justified on the basis of the historical background (most of the South was a colony of one foreign power or another throughout recorded history, until the creation of Italy in the mid-19th century; see Iammarino, 2005, for a brief review); of historical and recent social and economic statistics (e.g., Iuzzolino et al. 2013); and of any of numerous measures of institutional setting (Giannola and Petraglia, 2016) .

By looking at the GDP growth rate over the period 2007-2016 (Table 1) one can observe that the most negative variations were recorded in the South (-10.7%). During 1999-2016 the growth rates have been higher in the North (8.6%) than in the South (4.5%). This is reflected in the level of GDP per capita: the North-South disparity has increased from €13,765 in 1999 to €17,685 in 2016. Furthermore, while in 2007 (pre-crisis year) the gap between North and South was equal to €18,006 (in the North the average value was 33,474 € and 15,468 € in Mezzogiorno), in 2016 the gap rose to €18,488.

[here Table 1]

By looking at the business sector the chart below (figure 1) reports the trend of weighted average of private investments in percentage of GDP in the two areas of the country. One can observe a generalized reduction of the ration of private investment on GDP. Further, the differential between the North and the South has steadily increased (around 2 percentage point).

[here figure 1]

Summing up, the existence of a significant economic territorial divide across Italy is not new and goes back before the unification of the country. However, there is ample evidence, briefly confirmed by our

descriptive analysis, that the 2008 Great Recession has further exacerbated this process. This calls for further empirical analysis to investigate which has been the role of public policies within this context.

4. The data on State Aid and regional trends

We employ a novel dataset built with data taken from the Italian Ministry of the Economic Development (MISE) - data refer to the aids to enterprise granted by Italian regions from 1999 to 2016.

It is important to clarify the notion of “aid” employed in the analysis. We are referring to several instruments implemented by regional public authorities, on the basis of different legal or administrative acts⁵, that give substance to a form of an economic “aid”. In particular, we consider only the subsidies to enterprise that can be considered “State aid” granted by regional administrations. This excludes nationally-funded SA from our analysis, something we discuss further below.

According to article 107 of the Treaty of the Functioning market of the European Union (TFUE), State aid is defined as an *“advantage in any form whatsoever conferred on a selective basis to undertakings by national public authorities.”* To be State aid, a measure needs to have these three features. (1) There has been an intervention by the State or through State resources which can take a variety of forms (e.g. grants, interest and tax reliefs, guarantees, government holdings of all or part of a company, or providing goods and services on preferential terms, etc.); (2) The intervention gives the recipient an advantage on a selective basis, for example to specific companies or industry sectors, or to companies located in specific regions competition has been or may be distorted; (3) The intervention is likely to affect trade between Member States.

In short, the aid must have the following characteristics: (i) a State origin, including as in our case regional administrations; (ii) be selective, i.e. the State intervention should create an advantage for targeted firms; (iii) and be potentially distortive for the internal market. As such, subsidies granted under general measures open to all enterprises do not constitute State aid.

⁵ With our own calculation made on data coming from the “Ragioneria dello Stato” we were able to count 715 different legal or administrative acts (1999 – 2012). The most important National instruments were: the Law 488/92; Credito D’imposta; Contratti di Programma; Patti territoriali; Fondo agevolazione alla ricerca (FAR).

In order to have more reliable estimations of the total aid expenditure at regional level, we have considered only the following forms of aids: (1) capital grants, i.e. grants related to income and interest rate subsidies which consist in a cash flow from the region to the enterprise, and for which there is no obligation to return; (2) fiscal incentives that may consist in reduction of tax burden (tax credit, rates reduction, fiscal exemption, reduction on social burden); (3) mix contribution characterized by the combination of the two previous forms of aid.

We do not include aids under the forms of guarantees⁶, capital risk participation⁷ and preferential (or direct) financing⁸, because it is not easy to exactly define the cost in terms of “net equivalent” for the regional administration, especially in the case in which aids have been granted in the last years of the observed time period.

Regarding the resources through which SA measures are financed and implemented, we can distinguish three main financial channels⁹: European structural funds, national funds and regional resources. The first category is mainly managed by the regional administrations within the framework of the Regional operation programs (ROP) of the European Regional Development Fund (ERDF) and, to lesser extent, by the ROP of the European Social Fund (ESF). National resources, instead, are planned and managed under the framework of the "Development and Cohesion Fund"¹⁰ (FSC, former FAS) that, starting from 2007, is managed by the different regional administrations with the seven years Regional Implementation Programs (PAR).¹¹ Finally, regional own resources have also been used to finance aid schemes. Unfortunately, we are

⁶ The cases in which the Region (I) forgoes the premium intended to cover the risks of non-payment of the guarantee; (II) the legal form of the enterprise rules out bankruptcy or other insolvency procedures or provides an explicit state guarantee or coverage of losses by the State; (III) the acquisition by a State of a holding in an enterprise if unlimited liability is accepted instead of the usual limited liability

⁷ That consist in a financial advantage in so far as the rate of return requested by the Region is lower than the one normally requested by any private investor.

⁸ Defined as loans, with an obligation of return with rates below the market price

⁹ With our estimations made on data coming from the “Ragioneria dello Stato” we were able to count 715 different legal or administrative acts (1999 – 2012). The most important National instruments were: the Law 488/92; Credito D’imposta; Contratti di Programma; Patti territoriali; Fondo agevolazione alla ricerca (FAR).

¹⁰ The 80% of FSC is devoted to Southern regions

¹¹ The southern regions (PUGLIA; CALABRIA; CAMPANIA; SICILIA) do not have a regional PAR due to the lag and difficulties found in the implementation of the PAR.

not able to understand exactly where the resources came from and the relative weight that these channels have had in the total resources allocated to business aid.¹²

Figure 2 shows the broad picture of average ratio of SA per firm granted by the Italian regions from 1999 to 2016 in the North and in the South. The Northern regions spent more on SA across the whole period but the gap increases in particular following on the shock of 2009. Total aid granted by Northern regions has sharply increase, +32% from 2009 to 2010 and +41% from 2010 to 2011; in the same years the “Mezzogiorno” has recorded a decrease equal to respectively -43% and -11%.

[here figure 2]

Our data on regional-granted SA show a persistent gap between the North and South, which increases particularly following on the 2008-9 recession. According to the data on the assisted investments collected by the Ministry for the economic development (MISE), between 2006 and 2011 there has also been a significant reduction in levels of investment financed by *National Authorities*. This reduction of national resources has been much more pronounced in the South (- 90%, from 14.1 billion to 1.1 billion euro) than in North (-32%, from EUR 8.4 billion to about 5.7 billion euro). As such, there has been no compensation effect from the national sources to offset the drop from regional budgets.

5. Empirical analysis: the driver of regional State aid

Our model specification and estimation strategy

We estimate the following model:

$$\text{STATE AID}_{it} = \alpha + \text{GDPgrowth}_{it}\beta_1 + \text{Controls}_{it}\beta_2 + c_i + u_{it} \quad (1)$$

Our dependent variable (SA) is a linear combination of a constant α , our main regressor (*GDP growth rate*), and a set of control variables (*Controls*), including private investment, firms birth rate, net export and crime – all variables are taken at the region level i .

¹² We were not able to identify the budget provision for each regional law on business support. Only thanks to the new provisions of the article 3 of d.lgs. 118/2011, starting from 2016 regional budgets should be public.

Fixed effects models are reliable in analyzing the impact of variables that vary over time, exploring the relationship between independent variables and dependent variable within Italian regions. Each region has its own characteristics that may or may not influence the predictor variable (c_i). When we use a fixed effects model we assume that something within the region may impact the dependent and independent variables. This is because there is the assumption of the correlation between error term (u_{it}) and independent variables. Fixed effects models drop the effects of those time-invariant attributes in order to assess the net effect of the independent variables on the dependent variable.¹³ Estimations are carried out as to isolate effects of dependent variable at geographical level; in particular, we specified the models for the whole Country, North and South Italy. In order to mitigate endogeneity problems all the specifications of the model are tested respectively with one-year and two-year time lags among the dependent and independent variables.

Our dependent variable “Aid per Firm” is the total aid to enterprise granted by Italian regions in 1999 and 2016 divided by the number of *active* firms in the region.

Several control variables at regional level are included on the ground of their theoretical background. The presence of firm’s demand-enhancing investments is a relevant factor in determining the level of aid to firms granted by countries (Møllgaard 2007; Ganoulis and Martin 2001); we proxy the level of business demand by including private investments. Starting from the work of Brander and Spencer (1985), several studies have highlighted a positive correlation between aid to firms (especially sectoral aid) and export (Aghion, Boulanger and Cohen 2011 and Stöllinger and Holzner 2013). We therefore include the variable regional net export in percentage of regional GDP.

Martin and Valbonesi (2008) highlight that the incentive to provide aid to firms is endogenously determined by the process of market integration itself, as the concentration effect due to integration would determine the exit of the less efficient firms. State subsidies, by freezing this exit, would in turn

¹³ In a linear model with random effect the unobserved variables are assumed to be uncorrelated to the observed variables. Random effects model allows us to estimate time-invariant variables, such as N+2 dummy variable, and the Quality of Government index. The model with random effects has been estimated via Generalized Least Squares (GLS). However, the “Hausman specification test” suggests that the fixed effect model is the preferred specification. We present here the fixed effects model, and report the results of the random effect model in the Appendix.

destroy an efficient specialization of production and division of labor in the enlarged market. This is the typical and controversial situation of the “Rescue and restructuring aid”. The variable birth rate of new enterprises (ratio between enterprises born at year t and enterprises active in in the same year) allows us to control the correlation between aid to enterprise and entry rates (see also Besley, and Seabright, 1999; Dewatripoint and Seabright, 2006)

In addition to economic factors, also political and administrative variables may have influence the spending performances of Italian regions: poor governance performances has been found to affect the low rate of absorption of European funds (Milo, 2008). Further, transferring resources to disadvantages areas could be harmful because it might enhance rent seeking and increase the payoff for deviant behaviors, such as corruption (Krueger, 1974, Signorini and Visco, 2002, and Besley, 2004). In order to control for the correlation of governance performance and corruption with the level of SA expenditure we include the variable *crime perception* of households (i.e. families who feel somewhat or very uncomfortable with the risk of crime in the area they live in total households in percentage). In the random-effect model presented in the Appendix we also include the time-invariant variable *Quality of government (QOG)* in Italian Regions.¹⁴

Structural and Cohesion funds are subject to the principle of "automatic de-commitment".¹⁵ If the amount available by the regional Government in the seven years of the “programming” has not been absorbed within two years from the end of the period, the funds should be returned. According to the literature the rule has had an important influence in shifting the attention of public administration from the “quality” of

¹⁴ Data on EQI, “quality of governance index” are taken from the work of Nicholas, Dijkstra and Lapuente. *‘Mapping the Regional Divide in Europe: A Measure for Assessing Quality of Government in 206 European Regions’* (2015).

The European Quality of Government Index (EQI) is the result of survey data on corruption and governance at the regional level within the EU, conducted in first in 2010 and then again in 2013. The data focus on both perceptions and experiences with public sector corruption, along with the extent to which citizens believe various public sector services are impartially allocated and of good quality. The dataset covers all 28 member states, two accession countries (Serbia and Turkey) all the sub-national regions are at the NUTS 1 or NUTS 2 level, depending on the country. “For 2010, the EQI contains 172 regions based on a survey that was answered by 34.000 citizen respondents. For 2013, the EQI has been expanded to 206 regions based on a survey that was answered by 85000 citizens, which is the largest sub-nationally-focused 65 survey on QoG to date. The data is standardized with a mean of zero, and higher scores implying higher QoG”.

¹⁵ Article 31.2 of Regulation 1260/1999 establishes that the European Commission “shall automatically de-commit funds which has not been settled by the payment on account or for which it has not received an acceptable payment application, by the end of the second year following the year the budget commitment for a particular operational program was made”.

the interventions to the “quantity” of them (Viesti 2000; Spallone 2019). Usually, given the late drafting of sectoral policy documents and the lack of preparation of the public administrations, the rescheduling and reprogramming in favor of measures that allowed a certain ease of spending (*easy spending practice*) was often seen as a solution to prevent the automatic de-commitment of resources. In order to control for this phenomenon, in the random-effect model presented in the Appendix we also employ a dummy variable “N+2” that has the value of 1 in the two years, or three years in the last programming period 2007-2013 after the end of the programming period and 0 in all the other years.

Table 2 summarizes the description of the variables and the sources. Table 1A in the Appendix reports the descriptive statistics and the pairwise correlation among the variables.

[here Table 2]

Results

The estimation results are presented in the Table 3 which reports the fixed effects regression results, divided for the whole country (column 1), the Northern regions (column 2), and the Southern regions (column 3).

[here Table 3]

Our variable of interest, GDP growth, is statistically non-significant for the whole sample of regions, while it shows a negative and slightly significant correlation with SA in the case of the Northern regions and a positive and strongly significant correlation regarding the Southern regions. The results do not change when employing a model with two years’ time lag (see table 2A in the Appendix; random coefficient estimates also confirm this, see Annex II).

Concerning the control variables, in the case of Private investments the coefficient is significant and positively correlated for the whole sample and for Northern regions.

We expected net-exports to be positively correlated with State aid expenditure. By contrast, the results show that the coefficients are significant but negatives for Southern regions and the whole sample, and not

significant in the North. This suggests that SA schemes have not been used as a mean to foster regional competitiveness.

Although the theory has emphasized how SA to enterprise can be detrimental by preventing the exit of inefficient companies, the coefficient of the variable firm birth rate is positive in all specifications of the model, although it is slightly significant only for Southern Regions. This positive correlation may depend on the fact that the incentive schemes employed at regional level are often addressed to SMEs while they hardly target large companies.

The first main result is the marked contrast of GDP growth rate in the North compared with the South. SA in the South shows a clear cyclical trend: SA grows (declines) when the economy goes up (down). By contrast, there is a moderate counter-cyclical trend in the North.

The second relevant result is the positive correlation of private investment (a proxy for demand) with SA limited to the Norther regions. This calls for further analysis on the interplay between GDP growth and business investment (note that the two variables are only moderately correlated).

We have performed a new set of estimates with the adding of the joint effect of private investment with GDP growth (reported in Table 3A in Appendix). Figure 3 shows our variable of interest, that is the marginal correlation of investment with SA for different levels of GDP growth rate, in the North and in the South. The chart suggests that *(i.)* for the North, the marginal effect of investment on SA does not change considerable over the business cycle, although it is positive; *(ii.)* in the case of the South, the correlation of investment with SA changes significantly along the business cycle: in the years of recessions, investment is negatively correlated with SA, while in the years of growth investment is positively correlated with SA.

[Here figure 3]

6. Discussion and conclusion

Our evidence shows that the dynamic of SA follows an opposite trend in the advanced Northern regions compared to the less-advanced Southern regions: in the former SA are counter-cyclical while in the latter SA are cyclical. In the case of the South, that trend has been reinforced by a demand effect, proxied by the level of business investment, which has followed the same cyclical effect. As such, the less advanced regions of the South have shown to be extremely sensible to the economic cycle, while the opposite is true for the North.

The asymmetric trend of SA between Northern and Southern regions may be due to several elements that we are not able to fully investigate empirically. However, the results may be partially explained by the different availability of regional own-resources, a problem that the Commission itself has already emphasized. Our evidence is consistent with the circumstance that Northern regions, with deeper pockets than Southern regions, have been able to set up more generous support schemes during the economic downturn. Southern regions may have not been able to do that, possibly because of the financial constraints, also imposed by the lack of national cohesion policy leverage.¹⁶ This explanation is consistent with the data on investments collected by the Ministry for the economic development of Italy (MISE), showing that between 2006 and 2011 a significant reduction in levels of investment financed by National Authorities occurred much more pronounced in the South (- 90%: from 14.1 billion to 1.1 billion euro) compared to North (-32%: from EUR 8.4 billion to about 5.7 billion euro). Hence, there is no evidence of some forms of compensation at the central level which may have offset the decline of internal resources particularly in the South.

The recent economic crisis has raised a number of questions about the type of cohesion policies that the EU needs in the future as well as about the effectiveness of regional aid. Over the years, the Commission has put a framework into place for governing cohesion and state aid rules. The basic principle governing the

¹⁶ The programming period 2007-2013 has proved to be, especially for the former convergence objective regions, perhaps the most critical in the recent history of cohesion policy in Italy. At December 31, 2010, after 4 years from the start of the 2007-2013 period, Italy appeared to be penultimate among the Member States for commitments and payments, with 22% and 12% respectively of the total resources available.

entire framework is article 107 (III) that allows Member States to provide State aid to promote economic and social cohesion. According to Commission, in order to be effective aid must be focused on the regions that need it most. However, the Commission reports that one of the main determinants of state aid is GDP or, more in general, the country economic potential (European Commission, 2003, 2005; 2012). This is in line with the economic literature on SA determinants (Getzner 2007, Nicolaidis 2004, Van Buijen and Brouwer 2010), which finds that while SA is often argued to support economic development, the amount of SA awarded increases as GDP grows.

This trend has been also observable in the implementation of the “Temporary Framework on State aid” a measure approved in 2008 by the European Commission to handle the severe consequences of the economic crisis.¹⁷ As the DG Competition noted in the last State Aid Scoreboard (2018) “with the recent reform of State Aid (SAM) between 2010 and 2016, the correlation between state aid expenditure and per capita GDP more than halved, resulting in an important reduction of deep pocket distortions”. This has been also the case in Italy, where the difference between North-central and Southern Italy of the total incentives to firm granted by Regional Authorities has increased during the economic crisis. If the amount of aid granted is closely tied with the spending capacity, depending in turn with the economic potential of the region, a potential conflict arises between competition and cohesion policy.

The attention of the Commission has always been oriented towards the avoiding of subsidy races between Member States rather than between regions of the same State. In the recent “State aid modernization reform” (SAM) the DG Competition has set up a system of rules in order to prevent this type of policy conflict. In particular, the reform: (i) decreased the maximum regional aid intensities in all assisted regions, except in the poorest region; (ii) adopted a more restrictive approach towards aid to large enterprises and/or large investment projects in the more developed assisted areas (i.e. in the ‘c’ areas); (iii) increased transparency and accountability by introducing a new system for collecting data and by establishing

¹⁷ See the Communication (2009/C 83/01) from the Commission — Temporary Community framework for State aid measures to support access to finance in the current financial and economic crisis

compulsory counterfactual evaluation of large schemes. These measures should prevent the perverse effect of State aid policy on cohesion. However, “the New General Block exemption regulation” may increase the part of aid not subject to the controls of the EC. It is therefore important that national authorities will pay greater attention to the effects of those policies, particularly to regional conflicts.

A final note regards national financial policy and SA. During the last recession decentralized countries have shifted the burden of fiscal consolidation towards lower tiers of government (Dirk; Sacchi and Salotti, 2017). This has also happened in Italy. During the years of fiscal consolidation, at least starting from 2012, the central government has “asked” regional governments for a growing contribution, in terms of cuts to their budgets, to the overall fiscal consolidation - also thanks to the Domestic Stability Pact which has been introduced to translate the objectives of public finance of the central government to the regional governments. Absent a centralized national mechanism of compensation, this has reduced financial resources in the regions, thus making the availability of resources more reliant on the business cycle.

References

- Acemoglu, D. Aghion, P. and Zilibotti, F. (2005) "Distance to Frontier, Selection and Economic Growth", NBER working paper
- Aghion, P. Howitt, P. (1992) "A Model of Growth through Creative Destruction" *Econometrica*, Econometric Society, vol. 60(2), pages 323-51, March. 1992
- Aghion, P. Boulanger, J. and Cohen, E. (2011) "Rethinking industrial policy" *Policy Briefs 566*, Bruegel
- Akman, P., Kassim, H. 2010. Myths and Myth-Making in the European Union: The Institutionalization and Interpretation of EU Competition Policy*. *JCMS: Journal of Common Market Studies* 48, 111–132.
<https://doi.org/10.1111/j.1468-5965.2009.02044>
- Albanese, G. de Blasio, G. (2016). "Civic Capital and Development: Italy, 1951-2001" in *Politica economica, Journal of Economic Policy* 1/2016, pp. 47-64, doi: 10.1429/83083
- Baldini, M. Ciani, E; (2011) "Inequality and poverty during the recession in Italy" in *Politica economica, Journal of Economic Policy* 3/2011, pp. 297-322, doi: 10.1429/36591
- Baldwin, J. and P. Gorecki; (1991) "Entry, exit and productivity growth" in: R Geroski and J. Schwalbach, eds., *Entry and market contestability: An international comparison* (Blackwell, Oxford)
- Bachtler, J., Mendez, C., 2007. Who governs EU cohesion policy? Deconstructing the reforms of the structural funds. *JCMS: Journal of Common Market Studies* 45, 535–564.
- Besley, T; (2004) "Paying politicians: theory and evidence" *Eur Econ Assoc* 2: 193–215
- Besley, T. and P. Seabright (1999), "The effects and policy implications of state aids to industry: an economic analysis", *Economic Policy*, vol.28, pages 14-53.

- Barro, Robert J. (1990). "Government spending in a simple model of endogenous growth" *Journal of Political Economy* 98(S5): 103-125
- Boldrin, M; Canova, F. (2001) "Inequality and convergence in Europe's regions: reconsidering European regional policies". In *Economic Policy*, vol. 16, issue 32, pages 205-253
- Brander, J.A. and B.J. Spencer (1985) "Export Subsidies and International Market Share Rivalry" *Journal of International Economics*, 18, 83-100
- Charron, N; Lewis, D; and Lapuente, V; (2015) "Mapping the Regional Divide in Europe: A Measure for Assessing Quality of Government in 206 European Regions" *Social Indicators Research*. vol 122 (2): 315-346
- Collie, D. R. (2000) "State aid in the European Union: the prohibition of subsidies in an integrated market" *International Journal of Industrial Organization*, 18(6): 867-884
- Collie, D. R. (2002) "Prohibiting State aid in an integrated market: Cournot and Bertrand Oligopolies with differentiated products" *Journal of Industry, Competition and Trade*, 2(3): 215-231
- Colloca, P. (2015) "Le conseguenze della crisi economica sugli atteggiamenti civici in Italia: una recessione silenziosa?" in *Polis, Ricerche e studi su società e politica* 2/2015, pp. 251-278, doi: 10.1424/80584
- Crescenzi, R. Davide, L. and Milio, S. (2016) "The Geography of the Economic Crisis in Europe: National Macroeconomic Conditions, Regional Structural Factors and Short-Term Economic Performance." *Cambridge Journal of Regions, Economy and Society*, rsv031
- Della Posta, P. (2017) Structural Divergences, Institutional Fragilities and Foreign Debt in the Euro Area Crisis, in *Politica economica, Journal of Economic Policy* 2/2017, pp. 189-222, doi: 10.1429/87183
- Dewatripont, M and Seabright P. (2006) "'Wasteful' public spending and State aid control" *Journal of the European Economic Association*, 4 (2-3): 513-522

- Foremny, D. Sacchi, A. and Salotti, S. (2017) "Decentralization and the Duration of Fiscal Consolidation: Shifting the Burden across Layers of Government" *Public Choice* 171 (3–4): 359–87
- European Commission (2003) "State Aid Scoreboard – Spring 2003 Update" COM(2003) 255 final of 30 April.
- European Commission (2005) "State Aid Action Plan: Less and better targeted aid – a roadmap for reform 2005-2009" COM(2005)107 final, 7 June 2005, Brussels
- European Commission (2012) "The role and effectiveness of regional investment aid. The point of view of the academic literature" Report by Pierre-Philippe Combes and Tanguy van Ypersele April, 2012.
- European Council (2002). Presidency Conclusion. Barcelona 15 and 16 March 2002
- Ganoulis, I; Martin, F. (2001) "State aid control in the European Union - Rationale, stylised facts and determining factors" *Intereconomics*, 02/2011; 36 (6): 289-297
- Getzner, M. (2007) "Empirical Tests of the Political Economy of Regional State Aid" *International Journal of Applied Economics*, 4(2), September 2007, 33-45 33
- Giannola, A. Petraglia, C. (2016) "Mezzogiorno e «crisi» delle politiche regionali" in *Rivista economica del Mezzogiorno, Trimestrale della Svimez*, 1/2016, pp. 97-120, doi: 10.1432/83373
- Hölscher, J., Nulsch, N., Stephan, J., (2017). State Aid in the New EU Member States. *JCMS: Journal of Common Market Studies* 55, 779–797. <https://doi.org/10.1111/jcms.12513>
- Hooghe, L., and G. Marks. (2001) "Multi-Level Governance and European Integration" Lanham, MD: Rowman & Littlefield Pub Inc
- Hausman, J. A. (1978) "Specification Tests in Econometrics" *Econometrica*, Vol. 46, No. 6. (Nov., 1978), pp. 1251-1271

- Holmberg, S.; Rothstein, B.; Nasiritousi, N.; (2009) "Quality of Government: What You Get in" *Annual Review of Political Science* 12(1) · August 2009 with 507 Reads DOI: 10.1146/annurev-polisci-100608-104510
- Iammarino, S., Rodriguez-Pose, A., Storper, M., (2017) "Why Regional Development matters for Europe's Economic Future". Working Papers - European Commission WP 07/2017.
- Iuzzolino, G; Pellegrini, G; Viesti, G. (2011) "Convergence among Italian Regions, 1861-2011" *Quaderni di storia economica (Economic History Working Papers)* 22, Bank of Italy, Economic Research and International Relations Area.
- Knack, S; Keefer, P. (1995) "Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Indicators" *MPRA Paper* 23118, University Library of Munich, Germany
- Krueger, A. (1974) "The political economy of the rent-seeking society" *American Economic Review* 64 (3): 291–303.
- Manello, A. (2015) "Produzione di macchinari e specializzazioni distrettuali: evidenze empiriche in Italia negli anni della crisi" in *L'industria, Rivista di economia e politica industriale* 2/2015, pp. 189-202, doi: 10.1430/80605
- Martin, S., Valbonesi, P. (2006) "The State Aid Game" Working Papers 0024, Dipartimento di Scienze Economiche "Marco Fanno"
- Meiklejohn, R (1999) "The Economics of State aid" *European Economy*. 3, pp.25-31
- Méndez, C., Wishlade, F., Yuill, D., (2006) "Conditioning and Fine-Tuning Europeanization: Negotiating Regional Policy Maps under the EU's Competition and Cohesion Policies". *JCMS: Journal of Common Market Studies* 44, 581–605. <https://doi.org/10.1111/j.1468-5965.2006.00636>.
- Milio, S. (2008) "How Political Stability Shapes Administrative Performance: The Italian Case" *West European Politics* 31 (5): 915–36. <https://doi.org/10.1080/01402380802234581>

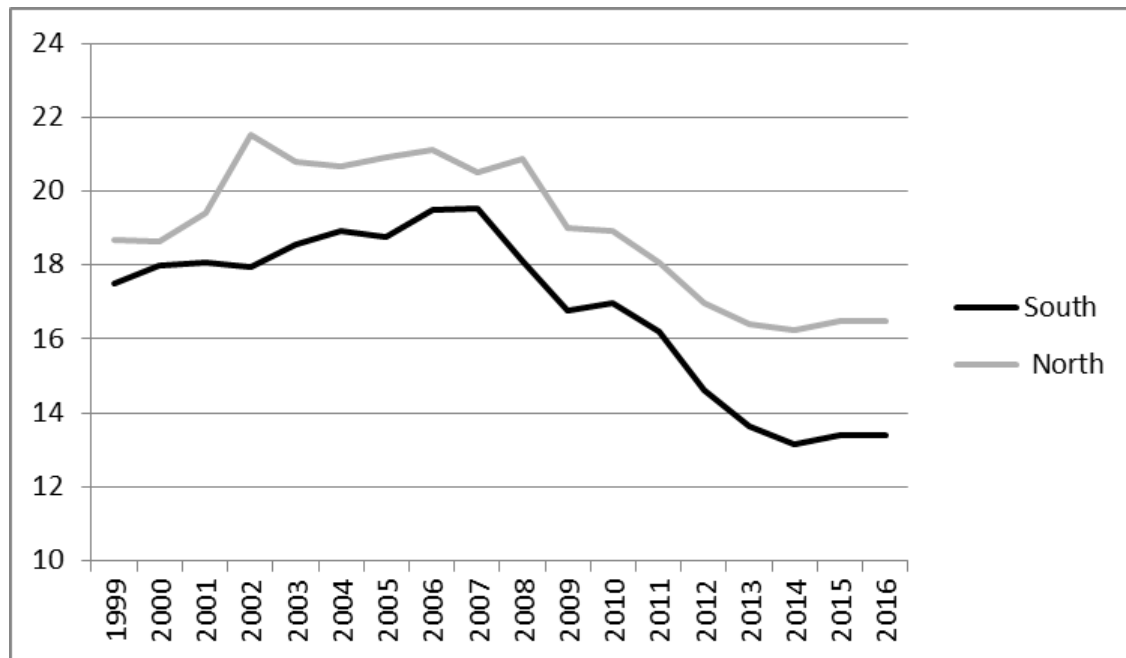
- Neven, D. (1994) "The Political Economy of State Aids in the European Community: some econometric evidence" *CEPR Discussion paper*, Centre for Economic Policy Research.
- Nicolaides, P. (2004) "State Aid: Is Cohesion at the National Level Successful?" *EIPAScope*, 2004 (2). pp. 9-19.
- North, D. (1990) "Institutions, institutional change and economic performance" Cambridge: Cambridge University Press.
- Prota, S. Viesti, G., (2013) "Senza cassa. La politica per lo sviluppo del mezzogiorno dopo l'intervento straordinario" Bologna, *Il Mulino* (pp. 150)
- Putnam; R. D.; Leonardi R.; Nanetti, R.Y. (1994). "Making Democracy Work" Princeton, N.J. Princeton University Press.
- Rodrik, D. (2006) "Institutions for High-Quality Growth: What They Are and How to Acquire Them," Chapters, in: *Institutions, Globalization and Empowerment*, chapter 2 Edward Elgar Publishing. 2006.
- Signorini, LF; Visco, I; (2002) "L'economia italiana" *Il Mulino*, Bologna 3 ed.
- Smith, M.P., (1998) "Autonomy by the Rules: The European Commission and the Development of State Aid" Policy. *JCMS: Journal of Common Market Studies* 36, 55–78. <https://doi.org/10.1111/1468-5965.00097>
- Stöllinger, R; Holzner, M. (2017) "State Aid and Export Competitiveness in the EU" in *Journal of Industry, Competition and Trade*, Springer, vol. 17(2), pages 203-236, June.
- Van Buijen, K; Brouwer, E. (2010) "Determinants of State Aid" *Tilburg University discussion paper*. DP 2010-005
- Viesti, G. (2000) "Fondi strutturali e Agenda 2000 - Le politiche per il rilancio dello sviluppo nel Mezzogiorno." *Il Mulino*. Bologna.
- Viesti, G.; Prota, F. (2001) "Le politiche regionali dell'unione europea". *Il Mulino*, Bologna

Tunali, Ç.B., Fidrmuc, J. (2015) "State Aid Policy in the European Union". *JCMS: Journal of Common Market Studies* 53, 1143–1162.

Warlouzet, L. (2016) "The Centralization of EU Competition Policy: Historical Institutional Dynamics from Cartel Monitoring to Merger Control (1956–91)". *JCMS: Journal of Common Market Studies* 54, 725–741.

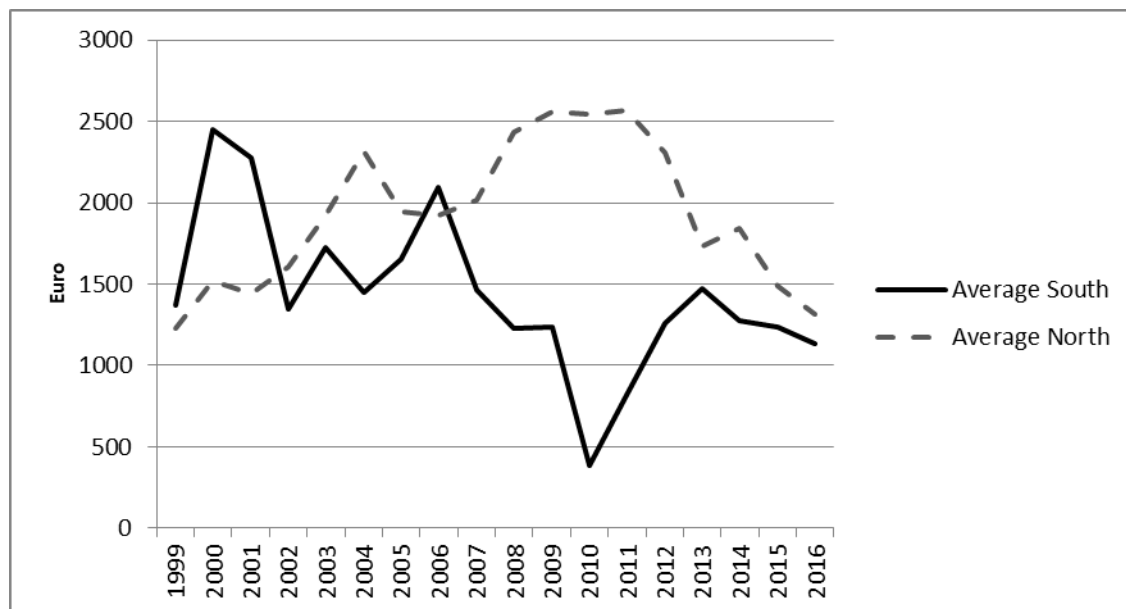
Tables and Figures for the text

Figure 1 - Private investments % of GDP



Source: ISTAT

Figure 2 - Total average aid per number of active firms 1999-2016. A North-South comparison



Source: Ministry of economic development, own elaboration

Table 1 - GDP Growth Rate (Percentage variation)

Years	GDP growth Rate				
	<i>(Percentage variation)</i>				
	1999-07	2007-16	2014	2015	2016
Center North	8,6	-6,6	0,1	0,7	0,7
South	4,5	-10,7	-0,8	1,5	0,8
Italy	8,5	-6,8	0,1	1	0,9

Source: ISTAT

Table 2 - Variables, description and source

Variable	Description	Years	Source
AID per firm	Regional aids to enterprises	1999-2016	MISE own elaboration
GDP Growth (annual change)	Annual Regional GDP Growth change	1999-2016	ISTAT. Conti economici territoriali
Firm birth rate	Birth rate of new enterprises: Ratio between enterprises born at year <i>t</i> and enterprises active in the previous year	1999-2016	ISTAT. Conti economici territoriali
Private Investments	Regional private Investments in percentage of regional GDP	1999-2016	ISTAT. Conti economici territoriali
Crime	Crime perception of Households. Families who feel somewhat or very uncomfortable with the risk of crime in the area they live in total households (percentage)	1999-2016	ISTAT. Conti economici territoriali
Net-Export	Regional net export in percentage of regional GDP	1999-2016	ISTAT. Conti economici territoriali
Quality of governance	Index measuring the quality of governance in the European regions	2015	<i>"Mapping the Regional Divide in Europe: A Measure for Assessing Quality of Government in 206 European Regions"</i> (2015).
N+2 (+3)	Two (or three) years after the end of the structural funds programming period	1999-2016	<i>Own calculation</i>

Table 3 - Fixed effect estimates 1999-2016

	(1) FE	(2) FE	(3) FE
Aid per firm +1	Italy	North	South
GDP Growth Rate	0,001 (0,033)	-0,065* (0,040)	0.175*** (0,064)
Private investments	0.201*** (0,054)	0.248*** (0,080)	0,125 (0,078)
Firms Birth rate	0,257 (0,206)	0,039 (0,220)	2.965* (1,662)
Net exports	-0.408** (0,166)	-0,078 (0,216)	-1.289*** (0,360)
Crime	-0,077 (0,089)	-0,065 (0,111)	-0,160 (0,162)
Constant	-0,021 (0,031)	0,109 (0,084)	0,416 (0,677)
R-sq	0.332	0.530	0.633
Number observation	332	196	112
Number of reg_n	21	14	7

Note: t statistics in parentheses=* p<0.05 ** p<0.01 *** p<0.001

Figure 3 - Linear prediction of investment on SA for different levels of GDP growth rate, North and South (as per Table 4)



Appendix

Annex I

Tab 1.A Variables correlation and descriptive statistics

Variables	GDP Growth	Crime	Private investments	Firms Birth rate	Net exports	Qog	N+2	Observation	Mean	Std. Deviation	Min	Max
GDP Growth	1							356	2.02	2.71	-4.00	3.92
Crime	0.035	1						378	22.92	10.27	5.2	53.9
Private investments	0.244	-0.404	1					378	18.46	3.132	11.67	27.19
Firms Birth rate	0.028	0.420	-0.150	1				378	7.12	1.23	4.6	10.8
Net exports	0.018	0.138	-0.089	0.641	1			378	17.48	9.87	0.9	39
QoG	0.094	-0.394	0.454	-0.837	0.291	1		378	-0.774	0.872	-2.408	0.766
N+2	0.036	0.093	-0.002	0.132	0.044	0.000	1	378	0.388	0.488	0	1

Table 2A Results, fixed effect model 1999-2016, with two years' time lag

Aid per firm +2	Italy	North	South
	FE	FE	FE
GDP Growth Rate	0,002	-0,051*	0.152**
	(0,033)	(0,039)	(0,063)
Private Investments	0.173***	0.303***	0,0219
	(0,057)	(0,081)	(0,083)
Firms Birth rate	0,241	0,013	3.057*
	(0,214)	(0,223)	(1,630)
Net exports	-0.503***	-0,024	-1.747***
	(0,173)	(0,216)	(0,391)
Crime	0,039	0,085	-0,164
	(0,087)	(0,108)	(0,154)
Constant	-0,038	0,093	0,073
	(0,031)	(0,084)	(0,640)
Observations	311	198	105
R-squared	0,383	0,494	0,629
Number of reg_n	21	14	7

t statistics in parentheses="* p<0.05 ** p<0.01*** p<0.001

Table 4 - Fixed effect estimates 1999-2016 with GDP growth and investment interacted

Aid per firm +1	All sample
GDP growth rate	0.100 (0.074)
Private investments	0.662*** (0.056)
c.GDP_growth rate#c.Private_investments_std	-0.003 (0.055)
Southern regions	-0.258*** (0.043)
c.GDP_growth rate#c. Southern regions	0.120*** (0.037)
c.Private_investments#c. Southern regions	-0.249*** (0.039)
c.GDP_growth rate#c.Private_investments#c. Southern regions	0.007 (0.041)
Crime	-0.237*** (0.049)
Firms Birth rate	-0.009 (0.053)
Net exports	-0.344*** (0.051)
Constant	0.152*** (0.049)
Observations	334
R-squared	0.613
Number of year	16

t statistics in parentheses="* p<0.05 ** p<0.01*** p<0.001

ANNEX II

In this section we present and comment the results for the random effects model. Generally, the results tend to confirm what has emerged in the fixed effects model.

As we have already explained above in this paper, random effects model allows us to estimate time-invariant variables, such as N+2 dummy variable, and the Quality of Government index.

Contrary to the evidence provided by the literature on the use of place-based policy in South Italy, the hypothesis that State aid expenditure grows during the *N+2 years* can be rejected. Indeed, the dummy variable “N+2” appears not to be statistically significant both in fixed and in random effects model. The picture does not change if we focus our attention on geographic areas or time periods. A possible explanation of this result is that “aids to enterprise” are out of the logic of the re-programming and re-targeting of payments, typical of structural funds. This is maybe also due to the fact that “business support” measures are conceived and implemented with adequate advance, also because they often originate in the national regulatory frameworks.

Finally, we find a highly significant correlation between the variable accounting for the “Quality of government” and the level of aid intensity.

Table 1 - Random effect mode, one year time lag. 1999-2016

Aid per firm +1	Italy	North	South
Gdp growth rate	-0,007 (0,032)	-0,062 (0,039)	0.142** (0,062)
Private investments	0.223*** (0,048)	0.249*** (0,071)	0,122 (0,082)
Firms Birth rate	0,055 (0,094)	0,067 (0,102)	0,0056 (0,796)
Net exports	-0.424*** (0,091)	-0.300*** (0,107)	-0,25 (0,228)
Crime	-0.125* (0,068)	-0,152 (0,103)	-0,0245 (0,109)
Quality of Government	0.490*** (0,086)	0.786*** (0,186)	0.327** (0,162)
N2	-0,015 (0,0665)	0,034 (0,0834)	-0,157 (0,123)
Constant	-0,008 (0,0779)	-0.280* (0,145)	0,0749 (0,333)
Observations	332	212	112
Number of reg_n	21	14	7

Note: t statistics in parentheses=* p<0.05 ** p<0.01 *** p<0.001

Table 2 - Results random effect model, two years' time lag. 1999-2016

Aid per firm +2	Italy	North	South
GDP Growth	-0,008 (0,032)	-0,046 (0,038)	0.131** (0,063)
Private Investments	0.210*** (0,052)	0.290*** (0,073)	0,025 (0,089)
Birth rate new firms	0,028 (0,103)	0,034 (0,106)	-0,613 (0,81)
Net exports	-0.452*** (0,098)	-0.271** (0,109)	-0,349 (0,253)
Crime	-0,0454 (0,071)	-0,0663 (0,104)	0,023 (0,107)
Quality of government	0.561*** (0,093)	0.846*** (0,187)	0.351** (0,161)
N2	-0,002 (0,070)	0,137 (0,087)	-0.238* (0,126)
Constant	-0,0299 (0,083)	-0.353** (0,147)	-0,309 (0,330)
Observations	311	198	105
Number of reg_n	21	14	7

Note: t statistics in parentheses=* p<0.05 ** p<0.01 *** p<0.001