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Does diversity undermine the provision of local public services in European regions?

Andrea Filippetti

Centre for Innovation Management Research
Birkbeck, University of London, / CNR, Rome, Italy / Visiting Fellow Department
of Geography and Environment, London School Economics

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Birkbeck University of London, Malet Street, London, WC1E 7HX

Andrea Filippetti[1]

Does diversity undermine the provision of local public services in European regions?

Abstract

The next Europe of regions will profoundly differ from the one we have observed so far. In fact, the current challenge in most European countries and regions comes from migration which is making the populations of Europe more and more heterogeneous. This puts great pressure on the welfare states and particularly on the provision of local public services. This work investigates *i)* whether national diversity reduces the performance of local public services, and *ii)* to what extent this problem is moderated by regional autonomy. The empirical analysis is based on 167 European regions: we employ a composite indicator developed by *The QOG Institute* to measure the citizens' perception about local public services, and the *Regional Authority Index* developed by Hooghe et al. (2008a) to measure the level of regional autonomy; we calculate a regional diversity index based on nationalities using census data. We find that diversity is negatively correlated with the performance of local public services, and regional autonomy only partially moderates this problem.

Keywords: diversity; regional autonomy; local public services; European regions

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[1] Researcher at the Institute for the Study of Regionalism, Federalism and Self-Government, National Research Council of Italy (CNR), and Visiting Fellow at the Department of Geography and Environment London School of Economics and Political Science, UK. Email: andrea.filippetti@cnr.it.

I.   Introduction

The next 'Europe of regions' will profoundly differ from the present one. In fact, one of the most pressing challenges in many European countries stems from a relentless increase in the heterogeneity of population. This is the result of intra-European Union (EU) mobility, and migration from outside the EU. While some countries have already experienced such differences within their borders, due to their relationships with former colonies, such as France and the United Kingdom, and other for more recent flows related to job opportunities, such as Germany, for most European countries, and regions, this is going to be a new phenomenon for public policy to cope with (Christainsen, 2012; Dennison and Geddes, 2018).

One of the consequences of this process is the increasing pressure on the welfare states, particularly regarding the provision of local basic services, such as health, public housing, local policy and education. Alesina and Glaeser (2004, p. 11) argue that: 'one natural implication of our conclusion that fractionalization reduces redistribution is that if Europe becomes more heterogeneous due to immigration, ethnic divisions will be used to challenge the generous welfare state'. As such, they raise a concern about a trade-off between a generous immigration policy and a generous welfare state. This is crucial for the European Union, since mobility of people represents one of its cornerstones. In the words of the Britain's ambassador to Berlin, Sir Sebastian Wood, "it is freedom of movement for workers, and not freedom of movement for 'welfare shopping".[2] This problem has been restated recently in a recent commentary by Branko Milanovic, a leading expert on global inequality, who argues that welfare states attract a lot of unskilled migrants.[3]

Since in most cases local public services are either provided or managed at the region or local level, the regions – and the regional governments – are expected to play an increasing role in managing this process. Research that has addressed this issue at the subnational level has been carried out limited to the United States, precisely because public spending at the state level is of a different kind than at the county level (Cutler et al., 1993). This paper aims to inform this debate by looking at the issue of diversity and the provision of local public services in the European regions.

Several studies have enquired whether the presence of a high heterogeneous population reduces the quality of local public policies. The answer is positive in most cases (for a recent review see Stichnoth and Straeten, 2013), although much of the research has addressed ethnic diversity and has been carried out either in the Unites States or in developing countries, in which these ethnic differences are considerable (e.g. Clark et al., 2013; Miguel and Gugerty, 2005; Kyriacou, 2012).

Decentralization and regional autonomy have often been seen as an effective institutional setting to provide local public services efficiently and effective, particularly in the presence of heterogeneity of the population. It is not by chance that the United States, Canada and Australia, that are countries that have their roots in migration are among the most decentralized countries in the world, being in fact federal states. This is a quite common fact: countries where there are ethic or linguistic minorities tend to be either federal of highly decentralized, such as for instance Canada, India,

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[2] The article can be found here: https://www.thelocal.de/20160218/uk-asks-german-help-to-stop-welfare-shopping.

[3] Here: https://www.theglobalist.com/migration-vs-the-welfare-state/.

Nigeria and South Africa to name a few. This is also evident in unitary countries – where it takes the form of asymmetric federalism – in which live minorities whose regional governments benefit from specific augmented forms of autonomy, as it is the case in the United Kingdom, Spain, and Italy (Congleton et al., 2003).

Federalism, fiscal devolution, political decentralization have been the major institutional reforms that have been carried out with the aim of reducing the gap, perceived as increasingly larger by the citizens, between the government and the places (Martinez-Vazquez et al., 2016; Diaz-Serrano and Rodríguez-Pose, 2012; Filippetti and Sacchi, 2016). For these reasons, over the past decades, several countries have carried our reforms that go in the direction of 'bringing the government closer to the people' (Gary Marks et al., 2008). We can mention major constitutional reforms in Italy and Spain, as well as recent reforms in France; but also a stronger 'voice' rising from the bottom, through which regions claim for greater autonomy, as the cases of the referendum in Scotland, Cataluña, and those recently experienced in two regions in the North of Italy, suggest.

This paper brings together these two streams of research that have both addressed the provision of local public service and public policies, but from a different angle. The former has addressed the relationship between diversity and local public policies; the latter has dealt with the role of decentralization and regional authority in the provision of local public services. More particularly, we investigate the relationship between diversity and the provision of local public service for European regions, exploring the following two research questions: *i. does diversity affect the provision of local public services? ii. is regional autonomy a moderator between diversity and the provision of local public services?* We do not look specifically at ethic diversity, but we rather address the issue of national diversity; this allows us to extend the research to a wide sample of regions hence addressing a broader phenomenon which is relevant for EU policy.

The empirical analysis is based on 167 European regions. In order to measure the provision of local public goods at the regional level we employ the composite indicator developed by *The QOG Institute* based on the citizens' perception about local public services (Quality of Government Institute, 2010; Charron and Lapuente, 2011). As far as the level of regional autonomy is concerned, we employ the *Regional Authority Index* developed by Hooghe et al. (2008a); these two indicators have a number of strengths and have been increasingly employed in this type of studies (e.g. Charron et al., 2014; Ezcurra and Rodríguez-Pose, 2012). Finally, a variable taking into account the diverse composition of the population – a *diversity index* – is developed following other studies, (Alesina and Zhuravskaya, 2011; Kyriacou, 2012; Ozgen et al., 2013; Ozgen et al., 2014); the index is based on the census of 2011 and considers three types of residents: native citizens, foreign EU residents, and foreign non-EU residents.

We find evidence that the presence of a heterogeneous composition of population in the region is associated to a relatively worse performance in the provision of local public goods; regional autonomy can act, only partially, as a moderating mechanism between diversity and local public services.

The paper is organized as follows. In the following section we put forward two hypotheses on the ground of research on diversity and public policies, and research on fiscal federalism; section three presents our measures of public services, regional authority and diversity. Section four presents the empirical strategy and the results, while section five discusses them and concludes.

II.   Local public services, diversity and regional autonomy: two hypotheses to be tested

This paper aims at bridging two different streams of research. The first deals with the impact of diversity on the provision of local public services. The second deals with role of federalism and regional autonomy, as a desirable institutional setting to deliver local public policies in the presence of heterogeneous communities. In what follows we derive two hypotheses regarding these two strands of research which are going to be tested in the empirical part.

Diversity, local public goods and local public policies

The provision of local public policies seems to become more problematic in the presence of a heterogeneous population. Alesina and Glaeser (2004), for instance, foresee a reduction of the size of the welfare state in Europe as a result of the increase immigration and fractionalization. Empirical research finds that social spending, such as expenditure for public schools, government transfers, health spending etc. tend to be all negatively correlated with diversity (Stichnoth and Straeten, 2013). Several studies have addressed the phenomenon of ethnic diversity and the provision of public goods provision, particularly in developing countries where this phenomenon is more acute, suggesting several theoretical mechanisms and findings empirical evidence, that ethnic diversity tends to undermine local public policies, e.g. education and health (e.g. Habyarimana et al., 2007; Miguel and Gugerty, 2005). Alesina et al. (1999) find that the shares of spending on productive public goods in U.S. cities are inversely related to the city's ethnic fragmentation, even after controlling for other socioeconomic and demographic determinants. Cross-country studies tend to confirm these results (Alesina and Ferrara, 2005; Stichnoth and Straeten, 2013)

Two main possible arguments have been suggested to explain this finding. The first is an economic one, and foresees an increase in the demand of public welfare as a result of a more heterogeneous population. This is particularly true when migrants are relatively poorer than domestic citizens, which brings about an increase in the competition for local public goods. This will lead to – ceteris paribus – a deterioration in the provision of public services. Further, greater inequalities between groups have been found to undermine institutions and reduce government quality (Kyriacou, 2013).

The second argument is more sociological in nature. As Stichnoch et (2013, p. 370) explain, "If citizens are more supportive of redistribution when people from their own ethnic group benefit from it, ethnic diversity will reduce the support for redistribution, which in turn will tend to decrease the actual level of redistribution". Communities from different ethnicity can also lead to lower interaction, trust and social cohesion (e.g. Stolle et al., 2008; Marschall and Stolle, 2004; Camussi et al., 2018; Finseraas and Jakobsson, 2012), relying on the idea that an individual's behaviour and engagement are affected by the characteristics of her neighbours:

> *"people (both natives and immigrants) generally prefer to live among people with the same background and are less likely to be willing to share resources with those who they perceive as different from themselves. They prefer to interact socially with others who share the same ethnic heritage, the same socioeconomic status, the same lifestyle, and who therefore share common interests, experiences and tastes or, put simply, people they have more to talk about with." (Tselios et al., 2017).*

This has been recently documented not only in the urban areas of the Unites States, but also in several European countries (Stichnoth and Straeten, 2013).

For the reasons outlined above we derive the following hypothesis #1:

Hip#1 the higher the level of diversity in a region, the lower the performance in the provision of local public services

Regional autonomy, diversity, and public services

A central mechanism which connects diversity with dysfunctionality in public policy is the heterogeneity of preferences, in that heterogeneous tastes across ethnic groups are the channel through which diversity affects collective action (Alesina et al., 1999). In their study on ethnic diversity and public goods in Kenya, Miguel and Gugerty (2005) discuss the implications of decentralization of local public goods in communities characterized by high heterogeneity, and they raise two important arguments against the centralization of public services in these cases. Firstly, in many less developed countries central governments underprovide recurrent expenses. Secondly, centralization of funding could lead to more regional and ethnic favouritism in the allocation of national government funds.

If diversity affects the economic choices, and the outcome of public policies, by directly entering individual preferences (Alesina and Ferrara, 2005), then decentralization and regional autonomy are natural candidates as effective institutional arrangements which can address the provision of local public services in the presence of diversity. Theories on fiscal federalism and decentralization claim that regional autonomy improves the quality of local governments, both in terms of the efficiency and the level in the provision of public goods (Hayek, 1945; Olson, 1993; Tiebout, 1956; Filippetti and Sacchi, 2016), accountability to citizens' preferences (Oates, 1972), and control of the public expenditure (Brennan and Buchanan, 1980; González-Alegre, 2015; Liberati and Sacchi, 2013). By making the government closer to the people, regional autonomy is expected to provide local policies that are better able to respond to the differentiated needs arising in highly diverse regions; hence, regional authority is considered an effective solution to cope with the presence of high heterogeneous preferences at the region/local level (Tiebout, 1956).

When it comes to the rationale for decentralization and regional autonomy, local public services play a prominent role. As Serrano and Rodriguez-Pose (2011) put it, the primary aim of decentralization has never been about delivering greater economic growth, lowing inequality or increasing social capital; rather, "the original aim of decentralization is fundamentally to improve the delivering of public goods and services to individuals and, consequently, the level of satisfaction of the population with government" (p. 2, our emphasis).

Several counter arguments have been raised. Local governments can be less efficient than central governments; the provision of public services can benefit from economies of scale in the case of a central provision; issues of capture and corruption of local policy makers are easier to observes in several countries (e.g. Baskaran and Feld, 2013; Tanzi, 2001). Empirical research show that countries with centralized governments can also deliver *local* public services as efficiently as decentralized countries do (Filippetti and Cerulli, 2017). However, these criticisms are not directed towards the claim that regional authority works better in heterogeneous population.

Following on these lines of reasoning, we put forward the second hypothesis:

Hip#2: regional autonomy is expected to moderate between diversity and the performance of local public services. [Put differently, for any given level of diversity, a higher level of regional autonomy is expected to be associated to a higher performance of local public services].

III.   Data: measuring the quality of local public services and the level of regional autonomy

The provision of local public services

The organization for the provision of local public services differs across countries depending in the first place upon formal provisions at the level of the constitution, according to which the type of state can be grouped in three broad categories: federal states, regionalized states, and unitary states. Firstly, we need to distinguish between exclusive competences attributed to the regional and local governments, and competences that are instead shared between the central government and the regional and local governments. Secondly, competences can be divided into legislative and administrative; typically, in unitary states the legislative competences belong to the central government, while the administrative competences can be attributed to different levels of sub-national governments. In decentralized settings, such as federal or regionalized countries, both the legislative competences and the administrative competences of some local services can be attributed to the regional (and local) level. The revenue system for local public services also varies considerably across countries: in federal or regionalised states regional governments often have some taxation power; by contrast, in unitary states local services tend to be financed through a mechanism of transfers from the central government. As a result, one can observe a great deal of heterogeneity when it comes to the regional competences across countries regarding the provision of public services, even when they are local services, such as for instance in the cases of education, public transport, health, local police, etc. (see European Institute of Public Administration (EIPA), 2012). There are countries such as Bulgaria, Estonia, Lithuania, the Netherlands, Slovenia and Sweden where regions have no specific competences on their own; federal countries like Belgium, in which regional governments have no competences on education, or like Germany, in which instead the *Lands* have competences above a large number of services. Similar patterns can be found for other local public services (e.g. health).[4]

This paper employs a composite indicator of the performance of local public services provided by the *Quality of Government Survey* (Charron et al., 2014; Quality of Government Institute, 2010) based on the citizens' perception of three local public services: education, health and law enforcement. These are also those public services that are usually investigated in decentralization studies (Sacchi and Salotti, 2014). The indicator is a perception-based indicator built from a 34,000-respondents survey from 172 regions within 18 EU member states; to date, this constitutes one of the most

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[4] A comprehensive report on this issue can be consulted here: http://www.cesifo-group.de/ifoHome/facts/DICE/Other-Topics/Structural-Policy/Regional-Policy/DP-MC-reg-comp/fileBinary/DP-MC-reg-comp.pdf.

comprehensive surveys about the quality of local public goods at the sub-national level. [5] The survey was undertaken between 15 December, 2009, and 1 February, 2010 and consisted of 34 questions to the approximately 200 respondents per region. Respondents were asked about three general public services in their regions – education, health care and law enforcement. In focusing on these three services, respondents were asked to rate their public services with respect to three related concepts, namely the *quality*, *impartiality* and an inverse measure of the level of *corruption* of these services (the complete questionnaire can be found in the Appendix of Quality of Government Institute, 2010). The Survey also provides a single QoG index for each region obtained by averaging the three pillars - quality, impartiality and (lack of) corruption, each weighted 1/3rd. In our analysis we are going to use both the overall *qog index* performance as well as the three pillars.[6] The data have been standardized such that the EU regional mean is '0' and has a standard deviation of '1'. A series of extensive sensitivity tests to see whether changes in the model alter the final data was done. It arises that "data constructed here are highly robust to multiple changes in weighting and aggregation schemes, the removal of individual questions or alterations in the demographic make-up of the respondents" (Quality of Government Institute, 2010).

The Report suggests the presence of significant within-country variation from country to country. As explained by Charron and Lapuente (2011) the data show that the indicator of *QoG* is either equally or more important than variation between EU countries themselves. For example, some regions in Italy and Belgium perform like those in the best performing countries, while others rank similarly to low-performing regions in Hungary and Greece. This supports the case for an analysis at the region level.

The degree of regional autonomy

We employ a comprehensive measure of regional autonomy, the *Regional Authority Index (RAI)* (Hooghe et al., 2008; G. Marks et al., 2008), which includes fiscal, political, and administrative measures of the authority of a regional government. This index has been used in these types of studies replacing measures of fiscal expenditures as proxy of decentralization (e.g. Ezcurra and Rodríguez-Pose, 2012; Rodríguez-Pose and Ezcurra, 2011). The Regional Authority Index measures the authority of regional governments in 42 democracies or quasi-democracies on an annual basis over the period 1950–2006. The countries included are twenty-nine OECD countries, the 27 countries that are members of the European Union, plus Albania, Bosnia and Herzegovina, Croatia, Macedonia, Russia, and Serbia and Montenegro.

The RAI is composed of two pillars, which capture respectively the degree of authority exerted by a regional government over its territory (*self-rule*) and over the whole country (*shared-rule*). Self-rule regards the degree of independence of the regional government from the influence of central authorities and the scope of regional decision-making. In turn, shared-rule measures the capacity of the regional government to determine central decision-making (Gary Marks et al., 2008). It is worth stressing that despite the name of the indicator, the RAI refers not only to administrative

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[5] Note that the authors call this index "quality of government index" since they use the provision of local public goods as a proxy for the quality of regional government. Our focus here is instead on the quality of local public services themselves, exploiting the heterogeneity in their organizational structure across regions.
[6] In the paper we will refer to overall performance to refer to the overall index, and to quality to refer to the single pillar 'quality'.

decentralization but it also encompasses measures of political and fiscal decentralization. As such, it is possibly the most comprehensive indicator of regional autonomy that has been so far developed.

A measure of national diversity

We calculated our measure of diversity by taking data from the census of 2011,[7] which considers for each region the following categories of citizens: native citizens, foreign EU residents, and foreign non-EU residents (including stateless). A typical measure of diversity can be obtained by subtracting 1 to the Herfindal index of the variable of interest. In our case, this becomes (1 - Herfindal index of nationality shares), an approach also followed by others, e.g. Ozgen et al., (2013, 2014). A cursory look at the diversity indicators reveals a normal-shaped distribution with a tail on the right side that reflects the metropolitan areas of London, Brussels, and Wien. We have also calculated another measure of diversity, which reflects the relative importance of non-EU residents vis-à-vis EU-residents, weighted for the share of foreign residents.[8] This second indicator of diversity allows us to exploit the information about the EU versus non-EU nationality. The pairwise correlation among the two indicators of diversity is equal to 0.69. The picture thus changes, with regions from Greece, Spain and Italy appearing those with the higher share of non-EU residents.

Table A1 in the Appendix reports the regions and the value for the three indicators.

IV.   Analysis and results

Estimation strategy

In order to test our hypotheses, we estimate a cross-section model of 167 regions in Europe employing ordinary least squares (OLS) method, with standard errors clustered around the region. The models look as follows:

$$Services_i = \alpha + \beta_1 \, diversity_i + \beta_2 \, controls_i + \varepsilon_i \qquad (1)$$

$$Services_i = \alpha + \beta_1 \, controls_i + \beta_2 \, reg\_autonomy_i + \beta_3 \, diversity_i + \beta_4 \, reg\_autonomy_i * diversity_i + \varepsilon_i \qquad (2)$$

Eq. 1 tests the first hypothesis (coefficient β_1), while eq. 2, which includes an interaction effect between regional autonomy and diversity (coefficient β_4), tests the second hypothesis.

Several control variables at the region level are included, namely: income per capita (here measured in PPP); three dummies variable controlling for *i)* bilingual region; *ii)* autonomous region[9]; *iii)* capital region; the (log of) population. A customary variable which is taken into account in political economy

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[7] Data can be found here: https://ec.europa.eu/CensusHub2/query.do?step=selectHyperCube&qhc=false.

[8] This index is calculated as follows: (*non-EUresidents / EUresidents*) * (*non-EUresidents + EUresidents*) / (domestic residents). The first factor - (*non-EUresidents / EUresidents*) – reflects the relative importance of extra-EU residents on EU residents; this then get weighted by the share of overall foreign residents - (*non-EUresidents + EUresidents*) – on total domestic population (domestic residents). In this way the index reflects the relative importance of non-EU residents weighted for the share of foreign residents in the region.

[9] While this variable is clearly correlated with our measure of regional authority (rate of correlation equal to 0.20), autonomous regions often tend to receive considerable transfer from central states, thus it is important to control for this specific status.

studies is the presence of strong and independent media, since they are considered an important channel through which citizens can monitor the local policy makers. For this reason we have included the variable *'independent media'* which reflects "the strength and effectiveness of the media in the region to expose corruption" and is part of the same QOG Survey. We also employ the share of citizens with tertiary education, as an overall proxy of the level of education of the people living in the region. Finally, we introduce our measure of diversity – the *diversity index.* Eq. 2 includes the same control variables, but it further includes our measure of *regional autonomy* jointly with the *diversity index* (Table A2 reports the descriptive statistics and the correlation table of our variables).

Local public services, diversity and regional autonomy

Table 1 reports the results of our estimates of the model above (1). Column (1) reports the results for the overall index of local services, while the others report the results for each of the indicators, impartiality (2), corruption (3) and quality of the services (4). The coefficients of the control variables are in line with what expected. Income per capita predicts high scores in the provision of local services. Autonomous regions seem to be negatively correlated with public services, although the coefficients are never significant. Being a capital region, along with the size of the region (as measured by population), are negatively correlated with services; this might depend on the presence of congestions effects. The presence of independent media is positively correlated with services, while the level of education is instead negatively correlated with the dependent variable (we discuss this further below).

By focussing on the explanatory variable - our measure of diversity - the related coefficient is negative and significant for the overall provision of public services (significant at 5%), corruption (significant at 10%), and their quality (significant at 1%). This supports our hypothesis no. 1.

[Table 1]

There are two issues that can undermine the robustness of our baseline estimates. The first is an issue of endogeneity stemming from the presence of sorting phenomena. In fact, the demographic composition of a jurisdiction can be endogenous to the extent that it is affected by decision on public spending; this can be particularly relevant at the region level (Stichnoth and Straeten, 2013). We tackle the endogeneity issue by employing the following approach. We replace the current depend variable with the same variable, but calculated as an average of the contiguous regions, excluding the cases in which contiguous regions belong to a different country. The idea is that the measure of provision of local public services is very much correlated with the same measure of neighboured regions; in fact, the pairwise correlation is equal to 0.90. However, the sorting effect is expected to be quite local in nature, and therefore self-contained within the regions. Table 2 reports the estimates calculated for the main pillar "overall services" and the pillar "quality of services", employing the new dependents variables. In both cases the coefficient is still negative and significant.

[Table 2]

As explained above, the performance of local public services is based on a survey, and thus is a subjective measure. One can hence question to what extent it reflects the *real* functioning of local public goods of the *perceived* functioning of local public goods. More importantly, one can question whether diversity affects the perception of the provision of local public services, and in which

direction. So the question becomes the following: are more diverse communities more incline to have a negative perception of the provision of local public services, for any objective performance in the provision of public services? One issue could be competition among nationalities or ethnic groups. If one nationality, or one ethnic group, is the greatest beneficiary of public services (for example public housing of public school), this could amplify the negative perception of the rest of the community. In fact, citizens are less inclined to share public goods among different ethnic groups (e.g. Alesina and Ferrara, 2005).

In this second set of estimates we interact our measure of diversity with two variables, namely the *presence of independent media* and the *level of education*. Table 3 reports the same estimates as for Table 1, but with the inclusion of the following interaction term: *presence of independent media#diversity* (column1), and the *level of education#diversity* (column 2). The rationale is that both independent media and the level of education should mitigate the presence of bias in the perception, if present. More independent media will provide more impartial information for citizens, whilst more educated people should be better equipped to process public information objectively. By looking at the results, only the presence of independent media seems to moderate the negative effect of diversity on services. As the chart in figure 1 shows, the negative effect of diversity on services gets close to zero and then turn positive (although not statistically significant) as long as the variable independent media grows. This militates in favour of some degree of mis-perception which gets attenuated when there are independent media in the region.

[Table 3]

[Figure 1]

We now turn to our second hypothesis, which states that the presence of regional autonomy is expected to moderate between diversity and the performance of local public services. In order to test the moderating effect of regional authority we include the variable *diversity#regional autonomy.* Table 4 reports the estimate of the model as in the eq. 2, for the main index of services and the three pillars – impartiality, corruption and quality. The coefficient of the joint effect of diversity and regional autonomy is positive and significant (at 5%) limited to the case of the quality of services (column 4). By looking at figure 2 reporting the average marginal effect of diversity along the levels of regional autonomy, it arises that the negative correlation of diversity with the quality of local public services gets closer to zero for high levels of regional autonomy. In regions in which regional autonomy is quite high (higher than 18.5), the marginal effect of diversity is still moderately negative but not longer significant. This suggests the presence of some moderating effect of regional autonomy on the relationship between diversity and the quality of local public services, although limited to their quality.

[Table 4]

[Figure 2]

We have also calculated an indicator of diversity that exploits the important distinction in the census about foreign EU citizens and foreign non-EU citizens. As explained above this index reflects the relative importance of non-EU residents, weighted for the share of foreign residents in the region. Here the idea is that the category of non-EU residents is 'more diverse' that the category of EU

residents, for example by language, ethnicity, and level of wealth. According to the theory reviewed above, this should accentuate the problems for the provision of public goods and local public services.

Table 5 summarizes the same estimates run above with the new index as an explanatory variable. There are no relevant differences in the baseline model, with diversity still negatively correlated with the services, also confirmed in the subsequent approach. We can instead observe differences in the absence of a moderating role of education and the presence of independent media. Further, in this case regional authority does not seem to be able to mediate between services and diversity; if anything, we detect a negative marginal effect of regional author in the case of the pillar *corruption*.

Summing up, by taking a measure that takes into account the relative weight of non-EU citizens with respect to EU citizens the first hypothesis is still holding, while the second one is not confirmed.

V. Discussion and conclusion

Dealing with diversity in the European regions has become imperative in the European and national policy agendas. Internal mobility is a cornerstone of the EU policy, and the more new members will join the EU, the more migration within EU is bound to grow. Additionally, migration from outside the EU borders is also going to become more and more relevant. Empirical studies carried out mostly in the Unites States and in some developing countries have by and large found that when ethnic diversity grows, the welfare state, the provision of public goods, and income redistribution tend to become more problematic. For the European countries and regions, this is going to be one of the most relevant issues to deal with in the coming years.

This paper provides evidence that *i)* the presence of a heterogeneous composition of population in the European regions is associated to a relatively worse performance in the provision of local public goods; and *ii)* regional autonomy (to some extent) can act as a moderating mechanism between diversity and local public services.

The first result is in line with theories about diversity and public policy, and with several empirical studies that detected a negative correlation between diversity and the provision of public goods. As a matter of fact, most of this research has been carried out in cities and countries with a high presence of ethic heterogeneity, as for instance in some American cities, and in some developing countries; to our knowledge this is the first attempt carried out across a large sample of European regions.

Another difference of this study is that our measure of diversity does not take into account ethnicity, but it is limited to the nationality. One the one hand this has some clear limitations, in that ethnic diversity is a remarkable source of heterogeneity. However, our broader measure of diversity allows us to address one of the cornerstone of European integration, that of the internal mobility of the labour force. Internal mobility has been often identified by policy makers as a fundamental driver of reciprocal learning, carrier of knowledge, as well as a great means to make labour market work more efficiently, by reducing disparities in the rates of unemployment across European countries. As such, the internal mobility of citizens is regarded as a pillar of social cohesion in Europe. However, recent

debates have recalled the attention to a number of problems that internal migration can create on the sustainability of the welfare states of recipient countries. Within this context, our evidence raises an issue for policy makers. This is going to be further exacerbated by the fact that since our data refer to 2011, it is more than likely that diversity has increased ever since, both because of an increase in the mobility within Europe since the burst of the financial crisis in 2008, as well as due to the recent surge in migration from outside the EU. This calls for future research with updated census data.

It is also possible that our data underestimate the pressure on the welfare state of illegal immigrants, since they are not capture by data on foreign residents, but at the same time they can benefit from some local public services, particularly public health. Finally, we do not take into account within-country mobility which can in some cases be an additional source of diversity and pressure on local welfare.

Our second piece of evidence shows that regional authority can moderately work as a moderator between diversity and the provision of local services. This partially confirms one of the main claims of fiscal federalism theory, according to which bringing political authority and administration closer to the people is effective, particularly when there are heterogeneous local communities which are likely to be reflected in heterogeneous preferences. In these cases, regional authority should be more effective than centralization in making local public policies more responsive to the heterogeneous preferences. There are counter arguments that are worth mentioning. Firstly, local governments can be more easily captured, as well as corrupted, by local constituencies. Secondly, in times of crisis and budget constraints, regional governments can have fewer resources to devote to the welfare. Hence, it is possible that central governments are more effective than regional governments in dealing with a swift increase in the demand for local public services, to the extent that they are able mobilize a larger amount of resources. Further, more centralized governments can be better equipped in managing migration flows than more decentralized ones, for example by being able to better redistribute immigrants, thus avoiding excessive concentrations in some regions. These are open questions that remain to be explored at greater lengths and with more recent data.

Tables and figures for the text

Table 1 - Impartiality, regional autonomy and diversity (OLS estimates)

	(1) overall	(2) impartiality	(3) corruption	(4) quality
Diversity index	-1.615**	1.559	-1.609*	-3.473***
	(0.799)	(1.186)	(0.929)	(0.842)
Income per capita	1.453***	0.522***	1.155***	0.865***
	(0.108)	(0.159)	(0.122)	(0.170)
Bilingual region	0.200	0.506	0.481***	0.326
	(0.188)	(0.314)	(0.170)	(0.265)
Autonomous region	-0.266	-0.149	-0.233	-0.121
	(0.230)	(0.227)	(0.177)	(0.259)
Capital region	-0.433*	-0.409	-0.516*	-0.130
	(0.220)	(0.259)	(0.276)	(0.187)
Population of the region	-0.414***	-0.211	-0.277**	-0.0911
	(0.129)	(0.157)	(0.120)	(0.148)
Independent media	-0.0402	0.216***	0.176***	0.483***
	(0.0602)	(0.0690)	(0.0662)	(0.0661)
Population with tertiary education	-0.409***	-0.246	-0.289**	-0.172
	(0.126)	(0.167)	(0.129)	(0.147)
Constant	-12.47***	-4.576**	-10.15***	-8.096***
	(1.154)	(1.768)	(1.220)	(1.842)
Observations	167	167	167	167
R^2	0.621	0.365	0.567	0.592

Note: Standard errors in parentheses, * $p<0.10$; ** $p<0.05$;*** $p<0.01$. Standard errors are clustered at the region level.

Table 2 – Testing dependent variable calculated as the average of the DV of the contiguous regions for overall performance and quality

	(1) overall	(2) quality
Diversity index (average contiguous regions)	-1.311** (0.629)	-2.411*** (0.780)
Income per capita	1.473*** (0.0665)	0.917*** (0.159)
Bilingual region	0.152 (0.150)	0.165 (0.262)
Autonomous region	-0.317** (0.135)	-0.106 (0.198)
Capital region	-0.350* (0.194)	-0.186 (0.202)
Population of the region	-0.244** (0.114)	-0.00848 (0.122)
Independent media	-0.0936 (0.0610)	0.358*** (0.0609)
Population with tertiary education	-0.320*** (0.103)	-0.181 (0.129)
Constant	-13.65*** (0.722)	-9.344*** (1.660)
Observations	167	167
R^2	0.693	0.580

Note: Standard errors in parentheses, * p<0.10; ** p<0.05;*** p<0.01. Standard errors are clustered at the region level.

Table 3 - testing education and the presence of independent media

	(1) Quality of government	(2) Quality of government
Diversity index # Population with tertiary education	***-0.315*** ***(0.701)***	
Diversity index	-2.699 (2.766)	-1.786** (0.752)
Independent media	-0.0377 (0.0604)	-0.236** (0.115)
Population with tertiary education	-0.371** (0.172)	-0.413*** (0.123)
Diversity index # Independent media		***1.613**** ***(0.752)***
All controls included as for Table 1		
Constant	-12.29*** (1.802)	-12.94*** (1.801)
Observations	167	167
R^2	0.622	0.632

Note: Standard errors in parentheses, * $p<0.10$; ** $p<0.05$;*** $p<0.01$. Standard errors are clustered at the region level.

Figure 1 – The effect of diversity on the provision of local services when independent media changes

Table 4 – testing the moderating effect of regional authority

	(1) overall	(2) impartiality	(3) corruption	(4) quality
Diversity index	-1.620	2.704	-2.605	-6.647***
	(1.832)	(2.457)	(2.301)	(1.765)
Regional autonomy	-0.00415	0.0785***	-0.00374	-0.0637***
	(0.0203)	(0.0267)	(0.0180)	(0.0166)
Diversity index # Regional autonomy	0.0007	-0.141	0.0721	0.270**
	(0.136)	(0.192)	(0.140)	(0.118)
All controls included as Table 1				
Constant	-12.48***	-2.406	-10.26***	-9.872***
	(1.196)	(1.661)	(1.272)	(1.751)
Observations	167	167	167	167
R^2	0.621	0.446	0.568	0.621

Note: Standard errors in parentheses, * $p<0.10$; ** $p<0.05$;*** $p<0.01$. Standard errors are clustered at the region level.

Figure 2 – The effect of diversity on the on provision of local services when regional autonomy changes
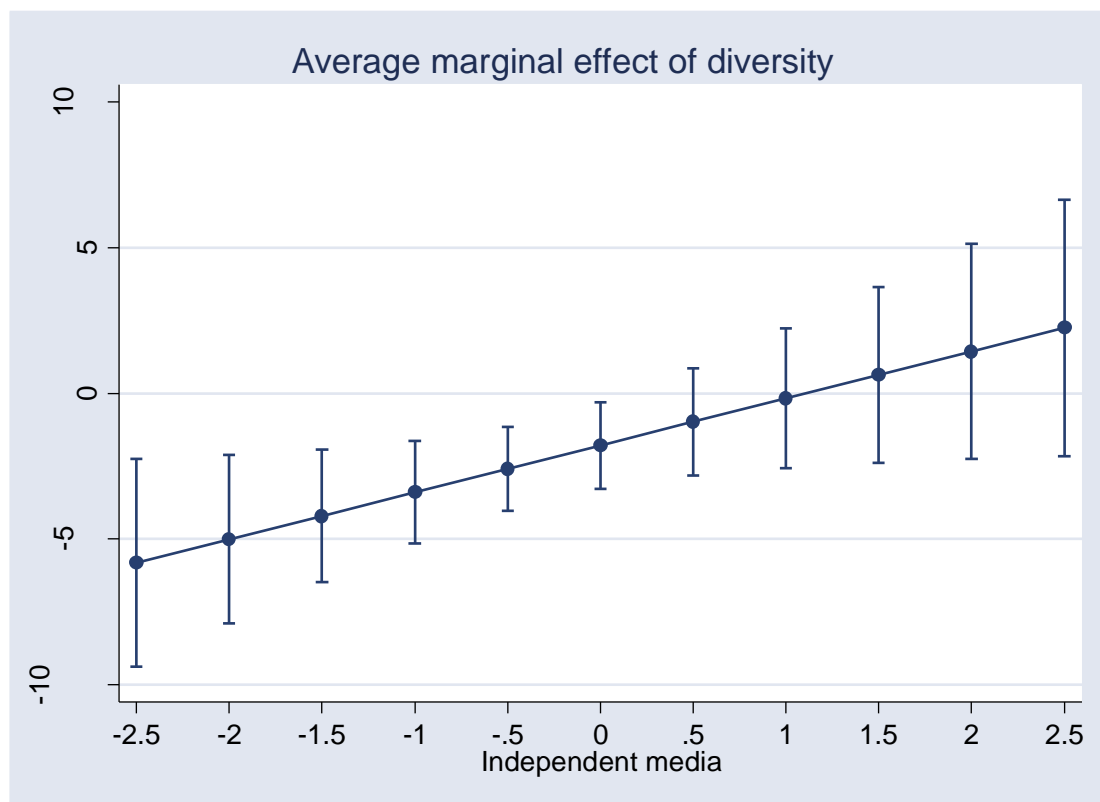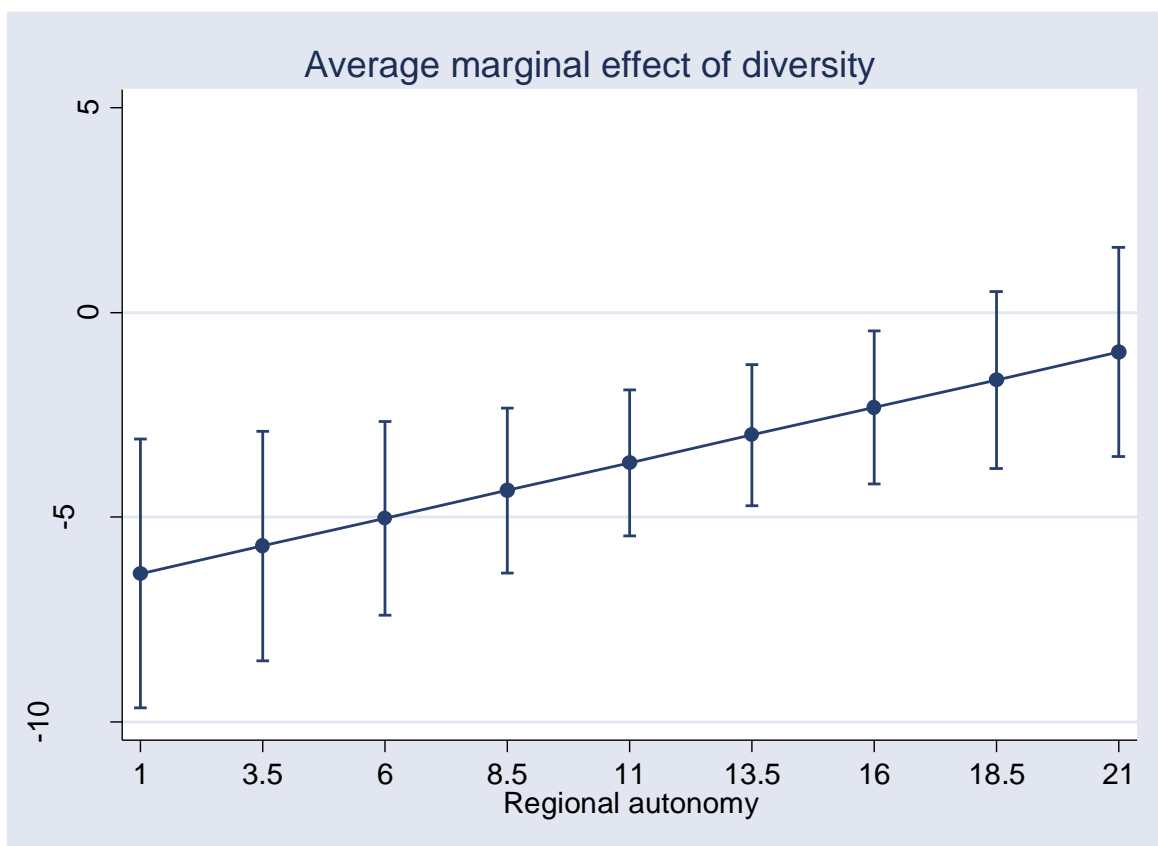
Table 5 – robustness test using a revised index of diversity (share non-EU/EU)

Baseline model (as for Table 1)

	(1) overall	(2) impartiality	(3) corruption	(4) quality
Diversity index: share non-EU/EU	-0.126*** (0.0462)	0.0889 (0.0620)	-0.0857 (0.0683)	-0.289*** (0.0525)
Observations	167	167	167	167
R^2	0.628	0.364	0.565	0.638

Different dependent variable model (as for Table 2)

	(1) overall_IV	(2) quality_IV
Diversity index: share nonEU/EU	-0.0903** (0.0399)	-0.227*** (0.0530)
Observations	167	167
R^2	0.696	0.618

Testing perception (as for Table 3)

	(1) Quality of government	(2) Quality of government
Diversity index: share nonEU/EU # Population with tertiary education	0.00647 (0.0434)	
Diversity index: share nonEU/EU	-0.126 (0.160)	-0.144*** (0.0506)
Population with tertiary education	-0.379*** (0.144)	-0.403*** (0.113)
Diversity index: share nonEU/EU # Independent media		0.0375 (0.0428)
Observations	167	167
R^2	0.631	0.633

Interaction model (as for Table 4)

	(1) overall	(2) impartiality	(3) corruption	(4) quality
Diversity index nonEU/EU	-0.0302 (0.0844)	0.0380 (0.111)	0.126 (0.116)	-0.297** (0.121)
Regional autonomy	-0.0268 (0.0236)	0.0675** (0.0261)	-0.0549** (0.0237)	-0.0239 (0.0250)
Diversity#reg. autonomy	-0.0101 (0.00814)	0.00217 (0.00946)	-0.0224** (0.00888)	0.00249 (0.00968)
Constant	-13.13*** (1.683)	-2.428 (2.113)	-8.830*** (1.909)	-12.68*** (2.139)
Observations	167	167	167	167
R^2	0.632	0.444	0.584	0.656

Note: Standard errors in parentheses, * $p<0.10$; ** $p<0.05$; *** $p<0.01$. Standard errors are clustered at the region level. All controls are included as for Table 1.

Appendix - Table A1 – list of the regions and the three indicators

Region	Index of public services	Diversity Index	Regional Authority Index	Region	Index of public services	Diversity Index	Regional Authority Index
AT_Burgenland	1.274	0.114	18	IT_Emilia-Romagna	-0.341	0.190	13
AT_Lower Austria	1.160	0.134	18	IT_Toscana	-0.550	0.163	13
AT_Vienna	0.993	0.362	18	IT_Umbria	-0.190	0.183	13
AT_Carinthia	0.880	0.136	18	IT_Marche	-0.460	0.161	13
AT_Styria	0.848	0.132	18	IT_Lazio	-1.267	0.146	13
AT_Upper Austria	1.139	0.156	18	IT_Abruzzo	-0.908	0.100	13
AT_Salzburg	0.907	0.228	18	IT_Molise	-1.236	0.050	13
AT_Tyrol	1.015	0.202	18	IT_Campania	-2.318	0.050	13
AT_Vorarlberg	1.069	0.238	18	IT_Puglia	-1.735	0.040	13
BE_Brussels-Capital Region	-0.369	0.491	18	IT_Basilicata	-1.259	0.044	13
BE_Flemish Region	0.942	0.179	20	IT_Calabria	-2.189	0.065	13
BE_Walloon Region	-0.008	0.175	18	IT_Sicilia	-1.828	0.049	17
BG_Severozapaden	-2.566	0.006	1	IT_Sardegna	-0.887	0.037	17
BG_Severen tsentralen	-2.061	0.009	1	NL_Northern Netherlands	1.625	0.075	15
BG_Severoiztochen	-0.915	0.013	1	NL_Eastern Netherlands	1.179	0.036	15
BG_Yugoiztochen	-2.141	0.010	1	NL_Western Netherlands	1.273	0.053	15
BG_Yugozapaden	-1.830	0.014	1	NL_Southern Netherlands	1.077	0.123	15
BG_Yuzhen tsentralen	-1.088	0.008	1	PL_Lodzkie	-0.846	0.005	8
CZ_Prague	-0.903	0.256	7	PL_Mazowieckie	-0.996	0.010	8
CZ_Central Bohemian Region	-0.224	0.094	7	PL_Malopolskie	-0.875	0.004	8
CZ_Jihozápad (Southwest)	-0.009	0.076	7	PL_Slaskie	-1.115	0.003	8
CZ_Severozápad (Northwest)	-0.909	0.091	7	PL_Lubelskie	-0.904	0.004	8
CZ_Severov?chod (Northeast)	-0.110	0.063	7	PL_Podkarpackie	-0.852	0.003	8
CZ_Jihovchod (Southeast)	-0.441	0.059	7	PL_Swietokrzyskie	-0.804	0.002	8
CZ_Strední Morava (Central Moravia)	-0.534	0.031	7	PL_Podlaskie	-0.962	0.006	8
CZ_Moravian-Silesian Region	-0.361	0.038	7	PL_Wielkopolskie	-0.999	0.003	8
DK_Hovedstaden	1.306	0.176	10	PL_Zachodniopomorskie	-0.867	0.005	8
DK_Sjlland	1.448	0.080	10	PL_Lubuskie	-0.929	0.006	8
DK_Syddanmark	1.440	0.100	10	PL_Dolnoslaskie	-1.116	0.006	8
DK_Midtjylland	1.687	0.099	10	PL_Opolskie	-0.611	0.005	8
DK_Nordjylland	1.317	0.080	10	PL_Kujawsko-Pomorskie	-0.949	0.003	8
DE_Baden-Württemberg	0.981	0.205	21	PL_Warminsko-Mazurskie	-0.668	0.003	8
DE_Bavaria	0.712	0.184	21	PL_Pomorskie	-0.858	0.004	8
DE_Berlin	0.981	0.205	21	PT_Norte	-0.322	0.028	1
DE_Brandenburg	0.979	0.032	21	PT_Algarve	0.208	0.211	1
DE_Bremen	0.953	0.196	21	PT_Centro	-0.029	0.046	1
DE_Hamburg	0.961	0.219	21	PT_Lisboa	0.141	0.135	1
DE_Hessen	0.630	0.202	21	PT_Alentejo	0.738	0.061	1
DE_Mecklenburg-Vorpommern	0.937	0.174	21	PT_Acores	0.512	0.027	16
DE_Lower Saxony	0.949	0.142	21	PT_Madeira	0.280	0.041	16
DE_North Rhine-Westphalia	0.714	0.037	21	RO_North-West	-1.135	0.004	4
DE_Rhineland-Palatinate	0.827	0.037	21	RO_Centru	-1.581	0.002	4
DE_Saarland	1.051	0.141	21	RO_North-East	-2.014	0.003	4
DE_Saxony	1.096	0.141	21	RO_South-East	-2.035	0.002	4
DE_Saxony-Anhalt	0.866	0.141	21	RO_South-Muntenia	-1.774	0.001	4
DE_Schleswig-Holstein	1.273	0.059	21	RO_Bucharest-Ilfov	-2.964	0.011	4
DE_Thuringia	1.336	0.051	21	RO_South-West Oltenia	-1.478	0.001	4
FR_ille de France	0.547	0.226	8	RO_West	-2.250	0.005	4
FR_Champagne-Ardenne	0.185	0.074	8	SK_Bratislava Region	-0.572	0.095	4
FR_Picardie	0.471	0.064	8	SK_Western Slovakia	-0.863	0.128	4
FR_Haute-Normandie	0.123	0.056	8	SK_Central Slovakia	-0.766	0.166	4
FR_Centre	0.613	0.081	8	SK_Eastern Slovakia	-0.769	0.182	4
FR_Basse-Normandie	0.502	0.039	8	ES_Galicia	0.574	0.073	15
FR_Bourgogne	0.485	0.076	8	ES_Asturias	0.512	0.086	15
FR_Nord-Pas-de-Calais	0.544	0.063	8	ES_Basque Community	0.665	0.123	16
FR_Lorraine	0.244	0.099	8	ES_Navarre	0.173	0.188	16
FR_Alsace	0.475	0.143	8	ES_La Rioja	0.243	0.246	15
FR_Franche-Comté	0.494	0.086	8	ES_Aragon	0.320	0.223	15
FR_Pays de la Loire	0.357	0.040	8	ES_Madrid	-0.098	0.261	15
FR_Bretagne	1.043	0.039	8	ES_Castile-Leon	-0.055	0.122	15
FR_Poitou-Charentes	0.768	0.054	8	ES_Castile-La Mancha	0.208	0.189	15
FR_Aquitaine	0.820	0.083	8	ES_Extremadura	0.416	0.068	15
FR_Midi-Pyrénées	0.394	0.089	8	ES_Catalonia	-0.464	0.264	15
FR_Limousin	0.727	0.085	8	ES_Valencian Community	0.154	0.268	15
FR_Rhine-Alpes	0.800	0.122	8	ES_Balearic Islands	0.109	0.342	15
FR_Auvergne	0.563	0.063	8	ES_Andalusia	0.284	0.148	15
FR_Languedoc-Roussillon	0.536	0.110	8	ES_Region of Murcia	-0.036	0.270	15
FR_Provence-Alpes-Cote d'Azur	0.215	0.119	8	ES_Canarias	0.272	0.239	15
FR_Corse	0.123	0.159	8	SE_East Sweden	1.376	0.185	10
GR_Voreia Ellada	-1.389	0.118	10	SE_South Sweden	1.453	0.114	10
GR_Kentriki Ellada	-1.069	0.118	10	SE_North Sweden	1.260	0.097	10
GR_Attica	-0.261	0.193	10	UK_North East. England	0.919	0.045	4
GR_Nisia Aigaiou. Kriti	-0.912	0.208	10	UK_North West. England	1.040	0.067	4
HU_Central Hungary	-1.018	0.049	10	UK_Yorkshire and the Humber. l	0.652	0.099	4
HU_Transdanubia	-0.320	0.025	10	UK_East Midlands. England	1.245	0.131	4
HU_Great Plain and North	-0.439	0.017	10	UK_West Midlands. England	0.800	0.067	4
IT_Piemonte	-0.118	0.154	13	UK_East of England	0.763	0.075	4
IT_Valle d'Aosta	0.696	0.126	17	UK_London. England	0.484	0.362	9
IT_Liguria	-0.507	0.133	13	UK_South East. England	1.082	0.124	4
IT_Lombardia	-0.638	0.179	13	UK_South West. England	1.091	0.117	4
IT_Trentino-Alto Adige(Bolzano)	0.832	0.147	17	UK_Wales	0.806	0.067	12
IT_Trentino-Alto Adige(Trento)	0.538	0.162	15	UK_Scotland	1.277	0.090	17
IT_Veneto	-0.462	0.174	13	UK_Northern Ireland	0.933	0.361	10
IT_Friuli-Venezia Giulia	0.199	0.149	17				

Table A2 – pairwise correlation and descriptive statistics

		1	2	3	4	5	6	7	8	9	N	Mean	SD	Min	Max
1	Quality of government	1									167	0.01	1.01	-2.96	1.69
2	Diversity index	0.364	1								167	0.11	0.09	0	0.49
3	Income per capita (log)	0.723	0.628	1							167	9.88	0.63	8.01	11.01
4	Bilingual region	0.147	0.319	0.186	1						167	0.08	0.28	0	1
5	Autonomous region	0.0850	0.0650	0.115	0.510	1					167	0.09	0.29	0	1
6	Capital region	-0.0645	0.288	0.221	-0.0355	-0.109	1				167	0.11	0.31	0	1
7	Population of the region (log)	-0.0129	-0.0400	0.0644	-0.0794	-0.218	0.159	1			167	7.6	0.86	4.8	9.8
8	Independent media	0.332	0.227	0.468	0.137	0.186	-0.0485	-0.0209	1		167	-0.02	1.01	-2.77	2.94
9	Share of population tertiary education	-0.0472	0.122	0.0687	0.0595	0.131	0.124	-0.809	0.0764	1	167	0.036	0.038	0.003	0.27

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