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Civic Engagement and Diversity in Italian Cities: a geo-localised approach

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Abstract

Explanatory factors of civic engagement proposed so far mainly focus on trust and institutional quality, ethno-linguistic diversity and new forms of digitalised civic participation. However, there is a lack of mapping possible changes in civic participation across the space and along different socio-economic dimensions, essential to shade light on the phenomenon. Hence, we conduct, to our knowledge, a first spatial analysis of civic engagement in three major urban Italian areas: Rome, Milan and Naples. These cities present different cultural socio-economic backgrounds and distinct urban geography allowing a quasi-experimental comparative analysis. This approach becomes crucial considering the increasing phenomenon of "sorting" in the western democracies: citizens increasing trend to sort along the dimensions of income and education across the space within the cities. Hence we test whether more homogeneous spaces in terms of income and education.

Introduction

The overall decline of the civic participation in the Western democracies has been raising serious concerns among academics and policy makers especially given its generally recognised importance for institutional and economic performance (Putnam, 1993). However, although this decline has been well documented, it has not been effectively explained (Whiteley, 2011). Explanatory factors of civic engagement proposed so far focus mainly on trust and institutional quality (Letki, 2006), ethno-linguistic diversity (Alesina and Ferrara, 1999) and new forms of digitalised civic participation via internet (Whiteley, 2011). Still, the main shortcoming of these previous studies is the lack of mapping possible changes in civic participation across the space and along different socio-economic dimensions, essential to shade light on the phenomenon. Furthermore, much of these studies focus of the United States, while scant attention has been devoted to the European context (Tavaraes and Carr, 2013).

This work aims to tackle this gap by conducting, to our knowledge, the first spatial analysis of civic engagement. This approach becomes even more crucial considering the increasing phenomenon of "sorting" in the western democracies: citizens increasing trend to sort (cluster) along the dimensions of income and education across the space within the cities.

Civic engagement commonly refers to individuals' involvement in voluntary activities and it has a recognised role in promoting a vibrant habit of cooperation, solidarity and public spiritedness among the members of a community for the collective benefit (Putnam 1993).

Related studies have shown a positive association of civic engagement with institutional performance, life satisfaction, culture, social relations and economic development in Italy and in other Western societies (Alesina 2009; Beugelsdijk et al. 2005; Coleman 1988; Letki 2006). However, little attention has been devoted to its geographical dimensions, particularly at the urban level, and to the geographical dimension of socio-economic factors such as income and education that may contribute to its organisational space. The novelty of this work stands on the importance attached to analysing civic engagement theoretically and empirically from its spatial dimension. The key research focus is, therefore, whether more homogeneous spatial areas in terms of income and education exhibit more civic engagement in large cities.

We consider civic engagement in term of voluntary activities. We use education and income as dimensions of sorting. Putnam (1993) uses income and education as proxies of social

classes. Matching with people coming from the same social class can reinforce the initial opinions. In its conceptual model of social capital, Lin (2001) argues that an individual holding an initial favourable socio-economic conditions, including her dimension of income and education, locate the individual in a position of strength within her network and facilitate the individual to a better access of her social capital.

The context of analysis includes the three largest Italian cities: Milan, Rome and Naples, located respectively in the North, Centre and South of Italy. These cities exhibit relevant cultural and socio-economic differences and are characterised by distinct forms of urban geography. For instance, the city of Milan is characterised by a relatively regular urban geography. Instead, the cities of Naples and Rome present peculiar irregular urbanisations affected by natural and artificial barriers like hills, rivers, ports, archaeological areas and the volcano, in the case of Naples. These distinct urban geographies might condition both the social interaction and the socio-economic sorting of the residents. An exploratory spatial analysis will be able to estimate and map the relationship between civic engagement and socio-economic sorting across all these urban irregularities. This will provide more consistent insights for appropriate urban policies focusing on urban areas regeneration and socio-economic redistribution of resources.

In the field of studies on civic engagement, Italy has often served as experimental country due to its cross regional differences in terms of civic spirit, social capital and institutional quality (Banfield 1967; Putnam 1993). Different cities can face different patterns of spatial segregations even though all subject to similar global economic pressures (Musterd and Ostendorf, 1998). Hence, focusing on different cities belonging to the same formal institutional framework allows us to conduct more consistent comparative analyses. The analysis is conducted by using geocoded data collected from the Italian Participation Labour Unemployment Survey for a representative sample of about 55,012 respondents stratified by regions of residence and municipality. This type of data enables identification of the geographical location of the residence of each respondent allowing the project to produce different types of analyses. More specifically: to spatially group individuals on the basis of their civic engagement; to estimate and visually map the variation of civic engagement across different spatially located clusters; to attribute each group with a socio-economic heterogeneity score by using the average Euclidean distance on income and education among the individuals of each defined group; to detect whether more spatial socio-economic heterogeneous groups exhibit more civic engagement and to map this relationship through

geographical weighted regressions, a linear regression technique where coefficients can vary according to geographical space, revealing interesting patterns which otherwise would be masked.

There are at least two reasons to focus on civic engagement. Firstly, it has been documented that civic engagement is a crucial factor for a better functioning of the political-institutional and economic systems. Secondly, urban areas are becoming more and more complex geopolitical spaces requiring more collective actions to face problems in a more efficiently.

The paper is structured as follows: Section 2 presents the theoretical background; Section 3 presents the methodology; Section 4 discusses the results and Section 5 concludes

Theoretical Background

Civic Engagement and Spatial Sorting

Well-functioning democracies require civic engagement and citizens' participation in the political and social affairs (Alesina and Giuliano 2009).

Civic engagement commonly refers to individuals' involvement in voluntary activities and it has a recognised role in promoting a vibrant habit of cooperation, solidarity and public spiritedness among the members of a community for the collective benefit (**Putnam 1993)** In large urban areas, this has been found to have a positive effect on crime reduction, more equal redistribution of the socio-economic resources and efficient implementation of urban policies. For these reasons, scholars and practitioners have raised serious concern about the threat of a ghettoized civic engagement in large European cities due to the tendency of rich and poor to live in different urban areas, or space.

The importance of civic engagement is based on the logic that collective actions are more likely to occur among individuals more civically engaged. Empirical findings report the crucial contribution to the US economy of the voluntary sector valued in billions of dollars with a positive effect on crime reduction and social care (Rotolo and Wilson 2004). Studies on the metropolitan area of Chicago show that civic engagement, as voluntary activity, is the dominant and most durable form of collective action in large contemporary cities. However, the advancing of the phenomenon of sorting (i.e. socio-economic clustering) in urban areas together with increasing social and economic inequalities are modifying the organisation of urban space in Western cities, with the risk of limiting the spread of civic engagement. This is

because, poor and low-educated individuals that are marginalised and clustered are also less engaged with the consequence of reducing the efficacy of collective actions towards a fairer distribution of the resources (Atkinson, 2000; Madanipour, 2004).

The investigation conducted in this paper considers two key and interlinking background issues afflicting Western and European Democracies.

The first issue regards the overall decline of civic participation and its negative effect on the institutional and economic performance (Ekman et al. 2012; Dalton 2006). This problem is even more relevant if we consider that in large urban areas, civic engagement, expressed as citizens' participation to voluntary activities, is the dominant form of effective collective action (Sampson et al. 2005).

The second problem regards the increasing spatial polarisation affecting the European cities in the last three decades where poor and rich tend to leave in different neighbourhoods if not separate spatial location even within the same neighbourhood (Tammaru et al. 2016). This polarisation has predominantly hit larger urban areas and it has been associated with increasing socio-economic inequalities and spatial segregation (Eeckhout et al. 2014; Musterd and Ostendorf, 1998; Van Kempen et al. 2009; Van Ham et al. 2016). The combination of the two aforementioned issues might expand on an alarming trend. "Socio-economic ghettos" might become less integrated, engaged and socially civic. This, in turn, might have a negative impact on the proper functioning of the markets and institutions as well as limiting effective collective actions and the re-alignment of socio economic resources. In this regard, addressing the spatial organisation of socio-economic factors such as income and education will help interpret the mapping of civic engagement in large urban areas.

Socio-Economic Sorting, Homogeneity and Heterogeneity

Socio-economic segregation and inequality has been increasing in many European cities since 2001 affecting the spatial distribution of the rich and the poor within the same urban area (Tammaru et al. 2016). This enhances the phenomenon of socio-economic sorting, the creation of ghettos and spatially segregated clusters on the basis of socio-economic characteristics affecting the social sustainability of the city itself (van Ham et al. 2016). Low income individuals and residents in deprived neighbourhoods risk of being socially and spatially segregated with consistent obstacles in accessing important social network and urban resources (Madanipour 2004). Re-mapping the geographical distribution towards a

more socio-economic diversification of the urban areas might become the solution target. The literature, however, argues that socio-economic heterogeneity is not immune from undesirable consequences. Most people tend to prefer to live in proximity of whom is perceived to be similar to themselves in terms of ethnic group, income, religion, education and work (Feijten and Van Ham 2009; Van Ham and Tammaru 2016). Putnam (2006), for instance, argues that the increasing ethnic and social heterogeneity reduce social solidarity and social capital. In this respect, numerous empirical works report a negative association between socio-economic diversity and different social capital dimensions including social trust and civic engagement across local areas in several western economies (Poterba 1997; Alesina et al. 1999; Alesina and La Ferrara 2000; 2002, Cost and Kahn 2003, Gustavvson and Jordahl 2008 and many others). This evidence finds explanations in at least three different theoretical perspectives: the social identity theory, the conflict theory and the social psychological stress perspective.

According to the social identity theory, individuals tend to connect with like-minded people (Bakker and Dekker 2012). Hence, when an individual perceives that his/her reference group is alienated from the rest of the community, this individual feels her social position more threaten by other out-group members and therefore trust towards unknown reduces (Bobo and Hutchings 1996). This complement with the argument discussed in the conflict theory according to which individuals will compete over scarce resources and goods (Bobo and Hutchings 1996). Hence, social diversity increases trust towards in-group members and reduces trust towards out-group members even in the presence of geographical proximity. In fact, the spatially closer the individuals are with those different from their reference group the more they stick with the people that look alike and the less they trust out-group members (Putnam 2006). Hence, similarity among people reduces inter-individual conflicts and increases social network given that the members of the same community share similar values and norms.

An interesting perspective is the one of social psychological stress. Using data from Japanese municipalities Murayama et al. (2014) find that, on average, social trust is greater among people of low socio-economic status living in a district of low socioeconomic status and lower among people of low socio-economic status living in districts of high socioeconomic status (a sort of heterogeneity). The authors argue that individuals living in a neighbourhood where the other people present socioeconomic similarity are less psychologically stressed with a lower sense of relative deprivation. This makes the individual more comfortable with

the rest of the neighbours and increase his trust on them. This heterogeneity effect is less prominent and significant among people with high socioeconomic status who they seem less influenced by their surroundings.

Given the aforementioned background, it seems that socio-economic sorting and homogeneity in clusters might not be necessarily a negative element up. This might be valid up to a certain extend (van Ham et al. 2016). When this concentration lies on merely poor individuals, segregation and isolation of poverty might have a neighbourhood effect with negative consequences for health, income and education (van Ham et al. 2012).

The relational outcome associating heterogeneity with low social trust and social capital might be due to the absence of direct contacts with the unknown (Stolle et al. 2008). Where interactions between not-alike individuals belonging to two different reference groups occur regularly, prejudice and stereotypes are mitigated facilitating the creation of an overarching identity and trust transcending the original group boundaries (Bobo 1988; Dovidio and Gaertner 1999; Olivier and Wong 2003; Wagner et al. 2006). Extreme social exclusion and segregation would impede deprived neighbourhoods the ability of developing constructive communication channels and network among diversified groups which strongly compete for the limited resources. This would be a barrier for the local community to build mechanisms of collective efficacy and to integrate into the larger society.

Collective Efficacy

Civic engagement through the involvement of individuals in local organisations, neighbourhood institutions and voluntary associations is an ideal environment to boost social interactions and social ties (Morenoff et al. 2001; Peterson et al 2000; Veysey and Messner 1999). Several works report the diffusion of anti-social behaviour including crime and violent behaviour in local communities lacking of regular and frequent social interaction and social ties among its members (Bellair 1997; Rountree and Warner 1999). Prosocial behaviour, instead, requires social interactions based on norms of cooperation. Within a social dilemma framework, altruistic co-operators are individuals seeking to maximise joint outcomes and to choose a win-win solution to disagreement (Bogaert et al. 2008). Individuals adopting this behaviour are defined prosocially oriented with a natural inclination to cooperate for the benefit of the community due to a stronger sense of social responsibility (De Cremer et al.

2001). Alternatively, proselfs are individuals trying to maximise their own outcome even at the costs of others' conditions.

In this regard the economic geography and urban studies literature stresses on the importance of collective efficacy. This refers to the willingness and ability of the community members to work together and to cooperate on behalf of the common good to pursue effective social control and achieve public order (Sampson 2002). This is possible in socially cohesive neighbourhoods characterised by mutual trust and solidarity among neighbours. This is unlikely to occur in the presence of mistrust among locals (Sampson 1997). Hence, the collective efficacy is embedded in the structure of the social context and depends on the local socio-economic characteristics. In this respect, social cohesion is more likely to exist where social interactions occur in a socioeconomic homogeneous context where members share the same social norms and recognise each other as part of the same community. However, this socioeconomic homogeneity can also be a limitation especially in the presence of high concentration of merely low-income residents (Wilson 1978). Here, even though personal ties are strong in areas of concentrated disadvantage, they may be weakly linked to collective actions with limited possibilities to generating collective efficacy (Sampson et al. 1999). Sampson et al. (1999) using data from Chicago residents, Sampson et al. (1999) find that shared expectation of informal social control of children decreases in geographical areas of concentrated disadvantage. This supports the argument that "spatial sorting" of residents by income, education and work occupation may limit the collective efficacy because it undermines what Sampson et al. (1999) calls spatial externalities: i.e. geographical segregated and socially exclusive neighbourhoods cannot benefit by their spatial proximity to neighbourhoods with high level of shared expectations for child social control.

Data and Methodology

Data

We rely on the data gathered by ISFOL[1] Plus (Participation Labour Unemployment Survey) in 2014. The questionnaire has been administered by CATI method (Computer Assisted Telephone Interview) to a representative sample of the Italian population aged between 18 and 64 (55,012 target respondents) stratified by Region of residence, Municipality type (urban/non-urban), gender, age, and employment status.

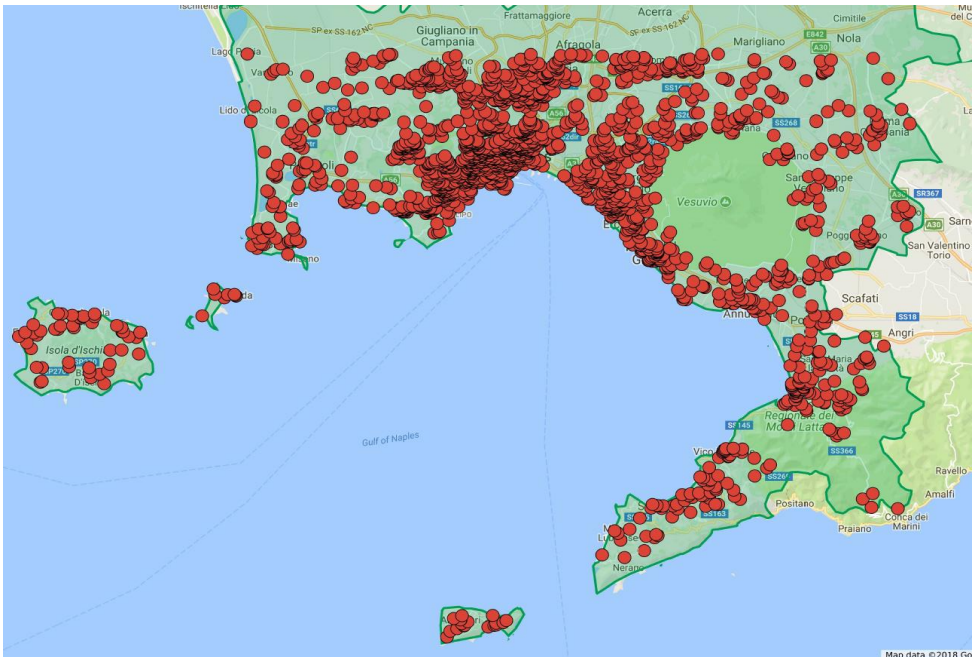
A large amount of information – about 200 variables – is organized into different modules: Pre-interview; Employed, Inactive and Searching a Job; Personal Information; Foreigners; Young People; Reconciling Work and Family; Disabled Persons Care; Public Services for Employment; Training.

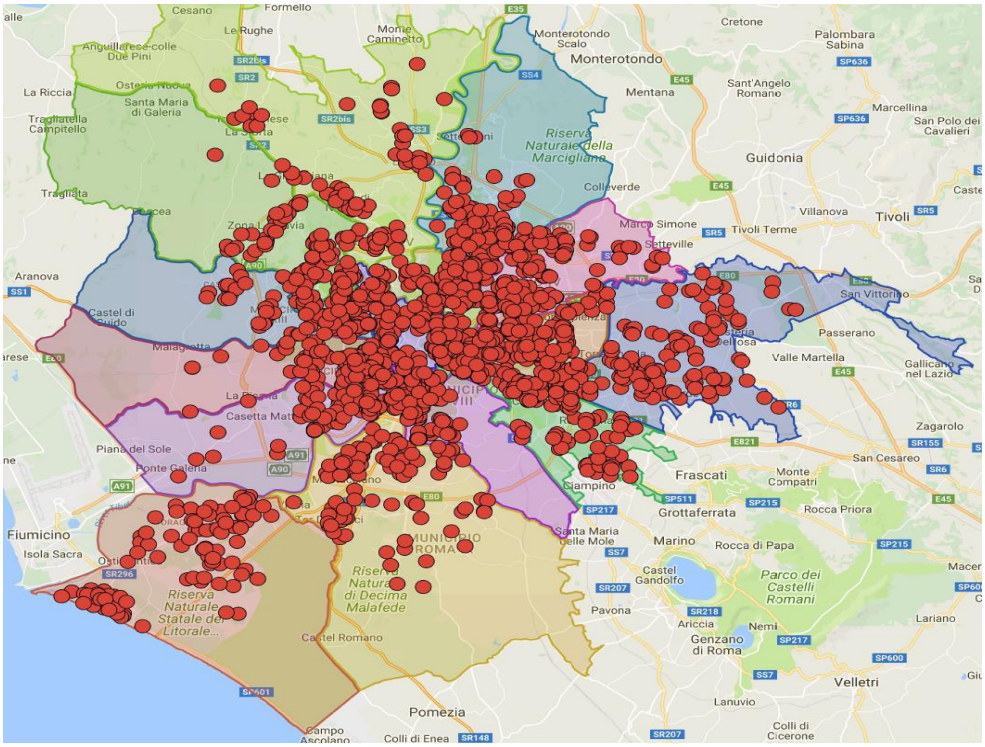
Table 1: Variables used in the analyses.

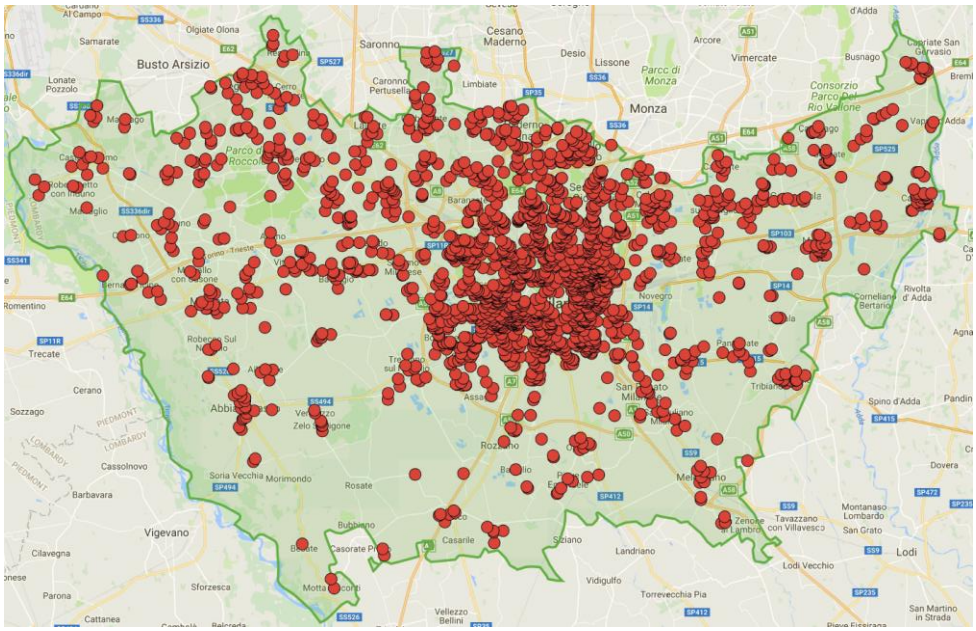
Variable	**Measure**	**Description**
civ_eng	Scale	Level of civic engagement
edu	Ordinal	Educational level, ISCED classification
inc	Ordinal	Average montly family income, ordered in classes
age	Scale	Age
sex	Binary	Gender
foreign	Binary	Dummy variable for nationality different from Italian
emp	Binary	Dummy variable for employed
unemp	Binary	Dummy variable for unemployed
mob	Binary	Dummy variable for inter-regional mobility (individuals who moved to a different Region)
edu_m	Ordinal	Educational level of the mother, ISCED classification
edu_f	Ordinal	Educational level of the father, ISCED classification
hou_prop	Binary	Dummy variable for household property
hou_dim	Scale	Household size in squared meters
geo6	Degrees	Latitude
geo7	Degrees	Longitude

[1] ISFOL – *Istituto per lo Sviluppo della Formazione Professionale dei Lavoratori* (Institute for the Development of Workers' Professional Training) is a national research institution controlled by the Ministy of Labour and Social Policies. On the 1st of December 2016 it has been restructured and renamed into INAPP – *Istituto Nazionale per l'Analisi delle Politiche Pubbliche* (National Institute for the Analysis of Public Policies).

Figure 1 – our individuals in Naples, Rome and Milan







For the purpose of our investigation, we selected the variables regarding the adoption of behaviors related to civic engagement, gender, age, socio-economic variables (education level of the interviewee and of his parents, monthly family income, employment status, household size and property) and the geographical location (expressed in spatial 2-dim coordinates) of those individuals residing in the Municipality of Rome (1,535 respondents) and in the Metropolitan Areas of Naples (2,332 respondents) and Milan (1,917 respondents).

Methods and Techniques

The hypotheses are checked on the population of three cities – Milan, Rome, Naples – which exhibit relevant differences on cultural and socio-economic aspects and are characterized by distinct forms of urban geography. Multiple methods are applied in order to control for the level of civic engagement exhibited by the population of the three cities according to the geographical distribution of the individuals: spatial clustering, continuous geographical distance and geographically weighted regression.

Checking the influence of education and income over civic engagement in spatial clusters.

The first step consists in grouping the individuals simply according to their spatial position, that is, we need to identify a partition scheme which assigns the units in the same group if they are spatially close, and otherwise they are placed in distinct groups. After (2^{nd} step), groups are rated according to the socio-economic homogeneity and the inclination to civic

engagements of the individuals. Last, the relation between homogeneity(heterogeneity) and civic engagement is checked.

Operatively, the units are partitioned into groups by using a spatial grouping technique which looks for a solution where all the spatial distances within each group are as similar as possible (step 1). To do so the algorithm employs a connectivity graph (minimum spanning tree) to find natural groupings. The optimal number of groups – in the range between 2 and 15 – is evaluated using the Calinski-Harabasz pseudo F-statistic, which is a ratio reflecting within-group similarity and between-group difference. After, we compute the average Euclidean distance calculated on income and education level among each couple of group's individual (step 2). This way we attribute a score to every group, which measures its socio-economic heterogeneity: the higher the average distance, the more heterogeneous are the units in the group. In step 3 we plot the average civic engagement of the groups versus the heterogeneity score and we calculate Pearson's *r* coefficient in order to explore the relation hypothesized (i.e. the higher the heterogeneity, the higher the civic engagement).

Checking the influence of heterogeneity (*education and income*) *over civic engagement controlling by a continuous measure of geographical distance.*

We relax the on/off condition due to the partition into spatially constrained groups by using a continuous measure of geographical distance. This procedure allows us checking the civic engagement (*y*) controlling for:

a) the role played by income (*inc*) differences in interaction with the spatial closeness (*c*) between each couple of individuals (*i*,*j*):

$$y_i = |inc_i - inc_j| * c_{i,j}$$

b) the role played by education (*edu*) differences in interaction with the spatial distance (*c*) between each couple of individuals (*i*,*j*):

$$y_i = |edu_i - edu_j| * c_{i,j}$$

The value of $c_{i,j}$ is an exponential transformation of the geographical distance ($d_{i,j}$) between *i* and *j* of the form $c_{i,j} = \frac{1}{\exp(d_{i,j})}$ so the role of large distances tends to be null.

Further the relation is controlled by adding other theoretically relevant explanatory variables such as gender, age, citizenship, status (employed, unemployed, student, retired….) and so on.

The determinants of civic engagement in geographically weighted regression.

Moreover, the relation between civic engagement and socio-economic status can be spatially contextualized by means of a Geographically Weighted Regression[2]. GWR is a local form of linear regression used to model spatially varying relationships which generates a separate regression equation for every feature analyzed in a sample dataset as a mean to address spatial variation.

It follows that coefficients are able to vary according to space, revealing interesting patterns which otherwise would be masked.

In our case we have a spatial equation for each individual where the civic engagement is specified according to education, income, gender, age, citizenship, status (employed, unemployed, student, retired….) and so on.

Our dependent variable and explanatory variable

Our dependent variable is a measure of civic engagement (CE): which is measured by aggregating some questions about the individuals' involvement in voluntary activities. People are asked to the following question: "Could you please say how often you carry out the following activities?: 1. To take part in cultural events (like concerts, theatre shows, movies, exhibitions and museums); 2. To meet friends, relatives or neighbour (recreational activity); 3. To do voluntary work – helping people in difficulty; 4. To take part in the quarter, village, parish, trade union, school activities, etc.

Our main explanatory variable is calculated as a measure of socio-economic diversity weighted by distance (i.e. proximity), according to the following formula:

$$prox\_heter = \mathrm{PC}(\overrightarrow{\mathbf{v}_e}, \overrightarrow{\mathbf{v}_i})$$

where PC is the principal component of the two vector *education* and *income.* In other words, our proximity measure tells us, for each individual, to what extent she is surrounded by

[2] Fotheringham, A. S., Brunsdon, C., and Charlton, M. E. (2002). *Geographically Weighted Regression: The Analysis of Spatially Varying Relationships*. Wiley, Chichester.

people with a different socio-economic background - as measured in terms of a combination of education and income – weighted by an inverse measure of the distance, so that closer people matter more than distant people.

Results

In this section we report the results of the estimates of the model presented above. As said, our dependent variable is our measure of CE; while our main explanatory variable is our proximity measure of heterogeneity, which reflects to what extent each individual lives close to individuals with a different social background. We also include a set of interaction variables that capture the joint effect of proximity with the degree of income of the individual. This should give us some indication of the relative importance of proximity along the range of income.

One of the added values of the data is the substantial amount of control variables at the individual level we can rely on. The first set of controls include the level of education and income, sex, age3, and two dummies variables for Milan and Rome, with Naples being the base category. A second set of variables concerns other individual characteristics and labor market characteristics that can affect the opportunity cost and the time available to engage in civic activities. We control for whether the individual is originally from a different region that the one she lives in at the moment; we expect this kind of people to be relatively less interested in CE. We also control for the employment and unemployment status as this can affect the cost opportunity of CE (here the base category is inactive, e.g. students and retired people).

A second set of control pertains the background of the family, namely the level of education of the father and the level of education of the mother. There is an argument about people that can be less interested in CE when they do not rely on the public sector, when they for instance attend private school, bring children in private activities (like sport or music) and so on. The variable "attended private school" is aimed to capture this effect, thus we expect the coefficient to be negative. The interested in CE is expected to grow when people are expected to live in a place for a while. The variable "house of property" is a proxy of the commitment of the individual in the area they live in, thus we expect this to be positive.

[3] Including age squared does not change the results; this has been omitted accordingly.

A third set of control variables addresses the literature that links trust to CE. This research unanimously predicts a positive correlation between the two, thus we expect our three measures of trust to correlate positively with CE.

We enter each set of controls in the estimates, from Model 1 to Model 4, and then the interaction variables in Model 5. Our variable of interest "proximity measure" is always negatively correlated and significant at 1%, dropping to 5% in Model 4 when trust is included. Our result suggests that people interacting with people from a diverse background are less likely to engage in civic activities. This first result confirms those theories and empirical results that posit that heterogeneity hamper CE. By looking at Model 5, one can observe that the results are driven by low-medium income (€ 1,000-2,000 per month, family gross income) and medium income individuals (€ 2,001-3,000).

As for the control variables, they behave quite reasonably. Both education and income predict CE, as well as being female. As envisaged above, mobility reduces CE while unemployment improves it. Trust – in all its forms - arises as a strong predictor of CE.

Table 1 – Estimating civic engagement (ordered logistic regressions)

	Model 1		Model 2		Model 3		Model 4		Model 5	
proximity measure	**-0.076*** **	(0.026)	**-0.076*** **	(0.026)	**-0.081*** **	(0.028)	**-0.076** **	(0.031)	0.093	(0.078)
education	**0.265*** **	(0.030)	**0.274*** **	(0.030)	**0.272*** **	(0.035)	**0.247*** **	(0.039)	**0.261*** **	(0.039)
income	**0.093*** **	(0.026)	**0.111*** **	(0.027)	**0.109*** **	(0.028)	**0.133*** **	(0.031)	**0.139*** **	(0.034)
female	0.048	(0.048)	0.049	(0.049)	0.065	(0.051)	**0.102***	(0.055)	**0.098***	(0.055)
age	0.005	(0.010)	0.011	(0.011)	0.010	(0.012)	0.008	(0.015)	0.007	(0.015)
rome	**-0.233*** **	(0.064)	**-0.198*** **	(0.065)	**-0.199*** **	(0.069)	**-0.179** **	(0.075)	**-0.204*** **	(0.075)
milan	**-0.317*** **	(0.057)	**-0.282*** **	(0.058)	**-0.287*** **	(0.061)	**-0.307*** **	(0.066)	**-0.319*** **	(0.066)
mobility			**-0.183** **	(0.073)	**-0.167** **	(0.076)	**-0.219*** **	(0.084)	**-0.231*** **	(0.084)
employed			-0.091	(0.059)	-0.090	(0.061)	-0.090	(0.064)	-0.085	(0.064)
unemployed			**0.129***	(0.072)	0.116	(0.074)	**0.134***	(0.076)	**0.134***	(0.076)
education of the father					-0.013	(0.039)	0.003	(0.042)	0.004	(0.042)
education of the mother					0.015	(0.041)	-0.001	(0.044)	0.001	(0.044)
attended private school					**-0.181***	(0.101)	-0.142	(0.108)	-0.144	(0.109)
house property					0.039	(0.069)	-0.054	(0.072)	-0.050	(0.072)
trust _friend							**0.438*** **	(0.074)	**0.443*** **	(0.075)
trust_relatives							**0.218*** **	(0.058)	**0.220*** **	(0.058)
trust_self							**0.271*** **	(0.072)	**0.266*** **	(0.072)
low income*proximity									**-0.188***	(0.097)
low-medium income*proximity									**-0.268*** **	(0.097)
medium income*proximity									-0.110	(0.103)
high income*proximity									-0.166	(0.112)

Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Conclusions

A great deal of studies have analysed to what extent a homogenous versus heterogeneous urban environment encourage the civic participation of citizens. Most of these studies have been conducted in the U.S., or in Norther European countries, such as Sweden. In these cases the ethnic and linguistic dimensions are those that are considered in order to define homogenous versus heterogeneous spaces.

This paper addresses this topic in three major Italian countries, and it exploits a unique dataset that makes it possible to carry out a geo-localized econometric analysis. Instead of characterising diversity along the ethnic-linguistic profile, is does so by considering two dimensions, income and education, that have been by and large used a proxy in economic and sociological research. Given the high pairwise correlation of the two variables we have extracted the first principal component as a single measure of diversity in the social background.

We built our main explanatory variables as a measure of heterogeneity which reflects to what extent each individual lives close to individuals with a *different* social background. As such, we can assume that this variable reflects to what extent citizens interact with people with a different social background, as for instance at children school or in social places (e.g. parks, churches or supermarket).

We find that more diverse urban environment decreases the civic participation of the citizens. Even after controlling for several individual characteristics, such as income and education, labour market status, mobility etc., our measure of proximity is negatively correlated with our measure of civic engagement. Thus, citizens interacting with different pairs are less likely to involve in social activities such as voluntary activities, association or to take part in some protest.

These findings confirm some results that are already familiar in the literature on ethnic diversity. It further shows that it is not necessary to have ethnic differences to hamper civic participation, but social differences are also a sufficient condition for that outcome. This can have far-reaching implications. On the one hand, diversity is a fundamental engine of economic growth, in that there is growing consensus in research that more diverse environments are conducive to higher performance in creativity and innovation (e.g. Landry and Wood, 2012; Filippetti and Guy, 2015). There are also growing concerns about the sorting phenomenon, especially in cities. Diversity is important also because it tends to

decrease inequality by encouraging marriage among people from different backgrounds. Hence, there are some valid reasons to encourage heterogeneous environment. But at the same time heterogeneity seems to harm social cohesion and political participation among several dimensions. This seems to be a central dilemma for policy makers in cities in the coming future. We hope to have shed some light for a better understanding of one the most fundamental dimension of social life.

Appendix – robustness checks, same estimates as for Table 1 using different spatial transformation of our proximity measure

Table A1 - Proximity: linear transformation

	Model 1		Model 2		Model 3		Model 4		Model 5	
prox_heter	-.068**	(.027)	-.068**	(.027)	-.075***	(.029)	-.067**	(.031)	.096	(.072)
education	.263***	(.030)	.270***	(.030)	.271***	(.035)	.245***	(.038)	.258***	(.039)
income	.091***	(.026)	.107***	(.027)	.108***	(.028)	.130***	(.031)	.140***	(.034)
female	.054	(.048)	.061	(.048)	.075	(.050)	.108**	(.054)	.104*	(.054)
age	-.005***	(.002)	-.004**	(.002)	-.003	(.002)	-.001	(.002)	-.000	(.002)
rome	-.237***	(.067)	-.204***	(.067)	-.206***	(.072)	-.181**	(.078)	-.216***	(.079)
milan	-.291***	(.056)	-.260***	(.057)	-.261***	(.060)	-.281***	(.064)	-.278***	(.065)
mobility			-.183**	(.072)	-.167**	(.076)	-.219***	(.084)	-.244***	(.084)
employed			-.057	(.054)	-.064	(.056)	-.079	(.061)	-.075	(.061)
unemployed			.153**	(.069)	.135*	(.072)	.142*	(.075)	.142*	(.075)
edu_father					-.016	(.039)	.000	(.042)	-.000	(.042)
edu_mother					.009	(.041)	-.004	(.044)	-.002	(.044)
priv_school					-.184*	(.101)	-.143	(.108)	-.149	(.108)
house_prop					.045	(.069)	-.048	(.072)	-.045	(.072)
trust_friend							.435***	(.074)	.442***	(.075)
trust_relatives							.220***	(.058)	.223***	(.058)
trust_self							.272***	(.072)	.265***	(.072)
2.income#c.prox_heter									-.153*	(.091)
3.income#c.prox_heter									-.252***	(.092)
4.income#c.prox_heter									-.097	(.100)
5.income#c.prox_heter									-.172	(.108)
1.mobility#c.prox_heter									-.237***	(.087)

Table A2 - **Proximity: sigmoid transformation**

	Model 1		Model 2		Model 3		Model 4		Model 5	
prox_heter	**-.053****	(.025)	**-.053****	(.025)	**-.061****	(.026)	**-.055***	(.029)	.079	(.066)
education	**.264*****	(.030)	**.271*****	(.030)	**.273*****	(.035)	**.245*****	(.038)	**.255*****	(.039)
income	**.087*****	(.026)	**.103*****	(.027)	**.103*****	(.028)	**.126*****	(.031)	**.128*****	(.033)
female	.052	(.048)	.059	(.048)	.073	(.050)	**.106****	(.054)	**.103***	(.054)
age	**-.005*****	(.002)	**-.004****	(.002)	-.003	(.002)	-.001	(.002)	-.001	(.002)
rome	**-.201*****	(.062)	**-.167*****	(.063)	**-.166****	(.067)	**-.147****	(.072)	**-.172****	(.073)
milan	**-.274*****	(.056)	**-.242*****	(.057)	**-.242*****	(.060)	**-.264*****	(.064)	**-.260*****	(.064)
mobility			**-.186****	(.072)	**-.169****	(.076)	**-.221*****	(.084)	**-.235*****	(.084)
employed			-.056	(.054)	-.064	(.056)	-.079	(.061)	-.074	(.062)
unemployed			**.152****	(.069)	**.133***	(.072)	**.140***	(.075)	**.141***	(.074)
edu_father					-.017	(.039)	-.000	(.042)	-.001	(.042)
edu_mother					.008	(.041)	-.005	(.044)	-.003	(.044)
priv_school					**-.182***	(.100)	-.142	(.108)	-.147	(.108)
house_prop					.049	(.068)	-.044	(.072)	-.040	(.072)
trust_friend							**.435*****	(.074)	**.444*****	(.075)
trust_relatives							**.221*****	(.058)	**.224*****	(.058)
trust_self							**.272*****	(.072)	**.264*****	(.072)
2.income#c.prox_heter									-.102	(.082)
3.income#c.prox_heter									**-.230*****	(.086)
4.income#c.prox_heter									-.075	(.097)
5.income#c.prox_heter									-.126	(.105)
1.mobility#c.prox_heter									**-.226****	(.088)

Table A3 - Proximity: convess transformation

	Model 1		Model 2		Model 3		Model 4		Model 5	
prox_heter	**-.078****	(.031)	**-.078****	(.031)	**-.086*****	(.032)	**-.073****	(.036)	.116	(.076)
education	**.259*****	(.030)	**.266*****	(.030)	**.268*****	(.035)	**.244*****	(.038)	**.259*****	(.039)
income	**.095*****	(.026)	**.111*****	(.027)	**.113*****	(.029)	**.134*****	(.032)	**.164*****	(.036)
female	.055	(.048)	.062	(.048)	.076	(.050)	**.109****	(.054)	**.106****	(.054)
age	**-.005*****	(.002)	**-.004****	(.002)	-.003	(.002)	-.001	(.002)	-.001	(.002)
rome	**-.282*****	(.076)	**-.248*****	(.077)	**-.254*****	(.082)	**-.218****	(.089)	**-.266*****	(.094)
milan	**-.325*****	(.059)	**-.293*****	(.060)	**-.297*****	(.063)	**-.310*****	(.067)	**-.312*****	(.069)
mobility			**-.183****	(.072)	**-.167****	(.075)	**-.220*****	(.084)	**-.270*****	(.085)
employed			-.056	(.054)	-.063	(.056)	-.079	(.061)	-.077	(.061)
unemployed			**.155****	(.069)	**.136***	(.072)	**.143***	(.075)	**.140***	(.075)
edu_father					-.018	(.039)	-.002	(.042)	-.003	(.042)
edu_mother					.009	(.041)	-.005	(.044)	-.002	(.044)
priv_school					**-.185***	(.101)	-.144	(.108)	-.150	(.108)
house_prop					.048	(.068)	-.044	(.072)	-.042	(.072)
trust_friend							**.435*****	(.074)	**.436*****	(.075)
trust_relatives							**.219*****	(.058)	**.221*****	(.058)
trust_self							**.271*****	(.072)	**.268*****	(.072)
2.income#c.prox_heter									**-.195***	(.102)
3.income#c.prox_heter									**-.245****	(.098)
4.income#c.prox_heter									-.151	(.104)
5.income#c.prox_heter									**-.247****	(.112)
1.mobility#c.prox_heter									**-.281*****	(.090)