BANCA D'ITALIA

EUROSISTEMA

Temi di Discussione

(Working Papers)

Individual trust: does quality of public services matter?

by Silvia Camussi and Anna Laura Mancini

June 2016

Number 1069

BANCA D'ITALIA
EUROSISTEMA

Temi di discussione

(Working papers)

Individual trust: does quality of public services matter?

by Silvia Camussi and Anna Laura Mancini

Number 1069 - June 2016

The purpose of the Temi di discussione *series is to promote the circulation of working papers prepared within the Bank of Italy or presented in Bank seminars by outside economists with the aim of stimulating comments and suggestions.*

The views expressed in the articles are those of the authors and do not involve the responsibility of the Bank.

ISSN 1594-7939 (print)
ISSN 2281-3950 (online)

Printed by the Printing and Publishing Division of the Bank of Italy

INDIVIDUAL TRUST:
DOES QUALITY OF LOCAL SERVICES MATTER?

by Silvia Camussi* and Anna Laura Mancini*

Abstract

This paper contributes to the literature on the determinants of social capital by investigating how the quality of local services influences individual's generalized trust and trust in local government. Using data from the Italian National Statistic Office survey "Aspetti della vita quotidiana", after building a measure for local services' quality, we study its effect on individual's social capital using linear regressions techniques. Our results suggest that good local public services affect positively individual's social capital, the effect being stronger for trust in local institutions. To deal with possible endogeneity issues, the robustness of our results is tested using two-step GMM estimation, while the procedure proposed by Altonji et al. (2005) is used to study the sensitivity to omitted variables. Finally, the paper extends the analysis to further social capital measures (family ties, network social capital and trust in central government) and to alternative quality measures. We also test the existence of age related differences in the influence of public services' quality on individual trust measures.

JEL Classification: C26, Z10, H70.
Keywords: trust, quality of public services, IV estimation.

Contents

* Bank of Italy, Economic Research Unit, Turin Branch.

1. Introduction[1]

Social capital plays an important role in today's markets and society. At the aggregate level, there is a consensus that it benefits different aspects of a country's economic performance (employment, financial transactions, growth and so on; see Algan and Cahuc, 2014 [8], for a recent survey). At the individual level, it is related to positive outcomes such as happiness and economic success (Delhey and Newton, 2003 [21], Growiec and Growiec, 2014 [32]). In this paper we focus our attention on a particular measure widely used in the literature as a proxy for social capital: trust.

Studying the determinants of trust is, therefore, an important issue and many papers have tried to identify its source. On the one hand, individual characteristics seem to matter as well as family characteristics and values (Dohmen *et al,* 2011 [22]; Albanese *et al*., 2014 [2]). On the other hand, a number of works find that several aspects of the society in which individuals live play a role in shaping individual's trust. Socioeconomic factors, such as income inequality and ethnic heterogeneity, display a strong and negative correlation with trust (*e.g.* Knack and Keefer, 1997 [37]; Gleaser et al, 2000 [29]; Zak and Knack, 2001 [54]; Alesina and La Ferrara, 2002 [7]; Uslaner, 2002 [52], 2003 [53]; Knack and Zak, 2002 [38]), as well as the sense of security and crime rates (e.g. Delhey and Newton, 2003 [21]; Uslaner, 2002 [52]; Moschion and Tabasso, 2014 [40]). Policies and institutional conditions are also relevant (Knack and Keefer, 1997 [37]; Accetturo *et al.,* 2014 [1]; Tabellini, 2010 [51]), because trust and institutions are interdependent and co-evolve over time. Although a growing number of studies focus on the relation between social capital and institutions (see Alesina and Giuliano, 2015 [3] for a recent review), still little is known about the interaction between the quality of local institutions and social capital (proxied by trust).

Our paper aims to shed new light on the determinants of trust by investigating the role of the quality of local public services, harnessing the

[1] We thank Guglielmo Barone, Guido De Blasio, Emma Galli, Sauro Mocetti, Diego Scalise, Paolo Sestito and seminar participants at the Bank of Italy for useful suggestions. The views expressed in the paper are of the authors only and do not necessarily reflect those of the Bank of Italy. All remaining errors are ours.

heterogeneity across the Italian municipalities stemming from the decentralization the provision of services. Using data from Istat (Italian National Statistical Office) we build a new indicator for the quality of local public services and we then analyse how this measure influences individual trust.

Social capital and trust are a multidimensional concepts, whose many aspects can interact in different ways with the institutional framework and can evolve along different paths over time. For example, Paxton (1999) [44] analyses multiple indicators of social capital in the United States over a 20-year period finding evidence of a decline in a general measure of social capital, a decline in trust in individuals, no general decline in trust in institutions and no decline in associations. To account for this multidimensionality, in our main analysis we include two different measures of trust (generalized trust and trust in local government) and, as refinements, three additional measures (social network, family ties and trust in central government) and we expect to find different relations between them and local service' quality (i.e. a greater effect on trust on local government compared with generalized trust). Our results are in line with our expectations: in fact, although a better quality of local public services has a small impact on generalized trust, it enhances trust in local government with a greater intensity. We test the sensitivity of our findings to the existence of possible endogeneity issues using a two-step GMM estimation procedure and the sensitivity to a possible omitted variable bias using the insight from Altonji *et al*., 2005 [9]. We conclude that, even if present, endogeneity and omitted variables do not seem to constitute a major problem for our analysis.

Our results are robust to different definitions of the services' quality measure. We also test the existence of age-related differences in the influence of public service' quality on individual trust measures: in the case of generalized trust no clear pattern emerges, while for trust in local government we find no significant effect for middle-aged adults and positive and sizable effects for young and older adults.

Our contribution to the existing literature is twofold. First, compared with the papers that look at the interaction between individuals' trust and public institutions using indirect or generic variables (such as crime rate, the perception of inequality and the enforcement of law), our measure focuses on

the direct relation between citizens and public institutions and captures individual opinions about the quality of widely used public services[2]. Second, we contribute to the literature on the quality of local government by building a new indicator at a very disaggregated local level. So far, comparative research has mainly focused on national differences[3]. More recently, scholars developed indicators related to corruption and crime at the sub-national level, to account for within-country variation (e.g. for Italy: Golden and Picci, 2005 [30], Del Monte and Papagni, 2007 [20]) as well as measures of public sector efficiency (for Italy, Barone and Mocetti, 2011 [11], Tommasino and Giordano, 2013 [27], and Giacomelli and Tonello, 2015 [26]). Charron *et al.* (2014) [18], instead, constructed a more comprehensive measure of government quality for the EU regions. Our paper provides a finer disaggregation by constructing an indicator of public service' quality at the local labour market area (LLMA) level, i.e. geographical areas based on regular commuting patterns. This level of aggregation should represent self-contained realities and, hence, better capture the individuals' day to day perception of how local policies are implemented.

Moreover, our within-country framework reduces the measurement error issues related to how respondents belonging to different countries interpret questions about trust (see e.g. Holm and Danielson, 2005 [36]) and formal institutions (Alesina and Giuliano, 2011 [4]). Nevertheless, choosing Italy ensures a high degree of regional variability in terms of social capital and of public service' quality (see Putnam, 1993 [46], for the former and Bripi *et al*, 2011 [16], for the latter). One last point where our analysis diverges is that we test the robustness of our results to potential endogeneity issues and omitted variables bias.

The rest of the paper is structured as follows: section 2 summarizes the theoretical relationship between trust and public services, section 3 outlines the empirical strategy, section 4 describes our sample and our indicators, section 5

---

[2] Given that opinions might as well be influenced by social capital, in section 3.2 we compare our subjective quality measure with other objective measures developed in the literature. We do not find significant differences in terms of the ranking of local areas.

[3] Data on countries' level of corruption and rules enforcement have flourished since the mid-1990s and are now published on a yearly base (e.g.: "*Corruption Perception Index*"; the "*International Country Risk Guide*", the "*World Governance Indicators*").

presents the estimation results and section 6 extends the analysis using alternatives social capital measures, quality measures and cohort analysis. Section 7 concludes.

2. Public institutions and social capital

This paper is based on a strand of the theoretical literature in which trust represents individuals' expectations about actions performed by others and about the consequences of those actions. These expectations can be modified by family or personal experience and by individuals' interactions with the surrounding environment. For example, Guiso *et al.* (2008) [34] build an overlapping-generation model in which individual priors about trusting others are absorbed from their parents' views and, after a slow and constant update through life experience, transmitted to their children. These intergenerationally transmitted priors affect individuals' decision on whether or not to trust other members of the society and to participate in any type of anonymous exchange. As a result of this, multiple equilibria are possible and a society can remain trapped in a low trust equilibrium where individuals mistrust others, do not engage in the market and are therefore not able to update their beliefs about trusting others'. Grief (1994) [31] studies the effects of rational cultural beliefs, which capture individuals' expectations of actions performed by others, on the long-run persistence of institutions. Past beliefs affect decisions in periods that follow and become the focal point for individuals' expectations.

The channels through which local public services and trust can affect each other are, in our view, mainly two.

On the one hand, if trust can be considered as a proxy of individual expectations about others' behaviour, the surrounding environment can affect trust by influencing the expected probability of facing bad conduct. For example, littered streets, broken benches, smeared walls and so on reinforce individuals' knowledge about others misbehaviour and, therefore, might induce mistrust. They also reduce individuals' propensity to trust those public institutions unable to protect and preserve public goods. The performance of the public institutions and the trust they inspire are also linked through the citizens' perception of the quality of public action. Long queues, run-down public offices and listless civil

servants might reinforce individuals' negative expectations about the nature of the surrounding environment, about others behaviours and about the quality of public institutions. However, it is also true that collective trust might have an impact on individual perceptions per se: good services may be perceived as an exceptional event, and therefore might not change expectations, if citizens are used to living in an uncivil and deteriorated environment. Generally speaking, reputation, high opportunity costs of free-riding and information diffusion are all aspects that can reduce the uncertainty about others' behaviour and can and, therefore, help to build trust and reciprocity.

On the other hand, social capital and public institutions are interconnected because they share a selection problem. In areas where public services are poor and the environment is deteriorated it is more likely that it will be the people that do not care about civil virtues and public goods who will remain, while those who have civil virtues more highle and have higher social capital will move away. This, in turn, increases the probability of having listless civil servant (given that they work in an unconcerned environment and that they are chosen among low trust individuals) and bad behaviours, lowering even more the quality of the public environment and creating a vicious circle between trust and the quality of services.

Our paper is close in spirit to the literature studying the links between the public sector and tax morale, with which we share the idea that personal values and attitudes may be affected by the performance of local institutions. This stream of the literature investigates how the public sector, proxied for example by the efficiency of public spending (Barone and Mocetti, 2011 [11]) or the quality of public governance (Cummings *et al*, 2009 [19]), influences tax morale and, as a consequence, tax compliance, which is a relevant issue in terms of public finance sustainability and the redistributive consequences of the tax system. Compared with this stream of the literature, our work considers a broader proxy of individual social capital (trust instead of tax morale) as well as a different institutional indicator, related to citizens everyday life and constructed directly from their perceptions of the quality of public institutions.

Our paper is also similar to the work done by Rothstein and Stolle (2008) [48], who argue that individuals' trust is partly determined by the perceived

fairness of those who are in charge of the public interest. Rothstein and Stolle (2008), using microdata for Canada and two measures of the quality of political institutions (the ranking of courts and of police departments), study the relation between individual generalized trust and political institutions finding a positive correlation. Compared with their analysis, our institutional indicator has the advantage of capturing different aspects of local services widely used by citizens, while courts and police are institutions many citizens might never get in touch with. Moreover, we test the robustness of the results to possible endogeneity issues.

3. Empirical strategy and data

The empirical equation we estimate is the following:

$$trust_{ij} = \alpha + \beta qual_j + \delta X_{ij} + \gamma P_j + \varepsilon_{ij} \quad (1)$$

where $trust_{ij}$ is a trust measure for individual *i* living in the local labour market area (LLMA) *j*, $qual_j$ is an indicator of the quality of the public services in the LLMA *j*, X_{ij} are individual controls, P_j are local controls and ε_{ij} is a i.i.d. error term.

As a first step, we perform an OLS regression on a sample of individuals aged 25 to 85, adjusting our standard errors to take into account within-family correlation (Moulton, 1990 [41]). Our analysis could suffer from reverse causality and omitted variable issues; it is possible that individuals surrounded by better institutions develop greater trust, but it is also possible that institutions work better in those areas where social capital is higher. As a second step, to deal with the potential endogeneity of the measure of the quality of institutions, we rely on an instrumental variable approach using a two-step GMM estimator. We address the problem of potentially omitted variables using the insight from Altonji *et al.* (2005) [9], calculating how much greater the effect of unobservable factors should be with respect to observable factors to completely counterbalance the observed relationship between the quality of services and individual trust.

4. Data and variables

Our dataset is built by pooling the 2012-13 waves of the Istat's survey "*Aspetti della vita quotidiana*". The survey has been conducted yearly from 1993 onwards on a representative sample of the Italian population[4]. The questionnaire seeks information on demographics, self-reported economic characteristics and health, and features specific questions about different local services, social participation and attitudes. Starting from 2012, specific questions on trust in institutions as well as generalized trust were included. Our final sample contains by over 67.000 observations.

In the following subsections we briefly describe the main variables used in the analysis. Table 1 provides descriptive statistics.

[4] In 2012 and 2013 around 19.000 households were interviewed in each year, corresponding to more than 46.000 individuals.

Table 1 Descriptive statistics (25-85 years old)

	Obs	Mean	Sd
Dependent variables			
Generalized trust	66,589	0.211	0.408
Trust in local government	65,595	3.910	2.387
Trust in government	66,183	3.400	2.548
Network social capital	64,990	0.004	0.815
Family ties	30,686	9.019	1.322
Quality indicators			
Structural quality	67,731	0.005	0.578
General accessibility	67,731	0.007	0.600
Waiting times	67,731	0.011	0.549
Quality of local services	67,731	0.011	0.291
Quality of local services (without waiting times)	67,731	0.005	0.496
Number of municipalities with a train station	67,731	0.450	0.409
Individual controls			
Employed	67,731	0.457	0.498
Unemployed	67,731	0.095	0.294
Age	67,731	53.183	15.675
Female	67,731	0.521	0.500
Sickness	67,731	0.192	0.394
Divorced	67,731	0.084	0.277
B.A.	67,731	0.134	0.341
High school diploma	67,731	0.277	0.447
Number of children	67,731	0.961	0.971
Sufficient family income	67,342	2.541	0.637
Job in a social sector	67,731	0.107	0.309
Local controls			
Main city in the province	67,731	0.147	0.355
Mountainous surface (%, LLMA)	67,731	0.346	0.368
Seismic municipality (%, LLMA)	67,731	0.423	0.443
Population (Log, LLMA)	67,731	12.003	1.460
Unemployed to total population (%, LLMA)	67,731	0.058	0.027
B.A. rate (%, LLMA)	67,731	0.106	0.029
General government workers in 1971 (%, LLMA)	67,731	0.068	0.039
Population density in 1971 (LLMA)	67,731	4.644	7.081
North-West	67,731	0.213	0.410
North-East	67,731	0.208	0.406
Centre	67,731	0.182	0.386
South	67,731	0.288	0.453
Islands	67,731	0.107	0.309

4.1. Social capital

In our main analysis we follow the strand of the literature, recently summarized by Guiso *et al.* (2011) [33], in which social capital is described as a set of beliefs and values (such as trust) and respect for the common good (civil virtues) shared by the local community and persistent over time. According to this definition, social capital is always beneficial for economic development.

In our main specification we consider as the dependent variable two measures of trust available in the Istat's survey "*Aspetti della vita quotidiana*". The first one is based on the question: *"Do you generally think that people can be trusted?"*. The possible answers are 1 if the respondent thinks that most people can be trusted and zero otherwise. This question is very similar to the widely used question asked in the World Value Survey (WVS) and the US General Social Survey (GSS) *"Generally speaking, would you say that most people can be trusted or that you have to be very careful in dealing with people?"* and represents a measure of generalized trust[5]. Figure 1 shows the distribution of our trust measure across Italian LLMAs: higher levels of trust are concentrated in the northern part of the country and partially in the centre, but there is substantial geographical variability.

Our second measure of trust is based on the following question: "How much do you trust the following institutions?*:1) Regional Government*; *2) Provincial Government; 3) Municipal Government*". We average the answers to these three questions to get a proxy of trust in local government. Answers to each question range from 1 "Not at all" to 10 "Completely". Figure 2 shows the distribution of the variable across Italian LLMAs. Higher levels of trust are concentrated in the North, but there is substantial geographical variability, even within that part of the country.

[5] Some studies (Glaeser et al., 2000 [29], Fehr, 2009 [24]) pointed out that trust measures based on these standard questions might not capture only trust but a mix of trust, trustworthiness and features of individuals' preferences such as risk aversion. The main criticisms are three: first, the respondents have the choice between trust and caution and not between trust and distrust or cautious and incautious behaviour (see e.g. Naef and Schupp, 2009 [42]); second, experimental evidence shows that people often interpret the question in terms of beliefs and not of own trustworthiness; third, it is not clear who is to be trusted (strangers or acquaintances). The Istat formulation overcomes the trust vs caution problem, but it is still affected by the other two criticisms. Nevertheless, we follow the literature and use this measure of generalized trust in order to obtain comparable results.

Figure 1

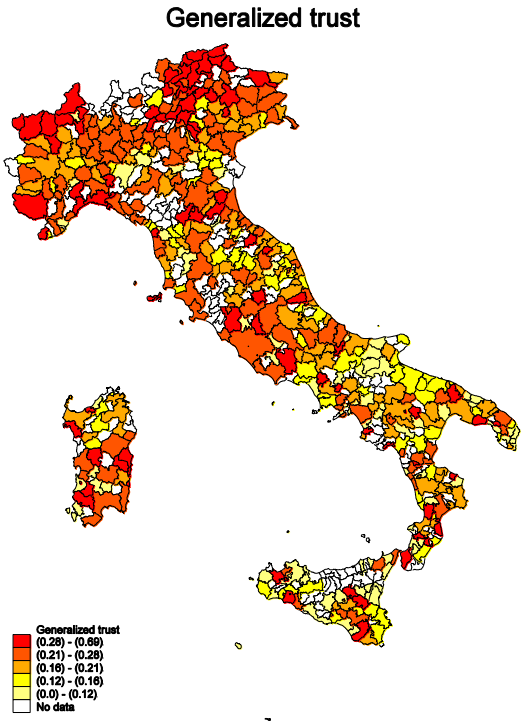
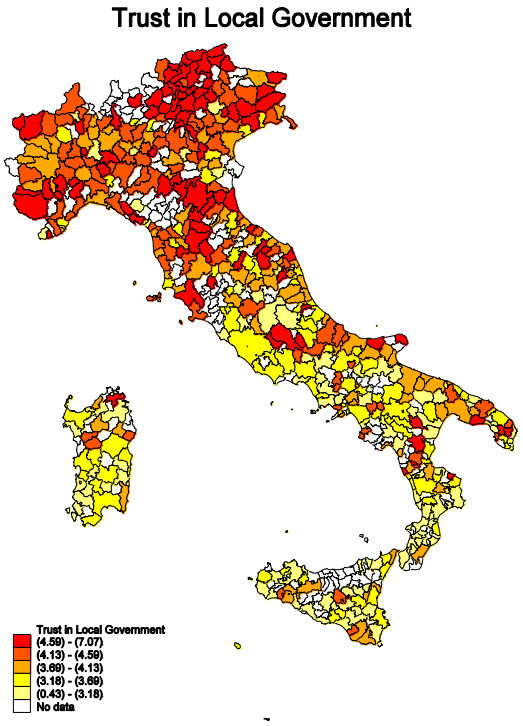


Figure 2



4.2. Quality of local services

Since the mid-1990s there has been a proliferation of data on the quality of government. Today these measures mainly consist of national level indexes capturing the degree of corruption and of rule of law of a country. The focus on national indicators, however, provides a distorted picture owing to the presence of significant variation at the sub-national level, which stems from the decentralization of the provision of many public services and from the differential enforcement of rules at the local level. Recently, to account for this within-country heterogeneity, scholars focused on the construction of more narrowly defined measures. For Italy Golden and Picci (2005) [30] and Del Monte and Papagni (2007) [20] provide provincial measures of corruption while Giordano and Tommasino (2013) [27] and Giacomini and Tonello (2015) [26] develop two measures of public sector efficiency. There is still, however, a lack of measures of the local government quality. A first attempt to fill this gap is in a work by Charron *et al.* (2014) [18], who build an indicator of the quality of government for 172 European NUTS 2 regions based on individuals' perception

of three regionally provided public services: education, healthcare and law enforcement[6]. Their analysis shows great variability in the quality of government: regions in the North of Italy enjoy levels of quality of government as high as certain regions in Germany or Austria, while those in the South are closer to the low-performing regions in the New Member States.

In the literature, the quality of government has been typically proxied by indicators capturing either the impartiality of policy implementation (*e.g.* limiting corruption, prevalence of the rule of law) or its effectiveness (*e.g.* protection of property rights).

We claim that the low quality of local government - either deriving from factors such as corruption, inefficient behaviour on the part of local authorities, who carry out their functions in a short-sighted way, or inappropriate behaviour on the part of civil servants - translates into a low quality of local public services and of the environment in which individuals live. We also maintain that citizens perceive the low quality of these services, which they sometimes use on a daily basis, more than they perceive to dysfunctional public behaviours such as corruption.

Based on this idea, we develop a new measure of the quality of local services. The indicator is constructed at the LLMA level[7], i.e. geographical areas based on regular commuting patterns, that represent self-contained realities and should better capture individuals' day-to-day perceptions of how local policies are implemented.

We consider three sets of questions:

- *Questions capturing individuals' perceptions of the structural characteristics of the area where they live*[8]: individuals were asked whether the area where they live has poor street lighting, a lack of public transportation linking the

[6] The indicator is constructed using Istat survey "Aspetti della vita quotidiana" in which individuals are asked to rate each of the three public services (education, healthcare and law enforcement) with respect to quality, impartiality and level of corruption. The quality of government index is then built using factor analysis.

[7] The indicator is constructed by pooling two waves of the survey (2012 and 2013) to increase sample size at the LLMA level and to smooth fluctuations in the curve of answers. We repeat our analysis using a quality indicator constructed by pooling four waves of the survey (2010-13).The results are unchanged.

[8] The whole town or just the neighborhood, depending on the size of the municipality.

neighbourhood to other parts of the city, littered streets and poorly maintained pavement. Answers to these questions range from 1 “A lot” to 4 “Not at all”.

- *Questions focusing on individuals’ opinions about the availability of some of the most important and frequently used local public services*: pharmacies[9]; emergency rooms; local public government; post offices[10] and police stations. We recoded the answers so that the scale ranges from 1 “Very difficult to access” to 3 “Not difficult to access”.
- *Questions asking how much time respondents waited to be served in*: local government offices; public medical centres (knowing in Italy as ASL); post office for postal services and post office for financial services. We recoded each answer into a dummy that takes the value 1 if the waiting time is less than 30 minutes and the value of 0 otherwise[11]. Higher values of the variable, hence, imply better quality.

The indicator of the quality of local services is constructed following the guidelines provided in the OECD “Handbook on constructing composite indicators” (2008). We start by standardizing the answers to the questions used to construct the indicator. We, then, perform a principal component analysis on the individual data and, finally, we compute the indicator as the mean at the LLMA level of the first four components[12]. We choose to construct the indicator as an average of the first four components because, as shown in Table a. 4 panel A, they together explain more than 60 per cent of the total variance and each reports an eigenvalue greater than one[13].

[9] Pharmacies are not necessarily state-owned but are highly publicly regulated in terms of licenses and opening hours.
[10] Post offices are no longer state-owned but they are still perceived as a typical public service.
[11] Conditional on having used the service.
[12] As a robustness check, we construct two alternative versions. The first one sums the individual responses to the relevant questions and then aggregates them at the LLMA level. The second one, computes first the mean of each relevant question at the LLMA level and then performs the principal component analysis taking the first principal component as the final indicator. Both alternative versions leave qualitative results unchanged.
[13] We apply the *Kaiser criterion* which suggests dropping all factors with eigenvalues below 1.0.

Figure 3

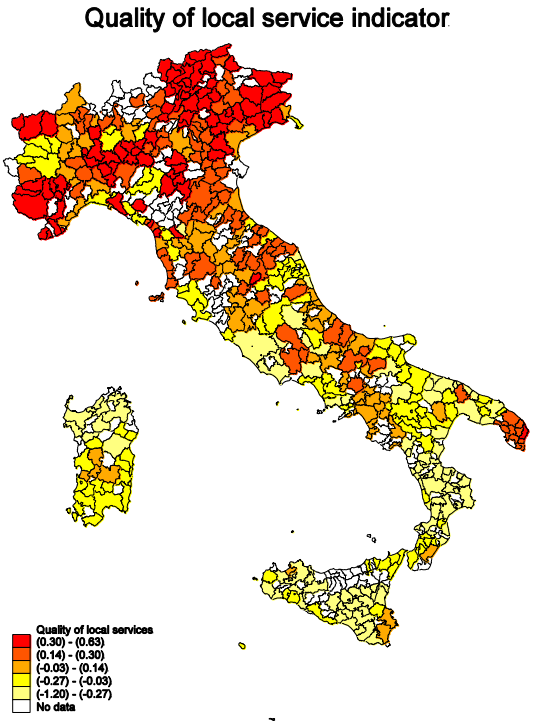


Figure 3 shows the geographical breakdown for our local services indicator. As discussed above, the indicator is coded in a way that higher values of the index correspond to a higher quality in the area. The map shows that the quality of local services is lower in the South and higher in the North. The within-area variability, however, is high across the Italy, as showed in Figure 4. For instance, in the South, Puglia displays a high regional variation ranging from areas within the Bari province where the quality is very low to areas in the province of Lecce where it is very high. Heterogeneity is, however, also present in the North, as shown by the high variance of quality within Lombardy or Piedmont. This is reasonable given that many of the local public services are provided at the municipal level.

Figure 4 Quality of local services indicator – within-region variation

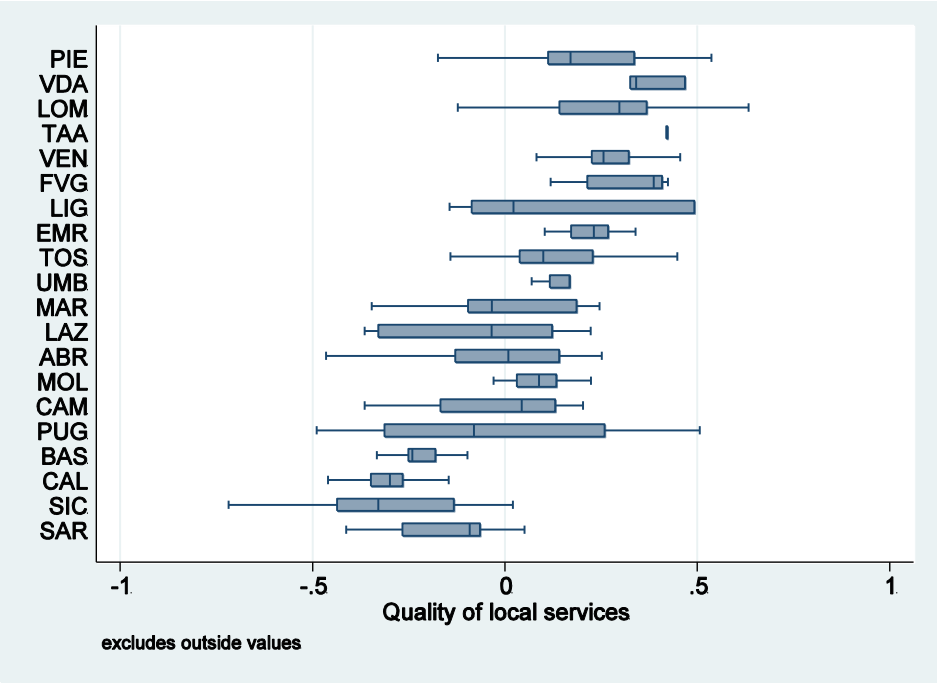


Figure 5 Quality of local services indicator – correlations with trust measures

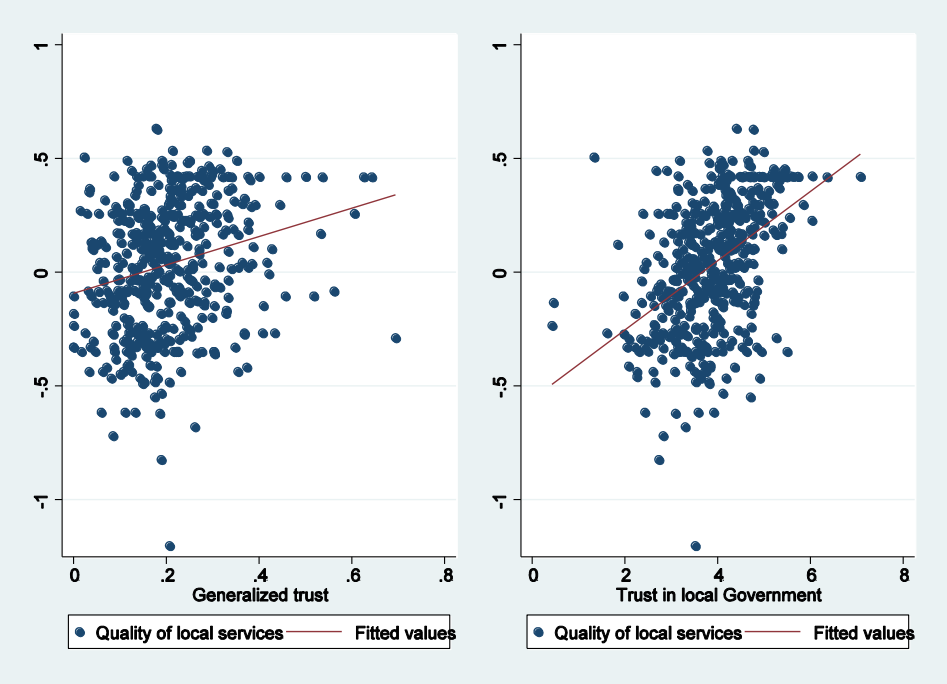


Figure 5 shows raw correlations between our quality indicator and the two trust measures. It appears that better public services are associated with higher levels of both types of trust, with the correlation being stronger for trust in local government.

To check the validity of our indicator, in Table 2 we report the ranking of Italian regions according to our quality index as well as the ranking based on other measures: the quality of government indicator constructed by Charron *et al.* (2014) [18] (which is the within-country measure most similar to ours); the measures of public sector efficiency proposed by Giordano and Tommasino (2013) [27] and by Giacomelli and Tonello (2015) [26],; the corruption measure developed by Golden and Picci (2005) [30],. Though there is not an exact one-to-one correspondence between the different indices - which is reasonable given that each index captures a different aspect of local institutions - all the measures are consistent and suggest that northern regions provide a better public institutional environment compared with the southern ones.

Table 2 Ranking of the service quality indicators at regional level

		Charron et al. (2014)	Giordano and Tommasino (2013)	Giacomelli and Tonello (2015)		Golden and Picci (2005)
	Quality of local services indicator	Quality of government index[a]	Public sector efficiency indicator[b]	LGP1[c]	LGP2[c]	Corruption indicator
Piedmont	10	5	4	7	13	2
Valle d'Aosta	3	2	14	1	1	12
Lombardy	6	12	3	8	6	9
Bolzano	2	1	10	4	7	6
Trento	1	3	11	5	8	7
Veneto	5	9	8	14	14	8
Friuli-Venezia Giulia	4	4	7	9	5	10
Liguria	13	10	5	19	21	16
Emilia-Romagna	7	7	1	13	11	4
Tuscany	11	11	2	2	3	3
Umbria	8	6	12	11	4	1
Marche	9	8	9	3	2	5
Lazio	19	17	6	16	15	14
Abruzzo	15	14	15	6	10	11
Molise	12	15	21	12	16	18
Campania	16	21	19	17	17	21
Puglia	17	18	13	21	20	15
Basilicata	18	16	20	10	9	19
Calabria	20	20	18	18	19	20
Sicily	21	19	16	20	18	17
Sardinia	14	13	17	15	12	13
Spearman coefficient[d]		0.905	0.441	-0.665	-0.650	0.662
p-value		(0.000)	(0.045)	(0.001)	(0.001)	(0.001)

(a) The quality of government index is constructed by Charron *et al.* (2014) for the European NUTS 2 regions focusing on three public services that are often managed by sub-national authorities: education, healthcare and law enforcement. Each public service is rated with respect to quality, impartiality and level of corruption. Indicators are then constructed using factor analysis. (b) The efficiency indicator is an average of provincial level data and is calculated as the average of the efficiency indicator in different areas: health, education, judicial system, day-care and waste management. (c) LGP1 and LGP2 are two measures of Local Government Performance. The first one is the number of days needed to conclude the *mystery call*, the second one is the number of telephone contacts needed to conclude the *mystery call*. (d)The Spearman coefficient compares the quality of local services indicator to each of the other quality indicators.

4.3. Other controls

In our empirical analysis we include two sets of controls, one at the individual and one at the local level, and we expect them to be correlated to individual trust.

First, we control for individual characteristics such as gender, age, age-squared, the number of children, the level of education (a dummy for the high school diploma and a dummy for the B.A. or higher degree) and two dummies for the employment status of the respondent (employed and unemployed). Furthermore, we include a dummy equal to one if the individual is employed in what we define as the social sector (healthcare, social services or education, i.e. all jobs that require strong motivation to care for and constantly interact with other individuals), which we think could be positively correlated to individual social capital.

Individuals' past experience and misfortunes also matter in determining individuals' trust (see for example Alesina and La Ferrara, 2002 [7]). For this reason we include a dummy for the separated/divorced status and a dummy for the individuals' perception of a poor health condition[14], which should account for personal situations that might negatively impact individuals' trust endowment.

Family economic conditions are important too . Hence we control for a variable that provides a qualitative evaluation of the suitability of the family income to cover household expenditures[15].

To ensure that our quality indicators do not simply capture the effect of the overall local economic situation (places with fewer resources and more social problems are also likely to offer fewer and less efficient services but also to have less trustful citizens), we include a set of characteristics at the LLMA level. We control for two geographical characteristics (the percentage of mountainous and seismic surface in the LLMA) and three social variables (unemployment rate, rate of tertiary educated individuals and log of the total population). We

[14] This dummy is equal to one if respondents report their perceived health status as "bad" or "really bad".
[15] The question asks whether, considering the needs of all family members, family economic resources in the past 12 months were: excellent, good, sufficient or absolutely insufficient.

expect to find a positive effect in the case of the tertiary education and of the seismic area controls.

We also include a dummy for living in the provincial capital (*capoluogo di provincia*) to account for differences deriving from living in a larger city compared to a smaller town. Finally, to additionally control for the well-known structural and economic differences between the different areas of the Italian peninsula, we add to all our regressions a full set of provincial dummies.

5. Results

5.1. Baseline results

As a first step, we perform two sets of OLS regressions of the quality of local public services on individual generalized trust (Table 3) and trust in local government (Table 4). To test the sensitivity of our coefficients of interest to the inclusion of additional controls, columns 1 to 4 of each table report the results obtained by adding to each regression a new set of variables: starting from the raw correlation in column 1, column 2 includes individual objective controls, column 3 adds individual variables influenced by individual behaviours and column 4 introduces local controls. All columns includes the full set of provincial dummies and standard errors are clustered at the family level. Our two main coefficients (quality of local services on individual trust and quality of local services on trust in local government) are basically stable across the different specifications.

Looking at generalized trust, the coefficient on the quality of local services index is positive and statistically significant although small in magnitude. An increase by one standard deviation of the quality indicator increases generalized trust by 0.014 (or 3.9 per cent of the standard deviation of the trust variable). To compare the magnitude of this effect, if an individual is also employed in the social sector this increases generalized trust by 0.032 while having a B.A. increases it by 0.138, ten times more than the quality of local services.

Table 3 Regression results on generalized trust

	(1) b/se	(2) b/se	(3) b/se	(4) b/se
Quality of local services	0.034**	0.034**	0.042***	0.043***
	[0.016]	[0.016]	[0.016]	[0.016]
Employed			0.014***	0.014***
			[0.005]	[0.005]
Unemployed			-0.003	-0.004
			[0.006]	[0.006]
Age		0.006***	0.006***	0.006***
		[0.001]	[0.001]	[0.001]
Age squared		-0.000***	-0.000***	-0.000***
		[0.000]	[0.000]	[0.000]
Sickness		-0.071***	-0.048***	-0.048***
		[0.004]	[0.004]	[0.004]
Female		-0.019***	-0.019***	-0.020***
		[0.003]	[0.003]	[0.003]
Divorced			0.001	0.001
			[0.006]	[0.006]
B.A.			0.139***	0.138***
			[0.006]	[0.006]
High school diploma			0.070***	0.070***
			[0.004]	[0.004]
Child			0.003	0.003
			[0.002]	[0.002]
Job in a social sector			0.033***	0.032***
			[0.006]	[0.006]
Sufficient family income			-0.044***	-0.044***
			[0.003]	[0.003]
Provincial dummies	*YES*	*YES*	*YES*	*YES*
Local controls	*NO*	*NO*	*NO*	*YES*
R2	0.020	0.029	0.053	0.053
Obs.	66,589	66,589	66,239	66,164

Note: * p<0.10, ** p<0.05, *** p<0.01. Standard errors are clustered at the family level.

Table 4 Regression results on trust in local government

	(1) b/se	(2) b/se	(3) b/se	(4) b/se
Quality of local services	0.455***	0.455***	0.0406***	0.373***
	[0.099]	[0.099]	[0.098]	[0.101]
Employed			-0.162***	-0.160***
			[0.027]	[0.027]
Unemployed			-0.148***	-0.146***
			[0.039]	[0.039]
Age		0.013***	0.012***	-0.012***
		[0.000]	[0.000]	[0.004]
Age squared		0.000***	0.000***	0.000***
		[0.000]	[0.000]	[0.000]
Sickness		-0.498***	-0.404***	-0.404***
		[0.027]	[0.027]	[0.027]
Female		0.038***	0.009	0.009
		[0.014]	[0.015]	[0.015]
Divorced			0.028	0.030
			[0.035]	[0.035]
B.A.			-0.004	0.002
			[0.033]	[0.033]
High school diploma			-0.025	-0.023
			[0.025]	[0.025]
Child			-0.003	-0.003
			[0.014]	[0.014]
Job in a social sector			0.096**	0.095**
			[0.031]	[0.031]
Sufficient family income			-0.417***	-0.417***
			[0.020]	[0.020]
Provincial dummies	*YES*	*YES*	*YES*	*YES*
Local controls	*NO*	*NO*	*NO*	*YES*
R2	0.064	0.075	0.087	0.088
Obs.	65,595	65,595	65,255	65,183

Note: * p<0.10, ** p<0.05, *** p<0.01. Standard errors are clustered at the family level.

Individual controls all have the expected signs. Consistent with the findings of other papers (*e.g.* Putnam, 2000 [45]; Alesina and La Ferrara, 2002 [7]), generalized trust depends positively on age (although at a decreasing rate), as well as on education, employment and on working in a social sector. Being a woman, instead, decreases generalized trust. This result is in line with the existing literature (Alesina and La Ferrara, 2002 [7]; Buchan *et al.*, 2008 [17]). A difficult economic situation has a negative impact on the individual propensity to trust others: a tighter economic situation is likely to make individuals less prone to trust. Looking at previous experience and personal misfortune, sickness decreases trust. As to being divorced, our proxy is not statistically different from zero. Among the local area controls, only living in a seismic area is highly statistically significant with a positive sign.

When considering trust in local government, the quality of local services index is positive and highly statistically significant, and of significant magnitude. An increase by one standard deviation of the quality indicator increases trust by 1.09 (or 45,7 per cent of the standard deviation of trust in local government). To give an idea of the order of magnitude, to be employed in the social sector increases trust in local government by 0.095 while having a B.A. degree does not have a significant effect.

Trust in local government depends positively on working in a social sector and negatively on age (at a decreasing rate), on having a difficult economic situation and on sickness. Looking at the area controls, unlike the generalized trust case, living in the provincial capital is now relevant, with a negative impact. This could possibly be related to a size effect: provincial cities are bigger and more congested compared to the rest of the province. Both geographical controls, i.e. living in a seismic or in a mountainous area are now statistically different from zero: the former has a positive sign (as in the case of generalized trust) while the latter has a negative sign.

5.2. Identification issues

Two-step efficient GMM estimation

Our estimates could suffer from endogeneity issues. Public services might work better in trustful contests (for example for services for which the

information given by the citizen to the civil servant is crucial to getting a priority access or even access itself to a benefit) generating a reverse flow from social capital to public services. More trustful societies are able to select better civil servants (for example because they are chosen among individuals with stronger civil virtues) and to offer them a better working environment, both in terms of rules to follow and users to serve, again implying a potential relation from trust to public institutions. Moreover, perceptions about the quality of public services might be influenced directly by the level of social capital in the area. These channels should work mainly at the aggregate level. Given that our trust measures are at the individual level while our quality measure is aggregated, we do not expect endogeneity to be a major issue in our analysis.

Nevertheless, to solve any potential endogeneity problem, we use an instrumental variable approach based on a two-step efficient GMM estimator[16]. We use the following two variables, taken from the Istat Census of 1971[17], as instruments: the population density in the LLMA and the percentage of public workers over the total numbers of workers in the LLMA. This retrospective information should be correlated to the current levels of public services by proxying the historical level of resources dedicated by the LLMA to the production of public services (public workers), but also the demand for public services (population density). Our prior is that those areas historically more dedicated to the provision of public services maintained this peculiarity over time. On the other hand, our instruments should be sufficiently far back in time not to influence directly today's individual endowments of trust.

Results from the first step of the estimation procedure are reported in Table a. 8 and show that our instruments are strongly correlated to our quality of local services indicator (negatively for the population density and positively for the percentage of public workers, as expected); furthermore the R^2 of the regression is quite high reinforcing the quality of our instruments. The weak instruments test (reported at the bottom of Table 5) confirms the good fit of our instruments.

[16] Results are unchanged when using a 2SLS estimator (see Table a. 7 Two stage least squares results)
[17] Census data are not available for Italian municipalities prior to 1971.

Table 5 Two-step efficient GMM results

	(1) b/se Generalized trust	(2) b/se Trust in local government
Quality of local services	0.132	-0.291
	[0.106]	[0.657]
Provincial dummies	*YES*	*YES*
Local controls	*YES*	*YES*
Endogeneity test: GMM C statistic	0.723	1.048
GMM C p-value	[0.392]	[0.306]
Weak instruments test: F-test	174.838	169.902
F-test p-value	[0.000]	[0.000]
Overidentification test: Hansen's J-test statistic	1.695	0.556
Hansen's J-test p-value	[0.193]	[0.456]
Obs.	66,239	65,255

Note: * p<0.10, ** p<0.05, *** p<0.01. Standard errors are clustered at the family level.

Table 5 reports the coefficients on the quality of local services indicator from the two-step efficient GMM estimation The coefficient is not statistically significant in both regressions, while the other coefficients remain practically unchanged. The Hansen's J-test suggests that our model is correctly specified.

We then perform an endogeneity test of our quality indicator in the generalized trust regression and in the trust in local government regression. The results of the difference in Sargan statistic suggest that our main indicator can be treated as exogenous in both regressions, in line with our expectations. OLS estimates should, therefore, be considered because they are more efficient.

Omitted variable bias

Despite our effort to control for a comprehensive set of both individual and local controls, our results could still be biased by unobserved factors that drive individuals' trust as well as the self-selection of individuals in more efficient areas. As a robustness check, we use the insight from Altonji *et al.* (2005) [9], inferring the relative importance of the omitted variable bias by investigating how the coefficient of interest changes with the inclusion of additional controls (Bellows and Miguel, 2009 [13]). The basic idea is that if the inclusion of available additional controls substantially changes the coefficient of our public service quality variable, adding more controls could modify our estimated effects even more. If, instead, the magnitude of our coefficient of interest is

relatively untouched by the progressive inclusion of additional variables, we can then be more confident about the irrelevance of an omitted variable bias. Bellows and Miguel (2009) [13], based on Altonji *et al.* (2005) [9], calculate how much greater the effect of unobservables should be with respect to observable factors to completely counterbalance the estimated effect of the variable of interest (see Nunn and Wantchekon, 2011 [43], for a clear explanation of the method). In our case, the potentially omitted variables could be seen as those characteristics that affect both the decision to live in an efficient place and individual trust.

The Bellows-Miguel index (BM index) is a ratio constructed considering two separate regressions: a regression with the full set of control variables (all those used in the main analysis) and a regression with a limited set of controls. We label the estimated coefficient in the first regression as β_{full} and the coefficient of the second regression as β_{rest} and we then calculate the BM test as follows: $\beta_{full} \Big/ \left(\beta_{rest} - \beta_{full)}\right)$[18]. A large ratio means that the estimated effect cannot be plausibly explained away completely by attributing it to unobservable characteristics.

Table 6 Omitted variable robustness check

	Controls in the restricted set	Controls in the full set	Generalized trust	Trust in local government
Quality of local services	None	Full set	-4.774	4.560
	Age, age squared, gender	Full set	-5.127	5.079

Note: * p<0.10, ** p<0.05, *** p<0.01.
The regression includes a full set of provincial dummies. Standard errors are clustered at the family level.

We consider two possible sets of restricted covariates: a first set in which we include only provincial dummies and a second set in which we control for both provincial dummies and three individual factors (age, age-squared and gender). The ratios for our quality indicator and our two trust measures are reported in Table 6.

[18] See Bellows and Miguel (2009) [13] for the mathematical derivation and Altonji *et al*. (2005) [9] for the underlying assumptions.

Looking at generalized trust, our results do not seem to suffer from a serious omitted variable problem. In fact, the reported BM ratios are greater than four, meaning that the impact of unobserved variables would have to be at least four times greater than the estimated public quality coefficient to explain the entire estimated effect. The regression of trust in local government regressions also seem to be robust to an omitted variables bias; the inclusion of additional controls attenuates the estimated quality coefficients but the change in the magnitude is small compared with the coefficient itself. The BM ratios are even in this case greater than four. Given our results, we think that an omitted variable bias, even if present, would not alter our results.

6. Extensions

6.1. Alternative social capital measures

In the economic literature social capital is proxied by different measures to capture its multidimensional nature There is a large consensus on the fact that these distinct aspects may have different and even conflicting relations with the economic performance of a society. Hence, we extended our main analysis by using as dependent variables three alternative indicators of social capital: the first two are widespread in the sociological and economic literature while the third is an alternative measure of trust in government.

Our first measure is a proxy for family ties (to capture bonding social capital). According to studies on the socio-economic role of the family, in the presence of strong family ties individuals trust family members more but non-family members less. Banfield (1958) [10] identifies "*amoral familism*", *i.e.* a society in which people only trust and care about their immediate family, as one of the causes of Southern Italy's underdevelopment. Bertrand and Schoar (2006) [14] find that societies with strong family ties have smaller firms, more self-employment and a large share of family-controlled firms among listed firms, while Alesina and Giuliano (2010) [6] find that stronger ties are associated with higher home production, lower labour force participation by women and young people, as well as lower geographical mobility. Moreover, family ties produce social insurance which substitutes government intervention. Alesina and Giuliano (2011) [4] show that greater reliance on the family as a provider of

insurance, services and transfer of resources, is connected to lower levels of civic engagement and political participation.

Our family ties proxy comes from the question in the 2011 wave of the "*Aspetti della vita quotidiana*" survey asking respondents: "*How important for welfare and quality of life in people's life is having good relationships with friends and family members?*". Answers range from 0 "Not at all important" to 10 "Very important".

The second alternative dependent variable follows the strand of the literature in which social capital is represented as a relational resource (network or bridging social capital), that belongs to an individual or to a group of individuals possessing relationships involving mutual help (Bourdieu, 1980 [15]), whose effect on social development is mainly negative given that it favours participant belonging to the network at the expense of those outside. Following Sabatini (2008) [49] and Righi and Scalise (2014) [47], our measure of network social capital is constructed using a principal component analysis on a set of questions, available in the ISTAT survey, on individuals' participation to meetings of associations, on their involvement in certain activities and on financing certain types of organizations[19]. Our indicator is given by the average of the first three components[20], which account for the highest part of the variance in the questions.

Our third alternative indicator is a measure of trust in central government. It is based on the same question used to construct the trust in local government variable, but looking at the answer for the Italian Parliament[21]. With this variable we want to test weather local services influence not only trust in those

[19] When considering the network social capital measure our analysis is conducted only on the 2010 wave, which includes a high number of relational questions not available in the following waves. We consider three sets of questions. The first set asks respondents whether they participated to meetings of: ecological societies; cultural associations; trade associations; voluntary organisations; political parties or trade unions. The second set asks respondents whether they has conducted activities for: voluntary organisations; political parties; trade unions or other associations. The third set asks respondents whether they financed political parties or other associations.

[20] We apply the *Kaiser criterion* in the construction of our network social capital indicator, and retain the first three components.

[21] ,"How much do you trust the following institutions?1) Italian Parliament". Answer ranges from 1 "Not at all" to 10 "Completely".

authorities responsible for their production, but also, more in general, individual ideas about public authorities reliability.

Columns 1 to 3 of Table 7 report the coefficients obtained for these three alternative social capital measures. Column (1) shows the results when the dependent variable is the family ties measure. As expected, we find an opposite situation with respect to generalized trust and to trust in local government. The quality of local services coefficient is now negative and statistically significant, implying that where the quality of the environment is lower family ties are stronger. Column (2) reports the result for our network measure. The coefficient is negative but statistically not different from zero, suggesting that network social capital is not affected by institutional quality. Column (3) shows the results for trust in central government. The coefficient is in line with that of trust in local government, i.e. positive and statistically significant.

Table 7 Alternative measures

	(1) Family ties b/se	(2) Network social capital b/se	(3) Trust in central government b/se	(4) Generalized trust b/se	(5) Trust in local government b/se
Alternative trust measures					
Quality of local services	-0.413***	-0.037	0.313**		
	[0.081]	[0.030]	[0.109]		
Alternative quality measures					
N° of municipalities with train station				0.004	0.166***
				[0.008]	[0.051]
Quality of local services (without waiting times)				0.001	0.366***
				[0.007]	[0.044]
Structure quality				0.004	0.271***
				[0.006]	[0.037]
General service quality				-0.004	0.152***
				[0.005]	[0.030]
Waiting times				0.003	0.126**
				[0.008]	[0.048]
Individual controls	*YES*	*YES*	*YES*	*YES*	*YES*
Provincial dummies	*YES*	*YES*	*YES*	*YES*	*YES*
Local controls	*YES*	*YES*	*YES*	*YES*	*YES*
R2	0.029	0.071	0.042	0.053	0.087
Obs.	30,548	64,662	65,764	65,255	66,239

Note: * p<0.10, ** p<0.05, *** p<0.01. Standard errors are clustered at the family level.

6.2. Alternative quality measures

Columns (4) and (5) report results using, instead of our quality of local services indicator, alternative variables that capture different aspects of services' quality. This exercise is aimed at disentangling the effects of the infrastructural components of the provision of services from that of the day-to-day supply and to test its relevance on both types of trust. Infrastructural quality should be less exposed to reverse causality linked to individual behaviours (misconduct on the part of civil servants but also on the part of the users of public services) and therefore could be considered as a further robustness

check of our results to the possible bias linked to a specific channel of reverse causality.

We start by constructing a specific indicator for each of the three sets of questions used to build the original indicator. The measures are built by performing a principal component analysis on individual data and, by then, computing the indicator as the mean of the first principal component at the LLMA level. We label these three measures as: structural quality indicator, general service accessibility indicator and waiting time indicator. Table a.4 panel B to D and Table a. 5 provide a detailed analysis of the construction of each indicator. Figure a. 1 to Figure a. 3 provides geographical breakdown of these quality measures, confirming the previous picture: quality is generally lower in the South of Italy compared with the North. Figure a. 4 confirms the existence of substantial within-area variability while Figure a. 5 to Figure a. 7 show the raw correlations among these three quality indicators and the two trust measures. For all the indicators, a higher level of service' quality is associated with a higher level of aggregate trust. Table a. 6 presents the correlations among the four constructed quality indicators. The quality of local services indicator is strongly and positively correlated to all three indicators, particularly to the waiting time indicator.

We also build an overall indicator that does not include the block of questions relating to waiting times. All these alternatives indicators are statistically significant and they all have a positive effect on trust in local government: the effect is basically unchanged in the case of the overall indicator with respect to our original variable, smaller in the case of each specific subset. None of our alternatives, conversely, have an effect that is statistically different from zero on generalized trust.

We then test the relation between our trust variables and a measure of the number of municipalities in each LLMA that have at least one train station[22]. This measure should capture the potential infrastructural endowment of each LLMA and is close in spirit to the one devised by Messina (2007) [39], which

[22] The variable is constructed using the full list of train stations provided on the Rete Ferroviaria Italiana (RTF) website, whose classification ranges (from bronze to platinum.

provides a measure of the local endowment of transport infrastructure at the provincial level. As in the case of our previous alternative quality measure, our train station variable is positive and significant for trust in local government and not statistically different from zero for generalized trust.

6.3. Results by age groups

The third extension to our work tests the existence of age-related differences in how the quality of public services influences measures of individuals' trust.

Different studies focus on the degree of trust across age groups, mainly using lab experiments. Some of the studies (Harbaugh *et al.*, 2003 [35]; Evans *et al.*, 2013 [23]) examine the behaviour of children, while a second strand of literature focuses on behavioural differences in the adult population (Fehr *et al.*, 2003 [25]; Bellamare and Kroger, 2007 [12]) or in the overall population (Sutter and Kocher, 2007 [50]). The main findings of these works suggest that trust is not constant over the individual's life cycle but rather accumulates and decumulates over time. In particular, Fehr *et al.* (2003) [25] and Bellamare and Kroger (2007) [12] find that the relation between age and trust describes an inverted U-shape curve reaching its maximum in the late 30s.

Hence, we test whether the effect of public service' quality on individuals' social capital changes according to age, performing separate estimations on three different age groups: 25-34, 35-55 and 56-85. Indeed, it is likely that individuals at different stages of their life cycle care about different aspects of the surrounding environment, including the provision of public services. Older people might have been exposed to good/bad institutions for a longer period of time and they may be also more dependent on public services compared with younger individuals.

Table a. 1 to Table a. 3 provide descriptive statistics of the three age sub-samples we consider. The mean level of generalized trust is slightly higher in the middle-age class (36-55 year old) compared with the younger (25-35 years old) and the older groups (56-85 years old), while the mean level of trust in local government increases slightly across age groups. Conducting an ANOVA test on the three sub-groups, for the two trust measures, in both cases we reject the

null hypothesis of equality of the mean of the trust measures across groups. Moreover, looking at generalized trust, the Bonferroni test suggests that the mean of the older group is not statistically different from that of the younger group, while there is a difference between the other two groups. When considering trust in local government, instead, there is a statistical difference between the three groups considered pairwise.

Table 8 reports the results obtained by regressing the two individual trust measures on each quality indicator in a specific age group (young people in column (1); middle-age in column (2); older people in column (3)). Our indicators show the expected signs in all age groups, although the magnitude and significance are different across sub-samples.

When considering generalized trust, the quality of local services indicator is statistically significant, but only at 10 per cent level, for middle-aged adults and older people but not for younger people. The effect is small and it is not statistically different between the two groups.

Table 8 Quality indicators by age group

	(1) **Young** **b/se**	**(2)** **Middle age** **b/se**	**(3)** **Elderly** **b/se**
Generalized trust.			
Quality of local services	0.046	0.046*	0.038*
	[0.038]	[0.025]	[0.023]
R2	0.048	0.063	0.053
Obs.	9,991	27,749	28,499
Trust in local government			
Quality of local services	0.604***	0.243	0.421***
	[0.229]	[0.144]	[0.137]
R2	0.071	0.081	0.103
Obs.	9,880	27,377	27,998
Individual controls	*YES*	*YES*	*YES*
Provincial dummies	*YES*	*YES*	*YES*
Local controls	*YES*	*YES*	*YES*

Note: * p<0.10, ** p<0.05, *** p<0.01. Standard errors are clustered at the family level.
All quality indicators coefficients have been estimated separately.

Results for trust in local authorities are more interesting. The quality of the local services indicator is positive, sizeable and statistically significant for young adults and older individuals and, but not for middle-aged adults. The effect is

stronger for the younger age class. These results suggest that there are two periods during the lifecycle in which individuals form or modify their beliefs about the functioning of local institutions. For the younger group, the effect of local services on trust in government could be related to the formation and reinforcement, in the early stage of life, of individual priors about local governments' performance. The higher sensitivity of older people to the quality of public services is, instead, consistent with research by gerontologists over the past 50 years, which underlines the importance of neighbours and accessibility to neighbourhood services for older people, as the network on which they rely on progressively shrinks and their informal care needs increases. Moreover, their higher sensitivity could be also linked to a longer exposure to better/worse services[23].

7. Conclusions

Social capital, and more precisely trust, plays an important role in today's markets and societies. Many papers have tried to identify the sources of trust, finding that, on the one hand, both individual characteristics and family characteristics matter; and, on the other hand, economic and institutional conditions are also relevant.

This paper contributes to the literature on the link between public institutions and social capital by analysing how the quality of local public services influences individual trust in Italy. Using data from the Istat survey "*Aspetti della vita quotidiana*", we build a quality of local services indicator at the local labour market area level. We then estimate the effect of our quality measure on generalized trust and trust in local government, controlling for relevant individual characteristics, LLMA characteristics and provincial fixed effects. Our results suggest that there is a positive relation between local service' quality and both generalized trust and trust in local administrations. The effect is smaller for the former and larger for the latter.

[23] Unfortunately, we do not have retrospective information that allows us to reconstruct the length of the exposure and therefore we cannot test this hypothesis.

To overcome the possibility of reverse causation, we test our results using a two-step GMM instrumental variable procedure. The results suggest that the positive relations described above are not affected by endogeneity of the services' indicator. We also test the sensitivity of our main results to the existence of a possible omitted variable bias and we conclude that, even if present, it does not seem to constitute a major problem for our analysis.

Finally, in the last part of the paper we extend our analysis in three ways. First we investigate the relation between the quality of public services and other measures of social capital. Our results suggest that family ties are stronger where services are worse and that network social capital is not affected by the public environment; results for trust in central government are in line with those for trust in local government. Second we use alternative measures for the quality of local public services, disentangling different infrastructural aspects. Results are not statistically different from zero in the case of generalized trust, while trust in local government is always positively affected. This latter result could also reinforce the evidence in favour of the robustness to endogeneity issues, given that the structural aspects are less likely to be affected by reverse causality issues. Third, we test the existence of age-related differences in the influence of the quality of local services on individual trust: no clear pattern emerges in the case of generalized trust, while for trust in local government institutional quality matters only for younger and older age groups.

From a policy perspective, our analysis suggests that investment in the quality of public services, both in terms of infrastructural quality and of accessibility, produces a externality on individual social capital that amplifies the original positive direct effect on a series of economic outcomes. Our results also suggest that the investment in the quality of the local area has to be credible and strongly stated, especially in low trust areas, in order to generate these positive spillovers.

REFERENCES

1 Accetturo, A., De Blasio, G., and Ricci, L. A tale of an unwanted outcome: Transfers and local endowments of trust and cooperation. *Journal of Economic Behaviour and Organisation*, 102 (2014), 74-89.

2 Albanese, G., De Blasio, G., and Sestito, P. My parents taught me. Evidence on the family transmission of values. *Temi di discussione (Working papers)*, 955 (2014).

3 Alesina, A. and Giuliano, P. Culture and institutions. *IZA discussion paper*, 9246 (2015).

4 Alesina, A. and Giuliano, P. Family ties and political participation. *Journal of the European Economic Association*, 9, 5 (2011), 817-39.

6 Alesina, A. and Giuliano, P. The power of the family. *Journal of Economic Growth*, 15, 2 (2010), 93-125.

7 Alesina, A. and La Ferrara, E. Who trusts others? *Journal of Public Economics*, 85, 2 (2002), 207-34.

8 Algan, A. and Cahuc, P. Trust, growth and well-being: new evidence and policy implications. In *Handbook of Economic Growth*. Elsevier, 2014.

9 Altonjii, J., Todd, E., and Taber, C. Selection on observed and unobserved variables: assessing the effectiveness of catholic schools. *Journal of Political Economy*, 113, 1 (2005), 151-84.

10 Banfield, E. *The moral basis of a backward society*. The Free Press, 1958.

11 Barone, G. and Mocetti, S. Tax morale and public spending inefficiency. *International Tax and Public Finance*, 18, 6 (2011), 724-49.

12 Bellamare, C. and Kroger, S. On representative social capital. *European Economic Review*, 51 (2007), 183-202.

13 Bellows, J. and Miguel, E. War and local collective action in Sierra Leone. *Journal of Public Economics*, 93, 11-12 (2009), 1144-57.

14 Bertrand, M. and Schoar, A. The role of the family in family firms. *Journal of Economic Perspective*, 20, 2 (2006), 73-96.

15 Bordieu, P. Le social capital. *Actes de la recherche en sciences sociales*, 31 (1980), 2-3.

16 Bripi, F., Carmignani, A., and Giordano, F. (2011) La qualità dei servizi pubblici in Italia. *Questioni di Economia e Finanza*, 84.

17 Buchan, N., Croson, R., and Solnick, S. Trust and gender: an examination of behaviour and beliefs in the investment game. *Journal of Economic Behaviour and Organization*, 68 (2008), 466-76.

18 Charron, N., Lapuente, V., and Dijkstra, L. Regional governance matters: quality of government within European Union member states. *Regional Studies*, 48, 1 (2014), 68-90.

19 Cummings, R. G., Martinez-Vazquez, J., McKee, M., and Torgler, B. Tax morale affects tax compliance: evidence from surveys and an artefactual field experiment. *Journal of Economic Behaviour and Organization*, 70, 3 (2009), 447-87.

20 Del Monte, A. and Papagni, E. The determinants of corruption in Italy: regional panel data analysis. *European Journal of Political Economy*, 23, 2

(2007), 379-96.

21 Delhey, J. and Newton, K. Who trusts? The origins of social trust in seven societies. *European Societies*, 5, 2 (2003), 93-127.

22 Dohmen, T., Falk, A., and Sunde, U. The intergenerational transmission of risk and trust attitudes. *Review of Economic Studies*, 79, 2 (2011), 645-77.

23 Evans, A., Athenstaedt, U., and Krueger, J. The development of trust and altruism during childhood. *Journal of Economic Psychology*, 36 (2013), 82-95.

24 Fehr, E. "On the economics and biology of trust". *Journal of the European economic Association*, 7, 2-3 (2009), 235-66.

25 Fehr, E., Fischbacher, U., von Rosenbladt, B., Schupp, J., and Wagner, G. A nationwide laboratory examining trust and trustworthiness by integrating behavioral experiments into representative surveys. *CEPR Discussion Paper*, 3858 (2003).

26 Giacomelli, S. and Tonello, M. Measuring the performance of local governments: evidence from mystery calls. *Temi di discussione (Working papers)*, 292 (2015).

27 Giordano, R. and Tommasino, P. Public-sector efficiency and political culture. *FinanzArchiv*, 69, 3 (2013), 289-316.

29 Glaeser, E. L., Laibson, D. I., Scheinkman, J. A., and Soutter, C. L. Measuring trust. *Quarterly Journal of Economics*, 115, 3 (2000), 811-46.

30 Golden, M. and Picci, L. Proposal for a new measure of corruption, illustrated with Italian data. *Economics and Politics*, 12, 1 (2005), 37-75.

31 Grief, A. Cultural beliefs and the organization of society: a historical and theoretical reflection on collectivist and individualist societies. *Journal of Political Economy*, 102, 5 (1994), 912-51.

32 Growiec, K. and Growiec, J. Trusting Only Whom You Know, Knowing Only Whom You Trust: The Joint Impact of Social Capital and Trust on Happiness in CEE Countries. *Journal of Happiness Studies*, 15, 5 (2014), 1015-40.

33 Guiso, L., Sapienza, P., and Zingales, L. Civic capital as the missing link. In Benhabib, J et al., eds., *Handbook of Social Economic*. Elsevier, 2011.

34 Guiso, L, Sapienza, P., and Zingales, L. Social capital as a good culture. *Journal of the European Economic Association*, 6, 2-3 (2008), 295-320.

35 Harbaugh, W., Krause, K., Liday, S., and Versterlund, L. Trust in children. In *Trust, reciprocity and gains from association: interdisciplinary lessons from experimental research*. Russel Sage Foundation, New York, 2003.

36 Holm, H. J. and Danielson, A. (2007) Tropic trust versus Nordic trust: experimental evidence from Tanzania to Sweden. *Economic Journal*, 115, 505-32.

37 Knack, K. and Keefer, P. Does social capital have an economic payoff? A cross-country comparison. *Quarterly Journal of Economics*, 112, 4 (1997), 1251-88.

38 Knack, S. and Zak, P. Building trust: public policy, interpersonal trust and economic development. *Supreme Court Economic Review*, 10 (2002), 91-107.

39 Messina, G. Un nuovo metodo per misurare la dotazione territoriale di

infrastrutture di trasporto. *Temi di discussione*, 624 (2007).

40 Moschion, J. and Tabasso, D. Trust of second generation immigrants: intergenerational transmission of cultural assimilation? *IZA Journal of Migration*, 3, 1 (2014), 1-30.

41 Moulton, B. An illustration of a pitfall in estimating the effects of aggregate variables on micro unit. *Review of Economics and Statistics*, 72 (1990), 219-56.

42 Naef, M. and Schupp, J. Measuring trust: experiments and surveys in contrast and combination. *IZA discussion papers*, 4087 (2009).

43 Nunn, N. and Wantchekon, L. The slave trade and the origins of mistrust in Africa. *American Economic Review*, 101 (2011), 3221-52.

44 Paxton, P. Is social capital declining in the United States? A multiple indicator assessment. *American Journal of Sociology*, 105, 1 (1999), 88-127.

45 Putnam, R.D. *Bowling alone. The Collapse and Revival of American Community.* Simon & Schuster, New York, 2000.

46 Putnam, R.D. *Making democracy work*. Princeton University Press, Princeton, 1993.

47 Righi, A. and Scalise, D. Social capital factors and new evidence on social capirtal endowments in Italian regions (2014).

48 Rothstein, B. and Stolle, D. The state and social capital : an institutional theory of generalized trust. *Comparative Politics*, 40, 4 (2008), 441-59.

49 Sabatini, F. Social capital and the quality of economic development. *Kyklos* (2008), 466-99.

50 Sutter, M. and Kocher, M. (2007) Trust, democracy and governance: can government policies influence generalized trust? In Hooghe, M. and Stolle, D., eds., *Generating Social Capital: Civil Society and Institutions in Comprative Perspective*. Palgrave Macmillan, New York.

51 Tabellini, G. Culture and institutions: economic development in the regions of Europe. *Journal of the European Economic Association*, 8, 4 (2010), 677-716.

52 Uslaner, E. *The moral foundation of trust*. Cambridge University Press, Cambridge, 2002.

53 Uslaner, E. (2003) Trust, democracy and governance: can government policies influence generalized trust? In Hooghe, M. and Stolle, D., eds., *Generating Social Capital: Civil Society and Institutions in Comprative Perspective*. Palgrave Macmillan, New York..

54 Zak, P. and Knack, S. Trust and growth. *Economic Journal*, 111, 470 (2001), 291-321.

APPENDIX

QUALITY INDICATORS:

Figure a. 1

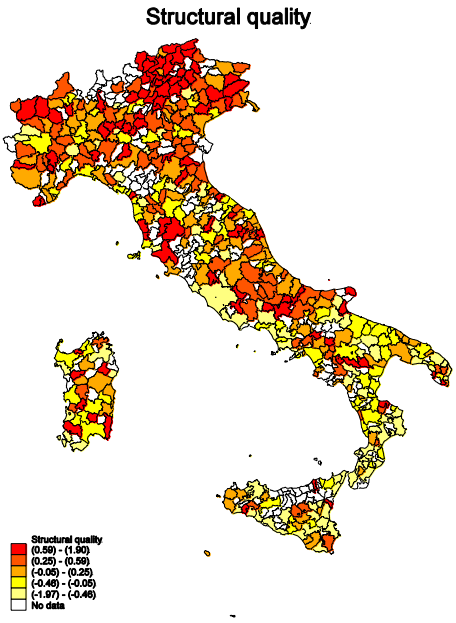


Figure a. 2

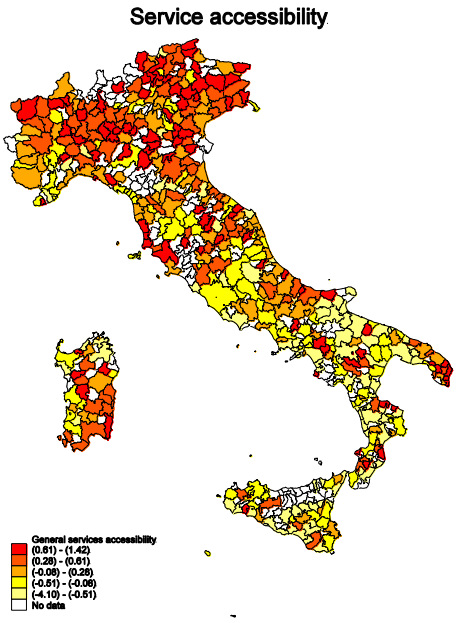


Figure a. 3

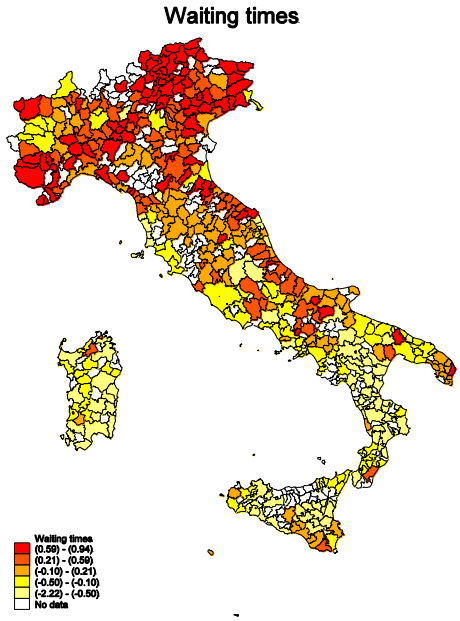
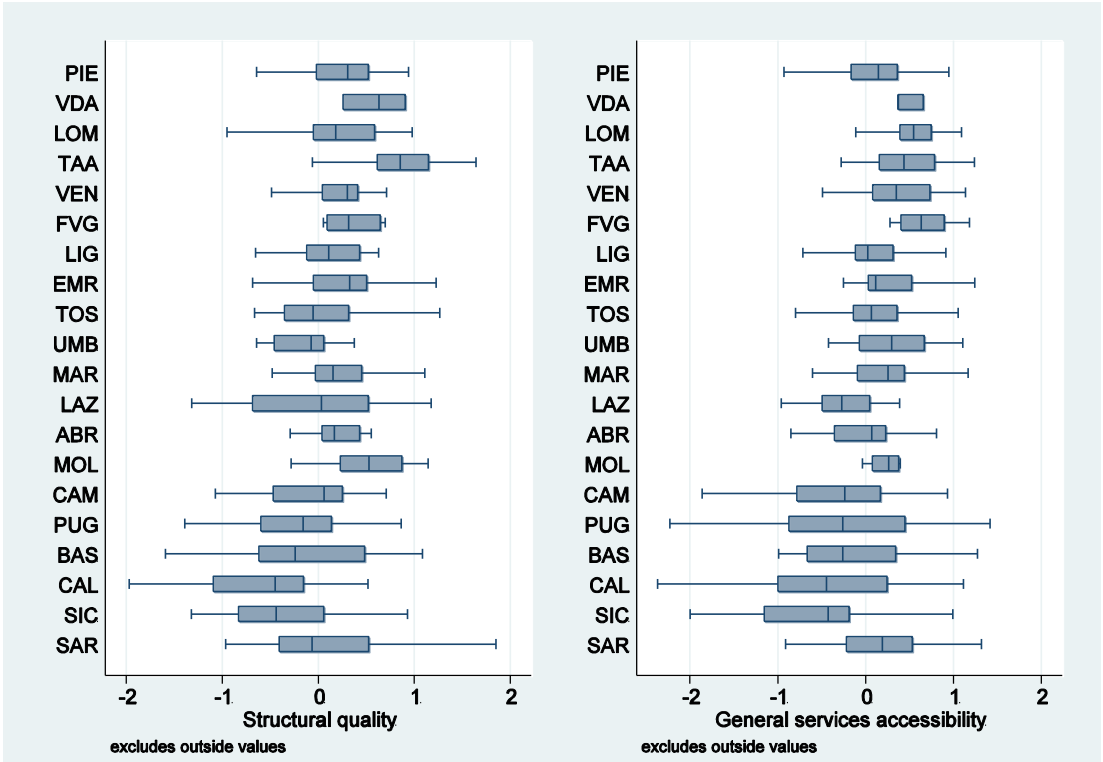
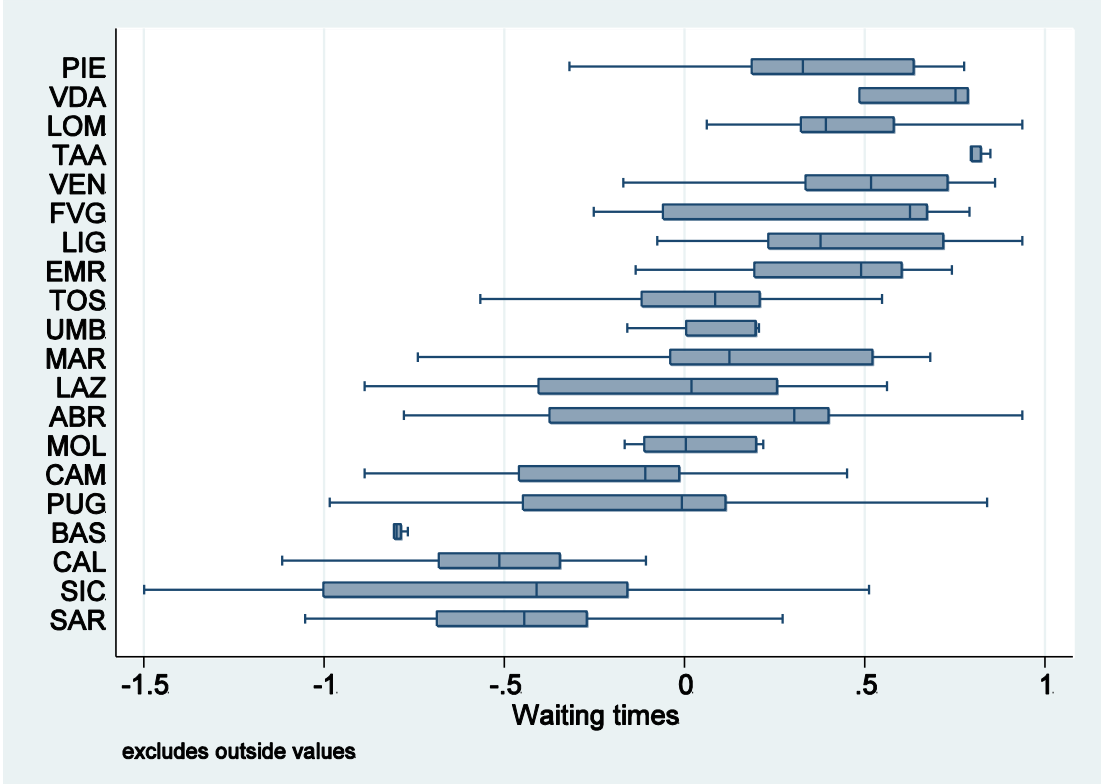


Figure a. 4 Within-region variation of:

A) Structural quality **B) General services accessibility**



C) Waiting times



CORRELATIONS BETWEEN TRUST MEASURES AND QUALITY INDICATORS

Figure a. 5 Structural quality and trust measures

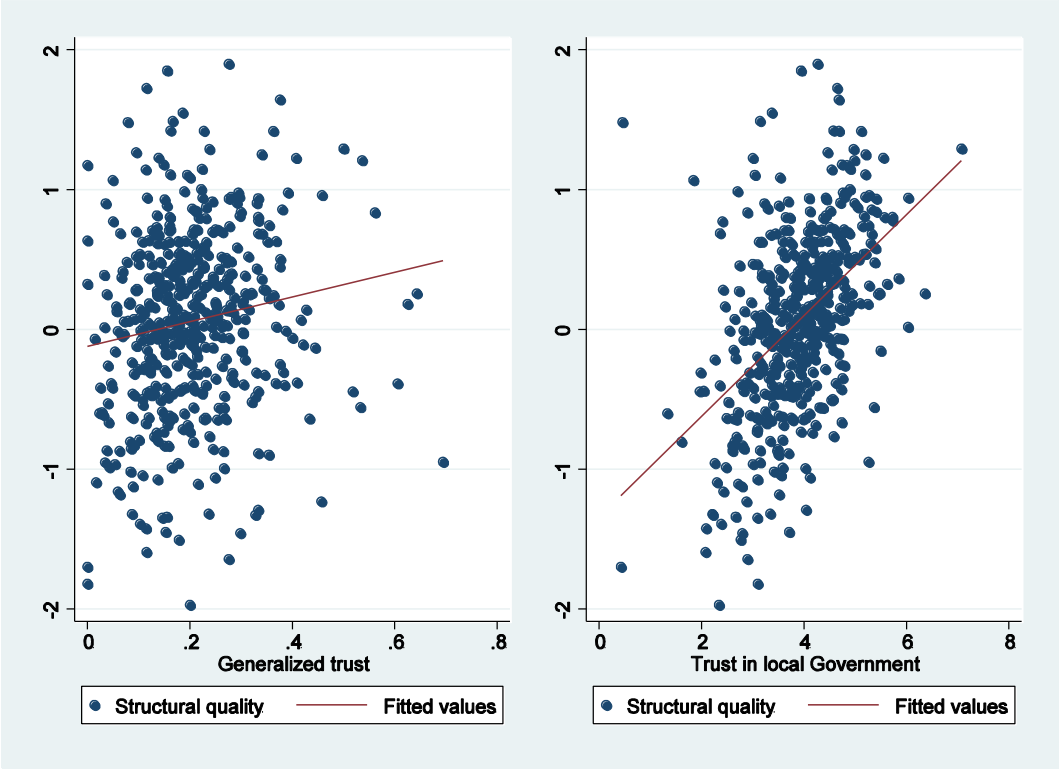


Figure a. 6 General services accessibility and trust measures

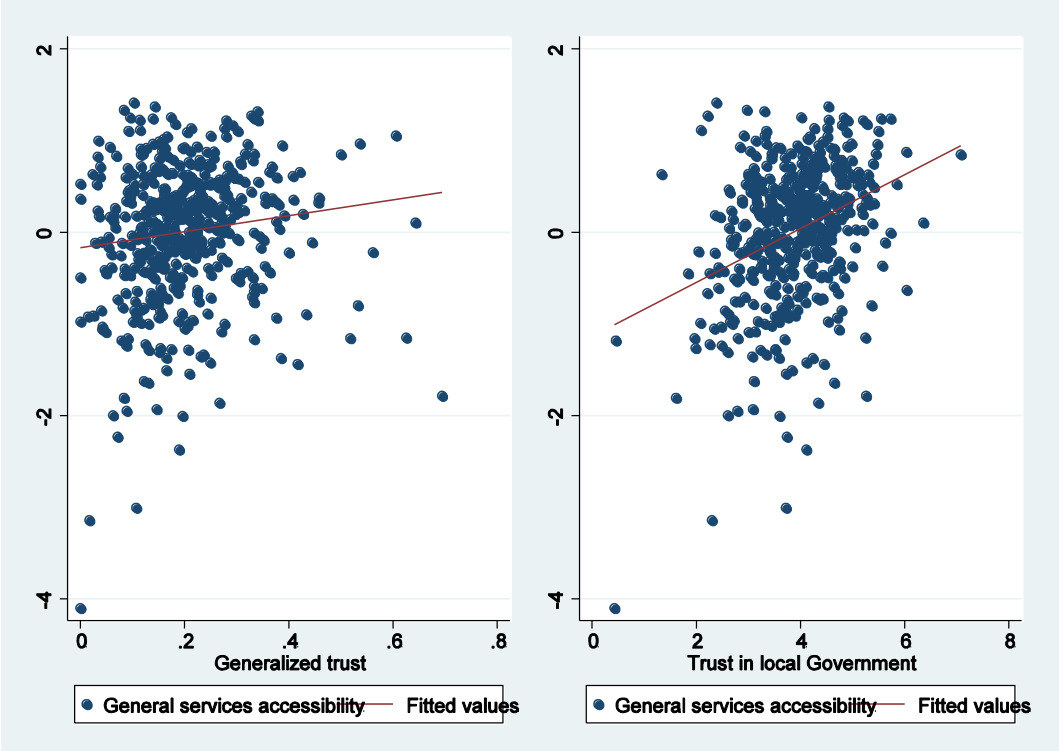


Figure a. 7 Waiting times and trust measures

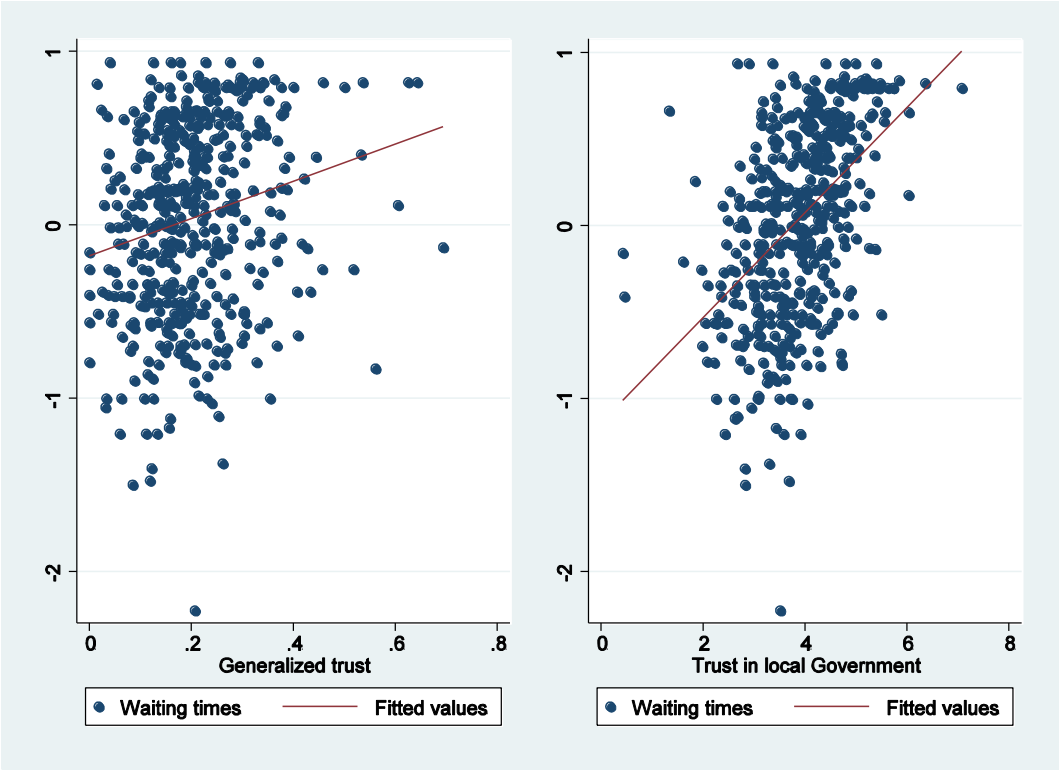


Table a. 1 Descriptive statistics (individual aged 25-35)

	Obs	Mean	Sd
Dependent variables			
Generalized Trust	10,052	0.209	0.407
Trust in local government	9,941	3.671	2.372
Quality indicators			
Quality of local services	10,266	-0.005	0.293
Individual controls			
Employed	10,266	0.623	0.484
Unemployed	10,266	0.212	0.409
Age	10,266	30.764	2.858
Female	10,266	0.499	0.500
Sickness	10,266	0.067	0.249
Divorced	10,266	0.045	0.208
B.A.	10,266	0.232	0.422
High school diploma	10,266	0.428	0.495
Number of children	10,266	1.261	0.953
Sufficient family income	10,266	2.574	0.641
Job in a social sector	10,266	0.086	0.280
Local controls			
North West	10,266	0.192	0.393
North East	10,266	0.192	0.330
Center	10,266	0.319	0.466
South	10,266	0.125	0.330
Islands	10,266	0.107	0.309

Table a. 2 Descriptive statistics (individual aged 36-55)

	Obs	Mean	Sd
Dependent variables			
Generalized Trust	27,883	0.230	0.421
Trust in local government	27,506	3.808	2.387
Quality indicators			
Quality of local services	28,334	0.011	0.293
Individual controls			
Employed	28,334	0.704	0.456
Unemployed	28,334	0.125	0.331
Age	28,334	45.532	5.635
Female	28,334	0.510	0.500
Sickness	28,334	0.115	0.319
Divorced	28,334	0.120	0.325
B.A.	28,334	0.157	0.364
High school diploma	28,334	0.341	0.474
Number of children	28,334	1.329	0.981
Sufficient family income	28,334	2.545	0.64
Job in a social sector	28,334	0.122	0.328
Local controls			
North West	28,334	0.209	0.407
North East	28,334	0.219	0.414
Center	28,334	0.179	0.383
South	28,334	0.286	0.452
Islands	28,334	0.106	0.308

Table a. 3 Descriptive statistics (individual aged 56-85)

	Obs	Mean	Sd
Dependent variables			
Generalized Trust	28,654	0.194	0.395
Trust in local government	28,148	4.094	2.379
Quality indicators			
Quality of local services	28,131	0.016	0.288
Individual controls			
Employed	28,131	0.158	0.365
Unemployed	28,131	0.026	0.159
Age	28,131	68.527	8.248
Female	28,131	0.538	0.498
Sickness	28,131	0.310	0.462
Divorced	28,131	0.061	0.240
B.A.	28,131	0.077	0.265
High school diploma	28,131	0.160	0.367
Number of children	28,131	0.497	0.748
Sufficient family income	28,131	2.526	0.624
Job in a social sector	28,131	0.100	0.300
Local controls			
North West	28,131	0.225	0.418
North East	28,131	0.205	0.404
Center	28,131	0.189	0.392
South	28,131	0.279	0.448
Islands	28,131	0.102	0.302

Table a. 4 Principal component analysis main results

Panel A: Quality of local services indicator				
Variable	**Component loading 1**	**Component loading 2**	**Component loading 3**	**Component loading 4**
Street lighting	0.21	0.26	-0.41	-0.11
Public transport	0.25	0.10	-0.25	-0.08
Street pavement	0.16	0.33	-0.45	-0.05
Street litter	0.12	0.34	-0.37	0.02
Emergency services	0.35	-0.12	0.05	-0.03
Local gov. offices	0.42	-0.12	0.09	0.07
Post office	0.44	-0.15	0.09	-0.02
Police	0.42	-0.17	0.10	0.04
Pharmacy	0.41	-0.18	0.07	-0.02
Local healthcare (ASL)	0.07	0.30	0.15	0.68
Local gov. offices	0.09	0.33	0.20	0.49
Post office (letter)	0.07	0.43	0.41	-0.37
Post office (financial)	0.09	0.44	0.40	-0.35
Eigenvalue component	3.70	2.13	1.59	1.00
% var explained	0.28	0.16	0.12	0.08

Panel B: Structural quality indicator	
Variable	**Component loading**
Street litter	0.54
Public transport	0.41
Street lighting	0.55
Street pavement	0.78
% var explained	0.50
Eigenvalue 1st component	1.99

Panel C: Accessibility general services indicator	
Variable	**Component loading**
Pharmacy	0.38
Emergency services	0.46
Local government offices	0.47
Post office	0.46
Police	0.45
% var explained	0.69
Eigenvalue 1st component	3.43

Panel D: Waiting times indicator	
Variable	**Component loading**
Local government offices	0.35
Local healthcare (ASL)	0.42
Post office (letter)	0.59
Post office (financial)	0.60
% var explained	0.49
Eigenvalue 1st component	1.96

Table a. 5 Correlations in service quality indicators (Individual)

Panel A: Structural quality indicator						
	Street litter	**Public transport**	**Street lighting.**	**Street pav.**	**First p.c.**	**Sum**
Street litter.	1.000					
Public transport	0.188	1.000				
Street lighting.	0.308	0.325	1.000			
Street pav	0.411	0.247	0.462	1.000		
First p.c.	0.675	0.576	0.766	0.783	1.000	
Sum	0.656	0.636	0.746	0.768	0.997	1.000

Panel B: Accessibility to general services							
	Emergency services	**Loc. Gov.. offices**	**Post office**	**Police**	**Pharmacy**	**First p.c.**	**Sum**
Emergency serv.	1.000						
Loc. Gov.. office	0.475	1.000					
Post office	0.488	0.702	1.000				
Police	0.541	0.705	0.678	1.000			
Pharmacy	0.486	0.628	0.726	0.614	1.000		
First p.c.	0.701	0.855	0.877	0.859	0.839	1.000	
Sum	0.753	0.846	0.855	0.859	0.815	0.997	1.000

Panel C: Waiting times						
	Loc. Gov.. offices	**Local healthcare (ASL)**	**Post office (letter)**	**Post office (financial)**	**First p.c.**	**Sum**
Loc. Gov.. office	1.000					
Local healthcare (ASL)	0.279	1.000				
Post office (letter)	0.192	0.234	1.000			
Post office (financial)	0.177	0.283	0.662	1.000		
First p.c.	0.491	0.590	0.820	0.833	1.000	
Sum	0.493	0.678	0.767	0.806	0.993	1.000

Table a. 6 Correlations: Quality indicators (LLMA)

	Quality of local services	Structure quality	Accessib. to Generals	Waiting times
Quality of local services	1.000			
Structure quality	0.377	1.000		
Accessibility general services	0.427	0.414	1.000	
Waiting times	0.838	0.331	0.285	1.000

Table a. 7 Two stage least squares results

	(1) b/se generalized trust	(2) b/se trust in local government
Quality of local services	0.132	-0.282
	[0.106]	[0.657]
Provincial dummies	*YES*	*YES*
Local controls	*YES*	*YES*
Endogeneity test: Robust F statistic	1.022	0.738
Robust F p-value	[0.312]	[0.390]
Weak instruments test: F-test	174.838	169.902
F-test p-value	[0.000]	[0.000]
Obs.	66,239	65,255

Note: * p<0.10, ** p<0.05, *** p<0.01. Standard errors are clustered at the family level.

Table a. 8 GMM estimation: full results

	Generalized trust		Trust in local government	
	First step b/se	**Main eq b/se**	**First step b/se**	**Main eq b/se**
Quality of local services		0.132		-0.291
		[0.106]		[0.657]
Employed	-0.001	0.014***	-0.001	-0.161***
	[0.001]	[0.005]	[0.001]	[0.027]
Unemployed	-0.000	-0.003	0.000	-0.146***
	[0.002]	[0.006]	[0.002]	[0.039]
Age	0.000	0.006***	0.000	-0.012***
	[0.000]	[0.001]	[0.000]	[0.004]
Age squared	0.000	-0.000***	0.000	0.000***
	[0.000]	[0.000]	[0.000]	[0.000]
Sickness	0.001	-0.048***	-0.000	-0.404***
	[0.001]	[0.004]	[0.001]	[0.027]
Female	0.000	-0.019***	0.000	0.010
	[0.001]	[0.003]	[0.001]	[0.015]
Divorced	0.002	0.001	0.002	0.030
	[0.002]	[0.006]	[0.002]	[0.035]
B.A.	0.003	0.137***	0.002	0.002
	[0.002]	[0.006]	[0.002]	[0.033]
High school diploma	0.001	0.070***	0.001	-0.022
	[0.001]	[0.004]	[0.002]	[0.025]
Number of children	0.000	0.003	0.000	-0.004
	[0.000]	[0.002]	[0.000]	[0.014]
Job in a social sector	-0.001	0.032***	-0.001	0.096***
	[0.002]	[0.006]	[0.002]	[0.031]
Sufficient income enough	-0.001	-0.044***	-0.002	-0.418***
	[0.002]	[0.003]	[0.001]	[0.020]
Population density in 1971	-0.009***		-0.009***	
	[0.001]		[0.001]	
P.A: workers in 1971 (%)	0.600***		0.598***	
	[0.043]		[0.043]	
Provincial dummies	*YES*	*YES*	*YES*	*YES*
Local controls	*YES*	*YES*	*YES*	*YES*
R^2	0.85	0.052	0.85	0.087
Obs.	66,239	66,239	65,255	65,255

Note: * p<0.10, ** p<0.05, *** p<0.01. Standard errors are clustered at the family level.

RECENTLY PUBLISHED "TEMI" (*)

N. 1043 – *Exposure to media and corruption perceptions*, by Lucia Rizzica and Marco Tonello (November 2015).

N. 1044 – *The supply side of household finance*, by Gabriele Foà, Leonardo Gambacorta, Luigi Guiso and Paolo Emilio Mistrulli (November 2015).

N. 1045 – *Optimal inflation weights in the euro area*, by by Daniela Bragoli, Massimiliano Rigon and Francesco Zanetti (January 2016).

N. 1046 – *Carry trades and exchange rate volatility: a TVAR approach*, by Alessio Anzuini and Francesca Brusa (January 2016).

N. 1047 – *A new method for the correction of test scores manipulation* by Santiago Pereda Fernández (January 2016).

N. 1048 – *Heterogeneous peer effects in education* by by Eleonora Patacchini, Edoardo Rainone and Yves Zenou (January 2016).

N. 1049 – *Debt maturity and the liquidity of secondary debt markets*, by Max Bruche and Anatoli Segura (January 2016).

N. 1050 – *Contagion and fire sales in banking networks*, by Sara Cecchetti, Marco Rocco and Laura Sigalotti (January 2016).

N. 1051 – *How does bank capital affect the supply of mortgages? Evidence from a randomized experiment*, by Valentina Michelangeli and Enrico Sette (February 2016).

N. 1052 – *Adaptive models and heavy tails*, by Davide Delle Monache and Ivan Petrella (February 2016).

N. 1053 – *Estimation of counterfactual distributions with a continuous endogenous treatment*, by Santiago Pereda Fernández (February 2016).

N. 1054 – *Labor force participation, wage rigidities, and inflation*, by Francesco Nucci and Marianna Riggi (February 2016).

N. 1055 – *Bank internationalization and firm exports: evidence from matched firm-bank data*, by Raffaello Bronzini and Alessio D'Ignazio (February 2016).

N. 1056 – *Retirement, pension eligibility and home production*, by Emanuele Ciani (February 2016).

N. 1057 – *The real effects of credit crunch in the Great Recession: evidence from Italian provinces*, by Guglielmo Barone, Guido de Blasio and Sauro Mocetti (February 2016).

N. 1058 – *The quantity of corporate credit rationing with matched bank-firm data*, by Lorenzo Burlon, Davide Fantino, Andrea Nobili and Gabriele Sene (February 2016).

N. 1059 – *Estimating the money market microstructure with negative and zero interest rates*, by Edoardo Rainone and Francesco Vacirca (February 2016).

N. 1060 – *Intergenerational mobility in the very long run: Florence 1427-2011*, by Guglielmo Barone and Sauro Mocetti (April 2016).

N. 1061 – *An evaluation of the policies on repayment of government's trade debt in Italy*, by Leandro D'Aurizio and Domenico Depalo (April 2016).

N. 1062 – *Market timing and performance attribution in the ECB reserve management framework*, by Francesco Potente and Antonio Scalia (April 2016).

N. 1063 – *Information contagion in the laboratory*, by Marco Cipriani, Antonio Guarino, Giovanni Guazzarotti, Federico Tagliati and Sven Fischer (April 2016).

N. 1064 – *EAGLE-FLI. A macroeconomic model of banking and financial interdependence in the euro area*, by by Nikola Bokan, Andrea Gerali, Sandra Gomes,Pascal Jacquinot and Massimiliano Pisani (April 2016).

N. 1065 – *How excessive is banks' maturity transformation?*,by Anatoli Segura Velez and Javier Suarez (April 2016).

(*) Requests for copies should be sent to:
Banca d'Italia – Servizio Studi di struttura economica e finanziaria – Divisione Biblioteca e Archivio storico – Via Nazionale, 91 – 00184 Rome – (fax 0039 06 47922059). They are available on the Internet www.bancaditalia.it.

2014

G. M. TOMAT, *Revisiting poverty and welfare dominance*, Economia pubblica, v. 44, 2, 125-149, **TD No. 651 (December 2007).**

M. TABOGA, *The riskiness of corporate bonds*, Journal of Money, Credit and Banking, v.46, 4, pp. 693-713, **TD No. 730 (October 2009).**

G. MICUCCI and P. ROSSI, *Il ruolo delle tecnologie di prestito nella ristrutturazione dei debiti delle imprese in crisi*, in A. Zazzaro (a cura di), Le banche e il credito alle imprese durante la crisi, Bologna, Il Mulino, **TD No. 763 (June 2010).**

F. D'AMURI, *Gli effetti della legge 133/2008 sulle assenze per malattia nel settore pubblico,* Rivista di politica economica, v. 105, 1, pp. 301-321, **TD No. 787 (January 2011).**

R. BRONZINI and E. IACHINI, *Are incentives for R&D effective? Evidence from a regression discontinuity approach,* American Economic Journal : Economic Policy, v. 6, 4, pp. 100-134, **TD No. 791 (February 2011).**

P. ANGELINI, S. NERI and F. PANETTA, *The interaction between capital requirements and monetary policy*, Journal of Money, Credit and Banking, v. 46, 6, pp. 1073-1112, **TD No. 801 (March 2011).**

M. BRAGA, M. PACCAGNELLA and M. PELLIZZARI, *Evaluating students' evaluations of professors,* Economics of Education Review, v. 41, pp. 71-88, **TD No. 825 (October 2011).**

M. FRANCESE and R. MARZIA, *Is there Room for containing healthcare costs? An analysis of regional spending differentials in Italy,* The European Journal of Health Economics, v. 15, 2, pp. 117-132, **TD No. 828 (October 2011).**

L. GAMBACORTA and P. E. MISTRULLI, *Bank heterogeneity and interest rate setting: what lessons have we learned since Lehman Brothers?,* Journal of Money, Credit and Banking, v. 46, 4, pp. 753-778, **TD No. 829 (October 2011).**

M. PERICOLI, *Real term structure and inflation compensation in the euro area*, International Journal of Central Banking, v. 10, 1, pp. 1-42, **TD No. 841 (January 2012).**

E. GENNARI and G. MESSINA, *How sticky are local expenditures in Italy? Assessing the relevance of the flypaper effect through municipal data,* International Tax and Public Finance, v. 21, 2, pp. 324-344, **TD No. 844 (January 2012).**

V. DI GACINTO, M. GOMELLINI, G. MICUCCI and M. PAGNINI, *Mapping local productivity advantages in Italy: industrial districts, cities or both?*, Journal of Economic Geography, v. 14, pp. 365–394, **TD No. 850 (January 2012).**

A. ACCETTURO, F. MANARESI, S. MOCETTI and E. OLIVIERI, *Don't Stand so close to me: the urban impact of immigration,* Regional Science and Urban Economics, v. 45, pp. 45-56, **TD No. 866 (April 2012).**

M. PORQUEDDU and F. VENDITTI, *Do food commodity prices have asymmetric effects on euro area inflation,* Studies in Nonlinear Dynamics and Econometrics, v. 18, 4, pp. 419-443, **TD No. 878 (September 2012).**

S. FEDERICO, *Industry dynamics and competition from low-wage countries: evidence on Italy*, Oxford Bulletin of Economics and Statistics, v. 76, 3, pp. 389-410, **TD No. 879 (September 2012).**

F. D'AMURI and G. PERI, *Immigration, jobs and employment protection: evidence from Europe before and during the Great Recession,* Journal of the European Economic Association, v. 12, 2, pp. 432-464, **TD No. 886 (October 2012).**

M. TABOGA, *What is a prime bank? A euribor-OIS spread perspective,* International Finance, v. 17, 1, pp. 51-75, **TD No. 895 (January 2013).**

G. CANNONE and D. FANTINO, *Evaluating the efficacy of european regional funds for R&D,* Rassegna italiana di valutazione, v. 58, pp. 165-196, **TD No. 902 (February 2013).**

L. GAMBACORTA and F. M. SIGNORETTI, *Should monetary policy lean against the wind? An analysis based on a DSGE model with banking,* Journal of Economic Dynamics and Control, v. 43, pp. 146-74, **TD No. 921 (July 2013).**

M. BARIGOZZI, CONTI A.M. and M. LUCIANI, *Do euro area countries respond asymmetrically to the common monetary policy?,* Oxford Bulletin of Economics and Statistics, v. 76, 5, pp. 693-714, **TD No. 923 (July 2013).**

U. ALBERTAZZI and M. BOTTERO, *Foreign bank lending: evidence from the global financial crisis,* Journal of International Economics, v. 92, 1, pp. 22-35, **TD No. 926 (July 2013).**

R. DE BONIS and A. SILVESTRINI, *The Italian financial cycle: 1861-2011,* Cliometrica, v.8, 3, pp. 301-334, **TD No. 936 (October 2013).**

G. BARONE and S. MOCETTI, *Natural disasters, growth and institutions: a tale of two earthquakes,* Journal of Urban Economics, v. 84, pp. 52-66, **TD No. 949 (January 2014).**

D. PIANESELLI and A. ZAGHINI, *The cost of firms' debt financing and the global financial crisis,* Finance Research Letters, v. 11, 2, pp. 74-83, **TD No. 950 (February 2014).**

J. LI and G. ZINNA, *On bank credit risk: sytemic or bank-specific? Evidence from the US and UK,* Journal of Financial and Quantitative Analysis, v. 49, 5/6, pp. 1403-1442, **TD No. 951 (February 2015).**

A. ZAGHINI, *Bank bonds: size, systemic relevance and the sovereign,* International Finance, v. 17, 2, pp. 161-183, **TD No. 966 (July 2014).**

G. SBRANA and A. SILVESTRINI, *Random switching exponential smoothing and inventory forecasting,* International Journal of Production Economics, v. 156, 1, pp. 283-294, **TD No. 971 (October 2014).**

M. SILVIA, *Does issuing equity help R&D activity? Evidence from unlisted Italian high-tech manufacturing firms,* Economics of Innovation and New Technology, v. 23, 8, pp. 825-854, **TD No. 978 (October 2014).**

2015

G. DE BLASIO, D. FANTINO and G. PELLEGRINI, *Evaluating the impact of innovation incentives: evidence from an unexpected shortage of funds,* Industrial and Corporate Change, , v. 24, 6, pp. 1285-1314, **TD No. 792 (February 2011).**

M. BUGAMELLI, S. FABIANI and E. SETTE, *The age of the dragon: the effect of imports from China on firm-level prices*, Journal of Money, Credit and Banking, v. 47, 6, pp. 1091-1118, **TD No. 737 (January 2010).**

R. BRONZINI, *The effects of extensive and intensive margins of FDI on domestic employment: microeconomic evidence from Italy*, B.E. Journal of Economic Analysis & Policy, v. 15, 4, pp. 2079-2109, **TD No. 769 (July 2010).**

A. DI CESARE, A. P. STORK and C. DE VRIES, *Risk measures for autocorrelated hedge fund returns,* Journal of Financial Econometrics, v. 13, 4, pp. 868-895, **TD No. 831 (October 2011).**

G. BULLIGAN, M. MARCELLINO and F. VENDITTI, *Forecasting economic activity with targeted predictors,* International Journal of Forecasting, v. 31, 1, pp. 188-206, **TD No. 847 (February 2012).**

A. CIARLONE, *House price cycles in emerging economies,* Studies in Economics and Finance, v. 32, 1, **TD No. 863 (May 2012).**

D. FANTINO, A. MORI and D. SCALISE, *Collaboration between firms and universities in Italy: the role of a firm's proximity to top-rated departments,* Rivista Italiana degli economisti, v. 1, 2, pp. 219-251, **TD No. 884 (October 2012).**

A. BARDOZZETTI and D. DOTTORI, *Collective Action Clauses: how do they Affect Sovereign Bond Yields?,* Journal of International Economics , v 92, 2, pp. 286-303, **TD No. 897 (January 2013).**

D. DEPALO, R. GIORDANO and E. PAPAPETROU, *Public-private wage differentials in euro area countries: evidence from quantile decomposition analysis,* Empirical Economics, v. 49, 3, pp. 985-1115, **TD No. 907 (April 2013).**

G. BARONE and G. NARCISO, *Organized crime and business subsidies: Where does the money go?,* Journal of Urban Economics, v. 86, pp. 98-110, **TD No. 916 (June 2013).**

P. ALESSANDRI and B. NELSON, *Simple banking: profitability and the yield curve,* Journal of Money, Credit and Banking, v. 47, 1, pp. 143-175, **TD No. 945 (January 2014).**

M. TANELI and B. OHL, *Information acquisition and learning from prices over the business cycle,* Journal of Economic Theory, 158 B, pp. 585–633, **TD No. 946 (January 2014).**

R. AABERGE and A. BRANDOLINI, *Multidimensional poverty and inequality,* in A. B. Atkinson and F. Bourguignon (eds.), Handbook of Income Distribution, Volume 2A, Amsterdam, Elsevier, **TD No. 976 (October 2014).**

V. CUCINIELLO and F. M. SIGNORETTI, *Large banks,loan rate markup and monetary policy,* International Journal of Central Banking, v. 11, 3, pp. 141-177, **TD No. 987 (November 2014).**

M. FRATZSCHER, D. RIMEC, L. SARNOB and G. ZINNA, *The scapegoat theory of exchange rates: the first tests,* Journal of Monetary Economics, v. 70, 1, pp. 1-21, **TD No. 991 (November 2014).**

A. NOTARPIETRO and S. SIVIERO, *Optimal monetary policy rules and house prices: the role of financial frictions,* Journal of Money, Credit and Banking, v. 47, S1, pp. 383-410, **TD No. 993 (November 2014).**

R. ANTONIETTI, R. BRONZINI and G. CAINELLI, *Inward greenfield FDI and innovation,* Economia e Politica Industriale, v. 42, 1, pp. 93-116, **TD No. 1006 (March 2015).**

T. CESARONI, *Procyclicality of credit rating systems: how to manage it,* Journal of Economics and Business, v. 82. pp. 62-83, **TD No. 1034 (October 2015).**

M. RIGGI and F. VENDITTI, *The time varying effect of oil price shocks on euro-area exports,* Journal of Economic Dynamics and Control, v. 59, pp. 75-94, **TD No. 1035 (October 2015).**

2016

E. BONACCORSI DI PATTI and E. SETTE, *Did the securitization market freeze affect bank lending during the financial crisis? Evidence from a credit register,* Journal of Financial Intermediation , v. 25, 1, pp. 54-76, **TD No. 848 (February 2012).**

M. MARCELLINO, M. PORQUEDDU and F. VENDITTI, *Short-Term GDP Forecasting with a mixed frequency dynamic factor model with stochastic volatility,* Journal of Business & Economic Statistics , v. 34, 1, pp. 118-127, **TD No. 896 (January 2013).**

M. ANDINI and G. DE BLASIO, *Local development that money cannot buy: Italy's Contratti di Programma,* Journal of Economic Geography, v. 16, 2, pp. 365-393, **TD No. 915 (June 2013).**

L. ESPOSITO, A. NOBILI and T. ROPELE, *The Management of Interest Rate Risk During the Crisis: Evidence from Italian Banks,* Journal of Banking & Finance, v. 59, pp. 486-504, **TD No. 933 (September 2013).**

F. BUSETTI and M. CAIVANO, *The Trend–Cycle Decomposition of Output and the Phillips Curve: Bayesian Estimates for Italy and the Euro Area,* Empirical Economics, V. 50, 4, pp. 1565-1587, **TD No. 941 (November 2013).**

M. CAIVANO and A. HARVEY, *Time-series models with an EGB2 conditional distribution,* Journal of Time Series Analysis, v. 35, 6, pp. 558-571, **TD No. 947 (January 2014).**

G. ALBANESE, G. DE BLASIO and P. SESTITO, *My parents taught me. evidence on the family transmission of values,* Journal of Population Economics, v. 29, 2, pp. 571-592, **TD No. 955 (March 2014).**

R. BRONZINI and P. PISELLI, *The impact of R&D subsidies on firm innovation,* Research Policy, v. 45, 2, pp. 442-457, **TD No. 960 (April 2014).**

L. BURLON and M. VILALTA-BUFI, *A new look at technical progress and early retirement,* IZA Journal of Labor Policy, v. 5, **TD No. 963 (June 2014).**

A. BRANDOLINI and E. VIVIANO, *Behind and beyond the (headcount) employment rate,* Journal of the Royal Statistical Society: Series A, v. 179, 3, pp. 657-681, **TD No. 965 (July 2015).**

D. DOTTORI and M. MANNA, *Strategy and Tactics in Public Debt Management,* Journal of Policy Modeling, v. 38, 1, pp. 1-25, **TD No. 1005 (March 2015).**

A. CALZA and A. ZAGHINI, *Shoe-leather costs in the euro area and the foreign demand for euro banknotes,* International Journal of Central Banking, v. 12, 1, pp. 231-246, **TD No. 1039 (December 2015).**

E. CIANI, *Retirement, Pension Eligibility and Home Production,* Labour Economics, v. 38, pp. 106-120, **TD No. 1056 (March 2016).**

L. D'AURIZIO and D. DEPALO, *An Evaluation of the Policies on Repayment of Government's Trade Debt in Italy,* Italian Economic Journal, v. 2, 2, pp. 167-196, **TD No. 1061 (April 2016).**

FORTHCOMING

S. MOCETTI, M. PAGNINI and E. SETTE, *Information technology and banking organization,* Journal of Financial Services Research, **TD No. 752 (March 2010).**

F BRIPI, *The role of regulation on entry: evidence from the Italian provinces,* World Bank Economic Review, **TD No. 932 (September 2013).**

G. DE BLASIO and S. POY, *The impact of local minimum wages on employment: evidence from Italy in the 1950s,* Regional Science and Urban Economics, **TD No. 953 (March 2014).**

A. L. MANCINI, C. MONFARDINI and S. PASQUA, *Is a good example the best sermon? Children's imitation of parental reading,* Review of Economics of the Household, **TD No. 958 (April 2014).**

L. BURLON, *Public expenditure distribution, voting, and growth,* Journal of Public Economic Theory, **TD No. 961 (April 2014).**

G. ZINNA, *Price pressures on UK real rates: an empirical investigation,* Review of Finance, **TD No. 968 (July 2014).**

A. BORIN and M. MANCINI, *Foreign direct investment and firm performance: an empirical analysis of Italian firms,* Review of World Economics, **TD No. 1011 (June 2015).**

F. CORNELI and E. TARANTINO, *Sovereign debt and reserves with liquidity and productivity crises,* Journal of International Money and Finance, **TD No. 1012 (June 2015).**