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# Changes in the Eternal City: Inequalities, commons, and elections in Rome districts from 2000 to 2013

Federico Tomassi\*

## Abstract

In city districts in Rome, social and economic inequalities between centre and peripheral belts have been increasing over the last years, in parallel to the on-going suburban sprawl. Electoral data from 2000 to 2013 highlight sharp political polarization too. Votes for left-wing (right-wing) candidates are directly (inversely) proportional to proximity to Capitoline Hill. Left-wing coalition prevails where social centrality exists, that is in dense districts with widespread social relationships and many public or collective places. Conversely, right-wing parties prevail in far-off sprawled areas, with less opportunities to meet each other, where production and consumption of relational goods are less likely. Since such goods – according to scholars of civil economics – foster individual well-being and local development, they also affect political choices, challenging the so-called traditional ‘red belt’ in working-class districts until the 1980s.

## Keywords

City planning, commons, elections, Italy, relational goods, social capital.

## JEL Classification

H41; R14; Z13.

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## 1. Introduction: inequalities and polarizations in Rome

Despite its appellation of ‘Eternal City’, many changes have been occurring in Rome since the mid-1990s. Left-wing local government from 1993 to 2008 was celebrated in Italy as a ‘Roman model’, “*mainly characterized by a path of structural change, that is more oriented towards ICT, mass tourism, finance, advanced services, the audio-visual industry, culture and R&D*” (De Muro *et al.*, 2011: 1213). This model yielded to positive outcomes as GDP growth, per capita income, and tourism. At the same time inequalities and polarizations arose from several directions: social and economic conditions, urban dynamics, common goods, and political choices.

First, economic growth did not trickle down in a homogeneous ways in Roman districts and social groups, causing widespread inequalities. In the Lazio Region, both mean and median net incomes are similar to Northern and Central Italy – slightly higher than national average. Yet the Gini index of income concentration there is very close to the most disadvantaged Southern regions (Acciari and Mocetti, 2013; ISTAT, 2013: 254-255). In Rome, due to the lack of policies devoted to distribution issues, “*Weak sectors of society have not enjoyed the benefits of advanced growth in the service sector. Insufficient attention has been paid to peripheral neighbourhoods, poverty has not been reduced, unskilled workers are affected by social exclusion, the middle class suffers an increased cost of living, booming house prices exclude a growing part of the lower-middle class from homeownership, renting a house is very expensive*” (De Muro *et al.*, 2012: 195). This brings about new imbalances, notably uneven human development and significant variance in related indicators within Roman districts (De Muro *et al.*, 2011: 1225-35). Benefits are mostly enjoyed by central sub-municipalities and some privileged districts, while peripheral neighbourhoods gain very little from the Roman economic miracle (De Muro *et al.*, 2012: 206-207). This is not only an Italian peculiarity: also in London benefits do not appear “*to be trickling down to day-to-day residents in a way amenable to improved well-being*” (Higgins *et al.*, 2014: 55).

Second, building expansion in Rome has generated a great process of auto-oriented, low-density, and car-dependent suburban sprawl by ‘leapfrog development’ (Di Zio *et al.*, 2010; Gargiulo Morelli and Salvati, 2010: 131-149; Munafò *et al.*, 2010; Salvati, 2014). This has not been fostered by population growth – stable at around 2.7-2.8 million since the mid-1990s – but rather by market prices and finance dynamics. On one hand, young or poor people and immigrants have been searching for cheaper but far-off housing, while central flats have become ever more expensive to buy or rent. On the other hand, money savers and companies prefer to invest in real estate rather than in low-interest public bonds, thus fuelling a long-lasting housing boom which has now only been stopped by the economic crisis. As a result, population figures have

changed significantly from 2001 to 2012 (Table 7 in Appendix). The number of inhabitants fell by  $-1.1\%$  in the city centre and by  $-6\%$  in the closest peripheral belt, mainly completed in the 1970s. In the intermediate belt inside the Roman Ringway (*Grande Raccordo Anulare*, or GRA), mainly built from the mid-1970s to mid-1990s, inhabitant numbers rose slightly by  $+2.7\%$ , while figures grew sharply by  $+30.7\%$  in new districts outside of the Ringway, since the 1990s. Population density thereby sharply decreases with distance from city centre: 101.8 inhabitants by hectare in the first belt, 32.3 in the second one, and 5.5 in the third one.

However, the sub-municipalities by which Rome is partitioned – endowed with restricted administrative functions – are not able to face the territorial complexity of the city through effective forms of cooperation and polycentrism (Gemmiti *et al.*, 2012). The current urban planning approach is mainly aimed at competitiveness in city centre through tourism and culture-led projects (Gemmiti, 2012). Outer sprawled districts are physically insulated from the city, surrounded by rural land and far from urban services and working places, with the exception of malls. They lack common and relational goods compared to historical districts where meetings, civic participation and interpersonal interactions are frequent enough to foster individual well-being and local development (Uhlener, 1989; Ostrom, 1990; Gui and Sudgen, 2005; Bruni and Stanca, 2008; Zamagni, 2008).

Third, socioeconomic and urban polarizations appear to affect political choices in Rome, challenging the so-called traditional ‘red belt’ in working-class districts until the 1980s, bearing in mind though that political supply in Italy changed dramatically in the 1990s. The ‘red belt’ was the hegemony of the former Communist Party in peripheral zones, surrounding the conservative urban core of the city where the former Christian Democrats preponderated (Coppola, 2013). For many years left-wing candidates have prevailed in some central neighbourhoods and in most of the historical and dense peripheral belt. Meanwhile the right-wing coalition receives most votes in the outer sprawled districts of new settlements. Such outcomes appeared constant enough in every election during the 2000s, irrespective of electoral winners and absolute number of votes.

The aim of the present work is to contribute to civil economics and social capital debate, by analysing the evidences from city districts in Rome about socioeconomic, urban, and electoral polarizations, in order to point out some basic factors shaping local political differences. An original dataset was appositely built for 143 urban districts (*zone urbanistiche*) with polling stations, by which sub-municipal territories are further partitioned. Data were collected by merging a number of sources: electoral files, annual civil registry, social and economic features according to the 2001 census, and two specific surveys on income and on public services and places (see Table 8 in Appendix). An interdisciplinary approach is chosen, by matching economic, sociological, urban, and political issues.

This paper is organised as follows. In Section 2, electoral data from 2000 to 2013 in urban zones show that a sort of ‘political gravity law’ holds, by which votes for left-wing (right-wing) candidates are directly (inversely) proportional to the closeness to Capitoline Hill. Main socio-economic, demographic, and urban factors are taken into account in Section 3. **Errore. L'origine riferimento non è stata trovata.** in order to explain political outcomes. Such factors are linked to availability (shortages) of commons or relational goods in the city centre (outskirts) in Section 4. Empirical evidences by an explorative analysis of context variables to individuate latent factors are discussed in Section 5. **Errore. L'origine riferimento non è stata trovata.**, and by some inferential analyses of electoral data in Section 6. Some remarks conclude in Section 7 on reasons by which peripheral problems appear to impair left-wing rather than right-wing candidates.

## 2. Electoral results in Roman districts

Electoral data for Roman urban zones refer to ten polls from 2000 to 2013 to elect single offices: mayor of Rome, president of the Province of Rome (NUTS 3), and president of the Lazio Region (NUTS 2). Votes for party lists in local Councils and national Parliament are not considered here due to limited space and homogeneity problems, although their inclusion would yield similar outcomes.

Both winners in the last 2013 polls belong to the left-wing coalition: Nicola Zingaretti as president of the Lazio Region and Ignazio Marino as mayor of Rome. Such elections show a very clear territorial divide, since the Roman Ringway represents a sharp rupture between internal districts voting for left-wing candidates and external outskirts voting for right-wing coalition (see Figure 1). Higher political consent for left-wing candidates was seen in some bohemian central neighbourhoods (Trastevere, Testaccio, and San Lorenzo), in many eastern and southern districts inside the Ringway, and in the Ostia coastal area. Conversely, lower consent was mainly found outside the Ringway, with the exception of the well-off internal zone north of the city centre, Eur business district, and the Appian Way mansions. Similar outcomes hold for previous elections, not reported here for the sake of simplicity.

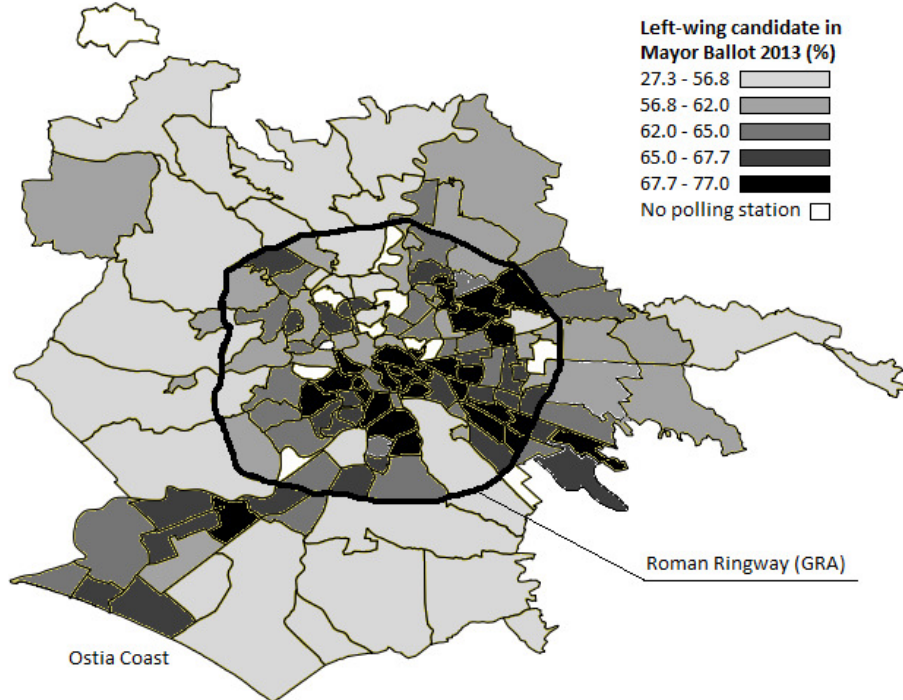
For descriptive and comparative purposes only, electoral data are aggregated in the four urban areas pointed out in Section 1: city centre, first historical belt, intermediate periphery inside the Ringway, and outer districts. The “observed variable” is the difference in percentage points in every zone between votes gained by left-wing candidates (who won most of such elections) and the Roman average. Outcomes are perfectly symmetric for right-wing candidates, since votes for other parties are usually negligible.

In every election from 2000 to 2013 a ‘political gravity law’ holds: votes for left-wing (right-wing) candidates are directly (inversely) proportional to the closeness to Capitoline Hill, where the Roman city hall rises up. In other words, results are best (worst) in the historical belt, average in the intermediate periphery, and worst (best) in outer districts (see Table 1). There are significant gaps between votes for left-wing candidates in historical and outer peripheral belts (see Figure 2). Those gaps range from 5.3 percentage points in the 2005 regional vote to 11.1 in the 2013 regional vote. Furthermore, these gaps have been higher than 8 percentage points in every election since 2005. Notwithstanding absolute votes and winning coalitions which are different in each election, gaps between historical and outer peripheries appear to be constant enough across time in relative terms.

The unusual bipartisan appeal of leftist candidates could explain limited gaps in 2000, 2005, and 2006. In fact, both Badaloni in 2000 and Marrazzo in 2005 were famous TV journalists, while Veltroni in 2006 was almost universally acclaimed as the inspirer of the “Roman model” in his first term. This yielded some differences in the electoral behaviour of Roman citizens, disclosed by regressions in Section 6, too.

The above considerations are reflected in correlation coefficients, which show all elections as highly collinear (see Table 2). Notably, three groups can be pointed out: first, older votes from 2000 to 2006 (bilateral coefficients between .90 and .96); second, more recent mayoral elections from 2008 to 2013 (between .88 and .98); third, the 2013 regional poll which appears to stand alone instead (higher correlations equal to .88 and .90 with both 2008 elections, one of which with the same candidate).

**Figure 1** Votes for left-wing candidate, by urban zones (% 2013)



Source: own elaboration on Roma Capitale electoral files, [www.elezioni.comune.roma.it](http://www.elezioni.comune.roma.it).

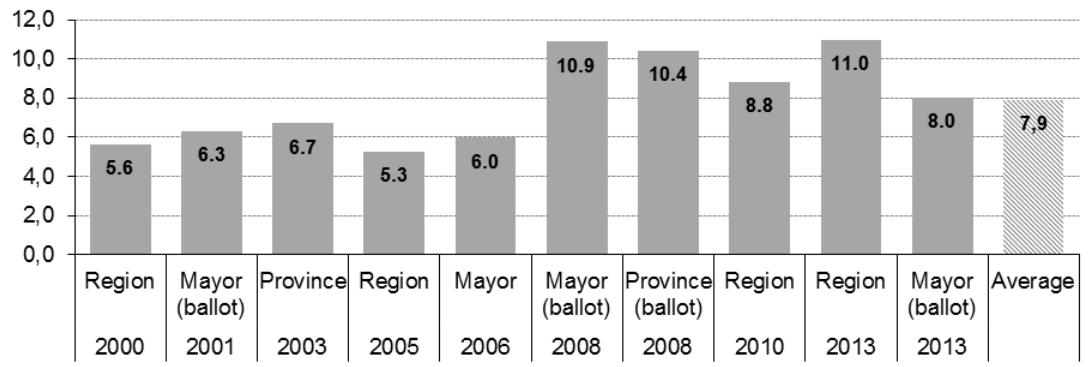
**Table 1** Votes for left-wing candidates, by urban belts (% 2000-2013)

Year	Election	City average	Differences from city average				Gap (A – B)	Left-wing candidate	Right-wing candidate
			Centre	Closest periphery (A)	Intermed. Ringway periphery	Outer districts (B)			
2013	Mayor (ballot)	63.9	-2.0	2.8	-5	-5.2	8.0	<i>Marino</i>	Alemanno
2013	Region	45.4	3.0	3.5	-2.4	-7.5	11.0	<i>Zingaretti</i>	Storace
2010	Region	54.2	-1.1	2.8	-.4	-6.0	8.8	Bonino	<i>Polverini</i>
2008	Mayor (ballot)	46.3	.1	3.3	-1.1	-7.6	10.9	Rutelli	<i>Alemanno</i>
2008	Province (ballot)	50.9	-.7	3.3	-.9	-7.1	10.4	<i>Zingaretti</i>	Antoniozzi
2006	Mayor	61.4	-3.4	2.3	.2	-3.7	6.0	<i>Veltroni</i>	Alemanno
2005	Region	55.5	-4.4	2.3	.5	-3.0	5.3	<i>Marrazzo</i>	Storace
2003	Province	55.8	-2.4	2.4	-.7	-4.3	6.7	<i>Gasbarra</i>	Moffa
2001	Mayor (ballot)	52.2	-2.6	2.2	-.2	-4.1	6.3	<i>Veltroni</i>	Tajani
2000	Region	47.0	-2.3	2.1	-.6	-3.5	5.6	Badaloni	<i>Storace</i>

Note: winning candidates in italics; partition in urban belts described in Table 7.

Source: own elaboration on Roma Capitale electoral files, [www.elezioni.comune.roma.it](http://www.elezioni.comune.roma.it).

**Figure 2** Gaps in votes for left-wing candidates between historical and outer periphery (percentage points 2000-2013)



Source: own elaboration on Roma Capitale electoral files, [www.elezioni.comune.roma.it](http://www.elezioni.comune.roma.it).

**Table 2** Correlation between votes for left-wing candidates in urban zones

Year	Election	2013 Mayor (ballot)	2013 Region	2010 Region	2008 Mayor (ballot)	2008 Prov. (ballot)	2006 Mayor	2005 Region	2003 Prov.	2001 Mayor (ballot)	2000 Region
2013	Mayor (ballot)	-	.81	.96	.90	.88	.83	.84	.80	.80	.76
2013	Region	.81	-	.85	.90	.88	.67	.58	.69	.67	.65
2010	Region	.96	.85	-	.95	.94	.87	.87	.86	.87	.83
2008	Mayor (ballot)	.90	.90	.95	-	.98	.83	.80	.84	.86	.84
2008	Province (ballot)	.88	.88	.94	.98	-	.87	.84	.87	.88	.88
2006	Mayor	.83	.67	.87	.83	.87	-	.95	.90	.91	.90
2005	Region	.84	.58	.87	.80	.84	.95	-	.91	.94	.92
2003	Province	.80	.69	.86	.84	.87	.90	.91	-	.92	.90
2001	Mayor (ballot)	.80	.67	.87	.86	.88	.91	.94	.92	-	.96
2000	Region	.76	.65	.83	.84	.88	.90	.92	.90	.96	-

Note: Pearson coefficients; all of them are significant at the 1% level.

Source: own elaboration on Roma Capitale electoral files, [www.elezioni.comune.roma.it](http://www.elezioni.comune.roma.it).

### 3. Socioeconomic, demographic, and urban factors

Of course, the above description of electoral data in Roman districts according to their belonging to different belts – that is their closeness from Capitoline Hill – is an oversimplification. More complex dynamics due to historic, demographic, social, economic, and urban factors shape such political differences. Generally speaking, in many areas of Italy a contrast is rising between post-modern intellectual elites in city centres and the traditional culture of manual labour and SMEs in internal areas, e.g. in the left-led northern Emilia-Romagna Region (Anderlini, 2009).

Correlations between votes and context indicators allow for a study of the main features of left- and right-wing districts and the identification of some relevant factors that can be tested further through inferential analyses. Since political choices appear to be constant enough over



the last years in relative terms, current analysis relates to Rome's mayoral election in 2013, when the gap between historical and outer peripheries was very close to the average of the ten polls taken into account.

The most relevant factor is population density: in urban zones where it is higher (upper quartile) votes for left-wing candidates are 66%, and 54.8% in the lower quartile, that is a gap of 11.2 percentage points (see Table 3). Very sharp differences – higher than 9 percentage points – refer also to average family dimension (56.8% vs. 66.8%), public squares density (65.9 vs. 56.1), and the share of public workers (67.2% vs. 57.9%). Lower but still significant gaps – relating to advantages enjoyed by left-wing candidates – include old-age rates, 60-75 year olds, over 75 years, public squares availability, rentals, and school workers. Conversely, other gaps relating to advantages enjoyed by right-wing candidates refer to population growth, immigrants from Eastern Europe and non-OECD countries, married individuals, construction workers, under 15 years, 30-45 year olds, and activity rates.

Population density appears to be particularly important in explaining electoral differences, through a quadratic relationship curve. Correlation between votes for left-wing candidates and population density is positive, but only until a certain threshold of urban crowding, after which it turns negative (see Figure 3). Such a threshold is consistent with the so-called 'compact city paradox', referring to the inverse relation of the sustainability of cities and their livability (Neuman, 2005). This could derive from problems relating to high-density districts in terms of excessive traffic, pollution, noise and confusion, which overbalance their benefits as opportunities of interpersonal relationships and civic participation, as pointed out in Section 4.

It is worthwhile to note that two factors usually considered in nation-wide political analyses – namely education and income, or in other words social and economic centrality – lack any correlation with votes in Rome (see Figure 4). In Italy, highly-educated and well-informed people are more likely to vote for left-wing parties, while the opposite holds for social groups less inclined to participate and read (Fruncillo, 2010: 177-234). However in Rome residential clustering on social, economic or ethnic bases is limited, except for a few well-off central and northern neighbourhoods. On one hand, higher education levels are widespread enough to denote two different social groups: both right-wing oriented small businessmen or professionals, and white-collar public workers as well as teachers. On the other hand, the left-wing coalition prevails both in some high-income central neighbourhoods and in low-income working-class districts; the same holds for right-wing parties. It is thereby clear that employment status and economic sectors are more significant than education or income levels.

The basic framework of Italian political analyses still holds in Rome though, since the left-wing coalition prevails where centrality is high, and right-wing parties where it is low. Actually, such a framework should be understood not so much metaphorically in individual socioeconom-

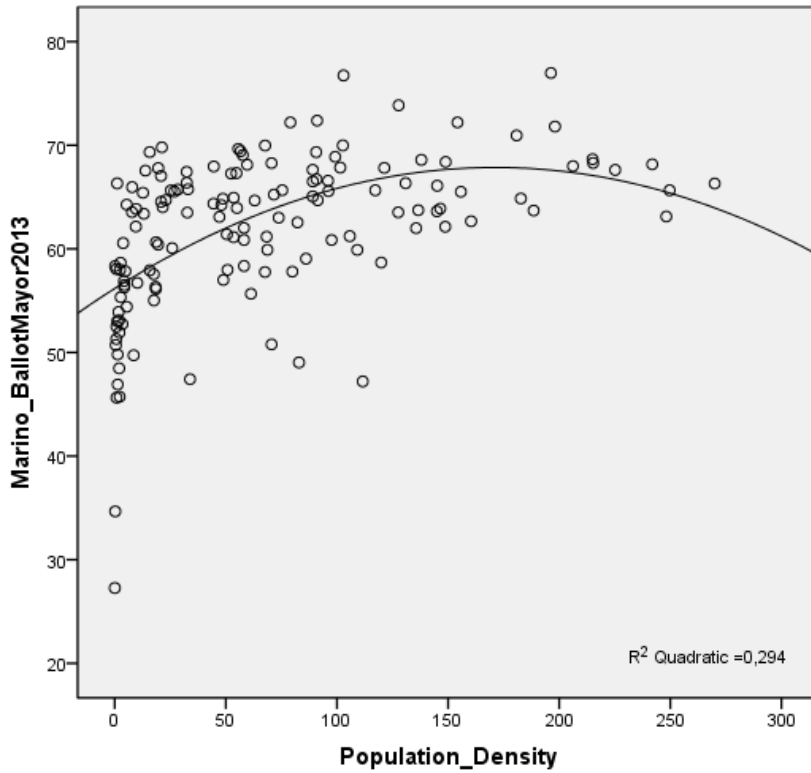
ic terms, but rather literally as proximity to city centre. As the above correlations indicate, electoral consent for left-wing candidates is higher in historical peripheral districts with rather dense populations, limited distance from the city centre, old inhabitants, low family dimensions, few small businesses and professionals, many public and school workers, and diffused rentals (while dwellings in outskirts are newer and usually bought by people living there).

**Table 3** Votes for left-wing candidate for mayor of Rome, by quartiles (% 2013)

<b>Variable</b>	<b>Urban zones in upper quartile (A)</b>	<b>Urban zones in lower quartile (B)</b>	<b>Gap (A – B)</b>
<i>Left-wing candidates prevailing</i>			
Population density	66.0	54.8	11.2
Public squares density	65.9	56.1	9.8
Public workers	67.2	57.9	9.4
Old-age rate	66.9	59.4	7.5
Age group 60-75	65.8	59.4	6.4
Public square availability	65.6	60.7	4.9
Age group over 75	65.7	61.1	4.6
Rentals	65.3	61.0	4.3
School workers	64.3	60.3	4.1
<i>Right-wing candidates prevailing</i>			
Dimension of families	56.8	66.8	-10.0
Population growth	58.8	66.7	-7.9
Immigrants from Eastern Europe	58.4	66.2	-7.8
Immigrants from not-OECD countries	59.6	66.3	-6.8
Married people	59.9	66.6	-6.7
Construction workers	59.5	66.0	-6.6
Age group under 15	60.8	66.8	-5.9
Age group 30-45	59.0	64.7	-5.6
Activity rate	60.8	66.2	-5.4

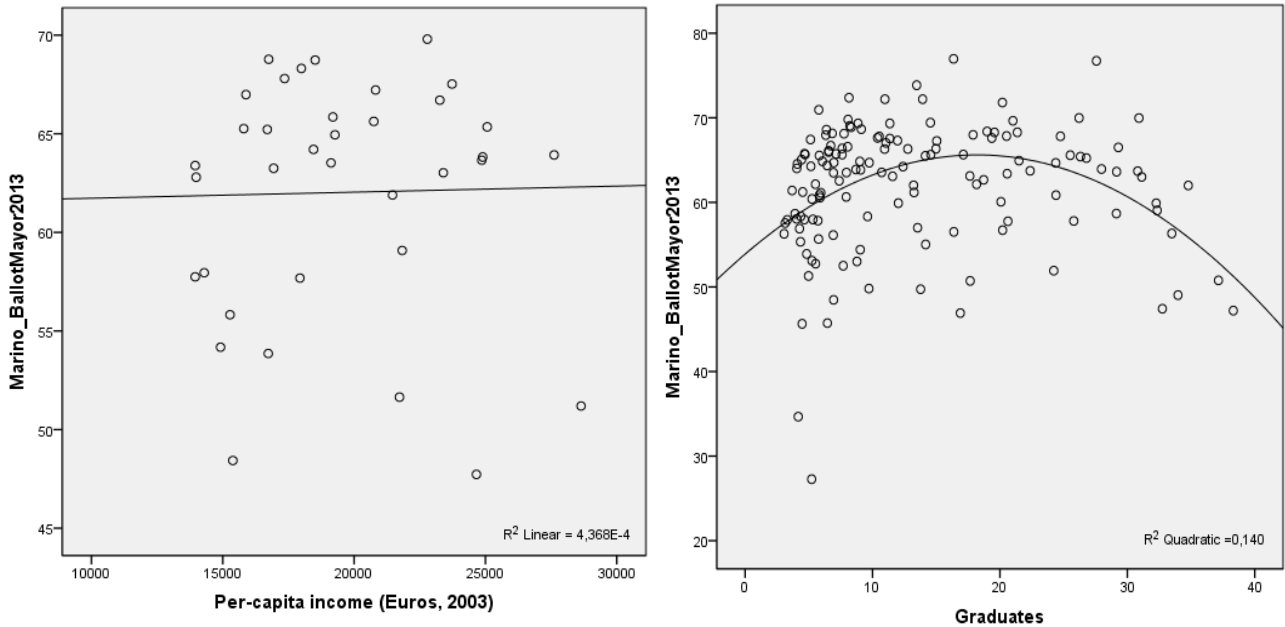
*Source:* own elaboration on dataset in Table 8.

**Figure 3** Votes for left-wing candidate for mayor of Rome, by density of population (2013)



Source: own elaboration on dataset in Table 8.

**Figure 4** Votes for left-wing candidate for mayor of Rome, by per capita income and graduates (2013)



Source: own elaboration on dataset in Table 8.

#### 4. Shortages of commons, relational goods and social capital

After linking the empirical regularity on electoral consent to urban, social, and economic indicators in Roman districts, another question arises: why do such contexts favour left- or right-wing candidates?

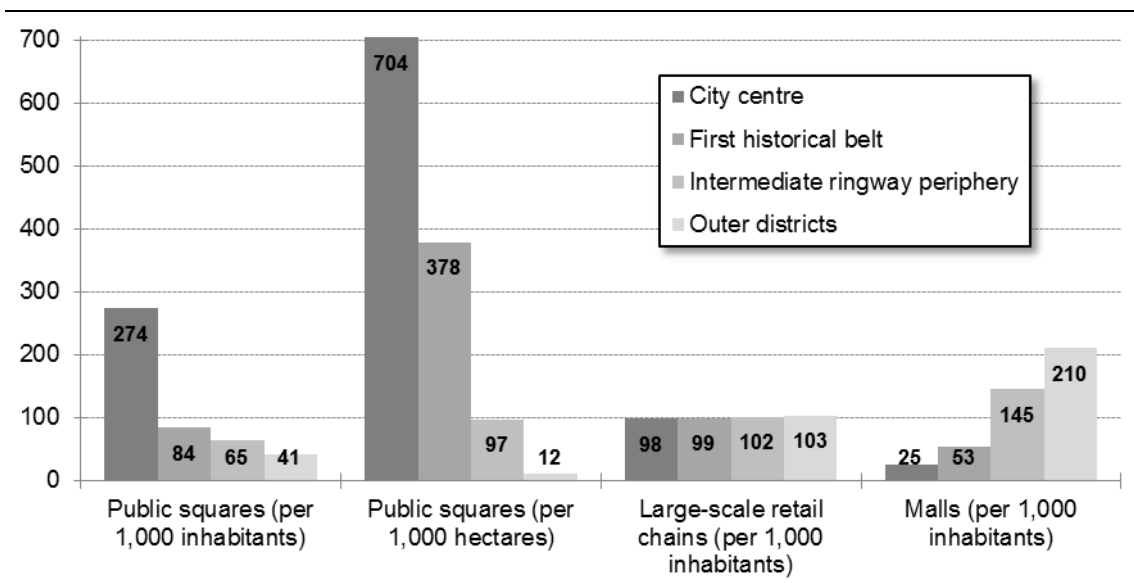
At first glance, peripheral inhabitants should suffer a low quality of life, due to the lack of basic services and distance from working places. However, some surveys about subjective evaluations in Rome do not support such an idea (Agenzia per il controllo e la qualità dei servizi pubblici locali del Comune di Roma, 2011: 11-15; Provincia di Roma, 2010: 31-36). Houses in outer districts are mainly chosen by economic factors, but they also entail positive features, such as new and better-equipped flats, greater spaces, less pollution and noises, accessible car parks.

Other scholars suggest that citizens are hardly influenced by macro-level factors (i.e. city policies and public services), but rather by micro-level issues, notably the opportunity to forge social interrelations and access resources in their own neighbourhood (Bonciani, 2009). Similarly, evidence from city districts in Hamburg shows that concerns about local compositional amenities played an important role in shaping electoral outcomes (Otto and Steinhardt, 2014).

In Rome, since the districts closest to the city centre are densely populated, inhabitants live in very close proximity to each other, allowing for strong interpersonal relations and many opportunities for civic participation. Conversely, outer periphery is sharply characterized by sprawled, low-density, and car-dependent settlements with very few public squares and collective spaces to meet up (Di Zio *et al.*, 2010; Gargiulo Morelli and Salvati, 2010: 131-149; Salvati *et al.*, 2012). According to some urbanologists and sociologists, the lack of public places in outer districts could be a key factor, at least in Europe, since “*They are places where we can meet, trade, celebrate religious and civic events, perform common activities, use common services and amenities*” (Salzano, 2007), bearing in mind though that they “*can also be a street corner or a street or a common park ground in a neighborhood or the halls of a train station or the steps of a church, or a string of restaurants, cafes and movie theaters that attract spontaneous gathering*” (Burkhalter and Castells, 2009: 20-21).

However, in contemporary Italian outskirts, public squares and places – even green areas – have become urban voids, scarcely paid attention to by public authorities or communities. Density and per-capita availability of public squares are proportional to their proximity to Capitoline Hill, in parallel to electoral consent: with a city average of 100, they decrease from 274 and 704 respectively in the city centre to 84 and 378 in the historical belt, 65 and 97 in the intermediate periphery, 41 and 12 outside the Ringway (see Figure 5). Whereas in outer districts per-capita availability of large-scale retail chains is 103 and malls 210.

**Figure 5** Public squares and private business, by urban belts (Rome average = 100; 2009)



Source: own elaboration on Provincia di Roma (2010).

Because of the scarcity both of public spaces and local business, in sprawled outskirts there are a few opportunities for interpersonal contacts and social links, so that living habits are increasingly reserved. Inhabitants prefer to spend their free time driving to artificial and enclosed malls, while local shops decrease and commercial streets lose their traditional social function, so that liveliness in their neighbourhood is more and more reduced (Cellamare, 2014). That limits the production and consumption of relational goods, which can only be enjoyed if shared with others, differently from private goods, which are enjoyed alone (Uhlener, 1989; Gui and Sudgen, 2005; Bruni and Stanca, 2008; Zamagni, 2008). It is unlikely to engage in collective aims, to devote free time to social and political activities, to participate to civic associations. Whereas social participation fosters individual well-being and local development, and generates as a by-product social capital.

Suburban sprawl is claimed by Putnam (2000: 213-214) to bring about a side-effect of reduced interpersonal connectedness and thereby the stock of social capital, via higher time displacement, greater spatial fragmentation, and more tenuous attachment to the local community. However, in economic and sociological literature there is no conclusive empirical evidence about such a link, due to wide heterogeneity in urban contexts, analysed cities, methodologies, and indicators. The impact on social capital of walkable and mixed-use neighbourhoods was found to be positive compared with car-oriented suburbs (Leyden, 2003), while the effect of population density appears to be negative (Brueckner and Largey, 2008). Analyses about commuters or commuting time are poorly applicable to Rome, since traffic congestion and ineffective mass transit are rather common in the city, so that they do not identify sprawled suburbs on-

ly. In Italy, the weak 'linking' ties shaping voluntary organizations appear to nourish human development, with a positive and significant effect on per-capita income, contrary to strong 'bonding' ties within families (Sabatini, 2008; 2009). Urban dynamics are related to cultural and collective factors shaping individual lives, and thereby to political choices.

Public places (positively measured by density of squares) and local business fostering street liveliness (negatively measured by availability of large-scale retail chains or malls) could represent two proxies of commons and 'linking' social capital. Although imperfect, the share of married individuals could be a proxy of 'bonding' social capital, due to the presence of family ties.

## 5. Exploratory analysis of context indicators

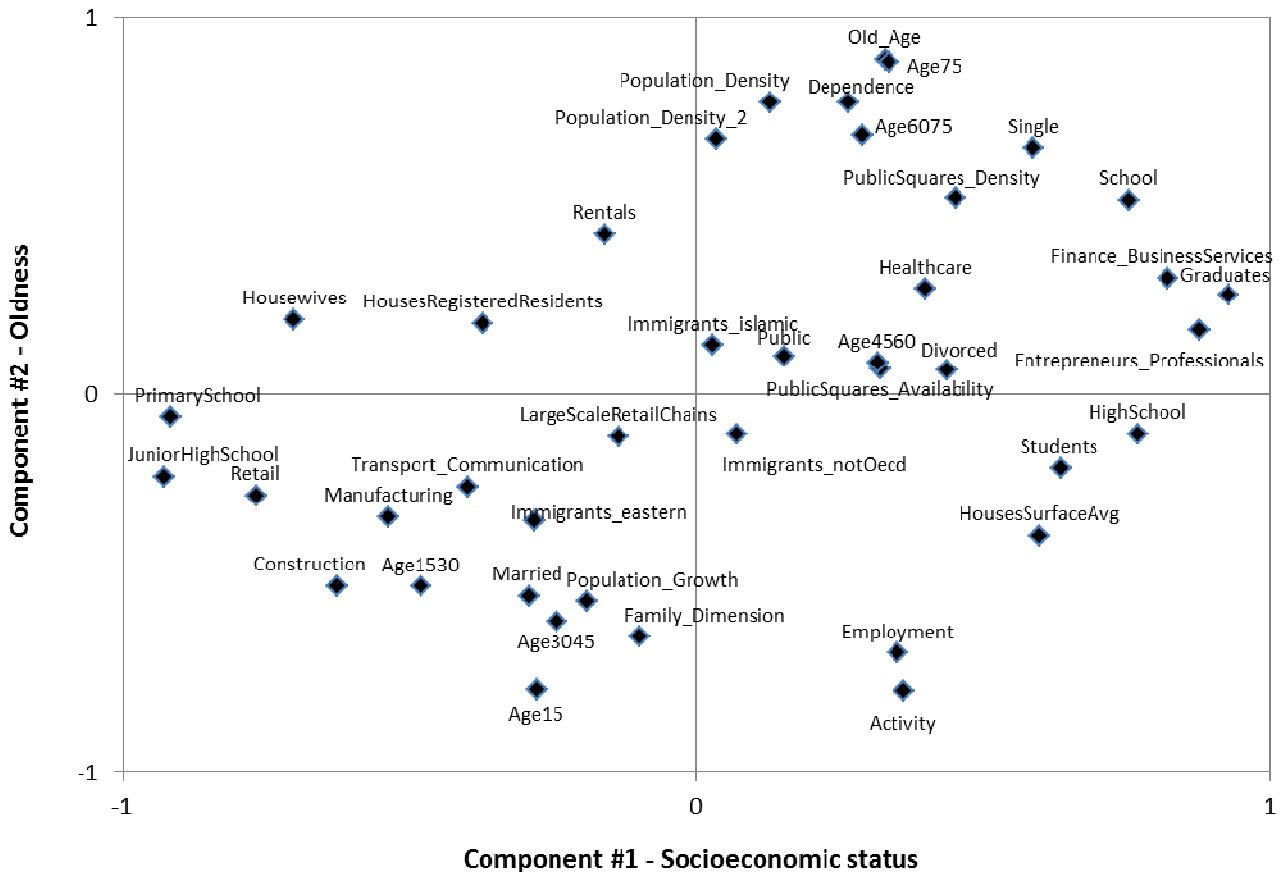
Relationships among socioeconomic, demographic, and urban context indicators are first investigated by means of a Principal Component Analysis (PCA). There are no collinearity problems, since Pearson correlation coefficients are below .80 for any couple of variables, but electoral votes. Three factorial axes are needed to satisfactorily explain at least 60% of the total variance of data. The projections on to the first two principal components can be visualized, so that the factorial plan effectively highlights the structure of relationships among variables (see Figure 6 and Table 9 in Appendix). When two variables are far from the plan centre, then they are significantly positively correlated if they are close to each other, and not correlated if they are orthogonal. When they are on the opposite side of the centre, then they are significantly negatively correlated. When the variables are close to the centre, it means that some information is carried on other axes and that any interpretation might be hazardous.

The first component (35% of explained variance) is associated to education level, self-employment, and adulthood: it therefore can be considered as a suitable indicator of socioeconomic status. The second component (14.7%) is linked to the age of both inhabitants and houses, in dense districts close to city centre. Finally, the third component (10.3%, not shown in the figure) is correlated with immigrants and population growth. Such results interestingly represent some synthetic factors at the base of electoral differences among urban districts, and therefore of higher or lower consent for opposing candidates.

The ranking of urban districts based on their scores on the first three axes highlights well-known sharp differences (see Table 10 in Appendix). Socioeconomic status is characterized on its positive semiaxis by city centre and some high-value northern districts, while on its negative semiaxis by far-off neighbourhoods especially to the east and the north, where great malls were built. Oldness is characterized on its positive semiaxis by dense working-class districts inside the Ringway, built until the 1970s, while on its negative semiaxis by detached houses in Appian Way and the coastal area, and some new districts to the east. Finally, immigration is character-

ized on its positive semiaxis by both central zones with many foreigners and far-off neighbourhoods with growing population, while on its negative semiaxis by a more ambiguous set of districts.

**Figure 6** First two principal components of socioeconomic, demographic, and urban indicators



*Note:* Principal Component Analysis, by Varimax Rotation with Kaiser Normalization; explained variance, eigenvalues, communalities, and loadings of variables are detailed in Table 9.

*Source:* own elaboration on dataset in Table 8.

## 6. Inferential analysis

In order to shed more light on the relationships between context indicators and political choices, an inferential analysis is carried out by means of some Ordinary Least Squares (OLS) regressions. Votes for left-wing candidates in elections from 2000 to 2013 are dependent variables given socioeconomic, demographic, and urban context. Consistent with theoretical findings in Section 3, we expect that votes for left-wing candidates are positively correlated with population density, availability of commons, oldness of inhabitants (often widowers and scarcely educated people), house rentals, limited family dimension, few small businessmen and professionals, many public and school workers.

Results show a great and unexpected level of explanation regarding political differences among urban districts, since the coefficients of determination ( $R^2$ ) range in the various elections between 68.4 and 81.1, and some recurring and significant explanatory variables stand out (see Table 4). Namely, with a positive impact on left-wing votes: population density, workers in transport and communication sectors, school workers, single (including old-age widowers) or divorced individuals, junior high school certificated people, and the share of houses dwelt in by habitual registered residents (excluding vacant flats, temporary lodgers, tourists, etc.). With a negative impact on left-wing votes: squared population density (consistently with the quadratic correlation pointed out in Section 3 **Errore. L'origine riferimento non è stata trovata.**), family dimension, entrepreneurs or professionals, and housewives.

Major impacts and signs are as expected. The unexpected negative effect of the share of housewives is likely linked to their traditional support for Berlusconi's right-wing coalition all over Italy, besides specific Rome related issues. It is worth noting that population density and population density squared are not significant in five elections (2000-03, 2006, and 2010), even if data referring to 2001 or its average from 2001 to 2012 are included.

Effects of foreigners and immigrants are more ambiguous, since they depend on their origin: those originating from Islamic countries often have a positive impact on left-wing votes, while Eastern Europe and non-OECD countries have a negative effect in a few polls only. Such an apparent contradiction is actually reasonable due to different localizations of immigrants according to their origin in Roman districts, although that does not represent a territorial segregation as '*banlieue*' in Paris. Most Islamic immigrants live in the city centre or south-east historical districts where left-wing parties are strong, while most Eastern-European and Asian immigrants live in right-wing neighbourhoods outside the Ringway or even in well-off detached houses where they presumably are accommodated as domestic workers.

Other variables have less robust significance, namely activity and employment rates (respectively negative in the 2008 ballot and positive in 2005), finance and business services workers (negative in 2000), construction workers (negative from 2008 to 2013), retail workers (positive in 2006), population growth (positive in 2000 and 2005), age groups 15-30 years (negative in 2010 and 2013) and 30-45 years (positive in 2003 and 2006), married people as a proxy of 'bonding' social capital (positive in 2001), graduates (negative in 2001, 2003, and 2005), high school certificated people (negative in 2013), primary school certificated people (positive in 2008 and 2010), and house rentals (positive in 2000, 2005, 2006, and 2013).



**Table 4** Regressions of left-wing votes by context variables, including population density

Explanatory variables	2013 Mayor (ballot)	2013 Region	2010 Region	2008 Mayor (ballot)	2008 Prov. (bal- lot)	2006 Mayor	2005 Region	2003 Prov.	2001 Mayor (ballot)	2000 Region
<i>Density</i>										
Population density	.40 (2.46)**	.58 (4.13)***		.42 (3.08)***	.55 (3.84)***		.50 (3.24)***			
Population density squared	-.26 (-1.74)*	-.39 (-3.17)***		-.29 (-2.44)**	-.40 (-3.25)***		-.34 (-2.55)**			
<i>Employment</i>										
Activity rate				-.15 (-2.33)**						
Employment rate							.13 (2.01)**			
Entrepreneurs or professionals	-.57 (-6.91)***	-.28 (-4.49)***			-.27 (-2.31)**	-.43 (-4.23)***	-.24 (-1.83)*			-.45 (-4.00)***
Construction workers		-.43 (-5.32)***	-.27 (-3.22)***	-.21 (-2.49)**	-.34 (-4.01)***					
Retail workers						.15 (1.85)*				
Transport and communication workers	.34 (5.70)***		.28 (5.60)***	.24 (5.00)***	.13 (2.48)**	.17 (3.13)***	.19 (3.89)***	.16 (2.74)***	.13 (2.68)***	.18 (3.16)***
School workers	.65 (7.48)***	.42 (4.91)***	.75 (8.63)***	.56 (6.08)***	.56 (6.39)***	.75 (7.94)***	.75 (7.89)***	.74 (7.27)***	.78 (8.47)***	.69 (7.18)***
Finance and business services workers										-.27 (-2.02)**
Housewives	-.21 (-3.73)***	-.13 (-2.25)**	-.38 (-6.24)***	-.38 (-6.12)***	-.25 (-4.03)***	-.16 (-2.87)***	-.22 (-3.00)***	-.30 (-4.84)***	-.28 (-5.34)***	-.18 (-2.97)***
<i>Demography</i>										
Population growth							.18 (2.42)**			.34 (3.58)***
15-30 years	-.14 (-2.16)**		-.16 (-2.52)**							
30-45 years						.26 (3.95)***		.14 (2.13)**		
Family dimension		-.16 (-3.13)***	-.17 (-3.10)***	-.11 (-1.94)*	-.15 (-2.40)**		-.12 (-1.98)**	-.26 (-4.06)***	-.13 (-2.15)**	-.19 (-2.64)***
Single people				.20 (2.32)**		.24 (3.08)***	.20 (2.18)**		.30 (3.22)***	.23 (2.33)**
Divorced people			.21 (3.76)***	.24 (4.87)***	.21 (4.18)***	.27 (4.56)***	.13 (1.93)*	.25 (3.92)***	.29 (4.82)***	.17 (2.12)**
Married people									.15 (2.19)**	
<i>Nationality</i>										
Eastern Europe					-.23 (-3.53)***				-.27 (-4.14)***	-.34 (-4.50)***
Islamic countries	.27 (4.02)***		.21 (3.78)***			.41 (4.50)***	.13 (2.63)***	.46 (5.06)***	.20 (3.78)***	.15 (2.57)**
Non-OECD countries						-.46 (-4.69)***		-.40 (-3.67)***		
<i>Education</i>										
Graduates							-.41 (-2.28)**	-.42 (-2.55)**	-.64 (-4.42)***	
High school		-.21 (-2.94)***								
Junior high school			.74 (6.72)***	.57 (5.85)***	.36 (2.65)***	.37 (2.97)***	.54 (4.26)***	.38 (2.70)***	.59 (4.77)***	.29 (1.97)*
Primary school			.27 (2.68)***	.24 (2.54)**	.40 (3.43)***					
<i>Houses</i>										
Rentals	.11					.14	.13			.15

	(2.00)**				(2.57)**	(2.27)**			(2.48)**
Houses dwelt by habitual registered residents	.25	.33	.21		.36	.34	.38	.38	.32
	(4.02)***	(5.74)***	(3.46)***		(6.01)***	(5.87)***	(6.08)***	(7.09)***	(4.67)***
<i>Adjusted R<sup>2</sup></i>	68.4	79.6	76.2	80.1	77.1	76.1	81.1	70.8	78.2
<i>No. of Obs.</i>	143	143	143	143	143	143	141	141	141

*Note:* coefficients of OLS linear regressions on standardized values; dependent variable = percent votes for left-wing candidates; t statistics in brackets; \*\*\* = significant at the 1% level, \*\* = significant at the 5% level, \* = significant at the 10% level.

*Source:* own elaboration on dataset in Table 8.

Results improve as population density is replaced by factors that – according to the reasoning in Section 4 – can proxy production and consumption of commons, relational goods, and ‘linking’ social capital. It is unrealistic indeed that population density could by itself impact electoral choices, rather than other factors of social interrelation linked to it. In next regressions three new variables are thereby inserted: public squares density, availability of large-scale retail chains or malls, availability of malls only. Expected impacts are positive for the first indicator – because of greater opportunity to meet up in public spaces – and negative for the last two ones – due to the substitution of local business fostering street liveliness.

$R^2$  increases actually, ranging between 70.8 and 86.0, and most of previous empirical evidences are confirmed (see Table 5). Namely, a positive impact on left-wing votes: public squares density, share of houses dwelt in by habitual registered residents, workers in transport and communication sectors, manufacturing workers, school workers, and single or divorced individuals. Factors negatively impacting left-wing votes are: large-scale retail chains, malls, entrepreneurs or professionals, and housewives. With the exception of public squares in 2003 the new variables are always significant and signs are as expected.

In order to understand the role of per-capita income as an independent variable, other regressions are run on 36 areas by which Rome is subdivided in a sample survey by the Istituto Tagliacarne (2005). Income is never significant as a rational due to the lack of correlation pointed out in Section 3 **Errore. L'origine riferimento non è stata trovata.** (see Table 6). The analyzed units are different than in previous regressions, but results for explanatory variables (with the exception of income) are similar enough. Notably, public squares density always shows strong positive effects with the exception of 2001 along with the rate of dependent employment, while immigrants from Eastern Europe maintain their negative impact.

Finally, the regression of political votes by the three factorial axes resulting from the PCA in Section 5 – socioeconomic status, oldness, and immigration – does not appear useful as the coefficient of determination is low for almost all the elections. Exceptions can be found in the 2013 regional election ( $R^2 = .60$ ) and both 2008 polls (Mayor .43 and Province .40). As such, they are not shown for the sake of simplicity.

**Table 5** Regressions of left-wing votes by context variables, including proxies of commons

Explanatory variables	2013 Mayor (ballot)	2013 Region	2010 Region	2008 Mayor (ballot)	2008 Prov. (ballot)	2006 Mayor	2005 Region	2003 Prov.	2001 Mayor (ballot)	2000 Region
<i>Proxies of commons</i>										
Large-scale retail chains and malls	-.46 (-8.15)***	-.22 (-5.76)***	-.39 (-7.36)***	-.28 (-5.79)***	-.18 (-4.25)***		-.41 (-8.05)***		-.26 (-4.72)***	
Malls						-.24 (-4.93)***				-.25 (-3.91)***
Public squares density	.19 (3.05)***	.23 (4.44)***	.18 (3.35)***	.13 (2.14)**	.20 (3.43)***		.18 (3.33)***		.18 (3.02)***	.18 (2.76)***
<i>Employment</i>										
Activity rate				-.19 (-3.67)***						
Employment rate							.18 (2.68)***			
Entrepreneurs or professionals	-.44 (-4.93)***	-.31 (-5.23)***	-.31 (-3.08)***		-.60 (-7.46)***	-.39 (-4.08)***	-.20 (-1.78)*			-.42 (-3.26)***
Manufacturing workers	.31 (4.29)***		.23 (3.26)***	.24 (3.95)***			.45 (6.78)***		.25 (3.68)***	.33 (4.42)***
Construction workers	-.25 (-2.67)***	-.32 (-3.81)***	-.24 (-2.54)**							
Transport and communica- tion workers	.27 (5.10)***		.25 (5.65)***	.18 (3.96)***	.18 (3.68)***	.14 (2.70)***	.25 (5.44)***	.16 (2.74)***	.12 (2.50)**	.14 (2.65)***
School workers	.36 (3.69)***	.33 (4.05)***	.46 (5.55)***	.53 (5.73)***	.42 (4.90)***	.54 (5.62)***	.63 (7.13)***	.74 (7.27)***	.68 (7.39)***	.70 (6.76)***
Healthcare workers							.09 (2.19)**			
Finance and business services workers						-.46 (-4.31)***				
Housewives	-.32 (-4.92)***	-.18 (-3.44)***	-.38 (-6.88)***	-.35 (-6.36)***	-.26 (-4.44)***	-.18 (-3.44)***	-.24 (-3.58)***	-.30 (-4.84)***	-.28 (-5.85)***	
<i>Demography</i>										
Population growth										.33 (4.37)***
Old-age rate										.38 (2.69)***
Under 15 years		-.21 (-3.42)***			-.17 (-2.68)***		-.20 (-2.57)**			
15-30 years		-.12 (-2.44)**								
30-45 years						.25 (4.13)***	.14 (2.13)**			
Over 75 years										-.61 (-4.32)***
Family dimension		-.13 (-2.74)***						-.26 (-4.06)***		-.12 (-1.91)*
Single people	.40 (4.39)***		.40 (5.16)***	.46 (6.35)***	.30 (3.85)***	.30 (3.94)***	.54 (7.47)***		.49 (5.73)***	.50 (4.80)***
Divorced people			.16 (3.25)***	.17 (3.65)***	.25 (5.68)***	.27 (4.85)***		.25 (3.92)***	.17 (2.52)**	
Married people		.13 (2.71)***					.27 (4.91)***		.23 (3.37)***	
<i>Nationality</i>										
Eastern Europe					-.20 (-3.36)***				-.26 (-4.80)***	-.30 (-4.76)***
Islamic countries				.16 (2.01)**		.52 (6.23)***	.46 (5.06)***			
Non-OECD countries				-.32 (-3.97)**		-.68 (-6.85)***	-.40 (-3.67)***			

<i>Education</i>										
Graduates										
High school										
Junior high school										
Primary school										
<i>Houses</i>										
Rentals										
Houses dwelt by habitual registered residents										
<i>Adjusted R<sup>2</sup></i>										
<i>No. of Obs.</i>										

Note: coefficients of OLS linear regressions on standardized values; dependent variable = per-cent votes for left-wing candidates; t statistics in brackets; \*\*\* = significant at the 1% level, \*\* = significant at the 5% level, \* = significant at the 10% level.

Source: own elaboration on dataset in Table 8.

**Table 6** Regressions of left-wing votes by context variables, including per-capita income

<b>Explanatory variables</b>	<b>2013 Mayor (ballot)</b>	<b>2013 Region</b>	<b>2010 Region</b>	<b>2008 Mayor (ballot)</b>	<b>2008 Prov. (ballot)</b>	<b>2006 Mayor</b>	<b>2005 Region</b>	<b>2003 Prov.</b>	<b>2001 Mayor (ballot)</b>	<b>2000 Region</b>
<i>Proxies of commons</i>										
Public squares density	.62 (6.37)***	.20 (2.79)***	.47 (6.42)***	.34 (4.21)***	.32 (3.79)***	.43 (5.84)***	.47 (4.66)***	.38 (3.89)***		.54 (4.88)***
<i>Employment</i>										
Dependent employment rate		.20 (3.63)***		.49 (5.82)***	.50 (5.68)***	.34 (3.14)***	.91 (9.04)***		.35 (3.69)***	.84 (7.54)***
Entrepreneurs or professionals	-.69 (-6.93)***		-.75 (-10.0)***							
Manufacturing workers		.62 (4.66)***								
Finance and business services workers				-.24 (-1.99)*	-.32 (-2.59)**					
Students									-.46 (-4.17)***	
Housewives		-.29 (-4.30)***								
<i>Demography</i>										
Old-age rate		.75 (6.53)***		.34 (3.40)***	.29 (2.85)***				1.93 (6.82)***	
30-50 years									-.43 (-2.34)**	
Over 65 years									-2.30 (-5.96)***	
<i>Nationality</i>										
Eastern Europe	-.54 (-4.03)***	-.61 (-6.64)***	-.86 (-12.8)***	-.52 (-4.11)***	-.60 (-4.58)***	-.85 (-7.02)***		-1.11 (-10.0)***	-.70 (-5.74)***	
Non-OECD countries	-.30 (-2.29)**									
<i>Education</i>										
Junior high school						.79 (5.48)***		.98 (7.97)***		
<i>Adjusted R<sup>2</sup></i>	85.2	93.3	87.5	90.1	89.4	87.2	69.9	76.5	88.0	63.0
<i>No. of Obs.</i>	36	36	36	36	36	36	36	36	36	36

*Note:* coefficients of OLS linear regressions on standardized values; dependent variable = per-cent votes for left-wing candidates; t statistics in brackets; \*\*\* = significant at the 1% level, \*\* = significant at the 5% level, \* = significant at the 10% level.

*Source:* own elaboration on dataset in Table 8.

## 7. Concluding remarks

Empirical evidences show a significant correlation between population density, availability of commons or relational goods, and electoral choices in Rome's districts. This confirms the theoretical reasoning underpinning the opening sections, although a cautious approach is needed when targeting specific elements of political behaviours. Left-wing coalitions prevail where inhabitants and houses are old, in dense and mid-central districts where social interrelations are more frequent and richer, and where collective and public places are more diffused. Conversely, right-wing electors residing in sprawled and insulated neighbourhoods outside the Ringway give rise to increasingly reserved living habits. The latter represent most contemporary Italian cities, influencing political results at least at the local level through a slow but constant process. This collides with the sparkling celebration of the 'Roman model' which coincided with economic growth in Rome. Yet this disregards increasing polarizations resulting from the distributive, social, and urban points of view. Evidence is more ambiguous for central districts where many foreigners live and socioeconomic status is very high, since votes for both coalitions are close to the average.

Such territorial dynamics cannot be explained by the hypothesis that leftist parties are presumed to be becoming more 'bourgeois' than before, that is to attract well-off elites rather than traditional working class electors. As a matter of facts, left-wing candidates prevail both in rich central neighbourhoods and in working class districts in the historical belt whose income is lower than average; the same holds for right-wing parties. Some sharp political and electoral changes are definitely on-going, since the left-wing coalition has been increasing its support in some richer districts and losing in more socially difficult and marginal areas, while right-wing parties have been extending outside their traditional bourgeois neighbourhoods. However, there is no evidence regarding any real inversion of political attraction between left- and right-wing parties. Their electors do not appear to be very different with regards to educational levels and income. However, they are rather different with regards to urban contexts and relational goods.

Consequently, the question is: why do shortages of relational goods and 'linking' social capital harm left-wing candidates in the outskirts? In fact, regardless of coalition they vote for, electors are far from Capitoline Hill which is better able to control and intervene in central districts where the attention of mass media and elites is greater. However, two reasons lead one to think that left-wing parties are harmed by urban sprawl more than right-wing parties. First, at least until the first right-wing mayor was elected in 2008, left-wing parties were totally identi-

fied with the government of Rome, due to an unbroken 15-year period of city administration (as well as nearly all sub-municipal presidents). In contrast, the Province of Rome and the Lazio Region have more limited and less visible power over Rome-related issues. Second, contrary to the higher financial resources enjoyed by right-wing parties, left-wing electoral campaigns are traditionally managed by organized volunteers in territorial offices. Such local activities are more and more difficult though if electors do not walk in the streets because they always drive, do not attend public squares and places due to their shortage, or do not enter into small businesses since great malls attract most of the shopping.

## Statistical appendix

**Table 7** Population and density in Rome, by urban belts

Urban belt	Surface (hectares)	Population Dec. 2001	Population Dec. 2012	Density Dec. 2001 (population / hectares)	Density Dec. 2012	Change 2001-2012 (%)
City centre (1)	7,555	437,348	432,656	57.9	57.3	-1.1
Closest historical periphery (2)	12,467	1,329,211	1,249,445	106.6	100.2	-6.0
Intermediate Ring- way periphery (3)	18,173	590,088	606,213	32.5	33.4	2.7
Outer districts (4)	90,494	441,601	577,368	4.9	6.4	30.7
<b>Total Rome</b>	<b>128,689</b>	<b>2,798,248</b>	<b>2,865,682</b>	<b>21.7</b>	<b>22.3</b>	<b>2.4</b>

Notes: subdivision in urban belts for descriptive purposes only, based on Tocci (2008: 74-82).

(1) historical urban core (sub-Municipality I) + well-off mid-central districts to the North (sub-Municipality II as well as Fleming – Ponte Milvio) and the South (Eur).

(2) high-density working-class mid-central districts built until the 1970s + official or informal low-density suburbs built from the 1930s to the 1970s (*borgate*).

(3) low-density districts built from mid-70s to mid-90s inside the Roman Ringway + Ostia coastal area.

(4) sprawled districts mainly since the 1990s outside the Roman Ringway, until the municipal borders.

Source: own elaboration on Rome civil registry, [www.comune.roma.it/wps/portal/pcr?jppagecode=dip\\_ris\\_tec\\_rst\\_pop.wp](http://www.comune.roma.it/wps/portal/pcr?jppagecode=dip_ris_tec_rst_pop.wp).

**Table 8** Dataset: electoral and context variables

Variables	Measure- ment unit	Source*	Year	Mean	Standard deviation
<i>Elections (left-wing candidates)</i>					
Mayor of Rome – Veltroni 1 (ballot)		ELECT	2001	50.3	6.3
Mayor of Rome – Veltroni 2		ELECT	2006	59.9	6.4
Mayor of Rome – Rutelli (ballot)		ELECT	2008	44.3	7.0
Mayor of Rome – Marino (ballot)		ELECT	2013	61.9	7.5
President of Lazio Region – Badaloni	% valid	ELECT	2000	45.4	5.8
President of Lazio Region – Marrazzo	votes	ELECT	2005	54.1	6.2
President of Lazio Region – Bonino		ELECT	2010	52.3	7.0
President of Lazio Region – Zingaretti		ELECT	2013	43.6	6.4
Pres. Prov. of Rome – Zingaretti (ballot)		ELECT	2008	48.9	6.8
President of Province of Rome – Gasbarra		ELECT	2003	53.6	7.2

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*Socioeconomic, demographic, and urban context*

Activity rate	% inhabitants	CENS	2001	57.9	4.6
Age group under 15 years	% inhabitants	CIVIL	2007	13.5	2.8
Age group 15-30 years	% inhabitants	CIVIL	2007	14.4	2.2
Age group 30-45 years	% inhabitants	CIVIL	2007	25.8	4.0
Age group 45-60 years	% inhabitants	CIVIL	2007	20.8	1.9
Age group 60-75 years	% inhabitants	CIVIL	2007	16.4	3.2
Age group over 75 years	% inhabitants	CIVIL	2007	9.1	3.9
Construction workers	% employees	CENS	2001	5.9	2.4
Divorced individuals	% inhabitants	CIVIL	2007	2.6	.7
Employment rate	% inhabitants	CENS	2001	45.2	4.4
Entrepreneurs or professionals	% inhabitants	CENS	2001	9.2	5.4
Family dimension	Average No.	CENS	2001	2.8	.7
Finance and business services workers	% employees	CENS	2001	15.5	4.6
Graduates	% inhabitants	CENS	2001	13.5	9.1
Healthcare workers	% employees	CENS	2001	8.1	2.0
High school certificated individuals	% inhabitants	CENS	2001	34.3	5.5
Houses dwelt by registered residents	% dwellings	CENS	2001	87.5	5.5
Housewives	% inhabitants	CENS	2001	16.6	2.6
Immigrants from Eastern Europe	% inhabitants	CIVIL	2007	3.6	2.8
Immigrants from Islamic countries	% inhabitants	CIVIL	2007	1.9	1.7
Immigrants from non-OECD countries	% inhabitants	CIVIL	2007	8.5	4.8
Junior high school certificated individuals	% inhabitants	CENS	2001	26.3	6.2
Large-scale retail chains and malls	No. / pop.	SERVICES	2009	1.1	5.7
Malls	No. / pop.	SERVICES	2009	.06	.59
Manufacturing workers	% employees	CENS	2001	11.7	3.9
Married individuals	% inhabitants	CIVIL	2007	47.3	3.7
Per-capita income	Euros	INCOME	2003	19,552	4,083
Population density	Pop/hectares	CIVIL	2012	68.3	63.4
Population density squared	Pop/hectares	CIVIL	2012	8,647	13,548
Population growth	%	CIVIL	2001-12	14.0	36.8
Primary school certificated indiv. or less	% inhabitants	CENS	2001	25.9	7.6
Public squares availability	No. / pop.	SERVICES	2009	.57	.90
Public squares density	No / hectares	SERVICES	2009	36.8	56.6
Public workers	% employees	CENS	2001	14.6	4.8
Rentals	% dwellings	CENS	2001	26.2	12.6
Retail workers	% employees	CENS	2001	18.5	4.2
School workers	% employees	CENS	2001	7.8	2.7
Single individuals	% inhabitants	CIVIL	2007	26.1	8.3
Students	% inhabitants	CENS	2001	8.7	1.7
Transport and communication workers	% employees	CENS	2001	7.4	2.1

\* Sources:

ELECT = Roma Capitale electoral files, [www.elezioni.comune.roma.it](http://www.elezioni.comune.roma.it);

CIVIL = Roma Capitale civil registry, [www.comune.roma.it/wps/portal/pcr?jppagecode=dip\\_ris\\_tec\\_rst\\_pop.wp](http://www.comune.roma.it/wps/portal/pcr?jppagecode=dip_ris_tec_rst_pop.wp);

CENS = general census by ISTAT (2006);

INCOME = survey on income by the Istituto Tagliacarne (2005);

SERVICES = survey on public spaces and local services by Provincia di Roma (2010).

**Table 9** PCA details

Variables	Communalities	Loadings on rotated component matrix		
		#1 Socioeconomic status	#2 Oldness	#3 Immigration
Activity rate	.75	.36	-.78	-.08
Age group under 15 years	.74	-.28	-.78	.25
Age group 15-30 years	.49	-.48	-.51	-.06
Age group 30-45 years	.64	-.24	-.60	.47
Age group 45-60 years	.37	.32	.08	-.51
Age group 60-75 years	.67	.29	.69	-.35
Age group over 75 years	.89	.33	.88	-.08
Construction workers	.76	-.63	-.51	.32
Dependent employment rate	.67	.27	.77	-.09
Divorced individuals	.51	.44	.06	.56
Employment rate	.70	.35	-.69	-.32
Entrepreneurs or professionals	.82	.88	.17	.15
Family dimension	.43	-.10	-.64	.09
Finance and business services workers	.83	.82	.31	-.24
Graduates	.93	.93	.26	.02
Healthcare workers	.24	.40	.28	.00
High school certificated individuals	.78	.77	-.11	-.42
Houses dwelt by habitual residents	.56	-.37	.19	-.62
Housewives	.62	-.70	.20	.31
Immigrants from Eastern Europe	.67	-.28	-.34	.69
Immigrants from Islamic countries	.54	.03	.13	.73
Immigrants from non-OECD countries	.73	.07	-.10	.85
Junior high school certificated individuals	.91	-.93	-.22	-.05
Large-scale retail chains	.04	-.14	-.11	-.10
Manufacturing workers	.44	-.54	-.32	.23
Married individuals	.55	-.29	-.53	.42
Old-age rate	.91	.33	.89	-.14
Population density	.63	.13	.77	-.10
Population density squared	.46	.04	.67	-.03
Population growth	.75	-.19	-.55	.64
Primary school certificated indiv. or less	.95	-.92	-.06	.32
Public workers	.17	.15	.10	-.37
Public squares availability	.13	.32	.07	.14
Public squares density	.54	.45	.52	.26
Rentals	.21	-.16	.42	-.08
Retail workers	.68	-.77	-.27	.15
School workers	.83	.75	.51	-.04
Single individuals	.79	.59	.65	.16
Students	.51	.64	-.20	-.25
Transport communication workers	.27	-.40	-.24	-.24
<i>Eigenvalues</i>	-	14.3	6.0	4.2
<i>Explained variance (%)</i>	-	35.0	14.7	10.3

Source: ACP in Figure 6.



**Table 10** Scores of urban districts on the first three principal components of PCA

Ranking	#1 Socioeconomic status	#2 Oldness	#3 Immigration			
Top 7	Centro Storico (I)	2.58	Tufello (III)	2.15	Magliana (XI)	5.35
	Acquatrasversa (XV)	2.36	Don Bosco (VII)	2.15	Santa Palomba (IX)	4.08
	Parioli (II)	2.06	Gordiani (V)	1.87	Acqua Vergine (VI)	3.60
	Trastevere (I)	1.97	Villaggio Olimpico (II)	1.80	Centro Storico (I)	3.51
	Salario (II)	1.87	Eroi (I)	1.68	Trastevere (I)	2.96
	Celio (I)	1.81	Marconi (XI)	1.63	Tor S. Giovanni (III)	1.99
	Tor di Quinto (XV)	1.71	Torrespaccata (VI)	1.63	S. Vittorino (VI)	1.49
Bottom 7	Giardinetti-Vergata (VI)	-1.37	Malafede (X)	-1.78	Castel Romano (IX)	-1.43
	Tor Sapienza (V)	-1.37	Lucrezia Romana (VII)	-1.79	Tor Tre Teste (V)	-1.70
	Torre Angela (VI)	-1.38	Appia Antica Sud (VIII)	-1.90	Serpentara (III)	-1.74
	Alessandrina (V)	-1.45	Castel Porziano (X)	-2.04	Grottaperfetta (VIII)	-1.85
	Lunghezza (VI)	-1.49	Infernetto (X)	-2.04	Tiburtino Sud (IV)	-1.88
	Tor Cervara (IV)	-1.71	Barcaccia (VII)	-2.16	Cecchignola (IX)	-1.90
	Tufello (III)	-1.74	S. Alessandro (IV)	-2.62	Osteria del Curato (VII)	-2.27

Note: sub-municipalities in brackets.

Source: ACP in Figure 6.

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