Historical Origins and Developments of Italian Cities

Antonio Accetturo[1] · **Sauro Mocetti**[2]

Abstract

We analyze the historical origins and subsequent development of the Italian urban system. We show that geography, history, and their interaction crucially explain the distribution of population over space and its evolution over time: Italy was already highly urbanized during the Roman Empire; in the middle ages and in the modern era, the size and location of the Italian cities were heavily affected by the constant threat of military attacks and political fragmentation; urbanization has continued also after the unification of Italy, although the increase of the largest metropolitan areas has lost momentum in the last decades. We argue that these more recent patterns are partly driven by agglomeration dis-economies such as higher congestion and housing costs in the main Italian cities (especially in the Center-North).

Keywords City size · City growth · Geography · History · Migration · House prices

JEL Classification R10 · N90

1 Introduction

The distribution of the population over space, across cities—the so-called urban network—plays a crucial role for the economic growth of a country (Castells-Quintana 2017), especially in more advanced economies (Frick and Rogriguez-Pose 2018).

The Italian history of urbanization is—at the same time—both ancient and peculiar. Italy is a country that has long been characterized as an urban civilization (Michaels

✉ Sauro Mocetti
sauro.mocetti@bancaditalia.it

Antonio Accetturo
antonio.accetturo@bancaditalia.it

[1] Bank of Italy, Trento Branch, Trento, Italy

[2] Bank of Italy, D.G. for Economics, Statistics and Research, Rome, Italy

and Rauch 2018); in the late Roman empire in Italy there were 2.5 cities or villages per 1000 km^2 against 1.2 in France, 1.0 in Spain, and 0.5 in Germany and England.[1] The Italian cities, although in sharp decline in the early Middle Ages, have regained considerable economic importance since before the Renaissance. According to Bairoch et al. (1988) and Malanima (1998, 2005) at the beginning of the 14th century the average European urbanization rate was 9.5%, less than half of that of Italy; in that period, on the European continent, only Flanders, Brabant and Holland had comparable urbanization rates. However, in the following centuries, several economic and social shocks (e.g. epidemics, trade displacement away from the Mediterranean, political fragmentation, and the industrial revolution) made the Italian context less favorable for urbanization; Italian cities lost momentum and, as a consequence, their relevance for the national economy has become much more limited in comparison with other advanced economies. Today, the share of the population living in an urban area with at least 500,000 inhabitants (31%) is smaller than in France (41%), Germany (40%), Spain (38%) and the UK (41%).

The aim of the present paper is to review and discuss the historical origins and subsequent development of the Italian urban system. We focus, in particular, on two main questions: why did the Italian urban system evolve in this way? Why did the main urban areas give such a (relatively) limited contribution to the national economy?

The answers to these questions provided in the present paper are necessarily selective. We first describe the formation and the evolution of the Italian urban network in an historical perspective by examining the role of geography and historical shocks in explaining these patterns. Then we show more recent trends on the evolution of cities, focusing in particular in the second half of the 20th Century when, structural change away from agriculture made the Italian economy much more sensitive to agglomeration economies. Finally, we discuss the role of congestion costs (housing costs in particular) in explaining more recent patterns.

Our results show that historical shocks played a relevant role in setting the Italian urban network in the middle ages and in modern era. Political fragmentation and constant military threats contributed to the creation of a polycentric urban system in the North and two parasitical urban centers (Naples and Palermo) in the South. As a result, in the second half of the XIX century (when both fragmentation and military threats were over), history made the Italian urban system unfit to accommodate the large economic transformations that were characterizing other urban areas in Europe. This feature was particularly evident at the start of the Italian industrialization process: Italian urban areas attracted rural population (rural–urban migrations are a typical engine of early industrialization processes) in the 1950s' and the 1960s' but stopped growing from 1970s'; this suggests that Italian large agglomerations quickly reached their ceilings. Moreover, Italian cities—though smaller—are as congested as other European urban areas with possible negative consequences on the aggregate growth of the country.

The paper is organized as follows. Section 2 presents some issues linked to the definition of an urban area. Sections 3 and 4 presents an historical account of the relevance

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[1] We consider present-day national borders. Data on the number and the location of cities and villages are taken from pleiades.

of Italian cities and its geographical and historical determinants. Section 5 shows some recent patterns in the dynamics of urban areas. Section 6 discusses the relevance of congestion costs. Section 7 concludes and presents some policy implications.

2 Urban Areas: Definitions and Boundaries

Before starting to analyze the evolution of the Italian urban network we need to define what is an urban area and what are its boundaries.

The economic boundaries of a city do not necessarily coincide with the administrative boundaries. The urban area of Milan, for example, is much larger and more populous than the municipality of Milan and includes hundreds of other administrative units (municipalities) where many individuals live and daily move to Milan for study and work reasons. Therefore, when examining the determinants of the agglomeration, an analysis based solely on the data of the municipality of Milan could be unrepresentative of the underlying economic phenomenon.

For this reason, economists typically prefer "functional" definitions of cities, based on commuting patterns. As far as Italy is concerned, the National Institute of Statistics (ISTAT) has introduced the local labor market (LLM). This is a cluster of contiguous municipalities that can be considered as self-contained labor market on the basis of commuting because a significant part of the population (beyond the 75%) lives and works there.

In the choice between the administrative and the functional definition, the scholar is faced with a typical trade-off between the accuracy of the measurement of an economic phenomenon and the historical depth of the analysis.

The "functional" definition allows a more precise measurement of economic phenomena but does not allow long-term analysis. This is due to the fact that ISTAT have begun to systematically detect commuting flows only from 1981 Census. Therefore LLMs are available only for the more recent decades. Moreover, the boundaries of the functional areas are continually shifting with the changing conditions of internal mobility of a city (transport infrastructures), of work and leisure opportunities, and of workers' preferences on commuting times. The historical series on the number of inhabitants of a municipality can instead cover hundreds of years.

For these reasons in the paper we use both definitions: for very long run analyses, we use administrative definitions while, for more recent decades, we use (more properly) functional definitions.

3 Italian Cities: An Historical Perspective

By the standards of pre-modern economies, the Roman Empire was highly urbanized (Fig. 1). According to Hanson (2016), there were about 1400 sites with urban characteristics in the Roman world in the imperial period.

The degree of urbanization remained high also in the following centuries although the differences in the degree of urbanization with respect to the other European countries have progressively decreased. According to Malanima (1998), while the fraction
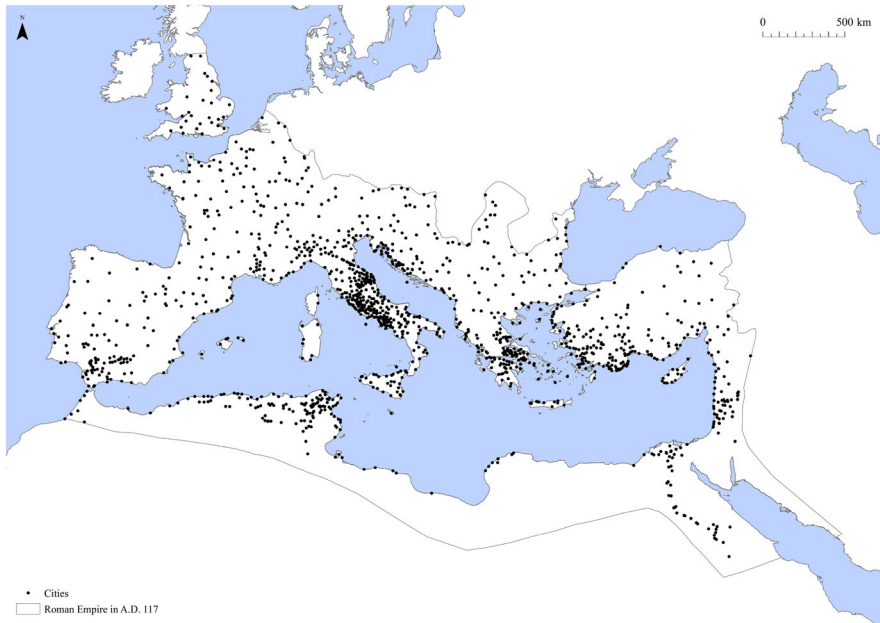
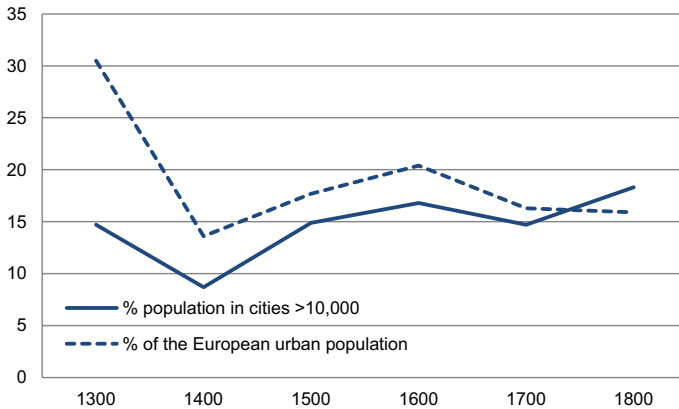**Fig. 1** The cities of the Roman world in the imperial period. Source: Hanson (2016), Cities database

Fig. 2 Urban population in Italy over centuries. Urban population is defined as that living in cities with at least 10,000 inhabitants. Source: authors' elaborations on data drawn from Malanima (1998)

of Italian population living in urban areas has increased over time, the fraction of Italian urban population with respect to the European urban population decreased from 30.5 to 15.9% between 1300 and 1800 (Fig. 2).[2] The other peculiar feature is that the increase of urban population in Italy was largely due to an increase in the num-

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[2] It is worth noting that over these centuries the diffusion of diseases like bubonic plague, smallpox, cholera and malaria afflicted Italian cities and significantly reduced the urban population. In particular, a significant drop in the population is associated to the Black Death of 1347–1351 and the plague 1630–1631.

Table 1 Urban population in main European cities. Source: authors' elaborations on data drawn from Malanima (1998)

	Urban population (000s)		# Urban cities		Average size of the cities	
	1500	1800	1500	1800	1500	1800
Italy	1.339	3.318	51	142	26.255	23.366
France	688	2.382	32	78	21.500	30.538
Spain	414	1.165	23	53	18.000	21.981
Germany	385	1.353	20	34	19.250	39.794
Belgium	295	548	12	12	24.583	45.667
Netherlands	150	604	11	19	13.636	31.789
England and Wales	80	1.870	5	44	16.000	42.500

Figures refer to cities with at least 10,000 inhabitants

ber of urban areas. Therefore, while the average size of the urban areas in 1500 was the highest among other comparable European countries, it became smaller than that recorded in France, Germany and England (and almost similar to that of Spain) in 1800 (Table 1). Between 1300 and 1800 there also was a partial reshuffling among the 10 largest cities in Italy, with the increase of Palermo, Rome and, in particular, Naples, the capitals of large states (Table 2).

According to the economic literature, there are two main factors affecting the distribution of the population in the space: geography and history. Indeed, we discuss in the following how these factors affected the distribution of the cities in the space, their demographic evolution over time and the differences between the urban network observed in Italy with respect to that observed in other comparable European countries.

4 The Determinants of the Urban Network

4.1 The Role of Geography

Differences in geographical characteristics, often referred to as "first nature", make some places better fit for habitation or producing output than others. They might include temperature, rainfall, access to the sea, presence of natural resources, or availability of arable land. Unsurprisingly, mountainous regions, deserts, tundra and similar landscapes tend to have low population density. Henderson et al. (2018) explore the worldwide spatial distribution of economic activity (as proxied by lights at night) and find that the geographic characteristics explain 47% of worldwide variation and 35% of within-country variation.[3] However, they also argue that the effect of physical geography on human settlement is arguably time-varying as it might depend on the state of technology and/or the structure of the economy.[4]

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[3] Specifically, they consider a partition of the space in 240,000 grid cells and a set of 24 physical geography attributes (e.g. ruggedness, temperature, precipitation, distance to coast, proximity to river and/or lakes, etc.).

[4] Analyzing the French urban areas, Combes et al. (2010) showed how geographic features help explain a relatively small fraction of population distribution and density.

Table 2 Main Italian cities by century Source: authors' elaborations on data drawn from Malanima (1998) and ISTAT census

1300			1400			1500			1600		
Milan	150	1.2%	Milan	100	1.2%	Napoli	150	1.7%	Napoli	280	2.1%
Venice	110	0.9%	Venice	85	1.1%	Venice	102	1.1%	Venice	140	1.1%
Florence	110	0.9%	Genoa	50	0.6%	Milan	100	1.1%	Milan	120	0.9%
Genoa	60	0.5%	Florence	37	0.5%	Genoa	70	0.8%	Palermo	105	0.8%
Bologna	50	0.4%	Bologna	35	0.4%	Bologna	55	0.6%	Rome	98	0.7%
Siena	50	0.4%	Brescia	30	0.4%	Rome	55	0.6%	Florence	75	0.6%
Palermo	50	0.4%	Cremona	30	0.4%	Florence	50	0.6%	Messina	75	0.6%
Brescia	45	0.4%	Napoli	30	0.4%	Palermo	50	0.6%	Genoa	65	0.5%
Cremona	45	0.4%	Rome	30	0.4%	Brescia	48	0.5%	Bologna	63	0.5%
Messina	40	0.3%	Palermo	20	0.2%	Cremona	40	0.4%	Verona	49	0.4%
1700			1800			1901			2011		
Napoli	220	1.6%	Napoli	320	1.8%	Napoli	621	1.9%	Rome	2617	4.4%
Venice	138	1.0%	Rome	163	0.9%	Milan	538	1.6%	Milan	1242	2.1%
Rome	135	1.0%	Venice	135	0.7%	Rome	422	1.3%	Napoli	962	1.6%
Palermo	110	0.8%	Palermo	135	0.7%	Genoa	378	1.1%	Turin	872	1.5%
Milan	109	0.8%	Milan	124	0.7%	Turin	330	1.0%	Palermo	658	1.1%
Florence	72	0.5%	Florence	81	0.4%	Palermo	310	0.9%	Genoa	586	1.0%
Genoa	64	0.5%	Turin	77	0.4%	Florence	237	0.7%	Bologna	371	0.6%
Bologna	63	0.5%	Genoa	76	0.4%	Venice	189	0.6%	Florence	358	0.6%
Messina	50	0.4%	Bologna	64	0.4%	Bologna	153	0.5%	Bari	316	0.5%
Turin	44	0.3%	Messina	55	0.3%	Catania	148	0.4%	Catania	294	0.5%

The table report for each data the 10 largest cities, the population (thousands of inhabitants) and the share of the city with respect to overall Italian population

This means that geography matters but—at least within each country—geographical factors explain roughly one-third of the distribution of population.

Our calculations on Italy, confirm these figures.[5] In order to understand the role of geographical feature in explaining the distribution of population in Italy we compute the share of explained variance (adjusted R-squared) of a regression of log population density (as dependent variable) on a wide range of geological features.[6] Results are presented in Fig. 3: from 1951 to 2001 subsoil characteristics explained less than 30% of the overall variance. The share was larger when we consider the subset of municipalities located in Center and the North of the country but never exceeded

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[5] As far as Italy is concerned, Percoco (2013) examined the role of geography on city size looking at the period between 1300 and 1800. He finds that being a seaport or having access to navigable waterways increase city size.

[6] We consider the following geological characteristics: topsoil mineralogy, subsoil mineralogy, parent material hydrogeological type, topsoil available, water capacity, subsoil available water capacity, depth to rock, soil profile differentiation, soil erodibility class, topsoil organic carbon content, hydrogeological class, and seismic hazard. Data are provided by the European Soil Database.
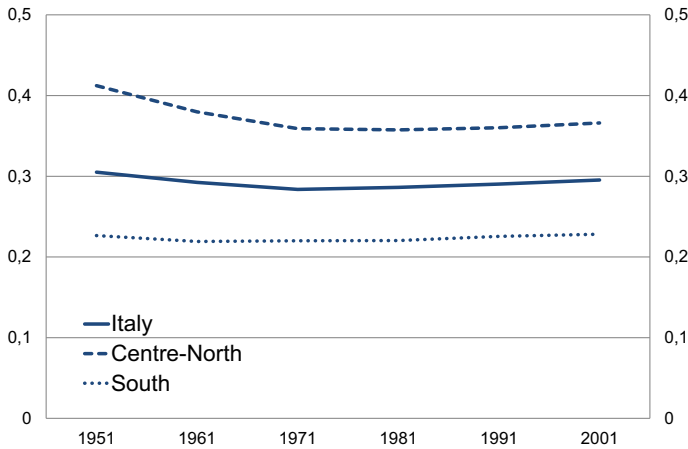
Fig. 3 The relevance of geographical features. Share of total variance (R-squared) of the distribution of population density explained by subsoil characteristics. Source: authors' elaborations on data drawn from ISTAT Censuses and European Soil Database

45%; this implies that good geography mattered relatively less in the South of the country (around 20%) probably due to historical reasons (see next section).[7]

Accetturo et al. (2019) show that the land slope, the fraction of land covered by water, and other terrain irregularities predict about 10% of the housing supply elasticity (and therefore of the capacity of a territory to offer of new housing in the presence of positive shocks to job demand).

4.2 The Role of History

The distribution of population might be heavily affected by history and historical shocks.

Cities, once established, have a very strong tendency to persist over time. The legacy of the history results from many factors, often referred to as "second nature". Among these factors are long-lived capital, political power, the durability of housing, and the fact that once agglomeration has started in a particular place, it will be a natural focus for future equilibria. This persistence can be important, even when the reasons that a city has been established in a particular place are no longer important.[8]

However some historical shocks might have long lasting effects. On this respect it is important to distinguish between *temporary* vs. *permanent* shocks, i.e. shocks that occurred in a smaller vs. larger temporal window. In the first case most papers

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[7] Results are similar when we use LLMs instead of municipalities.

[8] Bleakely and Lin (2015) show that US cities whose locations were initially determined by particular geographical characteristics (associated with transportation facilities) did not experience relative decline even when those geographical characteristics were no longer of value. In Europe, Roman roads clearly determined the rise and the development of cities (Bosker et al. 2013; Bosker and Buringh 2017); as for the Italian case, De Benedictis et al. (2018) show that the Roman network shaped the current infrastructural endowment. Duranton et al. (2014) shows that highways affect the sector composition of the local economies.

indicate that local growth patterns are robust to negative shocks. Davis and Weinstein (2002) find that Japanese cities reverted quickly to pre-war population trends, despite widespread destruction by Allied bombings during WWII. Similarly, Brakman et al. (2004) find that the populations of West German cities recovered rapidly from the devastation caused by WWII. Finally, Miguel and Roland (2011) find that even the extensive bombing campaign in Vietnam did not have a permanent impact on the distribution of population and basic measures of economic development across the regions of Vietnam. In contrast, permanent shocks might have long lasting effects. For example, Redding and Sturm (2008) find that, following the division of Germany after the WWII, cities in West Germany close to the border experienced a substantial decline in population growth relative to other West German cities. Redding et al. (2011) also find that industry location (i.e. airport hub) changed in response to the same shock.

As far as Italy is concerned, we argue that the risks of military attacks and the political fragmentation play an important role in explaining the location of the population and the evolution of the urban network. Moreover, the two explanations are not mutually exclusive as political fragmentation is often associated with a higher number of conflicts.

Dincecco and Onorato (2016) analyzed the impact of military conflicts in European regions from the 9th to the 19th century on the birth and development of cities, finding a strong positive correlation: the population most exposed to conflicts preferred to concentrate in the areas urban areas to better protect themselves from the looting perpetrated by passing armies.[9] The impact was particularly significant for Northern Italy and encouraged the emergence of a plurality of urban centers in this area. In Southern Italy, military risks came mainly from the sea. Accetturo et al. (2018) have analyzed the impact of pirate attacks from North Africa on the Tyrrhenian coast of Central-Southern Italy from the 9th to the 19th century using municipalities as observation units. They find that this had led to a concentration of the population in areas easier to defend and, consequently, less accessible (more distant from the sea, with a higher altitude and average slope of the terrain). These centers, from a Malthusian perspective, could "sustain" only a relatively small population. As a result, the southern population was dispersed in numerous small centers in the interior. This condition lasted until the 1970s with significant local economic consequences: the areas most affected by this phenomenon were more specialized in subsistence agriculture, had lower rates of entrepreneurship and a lower endowment of human capital. In a simulation exercise, Accetturo et al. (2018) also show that the Italian urban primacy (i.e. the fraction of population living in the largest city) of 1951 would have been 0.5% point higher if the population had not concentrated in remote areas in response to pirate attacks, with negative consequences for the aggregate growth economy.

Another explanation for the peculiarities of the Italian urban network is the historical political fragmentation that characterized the country before the unification in 1861. Cervellati et al. (2018) shows a positive correlation between the size of the state of belonging (in terms of surface) and growth (in terms of population) of the city from 1000 to 1800; the correlation is stronger for the capitals. Bosker et al. (2008) find

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[9] See also Glaeser and Shapiro (2002) for a discussion and empirical examination of the so called "safe-harbor effect" in the US.

that, starting from the 17th century, the growth of the capitals of the larger Italian states (especially in the South) was more intense, associating this phenomenon with the progressive administrative centralization underway in those years in the absolutist monarchies.

One potential negative effect of political fragmentation on city size is related to the market potential. According to the trade literature (Hanson 2005), a greater market potential should foster growth, the rationale being that nearby cities offer a larger market and, hence, more possibilities of selling products.[10] Moreover, political boundaries might have limited internal mobility and agglomeration in growing areas. Breschi and Malanima (2002), for example, document a very modest contribution of migration to overall population dynamics in Tuscany over the period from the XIV to the XIX century.

Political fragmentation might also be associated to heterogenous institutions and this might, in turn, have affected city growth (Tabellini 2010).[11] Putnam (1993) distinguish between more horizontal societies (prevailing in the Centre-North of Italy) and more vertical societies (characterizing the South of Italy) and argue that these different social structures have long lasting effect on the development of these societies and related geographical areas. De Long and Shleifer (1993) found that cities under absolutist regimes grew less than cities under non-absolutist (often merchant-controlled) governments because of the less favorable tax policies in absolutist regimes (i.e. higher taxation under revenue-maximizing monarchs). Percoco (2013) finds that the experience of free city-state and the presence of a university had a positive effect on urban development of the Italian cities.

Summing up, the combination of these historical shocks has contributed to the formation of the Italian urban network. In the North, frequent conflicts and political fragmentation have led to the emergence of a plurality of medium-sized urban centers (Hohenberg 2004), often in competition with each other. In the South, the less political fragmentation has allowed the growth of Palermo and, above all, of Naples; the latter had a rank of large city, comparable in size, until the 19th century, to major European cities. The two large urban centers of the South, however, were mainly administrative (and not economic) centers characterized by a high level of "parasitism" towards the surrounding areas (Bosker et al. 2008). In the rest of the South the risks of piracy have induced the displacement of the population in inaccessible areas, dispersing it in even smaller centers.[12]

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[10] Redding and Sturm (2008) and Gonzalez-Val et al. (2017) finds a positive influence of market potential on city growth in Germany and Spain, respectively.

[11] Namely, autocratic regime—characterized by the presence of a strong hierarchy of privileges and by subjugation of the population with the arbitrary use of force—tend to foster negative attitudes such as mistrust of unfamiliar people, a sense of individual helplessness, and resignation. On the contrary republican regimes favour the citizens' participation in the political and economic organization and the respect of the rule of law.

[12] Data from Bosker et al. (2008) show that in the South the urban primacy (15%) was much higher than in the Center North (9%), but the average size of the cities was (21,000 inhabitants) was lower (32,000).
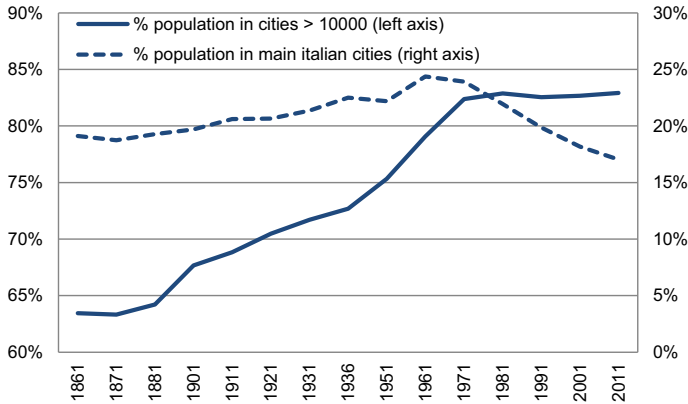
Fig. 4 Urban population in Italy in the last 150 years. Main Italian cities are those with at least 500,000 inhabitants in 2011 (i.e. Genoa, Milan, Naples, Palermo, Rome and Turin). Source: authors' elaborations on data drawn from ISTAT Census

5 Italian Cities: Recent Patterns

With the unification of Italy and, in particular, starting from the 1950s the spatial distribution of the Italian population between has changed. On the one hand, the change in political conditions (i.e. the end of the political fragmentation and of the threats to piracy attacks in the Mediterranean) has relegated in the history some of the major shocks that had defined the Italian urban network. On the other hand, in the years of the "economic miracle," a process of profound structural transformation of the economy—characterized by the growing weight of secondary and tertiary activities and by the sharp downsizing of the agricultural sector—began.

Looking at the evidences drawn from various census, the population concentration in urban areas has increased from the Italian unification until the 1970s (Fig. 4). The share of population living in municipalities with at least 10,000 inhabitants has increased steadily from 63 to 82% between 1861 and 1971 and remained constant in the following decades. The stop of this urbanization process is partly explained by the declining fraction of the population living in the main metropolitan cities (from 24% in 1971 to 17% in 2011).

Focusing on the second half of the last century, as happened in other countries (Michaels et al. 2012; Desmet and Rappoport 2017), the small cities have lost population in favour of to larger cities. Since 1951 the population has grown relatively more in the Po valley and around the larger urban areas while the Apennine area has progressively depopulated (Fig. 5). However, these dynamics have not been homogeneous across decades. During the 1950s and the 1960s, the depopulation of small and rural areas favored the major urban areas, especially those located in the industrial triangle of the North West. Starting from the 1970s, in contrast, population growth has been relative larger in medium-sized urban areas (Fig. 6).[13]

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[13] The results are similar if we use municipalities or LLMs are geographical unit of analysis.

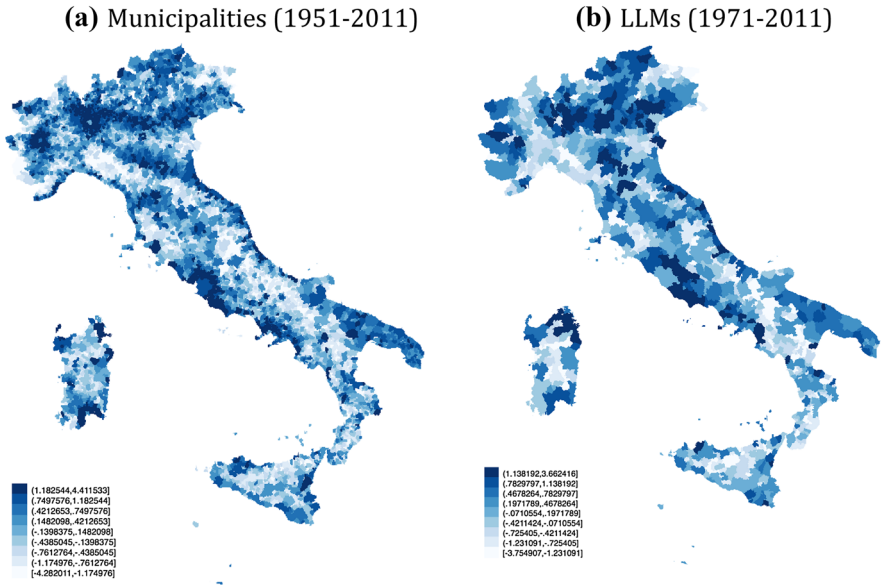**(a)** Municipalities (1951-2011)   **(b)** LLMs (1971-2011)

Fig. 5 Pupulation growth rate. Deviation of the population growth rate with respect to the national mean. Source: authors' elaborations on data drawn from ISTAT
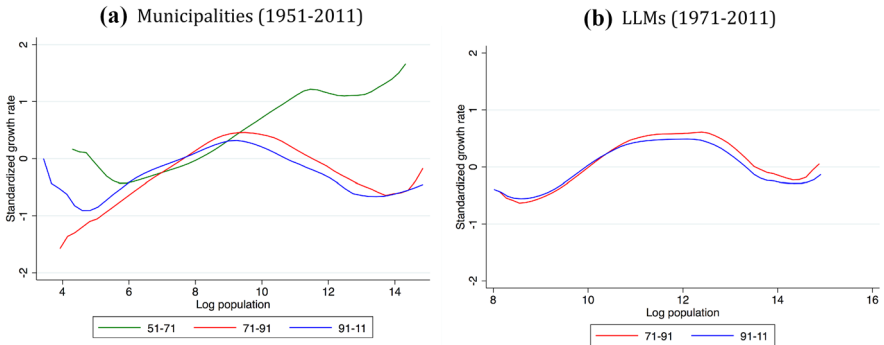
(a) Municipalities (1951-2011)   **(b)** LLMs (1971-2011)

Fig. 6 Pupulation growth rate by city size. Deviation of the population growth rate with respect to the national mean. Source: authors' elaborations on data drawn from ISTAT

These population patterns were largely shaped by internal migration. Indeed, the overall intensity of interprovincial migration was pronounced in the 1950s and 1960s and was characterised by rural to urban and South to North migration; this is quite typical in early industrializations. In these years Rome, Milan and Turin have served as main attraction poles of internal migration (Bonifazi and Heins 2000). In contrast, the intensity of internal migration and, in particular, the moves from the South to the North, declined significantly from the mid-1970s onwards (Fig. 7). One peculiarity of the more recent trends is the increase of the emigration from the South of people with a college degree: the emigration rate of this segment of the population is comparable
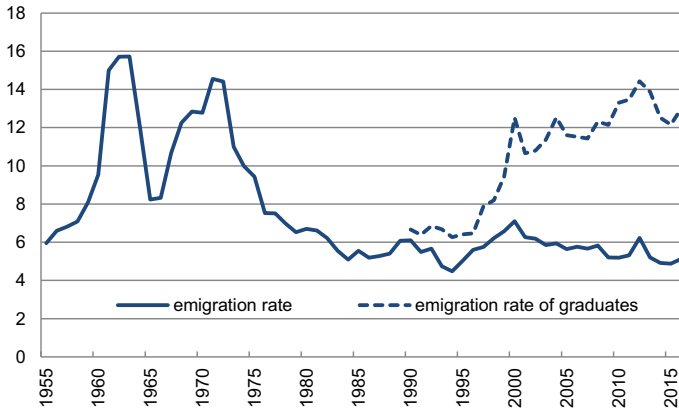
Fig. 7 Emigration rates from the South to the Centre-North of Italy. Emigration rate (of graduates) corresponds to the number of individuals (with a university degree) who move from the South to the Centre-North relative to the population (with a university degree) living in the South. Source: authors' elaborations on data drawn from ISTAT

to the overall emigration rates from the South during its peaks in the 1950s and the 1960s.[14]

The reduced relevance of main metropolitan areas is confirmed in the international comparison. Figure 8 shows—for larger European countries—the fraction of population living in the main urban areas. The percentage of the main urban area (urban primacy) is equal to 7% in Italy and is comparable to that of Germany; however, the urban primacy of the UK, France and Spain is significantly higher.[15] Considering only the main city for each country can provide biased indications as the urban primacy might be affected by the degree of centralization of political, economic and administrative power in the capital. However, the picture does not change even if we extend the analysis considering the share of the population that lives in the other main cities.

6 The Role of Congestion Costs

The crucial question for the more recent patterns is why the larger urban areas have lost momentum in the last decades. A first explanation has to do with the changes occurred in the Italian economic geography since the 1970s, characterized by the industrialization of the Third Italy (i.e. the North East and the Center) and the strong development of the district system, naturally focused on medium-sized cities. This explanation, however, is not exhaustive and, above all, is inconsistent with the progressive tertiarization of the economy and the crisis of the district system in the last decade. We argue that the answer has to been searched in the role of agglomeration dis-economies

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[14] See Ballatore and Mariani (2019) for more details on the human capital content of internal migration.

[15] It is also worth noting that the figures for Germany are affected by the division of the country after the end of the World War II which led to a loss of status of the old capital (Hohenberg 2004).
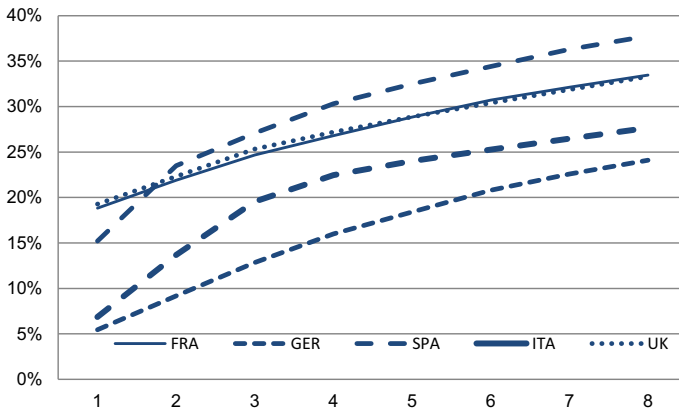
Fig. 8 Population in the main urban areas: international comparison. (Cumulative) fraction of the population living in the first main area, first two main areas, etc. Source: authors' elaborations on data drawn from OECD

and congestion costs. The latter explain why population is spread among many cities, which are, in turn, spatially dispersed and why a city might stop growing.

Housing costs in the main cities, indeed, have recorded a higher appreciation in the second half of the 20th century, presumably associated to higher demand and moves from rural to urban areas (Fig. 9). The cost-of-living gap between the Centre-North and the South has steadily increased, from 10% in 1951 to almost 20% in recent years. Cannari et al. (2000) show that housing price differentials explain the falling pattern of migration from the South to the North of Italy.[16] Ciani et al. (2017) estimate the real effects of a demand shock at the LLM level using data from 1971 to 2001. They find that the demand shock translates in an increase in employment and house prices and has virtually no effect on migration. The higher cost of living, in this setting, reduces the incentive for workers to move to areas that have experienced positive shocks. The estimated mobility of the population in Italy is lower than that calculated in similar exercises conducted (on the same years) for the US and for France. Accetturo et al. (2019) estimates the impact of the same shock investigating heterogeneity across LLMs: they found that in cities with a less elastic housing supply the impact on economic growth is significantly lessened while the effects on house prices are larger.

The higher housing costs—especially in the city centers as shown in Manzoli and Mocetti (2019)—had significant effects on the urban and geographical development of the main metropolitan areas. The urban LLMs and, in particular, the metropolitan ones, were characterized (with respect to non-urban LLMs) by housing growth mainly in the peripheral municipalities, while the main municipality recorded a much smaller increase (Fig. 10). Indeed, centers of the most urbanized SLLs already registered a high land consumption at the beginning of the 1970s and, therefore, had less room for growth in the following decades. The greater residential development in the peripheral

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[16] See Mocetti and Porello (2012) for more recent (and qualitatively similar) evidence on the impact of housing costs on internal migration.

Real prices of new builds (1927=1)
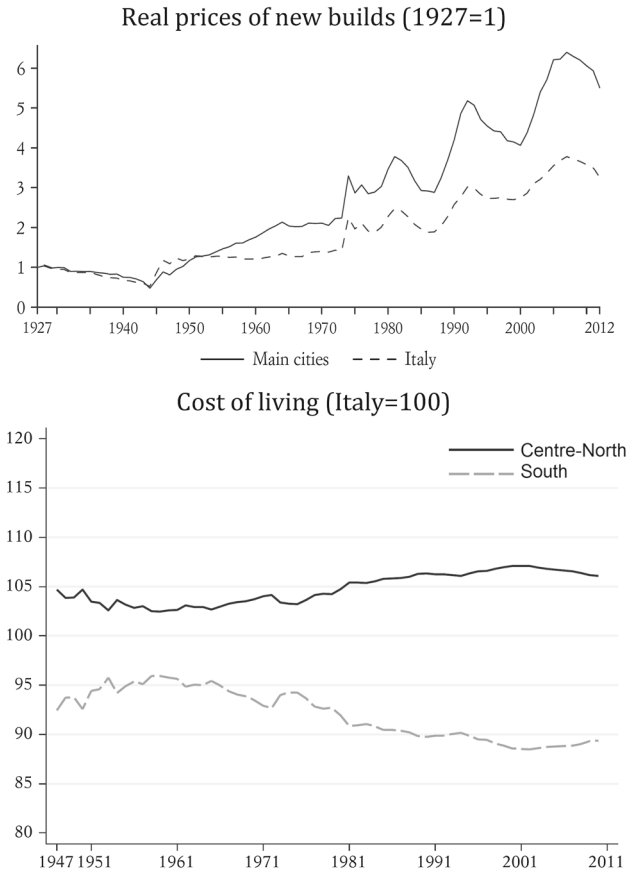

Cost of living (Italy=100)

Fig. 9 Territorial difference in costs of living. Main cities in the top panel include Bologna, Genoa, Milan, Naples, Palermo, Rome, Turin and Trieste. Source: Cannari et al. (2016) for the top panel and Amendola et al. (2009) for the bottom panel

municipalities has also been accompanied by a progressive enlargement of the geographical boundaries of the LLMs. Lamorgese and Petrella (2018) show that the main LLMs increased mainly by incorporating suburban municipalities and expanding the commuting area. The increase in the range of commuting is evident if we consider the drastic decline in the total number of LLMs, which has fallen by more than a third from 1981 to 2011 (from 954 to 612). This patterns is even more accentuated for the main urban areas (Fig. 11).

The combined action of rising housing costs (which discouraged migration) and the expansion of commuting areas in large cities has led to an increase in congestion costs in Italian cities. Indeed Italy has a smaller urban area size compared to urban congestion (in terms of car traffic) comparable to French one, higher than in Germany and Spain and only marginally lower compared to the UK (Fig. 12). Therefore the elasticity of the congestion to the number of inhabitants of a city is higher for the Italian urban areas in the European comparison.
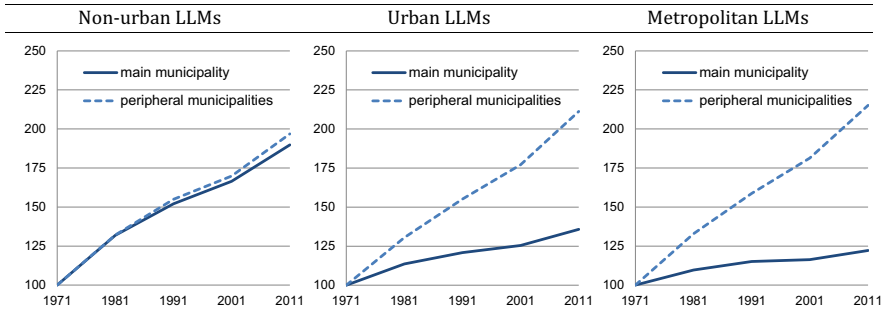
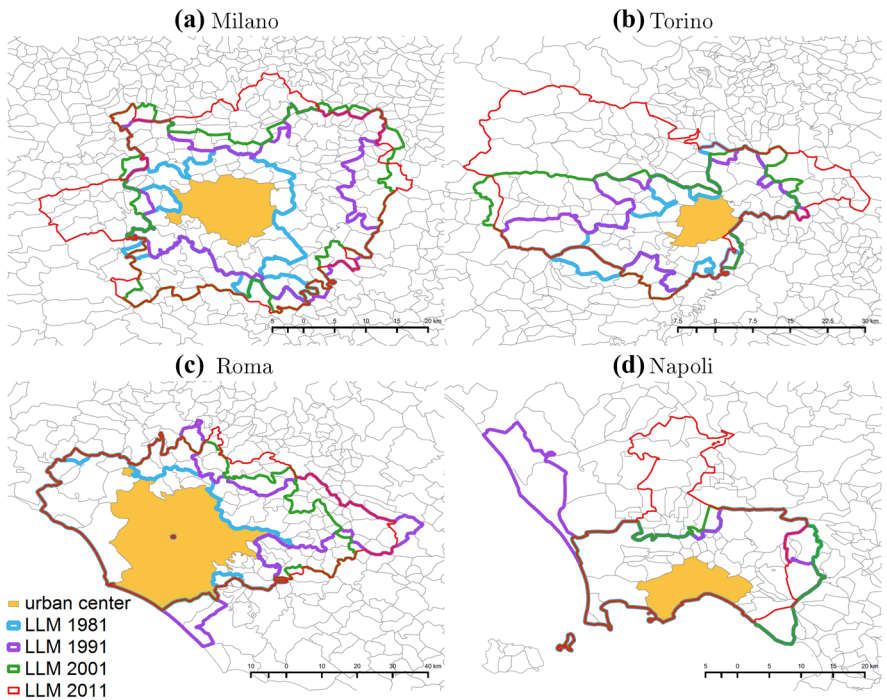Fig. 10 Housing growth by areas. Source: authors' elaborations on data drawn from ISTAT

Fig. 11 The evolution of the LLMs' boundaries in the main metropolitan areas. Source: Lamorgese and Petrella (2018)

These dynamics have a negative effect on individual welfare: Loschiavo (2018) shows that, all other things being equal, living in a larger city in Italy is associated with a lower level of satisfaction about life. This effect is largely due to the greater commuting costs in bigger urban areas.

7 Conclusions

The "urban dimension" of Italy, although historically significant, is characterized by a smaller size of larger urban areas in comparison with similar European
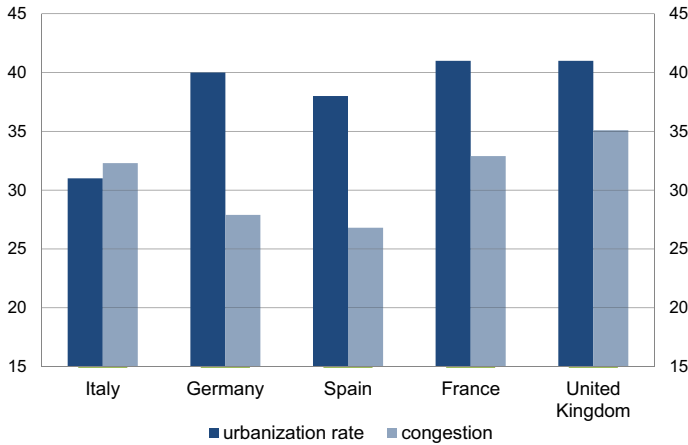
Fig. 12 Urbanization and congestion. Source: authors' elaborations on data drawn OECD and TomTom

countries by population and economic development. To explain this particular structure, the "historical" constraints seem to be at least as important as the "physical constraints" to urban development. In the Center North, also due to the more frequent conflicts and the greater political fragmentation, the urban centers were very widespread but of medium-small size. The South–less politically fragmented—was instead characterized by a large urban center (Naples) but also by a very high population dispersion in rural inland areas. Since then the Italian urban network has undergone limited evolutions over time, a feature that is common to all urban systems.

In the last century the urbanization process has continued and the small centers have progressively depopulated. However, from th 1970s the higher housing costs hampered the growth of large metropolitan areas whose growth was then characterized by urbanization of surrounding municipalities and the absorption of "belt" municipalities, i.e. without a transfers of population but at the cost of increasing congestion.

These phenomena might have large implications. With the progressive outsourcing of the economy, the urban areas of advanced economies have assumed an even greater centrality and are increasingly contributing to the aggregate growth of the economy (Glaeser 2011; Hsieh and Moretti 2019; Frick and Rogriguez-Pose 2018); the positive effects of concentration in urban areas can however be differentiated (Castells-Quintana 2017) depending on the quality of urban infrastructures. Broad evidence of urban areas in developing countries has shown that disordered growth—due to poor urban infrastructures—does not allow the full benefits of agglomerations to be fully exploited; a low-quality urban environment increases congestion costs quickly, thereby limiting the agglomerative advantages.

The dynamics of the Italian urban network indicate that probably the "roof" of congestion has been reached and the few investments in mobility have not managed to raise it; this can make it possible to lose growth opportunities not only to urban areas but to the entire country.

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