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Two centuries of economic territorial dynamics: the case of France

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We propose an analysis of the socio-economic development processes at work in territories at the scale of French *communes* from 1806 to 2010. This is an extremely fine scale for such analysis, given that there are 36,000 *communes* in mainland France. The diachronic dimension, spanning two centuries, makes it possible to consider the temporal depth of territorial development. But the primary interest is not so much demographics as the socio-economic dimension of these variations over two centuries. We have analysed demographic changes as the expression of the socio-economic processes that shaped French territory over two centuries. Dynamic mapping of long-term population shifts reflects the industrial expansion of certain territories, decline due to the end of traditional farming practices, the shock produced by two world wars, the Fordist period and the post-war boom; the subsequent impact of an increasingly globalized, metropolitan economy then becomes apparent. We thus identify, map and analyse several historico-socio-economic phases.

Keywords: census; geography economic; population; territorial development; France

Introduction

This article analyses socio-economic development processes, focusing on France's 36,000 *communes*, or localities, from 1806 to 2010. The work is based on demographic data for all the *communes* in mainland France, obtained from national population censuses, carried out every 5–10 years, spanning a period of more than two centuries. It is almost the first time a database of this sort has been compiled in order to carry out geographical analysis of the population over a long period of time and at the scale of an entire country. The resulting spatial analysis is similarly unprecedented. The data have enabled us to measure and visualize, in the form of maps and graphs, the population of individual localities and how it has varied over the period under study.

France lacks an economic and social database for fine-grained analysis of territorial dynamics over a long period of time. Structural changes in the economy have repeatedly necessitated alterations in the classification of the various sectors of activity and professions. Due to these alterations it is impossible to reconstitute a homogenous socio-economic database for the years prior to 1980. On the other hand, the database underpinning the work has enabled us to study the population geography associated with key economic and historical phases in France's development. As Le Bras and Tapinos have noted, 'Demographic and economic variables, population and resources act reciprocally on one another' (Le Bras & Tapinos, 1979, p. 1392). Population

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geography tells us about economic geography and vice versa, at least up to the 1980s. Since then the massive growth in individual mobility and the increasing availability of information technology have gradually stretched the previously close link between demographic and economic development. But over the previous periods, ‘the interpretative study of population distribution is linked to analysis of living conditions determined by productive forces, and by economic and social relations’ (George, 1959, p. 15). Population densities have thus been successively subject to – and as such are revealing of – random variations in initial ecological conditions, and subsequently farming, then industrial and finally service resources, impacting, during each of the main periods identified here, spatial configurations and territorial dynamics.

Observing and analysing the geography of population also tells us about the socio-economic changes at work in these territories. Conversely the main economic phases, which have left their mark on France, have gone hand in hand with a geography of population, which this article reveals for the first time in such great detail and over so long a period, for the whole country.

Dynamic mapping of long-term shifts in population reveals the impact on these territories of the decline of the traditional agrarian model, the rise of its industrial counterpart and the shock inflicted by two world wars. Other maps highlight the era of Fordist development and the years of spectacular post-war growth, then at the end of the overall period we see the spatial impacts of an increasingly global, metropolitan economy.

The article is divided into five parts. It starts by presenting the database and the predominant national trends. Then analysis addresses four main historical phases, corresponding to four demographic and socio-economic models: the agrarian model of demographic equi-density (1806–51); the industrial revolution and the structural development of towns (1851–1911); the expansion of industrial regions (1911–46); and industrial decline and the emergence of a metropolitan society (1946–2010).

Database and national trends

Thirty-two population censuses have been carried out in mainland France since the early 19th century. Usually occurring every five years, their frequency has in practice varied slightly according to the circumstances, particularly wars (the 1871 census was postponed to 1872; those scheduled for 1916 and 1941 were cancelled). After 1946 the frequency became random, with censuses being carried out in 1954, 1962, 1968, 1975, 1982, 1990 and 1999. In the 21st century the idea of censusing the whole population in one go was dropped, replaced by a ‘continuous’ system polling one-fifth of the population every year. The Historic Demography Laboratory at the École des Hautes Etudes en Sciences Sociales (LDH-EHESS) in Paris created an exhaustive database of the population of French *communes* for each census year. The process of compiling this data started in the 1970s, drawing on various record archives and libraries. The results of this painstaking work,¹ spanning 20 years, were published in a collection of books, *Paroisses et Communes de France*, organized by *département*. In 2001 work started on digitizing data on each *commune*. This is now available on the Cassini website² (Motte & Vouloir, 2007). The regional headquarters of France’s National Institute of Statistics and Economic Studies (Insee) are the only alternative source of data on individual *communes*, but their databases are neither complete nor fully digitized for 19th-century censuses.

We built the own database in two stages. In 2007 we obtained datasets for 17 French regions, for the period from 1871 to 1999, from the relevant Insee regional

headquarters. We also purchased the corresponding data from LDH for the five missing regions (France has 22 administrative regions in all). More recently, thanks to the development of the Cassini website, we were able to complete the database so that it covers the whole of the available period, from 1806 to 2010.³ The data supplied correspond to the geographic boundaries in force at the time of each census. We consequently had to make allowance for any changes to the boundaries of *communes* which had occurred since the 19th century and harmonize the database to make it fully operational.

We have used the current communal boundaries⁴ to organize the records. However, some *communes* have disappeared since 1806; others have been created. Firstly, for those which have disappeared, through being merged with others, we aggregated the population data on the basis of existing boundaries. This regrouping operation did not pose any particular problems. Secondly, for those that have been created, we did not attempt to reverse-extrapolate their population artificially. As a result, the population of the dismembered *commune* drops suddenly, but not due any real population movement. When *communes* first appear on maps they are shown as white. Thirdly we have made no allowance for the frequent case of *communes* swapping plots of land. For the most part such exchanges concern farm land which is rarely inhabited. They consequently have no impact on population data (Moriconi-Ebrard, 2001).

Lastly in some *communes* data from one census were missing. We estimated the population of these *communes* for the missing year by interpolating between two censuses for which data were available.

These changes, which continue to occur even now, are sufficiently rare – in relation to the total number of *communes* – not to distort the results and maps significantly. We have identified about 8000 mergers (allowed for in the database) and fewer than 2000 separations in all 32 censuses and 36,000 *communes*, equivalent to an error rate of under 0.2%. Of the existing *communes*, no changes have been made to the boundaries of more than 31,000 since the early 19th century.

Nevertheless, and despite some limitations, by its historical depth, homogeneity, quality, stability, and the precision of its geographical and political grid, this database is quite exceptional worldwide. Its robustness is rooted in the permanence of French communal boundaries, to which only marginal changes have been made since the 19th century, even in large French cities such as Paris, Lyon and Marseille.

Of the 32 available censuses, we have selected 12 census years, or 11 periods of time, for the cartographic analysis presented here. Two main factors guided the choice of these particular years: historical documentation and observation of the trends between two census years. The 12 milestones either delimit periods when population growth steadied or, on the contrary, when it rose sharply, or indeed very specific periods linked to the two world wars. The selection is as follows:

1806: first year of observation, with no reliable data available before this date.

1821: end of the Revolutionary era and the Napoleonic Wars.

1851: rural exodus starts in France.

1891: demographic collapse of rural France speeds up.

1911: dominant role of the industrial model on the eve of the First World War.

1921, 1936, 1946: the time of world wars and the 1929 crisis.

1954: emerging from the war years the industrial model is once again dominant.

1968: end of the rural exodus in France; start of peri-urban development.

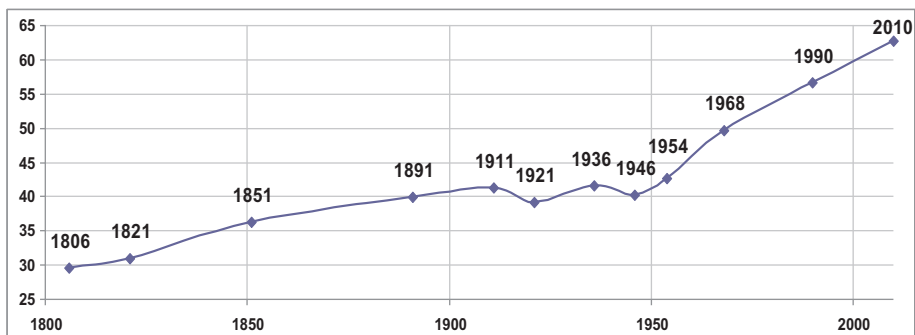
1990: metropolitan growth brings on a new economic geography.

2010: last available year of observation.

From 1806 to 2010 the population of mainland France, within its current borders, more than doubled, rising from 29.6 million to 62.8 million. But this increase was not a steady process: there were changes in pace, with growth accelerating and slowing down, and even drops in the population during the First and Second World Wars (Figure 1).

Figure 2 charts variations in population in three types of territory, defined according to their geographical limits in 2010: the core cities of conurbations,⁵ the built-up outskirts of these core cities, and the other *communes* outside the conurbation. The graph shows the four main phases that underpin the structure of the text, with four periods geographically differentiated with regard to the relation between the demographics and economy of the territories. The first period extends from 1806 to 1851. There was a large rural population, which expanded steadily, rural exodus not having started yet. This period marked the end of the agrarian model under which a very large share of the population lived and worked in the country. From 1851 onwards the rural population went into decline, whereas the core cities enjoyed rapid growth up to 1911. This second period was marked by rural exodus and the industrial revolution, which gradually transformed France's economy. The third period covers 40 years of history (1911–54) and includes two world wars, which had spatially differentiated demographic and economic consequences. Population growth in the core cities was slower, whereas growth picked up slightly in the suburbs. The decline in the rural population continued. The fourth period concerns the past 60 years that have witnessed industrial decline, the emergence of a metropolitan economy and a booming residential economy which has upset the link between the demography and economy of the territories. At the start of this period (1954–68) the population of urban centres displayed powerful growth, subsequently slackening with a shift to the suburbs which witnessed the highest rates of demographic growth. From 1968 onwards the drain on rural demographics flattened out and the population of *communes* in the country started to pick up again.

The density maps also illustrate the shift from one model to another (Figures 1a–d). At the start of the 19th century we see an equi-density model, in which population and economic activities are fairly evenly spread all over France. Then economic activity slowly concentrated spatially, accompanied by a similar trend in population. From the 1970s onwards economic activity continued to collect in larger cities, whereas the



BB: the above figures are for mainland France within its current borders.

Figure 1. Changes in the population of mainland France, 1806–2010. The figures are for mainland France within its current borders.

Source: Authors' database, drawing on census.

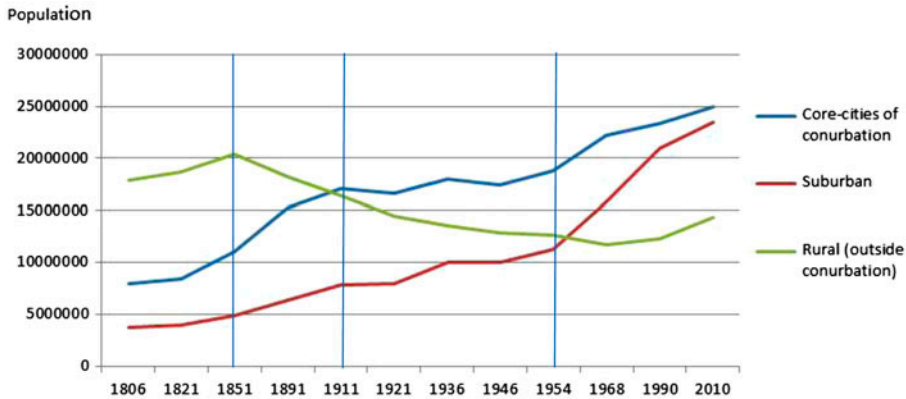


Figure 2. Variation in population in and outside urban conurbations in 1806–2010. Source: Authors' database, drawing on census.

population started spreading out again to occupy spaces with much lower density, around cities but also in rural areas, which once more became attractive.

Agrarian model and uniform density (1806–51)

In 1806 mainland France had a population of barely 30 million spread over 550,000 km², in other words just under 55 inhabitants/km². Some 85% of the population lived in the country (Le Mée, 1989). Farming, by definition, is spatially dispersed, encouraging fairly uniform density in terms of human settlement, activity and output. Only slight variations in density occurred, with less territorial inequality than at present. Outside France's main towns, population density ranged from 20 to 80 people/km². These variations were due to the relative efficiency of regional farming systems and their ability to feed the population. The land given over to stock-farming, hunting or fishing – as in the uplands (Pyrenees, Alps, Massif Central), arid zones (Provence, chalky Champagne), or wetlands (Camargue, Landes, Sologne) – could support lower densities than fertile arable areas, such as the north of the Paris basin, western France, Alsace, Lauragais and the Rhône valley (Clout, 1980, 1983; Heffer, Mairesse, & Chanut, 1986).

During the first half of the 19th century demographic growth in rural areas continued at a moderate rate, but above all it varied in spatial terms (Figures 4 and 5). The population of a majority of *communes* increased, but there were large areas which registered decline, in particular the *départements* around Paris and in the area reaching out towards Normandy (western France). Up until 1821 a similar trend affected the area to the south-east of the capital and Burgundy. Two *départements* where living conditions were particularly tough stand out for their downward demographic trend: the southern slopes of the Massif Central (north of Montpellier) and the southern French Alps (north of Marseille). Lastly a similar trend was observed in *communes* along the Gironde valley (between Bordeaux and Toulouse). From 1821 to 1851 the rural population, taken as a whole, continued to grow, but the first signs of the industrial revolution and rural exodus appeared. Areas of high demographic growth were less scattered, tending rather to concentrate in particular parts of France. Large towns stand out too, in particular Paris and Toulouse where demographic growth started gathering speed during the first half of the century. There were two reasons for these differences.

The demographic transition was one of the first signs of the shift from an agrarian model to a new economic model: a declining death rate, followed by a falling birth rate, the interval between the two yielding natural growth. France saw an unusual transition, both very early and very Malthusian, limiting demographic growth. In the course of the 19th century the population of France rose from 30 million to just over 40 million. Compared with much of Europe, this growth was slight. In most countries – Germany, the Netherlands, Belgium, Italy, Great Britain – there was a three- to six-fold increase in population (Vallin & Caselli, 1999), contributing to transatlantic migration. Nothing of the sort occurred in France, its population registering 0.3% annual growth in 1806–21, 0.5% in 1821–51 and 0.2% in 1851–91.

France started the 19th century with 25 years of serious instability, from the French Revolution (1789–99) to the Napoleonic Wars (1799–1815). We see this clearly reflected in Figure 3, for Vendée, the area south of Nantes where a violent uprising occurred in 1793–95. Here, the lively growth between the 1806 and 1821 censuses is either due to the 1806 census having underestimated the true figures in a context of insecurity, or to the return of refugees who fled the zones of conflict (Dupaquier, 1989).

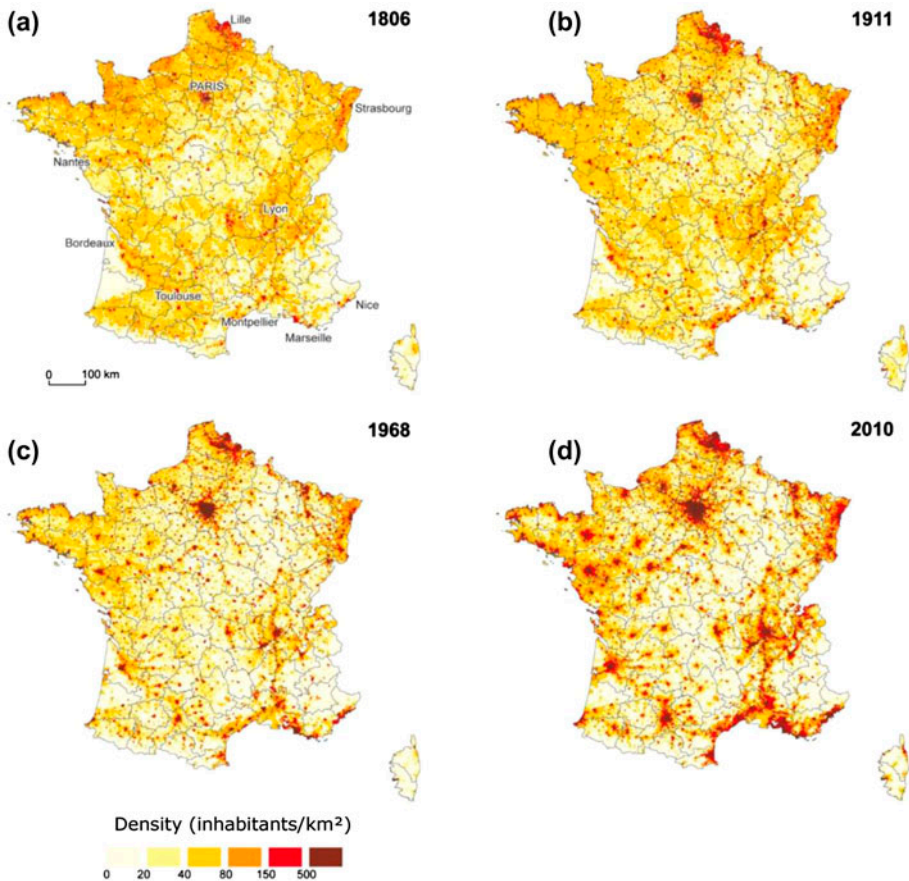


Figure 3. Population density at the municipal level (people/km²).
Source: Authors' database, drawing on census.

France nevertheless experienced a substantial improvement in living standards and a fall in the death rate, in particular among infants and youths. Between 1745 and 1835 average life expectancy rose from 25 to 40 years (Van de Walle, 1986).

But unlike other European countries, France's falling death rate went hand in hand with a drop in the birth rate. The natural balance, albeit positive, was slight. At this time Paris and Normandy, as well as Bordeaux and the Garonne basin, registered extremely low birth rates for that era, with only 3.5–4.5 births per woman (Henry, 1975). Dupaquier (1989) points out that the early decline in two other areas – the southern Alps and the southern Massif Central – was due to over-population of upland areas unable to sustain more people.

The second reason for the persistence of the rural demographic dynamic, was the unusual form that industrialization took in France. This process started early on, in the late 18th century, but developed very differently from Britain (O'Brien & Keyder, 1978). Industrial growth in France was steady through the 19th century at about 2.5% per year (Beitone, 2010). The domestic system involved small industrial enterprises operating in a rural environment, drawing on work done at home by women, children and peasants during the slack season. This system carried on for a long time, alongside the spread of the factory system, with its major industrial centres, particularly for metal-working. There were various reasons for this pattern: ancient history (Hervieu, 2003); an abundance of energy resources in the country (wood, water); a cheap, but qualified workforce comprising peasant-labourers and peasant-artisans; an additional source of income for small farmers who still represented 60% of France's working population in 1850 (compared with 22% in Britain); a relatively outdated banking system, following the failure of *assignats* (paper money) during the revolution (Beitone, 2010).

Figure 6 shows that before 1851 there was no correlation between the demographic dynamic and the population of *communes*. The growth rate was fairly uniform at all levels before 1821. In 1821–51 the greatest population growth occurred either in *communes* with 3500–5000 inhabitants or in those exceeding 10,000. After 1851 there was a positive correlation between the size of *communes* and demographic growth, even in small country towns with 3500–5000 inhabitants. So here was a form of industrial revolution with no sharp contrast between town and country, both with regard to technical change and the migration of country people from the countryside to small towns then on to larger cities (Beitone, 2010; Clapham, 1921).

Emergence of the industrial model and rural exodus (1851–1911)

The maps of the second half of the 19th century reveal a radical change in the demographic dynamic at work in France, no longer following a regional rationale. The last instance of this type, visible on Figure 7, was growth in the regions stretching from southern Brittany to the north of the Massif Central, passing through Sologne, and in the Landes, south of Bordeaux. In these areas municipal units were much larger than elsewhere, and *communes* consequently included small rural centres unaffected by the rural exodus. These rural areas retained the highest level of population for longest (Merlin, Hérin, Nadot, & Sauvy, 1971).

The cause of demographic decline of rural areas was not only the drop in fertility, which flattened out in 1851–76, only to resume its decline in the last quarter of the century. The main explanation was the increasing migratory flow, due to gradual modernization of agriculture.

However, all rural areas experienced gradual demographic decline, whereas the urban dynamic gathered momentum (Figure 8), particularly in France's big cities: Paris and even more so its inner suburbs; Lyon, Marseille, Toulouse, Lille, Strasbourg and Nantes.

Furthermore industrial development gathered speed thanks to liberalization of the banking system and international trade in 1860, the spread of the railway network and a succession of inventions in the last quarter of the century (electricity, telephone, telegraph, steamships, refrigeration, combustion engine thanks to petrol, among others). This opened the way for a new economic cycle and the emergence of large firms. Per capita income rose, sustaining domestic growth (Beitone, 2010).

The main centres of French industry are visible on Figures 7 and 8. In Paris, the number of industrial workers rose from about 400,000 to just under 900,000, between the 1848 and 1901 surveys (Leroux, 2013), and the future '*banlieue rouge*' (red suburbs) were established. The Nord *département* witnessed spectacular demographic growth, around a major textile hub between Lille, Roubaix and Tourcoing, and coal-fields producing two-thirds of France's coal by 1914. The steel industry in Lorraine also flourished, as did industry in the Vosges valleys (in eastern France). Textile in Lyon, and steel in Saint Etienne and Le Creusot-Monceaux les Mines, also sustained substantial industrial and demographic growth. France's network of cities gradually took shape with the demographic restructuring of French territory. The Mediterranean coastline experienced growth too. At the western extremity, the coastal plain withstood rural exodus much more successfully than the mountainous hinterland. On the Roussillon plain (west of Montpellier), as far as Gard, farming increasingly specialized in wine-growing, driving population growth. However, phylloxera (the great wine blight) devastated the vines from 1865 onwards, spreading east and west during the following decade. Population growth gradually stopped. In Marseille the population was stagnant at 150,000 at the beginning of the century, but rose rapidly in the second half of the century, reaching 300,000 in 1866 and 500,000 by 1905. This was due to the end of piracy in the Mediterranean, a series of treaties on free trade, the opening of the Suez canal in 1869 and French colonial development, served by the port of Marseille. At the eastern end of the coast, the Riviera enjoyed substantial growth under the Second Empire (1850–70), when tourism became widespread among the upper classes and trains facilitated travel. The tourist boom benefited Nice, Cannes, Menton and Antibes, among others. In the French Alps Chamonix developed thanks to winter sports and mountaineering. Seaside resorts also appeared on late 19th-century maps in Normandy, the coastline nearest to Paris. Similarly Arcachon developed near Bordeaux, La Baule next to Nantes.

Figure 6 shows that after 1851 scale effects gradually made themselves felt: the larger the urban centre, the more demographically dynamic it was. In contrast, in *communes* with fewer than 3500 inhabitants decline became widespread, gathering momentum up to the First World War. Large country villages, with 3500–5000 people, remained attractive staging points in the migratory process, offering jobs in trade and the services. But their growth nevertheless slowed.

Summing up, over the whole period from 1806 to 1911, France's population grew by 40%. The aggregate population of *communes* of under 2000 people fell by 8%, dropping from 20.5 million to 18.8 million. The population of *communes* of over 2000 people rose. Communes of between 2000 and 3500 people registered a 25% gain. The population of small towns (3500–10,000 people) grew by 70% to 100%, rising from 2.5 million to almost 5 million between 1806 and 1911. Large towns (over 10,000 people), which witnessed growth similar to smaller towns till mid-century, experienced very

strong growth, almost 300%, after 1851, their total population climbing from over 5 million to 13.5 million in 1911.

On the eve of the outbreak of war the distribution of France's population was not fundamentally different from the beginning of the previous century, but the process of urban concentration had already started. It only came to fruition in the second half of the 20th century, after a period of political and economic instability spanning the first half of the century.

Spatial hesitation in a world at war and boom of regionalized industrial economy (1911–54)

In less than half a century France was scarred by two world wars, a major economic crisis and two changes in its political regime. France lost more than 1 million people between 1911 and 1946.⁶ There followed a period of powerful demographic and economic growth that reflected an upsurge in the regionalized industrial economy. Many territories nevertheless did not benefit from these gains.

The times of war (1911–41)

The First World War (1914–18) affected the whole territory (Figure 9). But the impact of war was very different in territories deprived of a large part of their active population, in areas where fighting actually occurred and lastly in regions occupied for several years. The front barely moved, stretching from the North Sea near the Belgian frontier to the Swiss border. It left its mark on north-east France. Apart from France's industrial north-east, directly impacted by fighting, all rural areas registered a substantial drop in population due to conscription and the higher death rate due to the war. The population dropped in most small county towns (the main town in a *département*) and the surrounding countryside.

But in larger towns the situation was less clear-cut. Large cities – such as Lyon, Marseille, Paris, Toulouse, Nice, Nantes, Bordeaux, Saint-Etienne – where industry was concentrated, in particular arms production, registered population growth. The suburbs of Paris started developing much faster than the core city.

The period between 1921 and 1936 saw a demographic upturn, largely located in big cities or their inner suburbs, as in Paris, but this was also the case round Lyon, Toulouse and Marseille (Figure 10). Figure 10 also shows the demographic resurgence in industrial *communes* along the front in northern and north-eastern France. This was the case, for example, with the Lille conurbation, at Roubaix and Tourcoing, and in the coalfields of Nord-Pas-de-Calais and Lorraine. Everywhere else rural decline continued.

The period 1936–46 was difficult and chaotic (Figure 11). The German invasion in May 1940 drove millions – in the north and east of France, the Paris region, and Belgium – to the west, south and middle of the country. Apart from the coalfields, the whole of northern and north-east France – not just industrial areas – registered a net drop in population. However, the Paris conurbation – more than ever before⁷ – was still the country's main centre, in terms of population, business and industry. In 1946 the population of greater Paris exceeded 6 million, 15% of the national total, with more than half now living in the suburbs. But the suburbs had suffered most during the war, bringing their steep demographic growth to a sudden halt. Meanwhile, the core city continued the slow decline which had started after the First World War.

Several ports on the north-west coast such as Le Havre, Caen, Saint-Nazaire Brest were bombed, some completely destroyed by Allied air attacks starting in 1943. The population of these towns fell. Families moved to the surrounding countryside and the population of many rural *communes* in north-western France rose during this period. These demographic shifts also fuelled dynamic growth in towns in western France. Their drawing power has steadily increased ever since.

Contrary to the trend observed in the northern half of France, the geography of the demographic dynamic in the south continued as before, with rural decline and urban growth.

After 35 years marked by two world wars and the economic crisis of 1929, industrialization and urbanization were almost complete in France. We highlight the demographic surge in towns and the inner Paris suburbs, the growing importance of the coalfields in the north and east, and the widespread decline in the countryside population. This geographic trend towards demographic concentration, linked to France's industrial development, continued till the mid-20th century, reaching a highpoint in the uneven spatial distribution of wealth in 1954.

Regional industrial model and territorial disparities (1946–54)

The geography of the demographic variations between 1946 and 1954 (Figure 12) reveals a divided France. North of a line running from Cherbourg, in Normandy, to Annemasse, just south of Lake Geneva, the population was rising in a substantial majority of *communes*. South of the same line, this was only the case in densely populated spaces (towns, coastline and Rhône valley). The reasons were demographic (fertility, migration) and economic.

In France the baby-boom period started in 1943, carrying on till 1964. Over a 20-year period more than 800,000 births were registered, with a birth rate of about 2.8 per woman. This rate started to drop in 1965, nevertheless remaining high until 1975. But the strong growth in population which France experienced was not evenly spread from one region to another. Disparities in the gross reproduction rate⁸ between French *départements* in 1921–62 show that 'in the northern *départements*, fertility increased from south to north, except at the two extremities (Brittany, Alsace)' (Le Bras, 1971, p. 1103). The *départements* of the north and east, and the Paris basin benefited from the baby boom, but also from migratory movements from inside and outside France.

Domestic migratory movements affected densely populated areas with high birth rates such as Brittany, where neither farming nor industry could offer the surplus labour sufficient rewards. It also affected sparsely populated areas which were naturally poor (Perrin, 1956). Furthermore, immediately after the war the government set about rebuilding the country and introduced policies to encourage immigration (family regrouping and the allocation of new rights to immigrants). The influx of foreign workers in territories, where jobs were available and labour was needed, further accentuated spatial disparities.

In the mid-1950s France, much as most industrialized countries reached its highest point for territorial inequality in terms of gross domestic product (GDP). Spatial concentration tends to increase in a country as its economy takes off and its industry develops, subsequently declining. Many authors have tried to calculate the level of per capita income at which such inequality begins to decline. For many years authors cited the figure of US\$5000 per person, above which urban concentration tended to decrease (Ades & Glaeser, 1995; MacKellar & Vining, 1995; Wheaton & Shishido, 1981). In the case

of France, Catin and Van Huffel (2003) have shown that the disparities between the Paris basin, eastern and western France increased from the mid-19th century till the mid-20th century, then declined.

Between 1806 and the present day the Paris basin's share of France's total population rose from 5% to nearly 19% (Table 1). The industrial regions of the north and east maintained their share for a century (1851–1954), accounting for almost one-third of the population in 1954. But from then on their relative share declined, to the advantage of the Paris basin, but also regions previously little affected by industrialization. Industrial and urban development in southern and western France was limited during the 19th and early 20th centuries. Agriculture remained predominant here, apart from in the large cities. In 1954 farming still accounted for more than 40% of all jobs in western France (Catin & Van Huffel, 2003). The 1954 census shows that in the 13 *départements* where the population fell by more than 5% in 1946–54 more than 55% of men were working in agriculture. Most of these *départements* were in south-west France, or in the uplands of the Pyrenees and Alps (Perrin, 1956).

A century of industrial development led to spatial fracture along regional lines, which the state soon tried to remedy. During the 1950s a host of experts – geographers, economists, demographers and sociologists – painted a picture of France plagued by unbearable economic and social disparities. Committees were set up as early as the 1940s to carry out studies and take action in the territories. In the 1950s the French minister for reconstruction and town planning, Eugène Claudius-Petit, advocated a nationwide plan for regional development designed to distribute the population better in line with natural resources and economic activity. This approach, specific to France, was extended with the launch in 1960 of an inter-ministerial committee on regional development, then in 1963 with the start of the Delegation for Regional Development and Action (Datar).

From urban networks to metropolitan development (1954–2010)

The last period covers the second half of the 20th and the first decade of the 21st centuries. The strong economic growth in developed countries in 1945–75 had various spatial repercussions depending on the period. As we saw above, the 1946–54 period marked the end of a trend in industrial development which caused growing disparities between French regions. After 1954 the narrowing of the gap between north and south, in terms of wealth inequality, initially benefited the cities (Figure 13). But after 1968 the rural exodus ended and population of France's rural *communes* recovered, particularly due to the start of peri-urban development (Figure 14). Lastly, the paradigm of the new economy that emerged in the 1990s was reflected, spatially, by the metropolitanization of wealth production, but also in more even distribution of household income (Figure 15).

Urban networks and regional rebalancing (1954–68)

In demographic terms this period was marked by both the baby-boom and sustained immigration (hundreds of thousands of Spaniards, Portuguese, Algerians and Moroccans, among others, moved to France). The annual rate of population growth peaked at 1.1%. But unlike the previous period, this increase was no longer concentrated in the north and north-east, but affected all large and medium-sized towns and the Mediterranean coastline.

Table 1. Distribution of the French population between three main regions, 1806–2010.

%	1806	1821	1851	1891	1911	1921	1936	1946	1954	1968	1990	2010
Ile-de-France	5.0	4.8	6.1	10.5	13.1	14.7	16.4	16.4	17.2	18.6	18.8	18.8
Nord/Nord-Est	35.6	35.0	34.0	32.2	32.2	31.0	31.5	31.0	31.8	31.3	30.2	28.5
Sud/Sud-Ouest	59.4	60.2	59.8	57.3	54.8	54.3	52.2	52.7	51.1	50.1	51.0	52.7
Total France	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: The Nord/Nord-Est region refers to *départements* north of a line from Cherbourg to Annemasse; the Sud/Sud-Ouest region refers to those south of the line.

During this period France enjoyed strong, steady economic growth, driven by industry, construction and, above all, and to an increasing extent, by private-sector services. In the 1950s private-sector services, industry and agriculture employed roughly the same number of people. The steady growth of private-sector services start in 1949, whereas agriculture steadily declined. Industrial jobs were stable until the early 1970s, declining since (Bouvier & Pilarski, 2008).

In the 1950–70s the workforce shifted from agriculture and industry towards the services, encouraged in particular by wage differences. In the 1950s, the average real per capita wage in industry was 30% lower than in the services⁹. The second wave of the rural exodus was driven by the massive departure of women (Lutier, 1961) who saw towns as a place of emancipation and social advancement, for themselves or their children (Mendras, 1967). With less and less to do on the family farm, due to rapid modernization, women played a central role in the economy's shift towards an urban basis rooted in the services.

This period saw the economic and demographic balance between regions restored, but not between town and country. The difference in per capita GDP between the Paris basin and other regions, or between north and south, decreased (Catin & Van Huffel, 2003), but the gap between town and country widened. Urban concentration reached its highest point in 1968, with three-quarters of the population concentrated in barely 12% of the *communes*.

Economic crisis and peri-urban sprawl (1968–90)

The period between the late 1960s and the early 1990s saw a radical change in France's prevailing economic, demographic and spatial paradigm. The crises in 1973 and 1975 signalled the end of the boom years and Fordist mass production; the 1990 crisis projected France into a new, more immaterial, global economy. The baby-boom was over too. During this period the birth rate in France fell to its lowest level (1.6 births per woman in 1993). It was also a turning point for the geographical distribution of population and immigration. It put an end to a century of rural exodus, which stripped the French countryside of more than 10 million people, almost 40% of its occupants (Merlin et al., 1971). Two separate trends went into reverse: the migratory balance of rural *communes* was once again positive, whereas in urban centres it became negative. Core cities started losing residents, who moved to the outskirts. So the resettlement of rural *communes* was the result of the peri-urban growth of towns, which had become the undisputed driving force of economic growth. The map of population variations in 1968–90 (Figure 14) highlights the peri-urban rings round French towns. Strong population growth continued in coastal areas and the country's south-east extremity (Provence and the Riviera). Remote *communes*, in sparsely populated rural areas far from urban centres, were nevertheless still losing residents. Rural renewal had started, but only in the shadow of the city walls.

As Camagni points out, the wealth of towns depends on frequently unequal trade with the country (Camagni, 1996), but also on its integration in a network of towns. Pumain (2006) maintain that networking enables towns to overcome the limitations of local resources, while at the same time obliging them to go on innovating, through emulation, competing with other towns. In this way, 'urban networks contribute to adapting territories to social, technological, economic and cultural change, constantly inputting innovation developed through their networks' (Pumain, 2012, p. 7). Although networking towns became key to the economy and growth, this period also saw the emergence

of local production systems. Between the late 1960s and the early 1990s production zones spatially organized around a network of very small and small-to-medium enterprises were identified in Italy, France and Portugal (Bagnasco, 1977; Garofoli, 1981; Piore & Sabel, 1984; Courlet & Pecqueur, 1992).

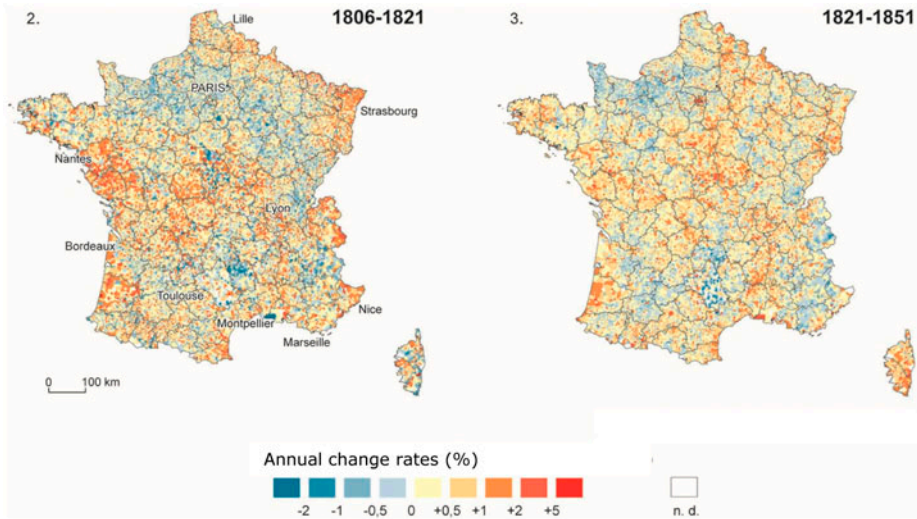
This was a time of deconcentration, but also of socio-economic and demographic convergence, in France and more generally in the European Union. Regional development in France or indeed encouraging policies for greater cohesiveness in the European Union might almost seem too simple, given that more even-handed territorial growth was a corollary of greater economic efficiency. Growth would be stronger, rooted in activities uniformly spread over the territories. In the European Union regional convergence fed growth and the convergence of nations. But in the early 1990s it all changed.

Metropolitanization of the economy and rural rebirth (1990–2010)

The crisis at the beginning of the 1990s signalled another socio-economic and demographic turning point, the spatial consequences of which are well known. A new economy emerged, built on information and communications technology, on innovation and knowledge. Paul Krugman,¹⁰ in his 1991 model, showed that urbanization and agglomeration processes feed economic growth. Transport costs having become negligible – what counts is transaction costs. According to such models, urban concentration can, to a certain extent, reduce these costs. Many empirical studies have validated and illustrated these theories, highlighting the growing concentration of knowledge trades in large, globally connected cities, starting in the 1980–90s. Florida (2002), and other authors such as Abel and Gabe, have also demonstrated that towns concentrating specialist jobs in new technology and creative fields (communication, information, art) register higher growth rates than other towns. Knowledge, from which innovation flows, needs a learning process linked to experiment, imitation, testing and recalling past experience (Maskell & Malmberg, 2007). Proximity, in terms of organization and geography, is essential to these processes (Rallet & Torre, 2004). Learning regions and innovative environments (Aydalot, 1986; Camagni, 1995; Maillat, Quévit, & Senn, 1993) encourage further innovation, which results not from linear (research, innovation, production, consumption) but convergent, pluri-disciplinary processes which require not only proximity effects but also the increasingly rapid, global circulation of information.

In this context, large conurbations could offer firms and qualified labour ideal conditions for relocating. Metropolitanization was underway. Spatial inequality in terms of per capita GDP once again began to increase, for the first time since the Second World War in France and all over the European Union. At present divergence between regions allegedly boosts growth and the convergence of European Union nations. Similarly in France, Paris – the capital-region – accounted for 34% of GDP in 1950, 27% in the 1980s, rising to 29% in the 2000s. The 2010 crisis accelerated this process, and in 2012 the Paris basin accounted for 31% of GDP.

But this time, marking an unprecedented trend, the high concentration of economic activity in France's large conurbations has not been accompanied by a comparable shift in population. Quite the opposite. The deployment and spread of population now concerns almost the whole country. The 1990–2010 map of population variations shows a demographic increase organized around cities, but in fact this only reflects differences in the natural balance (greater in towns and peri-urban zones). The migratory balances



Figures 4 and 5. Annual changes in the population of *communes* in France (1806–21 and 1821–51).
 Source: Authors' database, drawing on census.

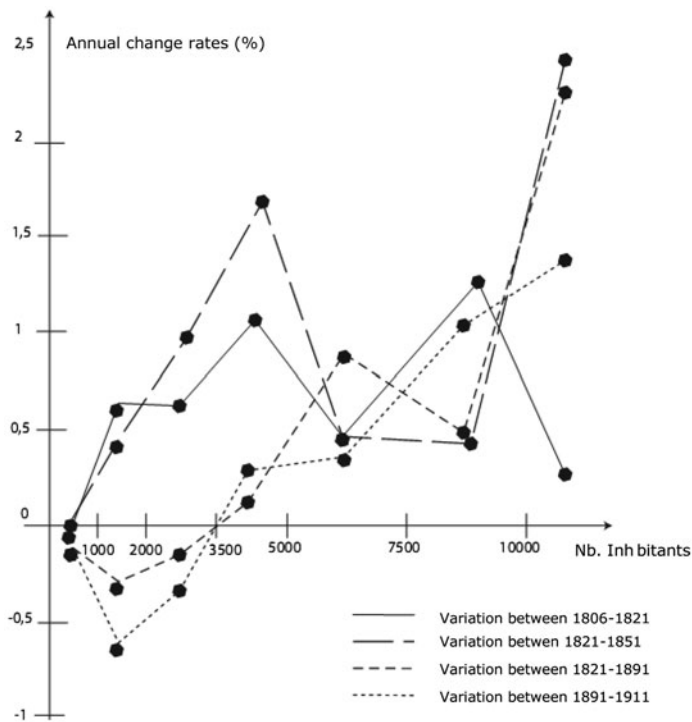
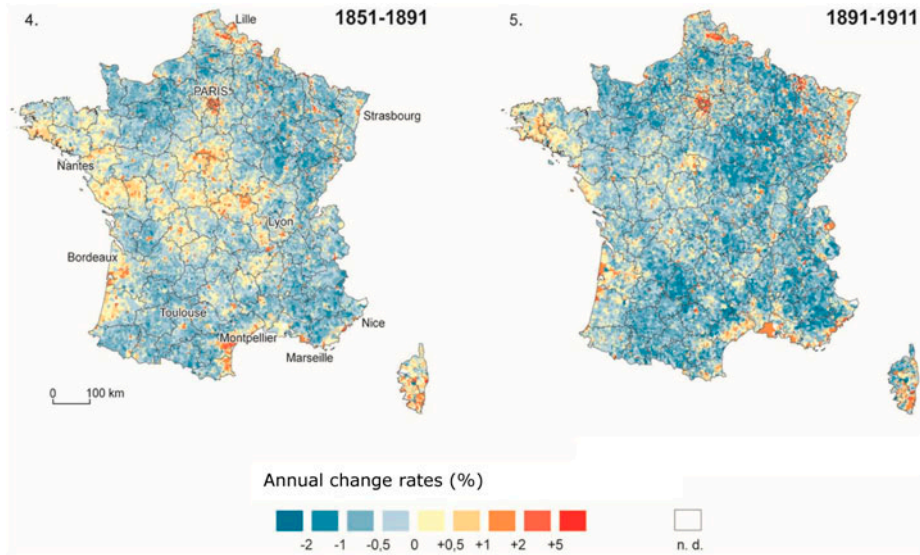


Figure 6. Demographic dynamic and the size of *communes* (number of people).
 Source: Authors' database, drawing on census.

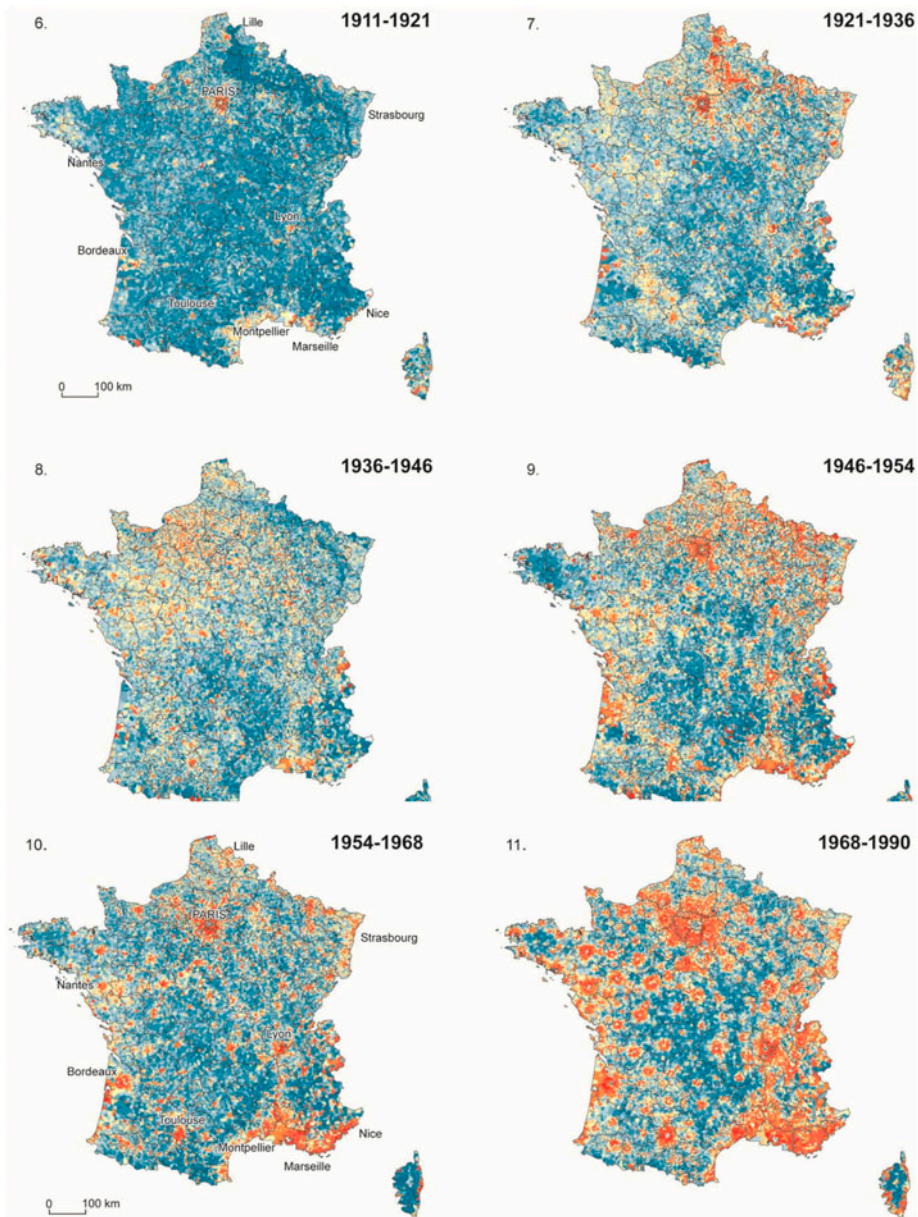


Figures 7 and 8. Annual changes in the population of *communes* in France (1851–91 and 1891–1911).

Source: Authors' database, drawing on census.

reveal a regional geography with the most dynamic territories at the end of the Second World War (Paris basin, north and north-east) in opposition to the rest of the country. Peri-urban development persists but in parallel a regional migratory model has emerged with population shifts from northern France, but also the Paris basin, towards western and southern France (Baccaïni, 2001). In the southern half of the country, even rural *communes* beyond the reach of urban influence are attracting migrants. People making such long-distance migratory moves want a change of setting, away from towns, with more sunlight. Every year sees a substantial influx of neo-rural settlers, causing economic and social upheaval (Talandier, 2012). Amenity migration (Moss, 2006) has been observed in most developed countries. It reveals a profound change in the motivations of migrants. Relocation is no longer driven by economics (jobs, higher wages), but the quest for a better everyday environment. Many of those making the move are pensioners, but also executives and company directors, setting up their own business, or indeed more vulnerable unemployed people, who alternate seasonal jobs and unemployment (Talandier, 2012).

Tourist mobility has developed in addition to such residential mobility, gradually disconnecting the locus of production from that of consumption (Davezies, 2008). This residential economy, powered by individual mobility and spending of wages in places other than where they are earned, has gradually asserted itself as one of the main economic driving forces in the sub-national territories of developed countries (Talandier & Davezies, 2009). In France these shifts, deconcentrating population and income, have occurred in a relatively dynamic demographic climate. With a birth rate of 1.9 births per woman, France contributes to two-thirds of the natural increase in EU-15 countries, whereas it only represents 16% of the total population (Aglietta, Blanchet, & Héran, 2002).



Figures 9–14. Annual changes in the population of *communes* in France (1911–21, 1921–36, 1936–46, 1946–54).

Source: Authors' database, drawing on census.

So, as can be seen from a comparison of Figures 4, 12 and 15, in two centuries France has moved from a regional model based on agriculture, then industry to a metropolitan model of production and residence (Davezies & Talandier, 2014).

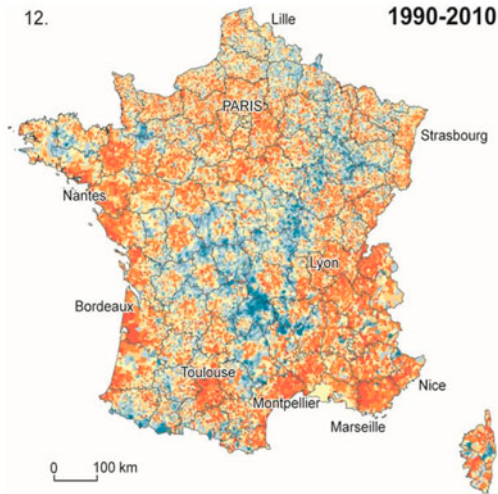


Figure 15. Annual changes in the population of *communes* in France (1990–2010). Source: Authors' database, drawing on census.

Conclusions

This article tracks the geographical distribution of population over a long period, with a particularly fine mesh. It reviews the occupation of 36,000 French *communes* over two centuries. The results, primarily translated into maps, highlight the population geography that accompanied a succession of socio-economic models in France. Four models cover times of transition, but also times of rapid change. The first period, which ran from 1806 to 1851, was characterized by an agrarian model and even population density. A second period started in 1851, bringing industrialization to some French territories. The rural exodus affected different parts of the country to a varying degree. The rural exodus started with towns but also the industrialized regions of northern and eastern France increasingly driving France's economy. The third period, 1911–54, was marked by war but also the growth of the regional industrial model. Economic disparities peaked in 1954. France was split in two, in terms of human and physical capital, wealth production, wages but also learning and culture. The south and west lagged far behind. The third model was urban. Industrial regions declined and economic growth was spread all over the country, organized around a system of networked towns. The past decade has brought a new, unprecedented trend disconnecting the locus of production from that of consumption. The longstanding link between economics and demographics is being stretched, not actually breaking but certainly changing radically. Metropolitanization explains the concentration of qualified jobs and advanced-technology firms in big cities in France and worldwide, but at the same time the population is spreading out, giving rise to a residential economy, with no clear connection to the usual factors driving production. The geography of population is no longer the same as its productive counterpart: one is spreading, the other concentrating. So ends the illustrated history, for the moment. Compiling this exceptionally rich database has opened the way for a wide range of work exploring the results in greater detail, looking at particular types of territory, large geographic regions or swaths of history. It raises questions about the true nature of towns and how the urban hierarchy has changed over time. It also prompts scenarios for the future.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes

1. For a list of the 40 published volumes, see http://www.ehess.fr/ldh/theme_dictionnaires/Theme_dictionnaires_listepub.htm/.
2. See <http://cassini.ehess.fr/>.
3. Two reports by Moriconi-Ebrard (2001, 2008) present a fairly similar research action collecting data
4. France's official geographical code, published in 2010.
5. In France a conurbation brings together one or more adjoining *communes*, each with a population exceeding 2000.
6. The 1946 census included as French residents (in the *commune* where they usually resided) 312,000 people who were mostly soldiers stationed in Germany.
7. *Paris et le Désert Français*, by Jean-François Gravier, was published in 1947 (Editions Le Portulan). This controversial book, which only gained recognition later, bears out an idea which prevailed for a long time.
8. For a generation *g*, this is the ratio between the number of female children and the number of their mothers.
9. This relation has been overturned since. Hourly wages in France are higher in industry than the services
10. And many other economists, before and after: Lucas, Thisse, Venable, Fujita, Glaeser, Henderson, among others.

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