Seine 54: A Spatial Tool for Research into the Social and Urban History of the Seine Department in the Mid-1950s

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ABSTRACT

Aware of a crisis situation (housing, facilities, population growth), the Seine Prefecture decided in the late 1950s to carry out a major project to process the 1954 census and produce a series of statistical and cartographic data to aggregate all the census data at block level. This global vision, bringing together information on occupational classes, housing conditions and building types, was intended to serve the major planning and development projects of the metropolis. For the historian, these documents represent an incredible source of information on the situation of the Paris metropolitan area in 1954. This research paper looks at the conditions under which the 1954 census was produced, and how it was transformed into a database. The aim was to create a Geographic Information System, enabling statistical and cartographic processing, in order to open up new avenues of research into the social and urban history of the Parisian metropolis.

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(1) AN URBAN AND SOCIAL HISTORY OF THE PARIS METROPOLIS IN THE MID-TWENTIETH CENTURY

The Seine 54 project is aimed at providing researchers with new documentary resources that will enable them to produce an urban and social history of the Paris metropolis in the mid-twentieth century. The fragmentation of the types of documentation and institutional structures inherent in any metropolis prevents a synthetic view of the situation and leads historians to concentrate on a monographic approach and extensive studyies of specific funds relating to a commune or urban sector (Brunet, 1980; Fourcaut 1986). In these studies, census data have emerged as an essential source for tracing the history of urban populations. In the form of nominative lists, these registers offer an insight into each address, and enable unique work on professions and family structures. The mention of addresses also makes it possible to map these data and reposition these social phenomena in the urban environment. However, census lists are a complex source to process, requiring laborious data entry work, forcing us either to focus on small urban units (a street, a district), or to carry out sampling operations, which certainly make it possible to obtain a precise statistical representation, but which limit the possibilities of spatializing the data on a fine scale. Although technological advances in OCR software will eventually make it possible to transform all these registers into an exhaustive database (POPP[1] and other projects), they still require a great deal of work to build the character recognition model. The administrative authorities responsible for urban planning were just as constrained by documentary fog as today's historians.

Aware of a crisis situation (housing, facilities, population growth), the Seine Prefecture decided in the late 1950s to carry out a major project to process the 1954 census and produce a series of statistical and cartographic data to aggregate all the census data at block level. This panoptic vision, bringing together information on occupational classes, housing conditions and building types, was intended to serve the major planning and development projects of the metropolis. For the historian, these documents represent an incredible source of information on the situation of the Paris metropolitan area in 1954, a few months after Abbé Pierre's appeal[2].

The aim of the Seine 54 project was therefore to carry out a digitization operation and set up a geographic information system to make use of this source, to open up new avenues of research into the social and urban history of the Parisian metropolis. This article looks at the conditions under which the document was produced, and how it was transformed into a database so that it could be used by anyone interested.

(2) DATA SET DESCRIPTION

The dataset described in this article has been published on Nakala as Seine 54 (ACP02_PL). It includes (1) the folder ACP02_PLDonnéesSIGcompressees ('compressed data for GIS'), including Seine 54.QGZ and Seine 54.gpkg files used to open the GIS with cartographic and statistical data (the data must all be downloaded into folders respecting the original tree structure); (2) The folder ACP02_PLDonneesSIG_Originales ('original data for GIS') containing the subfolder 'carto' ('cartography'), which includes the vector files for the Seine department and subfolders with vector files (CPG/DBF/PRJ/SHP/SHX files) and raster files (TIF/PNG/SVG/POINTS) for each commune; (3) the Folder ACP02_PL_Statistiques_Excel ('Statistics Excel') containing the subfolder 'dossier stats par commune' including the spreadsheet for the Seine department and all the census data files classified by commune.

Data set name – Seine 54 (ACP02_PL)

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Creation dates – 2022

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1   The POPP project (Projet d'océrisation des recensements de la population parisienne (1926–1946)), directed by Sandra Brée, aims to build a vast database of the Parisian population from the nominal census lists of 1926, 1931, 1936 and 1946.

2   The Abbé Pierre appeal was a historic speech given on French radio on 1 February 1954. In it, Abbé Pierre sounded the alarm to raise public awareness of the plight of the homeless and called for solidarity with the most disadvantaged. This appeal sparked an unprecedented surge of generosity, leading to the creation of the Emmaüs association and national awareness of the housing issue.

(2.1) THE SOURCE

(2.1.1) Genesis of the document/ Context of production

In May 1954, the French government organised a new census, eight years after the 1946 census. Although the law required the population to be counted every five years, the high cost of these operations led governments to increasingly space them out. Each census produces several types of documents: enumerators visit each household to fill in individual forms for each person, which are then collated by household into household sheets, and afterwards collated by address into house sheets. From these forms, lists of the population by name are drawn up for each municipality, with details of each individual's address. When the nominal lists were produced, the various household sheets were usually destroyed. These data were then compiled in statistical tables at different levels: commune, department or national territory. The 1954 census was quickly analysed and published in booklets containing information on the legal population of arrondissements, cantons and communes, with a breakdown between the municipal population and the population counted separately,[3] as well as information on the proportion of the population that was foreign. In 1955, the processing of the census continued with the publication of a 1:20 survey obtained by counting a sample of census bulletins with information on the structure of the population and housing for the departments and large towns.[4] These classic census publications enable us to study population trends, age distribution and socio-professional composition, and provide a summary overview of the French population according to the major administrative levels. On the other hand, these very broad scales tend to crush the data and erase spatial dynamics.

However, in 1961, at the instigation of the Seine prefecture, the Institut National de la Statistique et des études économiques (INSEE) and the Institut d'aménagement et d'urbanisme de la région Île-de-France (IAURP, now the Institut Paris Région) produced statistics for 71 communes in the Seine department and Paris, aggregating the information from the 1954 census at the urban block level.

INSEE was founded in 1946 to conduct surveys on the economic and social situation and to guide policies. The organisation of "population counts" is not one of its prerogatives, as it is still the responsibility of the local authorities. It is responsible for processing the data and analysing it to produce summaries at various levels.

The IAURP was set up by decree the previous year, in May 1960, to accompany the launch of the Plan d'Aménagement et d'Organisation Générale (General Planning and Organization Plan (PADOG)) for the Paris region (Brisacier, 1990).

The PADOG was in line with post-war planning inspired by Gravierist concepts.[5] The aim was to control the urban expansion of the Parisian metropolis, to make the urban fabric denser through the construction of housing to respond to the crisis highlighted in 1954 by Abbé Pierre, and to relocate industry to the provinces (Fourcaut, 2006).

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3   INSEE, *Recensement de 1954. Population du département de la Seine, Paris -Banlieue. Arrondissements, cantons et communes, 1954*. Available at the library of Paris City Hall, shelf mark 570.

4   INSEE, *Recensement général de la population de mai 1954. Résultats du sondage au 1/20ème : département de la Seine : population ménages, logements, 1955*. Available at the library of the Archives of Paris, cote 6Eb 97, and at the Historic Library of the City of Paris, shelf mark 142210.

5   Jean-François Gravier's 1947 book "Paris et le désert français" (Paris and the French desert) had a considerable influence on French regional planning policies in the second half of the 20th century. In this work, the author deplored the economic and demographic imbalances resulting from excessive centralization around Paris and proposed solutions to rebalance the country's development in favor of declining rural regions. His arguments were strongly influenced by his reactionary political vision, close to the far right.

Against this backdrop of changing planning principles for the Paris region, the IAURP was set up as a research consultancy responsible for long-term forecasting, with the aim of imagining Paris in the year 2000. The IAURP consisted of a small team of eight employees until the creation of the Paris Region District in August 1961 (Vadelorge, 2012). The Institute was placed under the supervision of the new regional administration and its delegate general, Paul Delouvrier. The latter gave the IAURP considerable resources and made it a key player in the discussions on the "Schéma directeur d'aménagement et d'urbanisme de la région de Paris" (SDAURP) (Effosse, 2005).

 It would appear that the aggregation work was mainly carried out by the INSEE, and in particular Alphonse Lucchi, attached to the INSEE Regional Directorate, in collaboration with the "Service de topographie et d'Urbanisme" of the Préfecture de la Seine, which was responsible for dividing the area into blocks and drawing up the plans. The fact that the IAURP is mentioned as one of the co-producers of this work is far from insignificant, and clearly shows that these statistical results were intended to fuel the work of reflection carried out by the IAURP. The disclaimer published at the beginning of each issue is very clear in this respect: it is the conurbation's 'growth problems' that motivate the most detailed spatial analysis possible of the Paris conurbation.

This type of processing is made possible by the fact that the census takes into account the block scale, adding a new degree of spatial precision. Previously, only the street name and address number appeared. The block division was introduced in 1946, but only for the city of Paris. In 1954, its use was extended to most of the suburban communes of the Seine, as well as a number of large provincial towns. Louis Chevalier's[6] introduction to the booklet on Paris clearly shows the essential importance of gathering data on the block scale that emerged after the war. He refers to the now urgent need to know population densities on a fine scale: the Paris planning department wanted to better understand differences in density, in order to envisage opportunities for densification, particularly in outlying districts; the Seine prefecture also wanted to have this information to enable redrawing the electoral map so that it reflected the reality of the demographic situation as accurately as possible. For INSEE, this fine-scale coding was a major challenge, enabling it to carry out in-depth analyses. For the next census, INSEE demanded and obtained that this breakdown be compulsory for all conurbations with more than 20,000 inhabitants.

(2.1.2) Structure of the registers

For the 80 communes in the Seine department, there are 71 fascicles aggregating census data. There are no registers for the municipalities of Alfortville, Arcueil, Bobigny, Courbevoie, Drancy, Fontenay-sous-Bois, Levallois-Perret, Les Pavillons-sous-Bois and Rosny-sous-Bois (Figure 1). It would appear that this is due to the fact that no block survey was carried out during the 1954 census.

For each municipality, four successive charts cover the population, the working population, housing and buildings. Each line of a chart corresponds to a block in the municipality, designated by a numerical identifier. At the end of each register is a map of all the blocks in the municipality, designated by the same numerical identifier as in the tables, making it possible to link the block drawn on the map to the line of data in the four tables.

The first chart, on the population, provides information on the distribution by sex and age, as well as the number of foreigners for Paris and 'Muslims from Algeria' for each block in the department. A distinction is made between ordinary households and collective households such as hotels, boarding houses and religious communities. The second chart shows the distribution of the working population according to the socio-professional categories established by INSEE in 1954, taking into account several criteria such as occupation, economic activity, qualification, hierarchical position and private or public status. The third chart provides information on the occupancy rate of dwellings, their number of rooms and their water, gas, electricity, WC, shower or bath, central heating, and telephone facilities. In particular, it makes it possible to determine

6   Historian and demographer, specialist in Paris and its population. His books include "Classes laborieuses et classes dangereuses", and "La formation de la population parisienne au XIXe siècle".
     Louis Chevalier, *Classes laborieuses et classes dangereuses à Paris pendant la première moitié du XIXe siècle*, Paris, France, Perrin, 2007 (1er édition 1958).
     Louis Chevalier, *La formation de la population parisienne au XIXe siècle*, Paris, France, Presses Universitaires de France, 1950.

the number of dwellings with running water and central heating in each block, as well as the number of dwellings in a situation of admissible or critical overcrowding according to INSEE criteria. Finally, the last chart provides information on the nature of the buildings, in particular their date of construction, number of floors and type (dwellings, hotels, etc.)

These 72 registers, covering almost 15,000 blocks, reflect the concerns of the administration in the early 1960s: the issue of housing comfort, and the presence of Algerians at a time when the housing crisis and the Algerian war (1956–1962) were at the heart of debate.

(3) THE METHOD

The aim was to create a Geographic Information System from this source, enabling statistical and cartographic processing. The initial structure of the registers seemed particularly well-suited to the creation of a GIS, which meant that the data architecture could be easily reproduced within the information system.

(3.1) DIGITISING THE SOURCE

However, data entry proved to be a major task, even though this operation had already been carried out for the whole of Paris as part of a previous project involving the Atlas of Parisians (Fourcaut, 2006). However, the amount of information still to be processed (71 communes and 11,000 blocks) made it impossible to transcribe the data manually and necessitated a two-stage process: digitization and character recognition of the data.

The 71 fascicles relating to the suburban towns were meticulously digitized using a scanner adapted to the digitization of old works. ScanSnap7 software was then used to process the images, including straightening the pages, cropping, unifying the light and managing the metadata, resulting in the creation of 71 PDF documents.

The crucial phase of this project was character recognition, undertaken using Nuance OCR software, which transformed the PDF documents into editable charts. However, this stage was marred by errors that caused major difficulties. Although the results were satisfactory overall, typos frequently appeared, in particular confusion between the numbers 3 and 5 or 8, as well as superfluous typographical signs that made quantitative processing impossible. In addition, the absence of horizontal lines in the registers often created reading difficulties for the software, which sometimes merged several lines together. This multiplicity of small errors required considerable re-reading work. The entire OCR and proofreading process took around two months of full-time work, with almost 70% of that time devoted to the painstaking work of proofreading.

We were confronted with a number of special cases. In the registers, blocks may be divided into several lines, enabling INSEE to distinguish between particular institutions where a certain number of people live: military barracks, religious institutions, boarding schools, hospices, etc. In order to have a spreadsheet with a single line for each block, which allows simpler processing in mapping software, the results of the lines were merged, while retaining the original breakdowns on separate tabs, leaving the possibility of working specifically on these institutions, which are listed separately.

(3.2) SPATIALISING THE DATA

Once the database development phase was complete, work could begin on building the Geographic Information System (GIS) (Figure 2). The main task was to vectorise the 10,850 blocks of land in the suburbs. Initially, the plan was to start with the existing blocks, which had been vectorised by the Atelier parisien d'urbanisme (Apur), on the assumption that these blocks reflected the division of land parcels over the last 50 years. This reasoning would have made it easy to merge them using specific tools. However, this practice turned out to be more complex than expected. While the majority of blocks were indeed the result of these plot changes, numerous special cases prevented the systematic application of this method. In addition, the considerable changes made to the urban fabric by the creation of motorways, RER lines and the construction of large housing estates posed further difficulties. As a result, it was necessary to use a traditional method of georeferencing all the municipal plans appended to the fascicles, followed by a manual vector drawing for all the blocks. Digitising the large sheets attached to the registers and assembling the vectorisation of the communes resulted in numerous inaccuracies, necessitating numerous manual adjustments. All in all, it took a professional cartographer two months of full-time work to vectorise the islets in the Seine department.
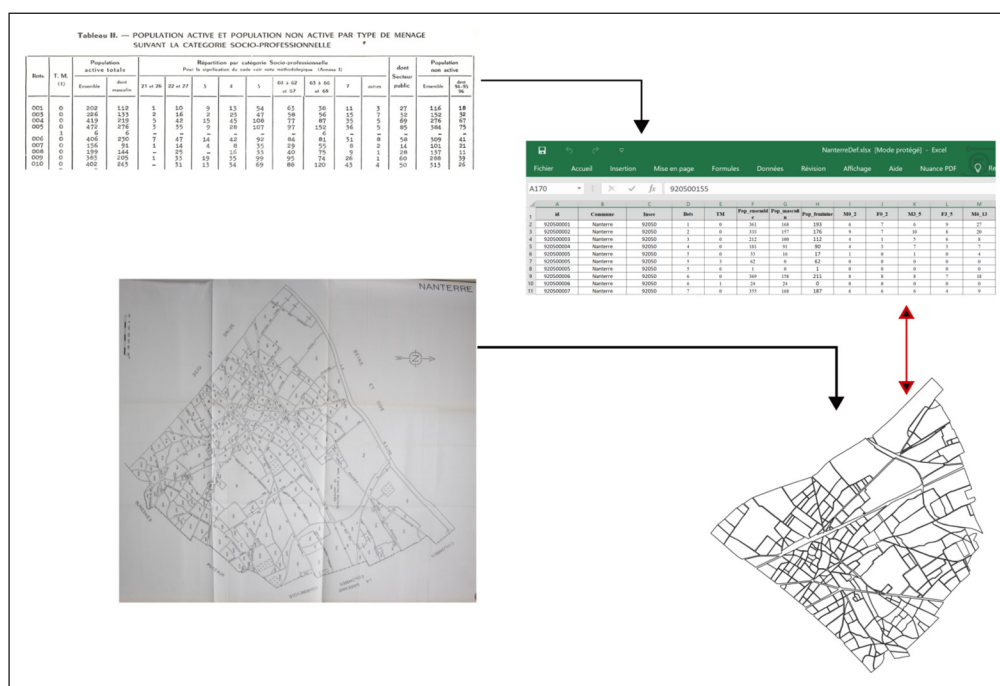
Figure 2 From register to GIS.

This figure shows the two stages in processing census data. Firstly, the charts were scanned into a database in Excel format, then the blocks were vectorised using QGIS software. The data and the vector map were connected using a common identifier.

(4) IMPLICATIONS/APPLICATIONS

(4.1) PERSPECTIVES

This dataset provides a set of cartographic and statistical processing tools that can be used to write a social and urban history of the Paris metropolitan area (Pinol & Garden, 2009). The ability to cross-reference information on buildings, social categories and age groups opens up new fields of study. This database makes it possible to document the housing situation in 1954, the year of Abbé Pierre's appeal and awareness of a crisis. The data are particularly rich in terms of the proportion of flats equipped with running water, mains gas, electricity, private WC, bath or shower, central heating and telephone. This level of detail gives a clearer picture of the level of comfort in dwellings and how it was distributed across the housing stock in the Paris conurbation. In addition, the categories of overcrowding (considered to be temporarily acceptable or critical) clearly demonstrate the administration's desire to quantify inadequate housing, and once again make it possible to map this phenomenon and compare it with the average number of rooms in dwellings and the number of individuals per household. The strength of this database lies in its ability to combine this type of information with data on socio-professional categories, age groups and the age of buildings. In our view, this ability to cross-reference the urban and the social makes this dataset an essential resource for urban historians.

The other advantage of this database is the ease with which it is possible to vary the scales, and to break free from administrative boundaries. It is possible to work at the neighbourhood level right up to the metropolitan level, including isolated communes, groups of communes or even sectors that straddle several communes. While the construction of archive fonds often forces historians to work on administrative units, this type of database enables the objects of study to be reconfigured on more complex scales. In the same way, it is also possible to isolate within a block a certain number of institutions that have been listed separately: barracks, boarding schools, hospitals, etc. This database therefore enables specific work to be carried out on these objects of study, while at the same time enabling them to be placed in their urban context. In addition to quantitative processing, the work on the source itself allows us to carry out in-depth work on the approach taken by INSEE and IAURP under the aegis of the prefecture. It raises questions about the construction of categories and their uses in the context of a census and in the development of planning policies for the metropolis. This could involve comparing certain statistical results revealed by these registers with the decisions contained in the Schéma directeur d'aménagement et d'urbanisme de la région de Paris (SDAURP). In this instance, access to this source could enable work on the role of statistics and cartography in urban planning in the mid-twentieth century.

(4.2) LIMITATIONS

There are, however, a number of limitations inherent in this source. The block scale is relatively precise, especially when it is the foundation for information on the metropolitan scale. On the other hand, when studying and mapping smaller urban areas, the block scale tends to overwhelm the complexity of the census data. In particular, the results mask the diversity of populations and situations that can exist within a block. In the east of Paris, for example, the populations of the more bourgeois Haussmannian boulevards are aggregated with those of the much more working-class faubourian buildings. In addition, the data aggregation work carried out by INSEE agents in 1961 is difficult to assess. A few calculation errors were spotted when the data was cleaned up, but it was sometimes impossible to correct them. These have been systematically identified and represent only an insignificant proportion of all the blocks.

Nevertheless, in the coming months, it would be useful to produce a series of concordance tests between the primary source (the census records) and the statistical processing carried out when these registers were compiled. The aim would be to ensure that INSEE staff produced them in a rigorous manner and that they are reliable from a statistical point of view.

In conclusion, the dataset produced as part of Seine 54 offers a tool for experimental statistical and cartographic processing that will, we hope, open up new fields of research into the social and urban history of the Seine department in 1954.

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COMPETING INTERESTS

The author has no competing interests to declare.

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