

Geneva. An Urban Sociodemographic Database

By Michel Oris, Olivier Perroux, Grazyna Ryczkowska, Reto Schumacher, Adrien Remund and Gilbert Ritschard

To cite this article: Oris, M., Perroux, O., Ryczkowska, G., Schumacher, R., Remund, A., & Ritschard, G. (2023). Geneva. An Urban Sociodemographic Database. *Historical Life Course Studies*, 13, 212–227. <https://doi.org/10.51964/hlcs15621>

HISTORICAL LIFE COURSE STUDIES

Content, Design and Structure of Major Databases with
Historical Longitudinal Population Data

VOLUME 13, SPECIAL ISSUE 5

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HISTORICAL LIFE COURSE STUDIES

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hislives@kuleuven.be

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HISTORICAL LIFE COURSE STUDIES
VOLUME 13 (2023), published 11-07-2023

GENEVA

An Urban Sociodemographic Database

Michel Oris	Institute of Demography and Socioeconomics and Centre LIVES, University of Geneva & Spanish Research Council, Madrid
Oliver Perroux	Collège de Saussure, Geneva
Grazyna Ryczkowska	Collège de l'Union, Prilly
Reto Schumacher	Cantonal Statistical Office, Vaud
Adrien Remund	Population Research Centre, Faculty of Spatial Sciences, University of Groningen
Gilbert Ritschard	Institute of Demography and Socioeconomics and Centre LIVES, University of Geneva

ABSTRACT

The Geneva databases are a data resource covering the period 1800–1880 for the city of Geneva, and occasionally the canton of Geneva. The research team adopted an alphabetical sampling approach, collecting data on individuals whose surname begins with the letter B. The individuals and households belonging to this sample in six population censuses between 1816 and 1843 were digitised and linked. A second database collected marriage and divorce records for the period 1800–1880. A third collection of data included residence permits. All these sources were used for a massive reconstitution of families. This article presents the sources, the linking methods, the typologies used to code places and occupations, to study household structures and forms of solitude. Combined with qualitative information extracted from the archives of public administrations and the National Protestant Church, as well as from newspapers, these databases were used to study the transformation of a medium-sized European city, sociopolitical tensions embedded in demographic and social structures, and the impact of the immigrants who made the 'Calvinist Rome' a religiously mixed city.

Keywords: Geneva, Historical demography, Censuses, Marriages, Divorces, Residence permits

e-ISSN: 2352-6343
DOI article: <https://doi.org/10.51964/hlcs15621>

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1 INTRODUCTION

In Bardet and Dupâquier's *Histoire des Populations de l'Europe* (1998), Geneva was the third most cited city, after London and Paris. This position may come as a surprise given its much smaller population. Disproportionate interest for Geneva stems from the second half of the 16th century, when the city became the "Calvinist Rome", a land of refuge, a religious and intellectual beacon (Zemon Davis, 2015). Waves of refugees changed the demography of Geneva (Perrenoud, 1979). Moreover, the local data sources provoked the interest of Louis Henry, the founding father of historical demography. Before applying his method of family reconstitution on a rural population (Crulai, see Henry & Gauthier, 1958), he tested this method on the old Genevan families (Henry, 1956). Following in his footsteps, Alfred Perrenoud (1979) convincingly extended this pioneering work and carried out one of the first major demographic studies of an urban population in early modern time. Exploiting a system of civil registration created by Jean Calvin himself, he identified the existence of large social gradients in mortality already in a preindustrial context (Bengtsson & van Poppel, 2011; Perrenoud, 1975) and documented the pioneering process of fertility decline observed in Geneva (Perrenoud, 1988).

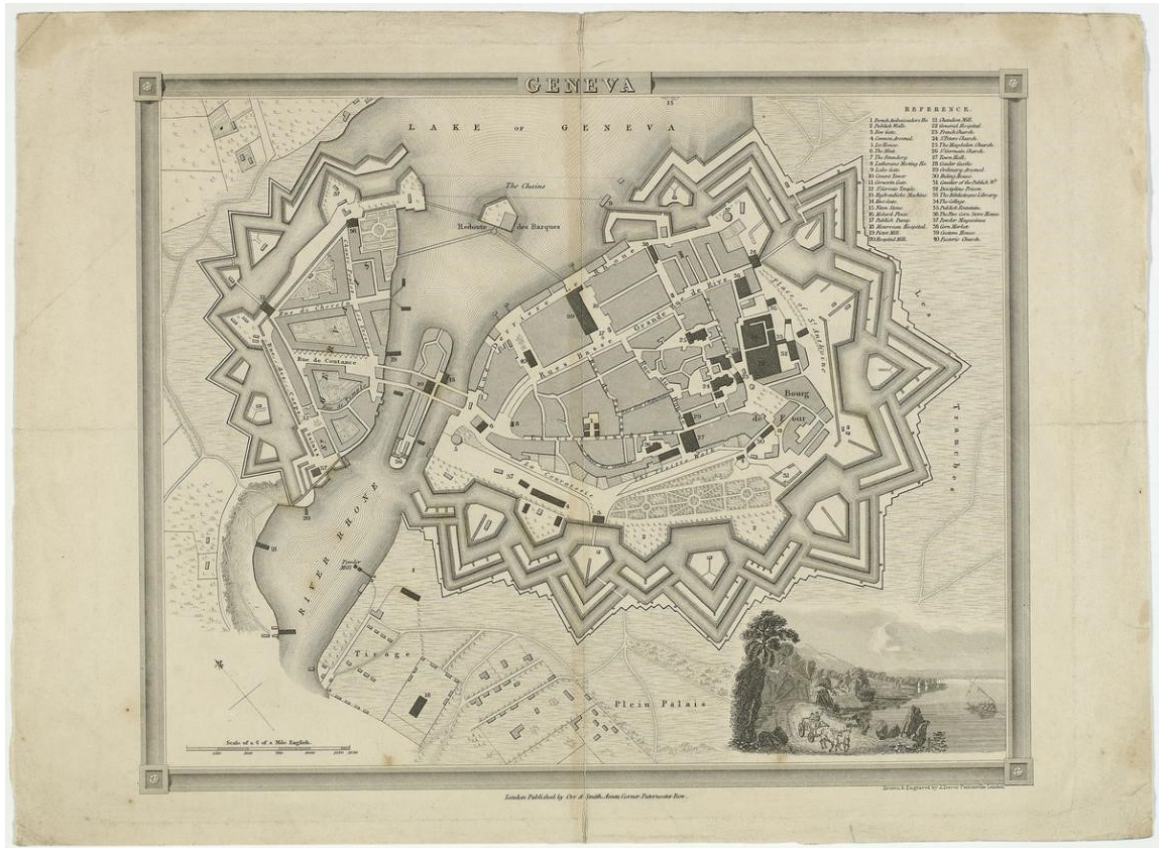
One of our ambitions was to extend the work of Perrenoud, starting where he stopped, that is in the early 19th century. Between 1816 and 1846, Geneva underwent a profound transition. The old republic joined the Swiss Confederation and became a canton composed not only of the Calvinist city but also of surrounding rural municipalities mostly populated by Catholics, thus opening a history of religious cohabitation which was not exempt from social and political tensions. In the meantime, Geneva's population experienced a modest but steady growth. In 1798, the city counted 21,327 inhabitants within its walls, against 31,200 in 1850. This is not an impressive demographic growth in the 19th century European context, which is a consequence of the late industrialization that did not reach the city until late in the century. The dominant sector in the city's economy was the watch-and-clock industry, known locally as the "Fabrique". Far from being organized in factories, this protoindustrial system engaged jewelers and a large number of watchmakers in a vast network of craftsmen. Almost all of this traditional production was exported to international markets, which made both this industry and the city very sensitive to economic fluctuations and political tensions across the European continent. In 1846, the government of the canton, run by an old conservative elite of allied patrician families, was overthrown by a revolution led by the "Radicals", a liberal and pro-democratic movement who recruited most of its supporters among the watchmakers (Perroux, 2006). The new leaders organized the destruction of the old Vauban-style fortifications, which corseted the city and promoted a new phase of urban, economic and social development (see Map 1).

Studying Geneva in the first half of the 19th century means exploring one of the transitions from the *Ancien Régime* to modern economic growth. Such a path is quite different from those followed by the "mushroom towns", cradles of the industrial revolution, or the road taken by larger cities, pillars of the formation of modern state. These industrial cities and metropolises were responsible for most of the 19th century urban expansion and attracted most attention among historical demographers (Ramiro Fariñas & Oris, 2016). The path taken by Geneva, characterized by late and moderate industrialization, a politicized group of craftsmen, tensions between the old political order and aspirations to democracy, as well as between ancient rights of bourgeoisie and modern national citizenship, between locals and newcomers, illustrates the fate of many small- and medium-sized European cities (see Hatt-Diener, 2004; Lorenceau, 2001; Prost, 2011; Reher, 1990; Sewell, 1985), which are still today an important component of the European urban system.

2 SOURCES AND SAMPLES

The reconstruction of an urban population is necessarily a challenge, mainly because of the abundance of archival material and high individual mobility. Several data sources were digitized and linked at the individual and household levels. They are shown in Figure 1, with links that will be explained in the next section.

Map 1 Geneva ± 1829 (John Howe)



Source: Centre genevois d'iconographie.

The first and most important data sources were the population censuses carried out by the Geneva authorities. Between 2003 and 2005, a Swiss National Science Foundation Research Project supported a data extraction from six censuses: 1816, 1822, 1828, 1831, 1837, and 1843. This six-year regular periodicity was relatively exceptional. The exception, in 1831, only three years after the 1828 census, was justified by the fear that provoked the cholera pandemic closing in on Geneva; the authorities wanted to investigate the state of housing and the concentration of the population as a matter of urgency.

The organization of these censuses was based in part on the tight control of the city by the Protestant Church, which had each block of houses supervised by a *dizenier* ('pastor' or 'elder'). Thus, neighborhood by neighborhood, street by street, house by house, each household, the basic unit of the survey, was enumerated, as well as each person in each household. For each individual, the last name, first name(s), marital status, places of birth and origin, residence permits number for non-Genevans, age or date of birth, religion and occupation were recorded, as well as the household address (street and house number). The censuses were carried out within a few days by 80 to 100 agents in 1822 and 1828, and up to 500 in 1843. However, their coverage might have been affected by lack of consensus about whether de jure or de facto populations should be counted (Schumacher 2010, pp. 174–178). Another issue is related to the disappearance of one of the 1831 census registers (see the impact on the sample and the linkages in Table 1).

During the digitalization of these sources, research assistants used an alphabetical sampling approach which ensured the representativeness of the sample. We selected all individuals whose surname began with the letter B. The choice of this letter follows the suggestion of Jacques Dupâquier (1984, p. 115) and Jean-Pierre Bardet (1983), who observed that B is not associated to a specific occupation or social status, nor to an ethnic or linguistic group (that holds for French names as well as Italian and German patronyms). In Geneva, if we add up the city's population over the six censuses between 1816 and 1843, we reach a total of just over 155,000 person-census observations. The B sample we collected comprises 18,976 individual notices, or just over 12% of the total. This proportion remains stable over time and across the various religious and socioeconomic groups. This is the sample that we used in most of our analyses (see below). Our database also includes 16,614 other people, since we sampled all households with at least one member with a last name starting with a B, and digitized all the

individuals within those households. Including all members of a household was essential to be able to study household size and structures.

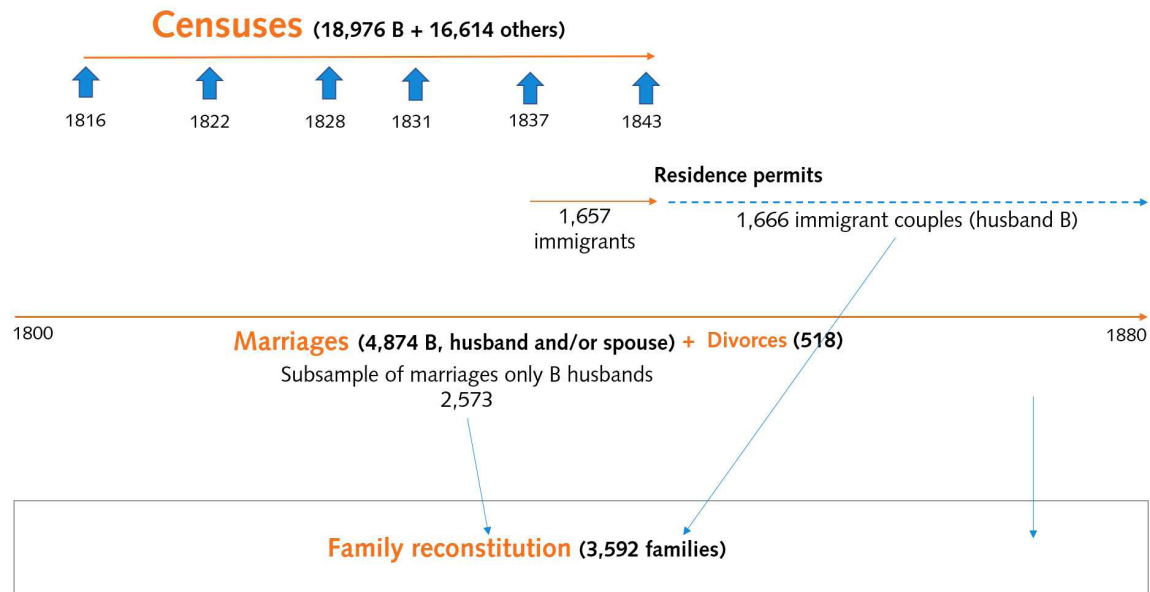
The civil registration was the second most important data source, especially the marriage certificates. Originally, master students working on a practical course of research method initiated the digitalization of those certificates for the period 1800–1840. Later, for her master (2003), then PhD thesis (2013), Grazyna Ryczkowska collected all marriage certificates from 1800 to 1880 of couples among which either the bride or the groom had a surname beginning with the letter B. She did this first for the city (n=4,874) then for the whole canton (n=8,506).

The marriage ceremony was an important source of tensions between Protestants and Catholics. In 1816, for the first time since the Reformation, Catholics and Protestants officially had the same rights in the city (and canton) and were thus subject to the same duties. In practice however, the former conservative Protestant elite regained power and tried to preserve their religious and political domination over the new canton. In this context, the Napoleonic Civil Code, introduced under the Empire which remained in force in Geneva throughout the 19th century, was compatible with the old Calvinist edicts, which did not consider marriage as a sacrament (Bieler, 1963). The Civil Code appeared to be a solution allowing the same rules to be imposed on all, regardless of confession. However, Catholics were very sensitive to anything that might appear as an attack against the sanctity of the sacrament of marriage (Zogmal, 1998, p. 221). After violent debates a compromise emerged in 1824. From this date on until 1861, two matrimonial regimes coexisted on the cantonal territory. Nevertheless, in all cases, the establishment of a marriage certificate in the secular civil register was compulsory (Oris & Perroux, 2007, pp. 206–207).

While the interconfessional tensions around marriage faded in Geneva, they were revived at the national level, during the first revision of the Swiss federal constitution in 1874, specifically regarding one of its laws of application of direct interest to us, the law on civil registration, marriage and divorce. This legislation was supported by an alliance of radicals and liberals, united against the conservators (mainly Catholic). Its main purpose was to implement Article 47 of the new constitution, which removed the right of the cantons to prohibit the marriage of their indigent citizens and protected interfaith marriages, which many cantons had prohibited, either directly or by raising obstacles. It is this last point in particular that justified the law's imposition of civil marriage and its registration in the civil registry throughout Switzerland (Oris, 2020).

This legislation directly impacted the marriage certificate and its content. The format of the certificates was stable from 1798 (when the French revolutionary armies occupied Geneva) until 1875. Information on 10 persons was provided: for the spouses: last and first names, date of birth and age, matrimonial status and if applicable date of widowhood, birth place, occupation or status, domicile, signature, and mention of illegitimate children if applicable; for the spouses' parents: last and first names, presence or absence at the civil ceremony, occupation, domicile, date of death if applicable, consent, signature; and for four witnesses: occupation, age, kin tie to the spouses, signature. When the 1874 law became effective, the number of witnesses was reduced from four to two, the certificate was simplified and omissions of information, especially on the parents and witnesses, became frequent (Ryczkowska, 2013, pp. 18–19; Schumacher, 2010, p. 336).

A comparison can be done with a third data source which was also affected by the 1874 law: the divorce records. Since 1798, formal divorce certificates can be found in the Geneva civil marriage registers. At that time, the records mentioned four named witnesses, but without any indication of their age, occupation or social status. Overall, divorce records were rare and of bad quality. While the registry clerks were used to correctly record marriages, they rarely had to record a divorce. They seemed to have been unfamiliar with regulations, which resulted in missing data, wrong wording, corrections at the bottom of the certificate. Efforts were made to increase reliability, for example in 1803, when a new form was introduced to avoid the loss of information, but a relapse was quickly observed. In 1813, appeared the "classic" formulation of the certificate of divorce such as found until the beginning of the 1870s. Still, it was not exempt of mistakes either, as of 1817, when in case of mutual consent, no mention was made of the professions and domiciles of the spouses who separated (Oris, 2020).

Figure 1 *Geneva data bases and their relationships*

N.B.: In orange, data which have been linked at the individual level.

As a consequence of the 1874 constitutional reform (see above), the marriage register was composed on the basis of a pre-printed form starting from 1877. There were no more divorce records but the transcription in the margin of a marriage certificate that this union was dissolved by the judgment of the civil court on a given date. That deprived us of any information on the spouse who initiated the procedure, or on the existence of a mutual consent, precisely when a new national law made the divorce by mutual consent possible in the whole of Switzerland (Oris, 2020). Eventually, 518 divorces were digitized for the period 1800–1880, and linked with the marriages.

Another important source for the Geneva project are the residence permits. They were issued by the *Chambre des Etrangers* upon presentation of certificates of origin and good conduct as well as a proof of source of income. These permits had to be renewed every three months and contained a lot of personal information such as name, origin, marital status, names of possible accompanying spouses and children, profession, all places of residence (addresses) in Geneva, and even for two thirds of the persons, their destination after leaving Geneva. Moreover, they concerned both foreigners and confederates from other cantons, given the low degree of integration of the Swiss Confederation before the first federal constitution in 1848. The completeness and reliability of this system was guaranteed by "the will of the Geneva authorities to control the foreign population" (Schumacher, 2010, p. 353), notably by informing newcomers of their duty to declare themselves and by imposing heavy sanctions on offenders as well as on those who might have harbored them (see Schumacher (2010, pp. 350–360) and Remund (2012) for a complete discussion).

While conducting work on immigrations and settlements, Adrien Remund constructed a sample for the timespan between the two censuses of 1837 and 1843. This choice made it possible to take advantage of the censuses to specify the context in which the immigrants evolved. It also allowed studying migration between 1837 and 1843 by linking individuals across the two censuses (Remund, 2010). During the six years of the intercensal interval, 14,489 residence permits were delivered. This means that mobility was intense and that most of the newcomers stayed out rapidly. Among those 14,489, an alphabetical sampling of all persons whose family name begins with the letter "B" was carried out. The sampling rate was about 13%, which represents a sample of 1,903 permits, sufficient to ensure the significance of the analyses performed. In most cases, each new stay generated a new entry in the register. Indeed, although the identification of each duplicate is a very difficult task due to the widespread use of classical first names at that time, as well as approximate spelling and age declaration, an estimate based essentially on name, first name, and year of birth indicates that the 1,903 sampled permits corresponded to about 1,657 distinct individuals, of whom 1,492 made only one trip to Geneva, 117 made two trips, and 48 individuals made up to six consecutive trips during the six-year period (Remund, 2010).

This source suffers from two weaknesses. First, servants were absent of the registers until 1844, although since 1838 male or married servants had to obtain a so-called servant's booklet (Schumacher 2010, p. 248). Second, departure dates are unreliable due to a significant number of migrants who did not bother to retrieve their papers at the end of their stay, and thus do not have an official departure date, nor a destination. The number of permit renewals is therefore a more reliable indicator of time spent in the city, as each renewal corresponds to a three-month extension.

3 RECORD LINKAGES AND STANDARDIZATION

For the sample we opted for an alphabetical approach because it makes much easier the research of additional information on the individuals in various data sources. In that perspective, a crucial point is that in the 19th century Geneva sources, married women did not take the name of their husband but kept their maiden name (the same was true in Belgium; Puschmann, Matsuo, & Matthijs, 2022). We were consequently able to follow women like men, even after their marriage, which avoids a gender bias in the life courses' reconstruction that the use of an alphabetical sample would otherwise imply (Bourdieu, Kesztenbaum, & Postel-Vinay, 2014).

Individuals from one census were linked to the next censuses through a semi-automatic record linkage procedure. Research was done on the four first letters of the surname supplemented with the year of birth (± 2 years). The household of the individual in the original census was displayed on the screen, as was the household of the identified candidate in the next census ($t+6$, exceptionally $t+3$). A member of the team then had the opportunity to validate the linkage not only for the individual sought but also for all the individuals in the households displayed. In a city where in- and out-migrations were high, we also searched at $t+12$, $t+18$, etc. When in doubt, occupation, location in the city and religion were used to assess the plausibility of the linkage. Table 1 displays the results, showing only the direct links. For example, among the 2,909 people belonging to the B sample in 1816, 22 were not found in the subsequent censuses but could be linked in 1843, 27 years later. The loss of a register in 1831 impacted both the sample size and the linkage rate, which otherwise varied between 52 and 60%.

Our simple approach using the household context revealed to be very efficient to overcome many variations in the individual data. Out of the total of 7,624 linkages, differences in surname spelling were observed in no less than 35.5% of the cases. Differences in first names were even more frequent, either because of the use of abbreviations, or because sometimes only the first one was mentioned instead of two or three in another census.

Table 1 *Size of the B sample and number of links with subsequent appearances across the six censuses from 1816 to 1843*

Censuses	B sample	Linkages with individual notices in				
		1822	1828	1831	1837	1843
1816	2,909	1,469	149	85	34	22
1822	2,957		1,411	122	55	5
1828	3,209			788	93	209
1831	2,936				1,377	88
1837	3,315					1,717
1843	3,650					
Total	18,976	1,469	1,560	995	1,559	2,041

The linkages' robustness was assessed through fully automated tests of likelihood and tests of consistency. The former concerned the plausibility of the age of the spouses, the age gap between them, the age of the parents at the birth of their children, the age differences between siblings, and the 'elite' socioeconomic status when the individual was younger than 25. Such tests are helpful to identify false positives, i.e., plausible links that do not survive to a critical check. Consistency checks reveal errors in the data and/or in the linkages by focusing on changes across time in the same variables. Typically, sex, place of birth and place of origin must remain constant, and age must change coherently. Biographical transitions have also to be consistent (a married person cannot become single), as well as changes in cohabitation. Around 220 linkages were found to be erroneous. Most of these were people with very common first and last names, as well as a few twins.

The linkage of the individual appearances across the censuses was part of a collective project. Other sources were linked by individual researchers. For his master, then PhD thesis, Reto Schumacher (2002; 2010) built his own database, realizing a tedious work of data linkages to produce a massive family reconstitution in a 19th-century urban context. He first used the sample of Grazyna Ryczkowska (see above) to make a subsample of 2,573 marriages celebrated in Geneva between 1800 and 1880 of all couples among which the husband's name began with a B. The sample included about 12.5% of the marriage records (12.3 for the period 1800–1846, 12.6 for the years 1847–1880). Using the registers of residence permits (previously presented), he further collected information on 1,666 immigrant married couples where the husbands' name started with a B and who settled in the city between 1844 and 1880. Relying on the birth and death certificates from civil registration he then went on to reconstruct the couples' reproductive histories in Geneva (Schumacher, 2010, pp. 331–341). Adapting Louis Henry's method of family reconstitution, Schumacher also used the registers of residence permits, population censuses and address books, to precisely establish the dates of beginning and end of observation, and the types of censoring to the left or to the right. This proved impossible for 647 families who were excluded. He eventually reconstructed the trajectories of 3,592 families, offering the opportunity to compare the city natives with immigrants (see Schumacher, 2010, chapter 9 for a full discussion).

Grazyna Ryczkowska also performed linkages across marriages. Among the 8,507 marriages involving a "B" that took place in the canton of Geneva between 1800 and 1880, 6,346 celebrated from 1830 onwards were selected and the parents of the "B" spouse were researched in the whole database, thus from 1800. While approximate spelling was a frequent issue in the censuses and in the registration of residence permits, marriage certificates were almost perfect from this point of view. This was probably due to the fact that the marriage certificate had a legal value and also that the engaged couple had to provide an official copy of their birth or baptism certificate which also included the name of the parents. Within this sample some 1,372 links (21.6%) were easily established across generations following this methodology (Ryczkowska, 2013, p. 182).

In all sources, all the information was fully digitized, so that each researcher could use his/her own method of codification, typically of locations and occupations. Across the various data sources, locations have been coded through a classification centered on Geneva. In addition to the city itself, the classification distinguished the peri urban municipalities as well as the catholic and the protestant countryside. Beyond the borders of the Geneva canton, the canton of Vaud was kept distinct because of its important ties with Geneva, then the rest of French-speaking Switzerland, and eventually the rest of Switzerland (German- and Italian-speaking regions). A region still known today as "neighboring France" was also kept distinct from the rest of France. Italy and Germany, although not unified until 1870–1871, and a residual group of "other countries" complete this classification. Only 1.7% of the locations stayed indeterminate (Ryczkowska, 2013, pp. 19–22). Reto Schumacher, however, used a different classification because he wanted to compare the fertility of migrants in Geneva with the fertility in their region of origin in a multilevel analysis. He thus adapted his geographical typology to the availability of the Ig index of legitimate fertility (Coale & Watkins, 1986; Schumacher, 2010, pp. 473–477).

Regarding occupations, the debates initially opposed Marxist and non-Marxist classification systems, and more recently focused on comparability over time and countries versus specificity. This discussion will probably never end, and ultimately it comes down to the researcher(s) to be transparent about their objectives and the tools they use or suggest to reach their aims. Most of us used a classification which distinguished the unskilled workers, the blue collars, the "Fabrique" (watch-and-clock-makers), the white collars, the petty bourgeoisie and the elite. It was an adaptation of SOCPO (Van de Putte & Miles, 2005), the peculiarity being that the "Fabrique" was isolated, considering its importance in Geneva. Following a suggestion of Guy Brunet, it was tested whether all siblings belonged to the same

or the adjacent classes and the results were satisfactory, suggesting that this classification is robust (Ryczkowska, 2013, pp. 22–27). Schumacher (2010, pp. 444–448) suggested a more sophisticated approach, coding first the occupations with HISCO (van Leeuwen, Maas, & Miles, 2002), and on this basis with HISCLASS creating 11 categories (van Leeuwen & Maas, 2011), before doing an analysis of homogamy (on the class of the father of the groom and the class of the father of the bride) to measure social interactions. This approach led to a reduction of the eleven HISCLASS categories to four classes: elite, small shopkeepers and white collars, skilled workers and craftsmen, unskilled workers.

Census data have also been coded according to the Hammel and Laslett (1974) typology of household structures. Our team further developed a typology of solitude, from the most obvious situations (living alone) to more ambiguous (spinsters and bachelors, widows and widowers, Lodgers, servants) (see Oris, Ritschard, and Ryczkowska (2006a) for a full discussion). All the classifications that have been developed are available for researchers who would like to use or modify them.

4 IMPACT

Compared to the massive demographic reconstruction carried out in Quebec, Sweden, the Netherlands or China (resp. Vézina & Bournival, 2020; Dribe & Quaranta, 2020; Edvinsson & Engberg, 2020; Mandemakers & Kok, 2020; Campbell & Lee, 2020), the Geneva database is far more modest in size and coverage, and could not expect a similar impact. However, the promises have been kept and the future remains open.

4.1 DEMOGRAPHIC AND FAMILY SYSTEMS

Analyses of the collected material revealed an original urban demographic regime. The signs of modernity were clear, with low marital fertility and infant mortality prevalent since the early 19th century. Birth control was obvious, as shown by a TFR of 2.32 children for couples married between 1800 and 1850, and a risk of dying before the first birthday between 100 and 130‰ in the first half of the 19th century (Schumacher, 2010). This makes the whole city of Geneva a pioneer population in the demographic transition, both from a Swiss and European perspective. However, Geneva combined those modern traits with traditional ones. Indeed, the average age at first marriage was 28 for women and final celibacy was above 20% (Ryczkowska, 2013). From this point of view, although the figures recorded in Geneva were particularly high, the city can be seen as just an example of the North-Western Europe demographic system where access to marriage was restrained and where the nuclear family form was dominant (Hajnal, 1982; Laslett, 1983). Indeed, the large majority of this urban population (61% of individuals) lived in nuclear households. Extended and multiple households were scarce (respectively 6.3% and 8.4%).

4.2 VULNERABLE POPULATIONS, VULNERABLE WOMEN

This classical typology of household forms hides the many residents who did not belong to a nuclear family: the cohabitants and the lodgers, as well as the servants and the seasonal or temporary workers. They have been studied in a line of research that focused on vulnerable individuals in an urban environment. Although various exposures to loneliness were highly prevalent in Geneva, especially among women, with in addition a frequent accumulation of disadvantages (Oris et al., 2006a), solitude was rare: only 6.4% of the urban residents lived alone. Older adults offer a good illustration of this paradox. Following the nuclear hardship hypothesis, they were expected to end their life in an empty nest, abandoned by their children. Indeed, young Genevans who grew up in a local urban family moved out late, and did so directly from the parental home to their own neo-local household (Oris, Ritschard & Ryczkowska, 2005). Older women were much more at risk to end their life alone because they were more often single (final celibacy reached 20% among women against 10% among men) and widows (accounting for 45% of women against 25% of men in the age group 55+). Women, and especially those living without a husband, were moreover concentrated in low-income occupations. However, one of the sources of vulnerability was also a solution: the daughters who "sacrificed" themselves by staying single to take care of their old parents. Additionally, married children, more often sons, hosted older parents in their household, but it seems that this solution only applied when parental health was severely impaired. Alternative solutions, especially for old women,

were cohabitation (usually with siblings) and becoming lodgers. Despite none of these situations being ideal, they allowed more than 85% of elderlies to avoid solitude. Moreover, the study of the turnover based on the linkages of the censuses' individual records has shown that spinsters and widows aged 45 and older were among those who stayed the most in Geneva, very probably because they could benefit from the urban welfare institutions (Ryczkowska & Perroux, 2006).

Those vulnerable but stable adult women contrasted with a very mobile group of teenagers and young adults from rural families who came to Geneva as servants and labourers, providing the city an important number of single migrants aged 15 to 35. As in many preindustrial towns, women engaging in domestic service and various personal services (cleaning, ironing, etc.) made up the highest share of these young migrants, generating an unbalanced marriage market (70 men for 100 women at 20–24) (Oris et al., 2006a). This imbalance contributed to maintain a late age at first marriage and a high prevalence of final celibacy among women (Ryczkowska, 2013). For many historians, immigrants and especially maids appeared to be highly vulnerable. In 19th century Geneva like elsewhere, contemporary observers saw them as the source of all evils, a real threat to morality. Confirming both old stereotypes and previous studies, Schumacher, Ryczkowska, and Perroux (2007) have shown that both the marriage market and female poverty played an important role in forcing young women to engage in premarital sexual relations. However, servants did not experience a higher risk of out-of-wedlock births compared to other unskilled women, no more than immigrant women compared to native-born women. Contrasting with the fears of the religious and public authorities, during the first half of the 19th century, the evolution of child abandonment, out-of-wedlock births, and premarital conception, together show a reinforcement of social control.

4.3 MANY CAME, FEW STAYED

These results show that we should refrain from drawing too rapid conclusions about the vulnerability of young migrants, that miserabilism is not the right approach, even in a society where poverty and inequalities were widespread. A city like Geneva was not a factory of vulnerabilities but a crossroad, attracting but also rejecting a lot of people. At the bottom of social structures, the migratory turbulence was extreme. While unskilled workers made up 31% of the population declaring an occupation in a given census, barely one out of five was still holding the same status 6 years later (Oris & Ritschard, 2007). Staying and settling durably was a very selective process. Most of the immigrants came from neighboring France and French-speaking Switzerland, but also from German-speaking Switzerland and Germany, and from northern Italy (Remund, 2009; Ryczkowska, 2013; Schumacher, 2010). Adrien Remund (2010; 2012) has shown that a third of the migrants left after three months, half of them after one year. Later on, departures remained high until reaching approximately 10% of the initial cohort of immigrants. This small minority of migrants, about 250 per year, represented the share that eventually settled in Geneva (Remund, 2013; 2014).

A figure of 250 migrants seems modest, but it was responsible for 94% of Geneva's demographic growth, since birth control and restrained access to marriage resulted in a very low natural balance of births and deaths. This significantly impacted the social structure of Geneva. In the early modern period, many European cities (Le Roy Ladurie, 1998; Lynch, 2003) were under the control of a rooted segment of the population that preserved its political and socioeconomic domination by defining and attributing various statutes of residence: inhabitants, natives, and bourgeois. In Geneva, tensions between those groups degenerated into violent episodes during the 18th century. The occupation of the city by the French revolutionary armies, and later the adhesion to the Swiss Confederation, resulted in a new form of citizenship and constrained the openness to migrants. As the population of their city changed due to the migratory flows that accelerated from 1798 onwards, the natives of Geneva tended to define themselves as the "old Genevans" (Herrmann, 2003). In a city where "Genevan" remained the nationality and the primary collective identity (Remund, 2009), the authorities maintained a strict control of the "foreigners" (Remund, 2010).

4.4 THE CATHOLIC QUESTION

However, forced to respect international treaties signed by the Swiss Confederation, and because from 1816 on, Geneva had to mutate to a religiously and geographically mixed canton, the authorities could not reject the Catholics. The arrival of these Catholic migrants among the newcomers was quite a shock since during centuries, the Geneva city-state constructed its identity as the "Protestant Rome". The settlement of Catholics was prohibited until 1798. When introducing the marriage certificates, we

have mentioned the resistance of the Protestant elites towards this change. Other qualitative evidence suggests vivid tensions (Oris & Perroux, 2007).

The quantitative analysis of the collective biographies reconstructed through the linkages of the individual records in the population censuses, suggests however a different story, more peaceful, less confrontational. As early as 1816, Catholics made up 11% of the city population. This proportion grew to 28% in 1843 and 46% in 1900. Initially, most of them were young single adults engaged in labor migration, with a high turnover rate. In the 1820s, conversions to protestantism and education of the offsprings of mixed marriages in the protestant faith threatened their survival as a minority. However, the age structures progressively changed, families settled durably, the first catholic children born in Geneva since 1536 grew up, aged and eventually died in the city. In the 1830s and 1840s, the size of the Catholic population was already sufficient to offer an internal marriage market (Remund, 2009; Ryczkowska, 2013). That does not mean, however, that the Catholics in Geneva developed as a closed community surrounded by an aggressive majority. On the contrary, in the first half of the 19th century mixed households were continuously more numerous than the catholic homogeneous ones (Oris & Perroux, 2007). Additionally, implicative statistics was used to identify possible social and economic discriminations. Results showed that Catholics were not concentrated in a given social class or in specific branches of activities (Oris, Ritschard, & Perroux, 2010; 2013). Similarly, spatial segregation was inexistent: no catholic neighborhood could be identified, not even a catholic street (Remund, 2010; 2012). Far from the history of Chinatowns, little Italies, and other ghettos made popular by the School of Chicago (Laurie & Khan, 2017), Catholics in Geneva "lived hidden in plain sight to live in peace". This strategy is widespread among minorities despite the scientific literature often focusing on the experiences of discrimination.

The Catholic and non-Catholic migrants who were staying in the city, formed an intermediate group between the rooted Genevans and the more mobile part of the immigration. Through a cumulative effect, non-natives slowly but surely took an increasingly important place in the city's population, and each new wave of immigrants who passed through "the urban labor market without any intention of lasting integration, at least at first", now found their bearings there (Oris & Perroux, 2007, p. 226). The city of Geneva illustrates in this sense the well-known process of migration chains (Remund, 2012). As a result of a narrow selection process, these new Genevans knew how to keep a low profile in a hostile city, preferring to be forgotten until they were eventually considered legitimate Genevans.

4.5 THE PROTESTANT STABILITY POLES

Doing so, Catholics and other newcomers grew in number without threatening the domination of the Protestants natives who were occupied with their own divisions. Statistics indeed show that Protestants were overrepresented in the bourgeoisie and in the "Fabrique" (Oris, Ritschard, & Ryczkowska, 2006b). As mentioned in the introduction, those two groups fought for power until the 1840s. The watch-and-clock makers were by far the most numerous. More than a third of the grooms marrying in Geneva between 1822 and 1845 were active in this urban proto-industry (Ryczkowska, 2003). Those workers with highly specialized skills formed an aristocracy of blue collars who distinguished themselves from the other skilled manual workers and shopkeepers, all actors of an urban "molecular capitalism". Deeply rooted in Geneva (Ritschard, Studer, & Oris, 2009), the craftsmen engaged in the "Fabrique" transmitted their status across the generations. Building on the linkages of the marriage certificates and using mobility trees (Ritschard, Studer, Müller, & Gabadinho, 2007), Grazyna Ryczkowska (2013, Chapter 5) has shown that having a watch-and-clock maker grandfather strongly predicted the grandson's belonging to the watch-and-clock-maker industry. Children who grew up in those families were 30% less at risk of leaving Geneva than the offspring of other blue collars (Oris et al., 2005). Concentrated in a neighborhood, literate like all the Protestants, politicized, they made most of the revolutionaries who in 1846 gave the power to the Radical party. The bourgeoisie was much less numerous but also mainly made of families who preserved their status across centuries and were allied through repeated homogenous marriages. Because of their engagement in the "Protestant diaspora" active in trade and finance, they seemed to be more mobile and to have an international marriage market. In reality however, they stayed an essentially closed group (Perroux, 2006). Both the watch-and-clock makers and the bourgeoisie constituted what Emmanuel Le Roy Ladurie (1998, p. 301) called the "stability poles" of this urban society.

4.6 SOCIAL STRUCTURES AND DEMOGRAPHIC BEHAVIORS

This stability of the urban social structures facilitates research on differential demographic behaviours in a long-term perspective. Alfred Perrenoud (1975) has demonstrated the existence of impressive differences in mortality among the social groups in 17th century Geneva. Variations from the simple to the double between the elite and the popular classes were mainly due to infant and child mortality, and differential exposure to smallpox. Such inequalities in children survival however already decreased in the 18th century, and in the 19th century popular classes and skilled workers were approximately at the same level. Elites were still favored, but much less than in the previous centuries. Geneva is a unique place to reconstruct long-term trends, which support both the constancy hypothesis (constant elite advantage or fundamental cause theory) and the convergence hypothesis on social inequality in death (Schumacher & Oris, 2011).

During the 19th century, the probability of surviving to age 5 reached 87% among the children from the upper classes (against 77% for the children of manual workers) (Schumacher, 2010, Chapter 11). In Geneva like elsewhere, infant deaths were clustered in specific families and elites were overrepresented in the low infant mortality group (Schumacher, 2016, p. 105). Upper classes could consequently drastically control their births through both spacing and stopping practices, without threatening their reproduction. If the elites' marital fertility was particularly low compared to the other socioeconomic groups, it was however in a context where birth control was generalized. During most of the 19th century, Geneva showed a transitional level (approximately 40% of the Hutterite fertility) (Schumacher, 2013, p. 157).

A plausible explanation of this stable and low fertility resides in the transformation of the population structures, more precisely in the progressive accumulation of immigrants among the city inhabitants. Newcomers played an important role in the heterogeneity of demographic behaviors. Reto Schumacher (2010; 2013) has shown that being born in a region where the index of legitimate fertility (Ig) was above .600 resulted in a 50% higher fertility for the migrant couples who arrived in Geneva already married. This strong impact of their initial socialization was attenuated among those who immigrated relatively young, before being aged 30, suggesting that living in Geneva and observing the native families could result in an evolution of the models and values. This was visible among the migrants who married in Geneva. Even those coming from high-fertility regions adapted to a large extent to the low fertility of the Geneva natives, only limited socialization effects staying apparent (Schumacher, Matthijs, & Moreels, 2013).

5 SUMMARY

This project started in 2003 with the population censuses. In historical demography, studies based on this type of data source became mainstream in the 1970s and early 1980s, thanks to the implementation of mainframe computers in social sciences research. This success was made stronger by the fact that this intellectual period was dominated by the structuralist thought. A generation of researchers faced the challenge of dealing with massive data on 19th century growing urban populations (see, for example, Desama, 1985; Guillaume, 1972; Hershberg, 1976). Later, new approaches emerged focusing more on the dynamics of changes in urban social and demographic structures and behaviors (Bourdelaix & Demonet, 1995; Reher, 1990). Those researchers changed scale to analyze urban populations at the level of households (Janssens, 2002; Laflamme, 2007), families (Eggerickx, 2004; Faron, 1997; Pétilion, 2006) or individuals (Alter, 1988; Kertzer & Hogan, 1989).

Adding more sources and systematically linking individual data was crucial to reconstruct "collective biographies" and trajectories across the city (Pinol, 1999). Especially in countries without population registers (Breschi, Fornasin, & Manfredini, 2020; Sommerseth & Thorvaldsen, 2022), researchers face the challenge to construct longitudinal data in turbulent contexts, but can relatively often rely on a wealth of documents produced by various urban administrations (see Paping & Sevdalakis, 2022; Puschmann, Matsuo, & Matthijs, 2022; or the recent Charleville database described in Alexandre, Dupuy, & Gourdon, 2022). Drawing also from the diffusion of analytical methods (especially event-history-analysis) that made possible the analysis of this new generation of databases (Alter, 1998), our Geneva project tried to take the best from all those experiences. Also inspired by the

pioneering "Philadelphia Social History Project" (Hershberg, 1976), we paid a specific attention to the embeddedness of historical demography and social history, which is far from being as obvious as it might seem (see Cahen & Kesztenbaum, 2019). Less popular methods in our fields, such as implicative statistics (Gras, Suzuki, Guillet, & Spagnolo, 2008), inductive trees or data mining tools (Ritschard & Oris, 2005), were useful in that perspective. The confrontation of qualitative data sources and the social representations they allowed to depict with the results from various quantitative analyses also helped fulfilling this goal.

Looking back at the development of our project(s), we have to acknowledge a certain dose of adaptation to circumstances. Originally based on the population censuses of the first half of the 19th century, thanks to the support of the Swiss National Science Foundation¹, our aim was to systematically add the births and deaths to the B-sample, as well as the residence permits for foreigners and passports for Genevans, so to reconstruct quasi population registers. But we were short of funds and this work has not been achieved, except for the illegitimate births (see Schumacher et al., 2007).

The decision to opt for an alphabetical sample was however decisive. Later on, research assistants of the project and other students, for their PhD and master theses, were able to build on those foundations and support each other while growing also as individual projects. Adding the marriages was a tremendous gain. Still today and in the future, new research questions can interrogate the data, and new data can be added at any time. Censuses, marriages, divorces, and residence permits' databases are available to the scientific community unconditionally, including the data that have been coded and the classifications used. Dbase and Access have been used, but transfer in another format can be easily managed.

Beyond the scientific community, it is worth mentioning that the diverse databases that were described above were also heavily exploited in the creation of the *poliscope*, the outreach project of the Faculty of Social Sciences of the University of Geneva.² Building on the academic works mentioned above, as well as the digitalization of the Relief Magnin, a three-dimensional representation of the city just before the demolition of the fortifications was created. The *poliscope* consists of a series of lectures and round tables mainly geared towards high-school students, which includes among others game-like software. Visitors are allowed to navigate through the Geneva of the 1850s and meet fictive characters directly inspired from real groups of migrants from that period. In Geneva nowadays more than 40% of the population are migrants from approximately 190 countries, and they are particularly numerous among the teenagers. In this context, this initiative proved highly successful among young crowds, notably to initiate reflections on topics such as migrant integration, equal rights and gender and religious discriminations.

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1 Swiss National Science Foundation grants 1114-68113 and 100012-105478. This support is gratefully acknowledged.

2 <https://poliscope.ch/projets/installation-multimedia/destins-croises-des-migrants-dhier/>

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