

## ONCE IN THE ELITE, ALWAYS IN THE ELITE? CHANGING WEALTH IN A CHANGING CITY (PARIS, FRANCE, 1845-1859)

Jean-Brieux Delbos

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# Once in the Elite, Always in the Elite? Changing Wealth in a Changing City (Paris, France, 1845-1859)

Jean-Brieux Delbos\*

Little is known about individual economic mobility in the 19th century. This article examines this question by studying the group of franchised Parisian voters of the 1840s. Different sources are matched in order to follow longitudinally the trajectories of the individuals who belong to this particularly rich and politically important group over time. Both short-term and long-term mobility are analyzed. Short-term mobility is observed by matching individuals who appear in the electoral lists of the years 1845 and 1846. These lists show the direct taxes that were paid by the voters. Long-term mobility is revealed by exploiting the Parisian Tables of successions and absences (TSA) of the years 1845 to 1859. These contain information about the wealth at death of individuals. Because the tax-based voting franchise and wealth do not have the same structure, this article studies the comparability between these two variables and explores the question of the political representation of wealth. Despite the difference in definition between the tax-based voting franchise and wealth, the data set shows consistent correlations across time. Moreover, both in the short and long term, economic mobility proves to be substantial. 14 percent of individuals changed quintile between 1845 and 1846, which is considerable over a one-year period. Concerning long-term mobility, 65 percent of individuals changed quintile between 1845 and their respective years of death. All these results raise serious questions about the long-held idea of a stable plutocratic elite group.

*élites – franchised voters – top wealth – plutocracy – individual economic mobility – matching quantitative sources – electoral lists – direct taxes – estate tax data – 19th century*

*L'élite : j'y suis, j'y reste ?  
Une richesse qui change dans une ville qui change  
(Paris, France, 1845-1859)*

La mobilité économique des individus au XIX<sup>ème</sup> siècle reste peu connue. L'article examine cette question par une étude du groupe des électeurs censitaires parisiens des

\* At the time of the writing of this article, Jean-Brieux Delbos was a research assistant at Paris School of Economics (e-mail: jean.brieux.delbos@gmail.com). I thank the Archives of Paris for allowing full access to the electoral lists and estate tax data. I am very grateful to Jean-Laurent Rosenthal (Caltech) for suggesting the initial basis of this article. I thank seminar participants at Paris School of Economics for helpful comments. This article also benefited from precious comments from participants at the 64th Annual Meeting of the French Economic Association (AFSE, 22-24 June 2015, Rennes, France) and the 11th European Social Science History Conference (ESSHC, 30 March-2 April 2016, Valencia, Spain). I would also like to thank two anonymous referees for insightful comments.

années 1840. Différentes sources sont appariées entre elles afin de suivre dans le temps les trajectoires des membres de ce groupe particulièrement riche et politiquement important. L'analyse porte tant sur la mobilité à court terme que sur celle à long terme. La mobilité à court terme est observée grâce à un appariement des individus qui apparaissent dans les listes électorales des années 1845 et 1846. Ces listes contiennent les informations sur les impôts directs acquittés par les électeurs. La mobilité à long terme est révélée par une exploitation des Tables parisiennes des successions et absences (TSA) des années 1845 à 1859. Ces tables contiennent des informations sur la richesse au décès des individus. Étant donné que la structure du cens électoral – lequel est fondé sur les impôts directs – diffère de celle de la richesse, l'article examine dans quelle mesure ces deux variables sont comparables entre elles puis explore la question de la représentation politique de la richesse. Malgré la différence de définition entre cens électoral et richesse, les données permettent de mettre en évidence des corrélations cohérentes entre ces deux variables au cours du temps. De plus, tant à court terme qu'à long terme, la mobilité économique s'avère élevée. 14 % des individus changent de quintile entre 1845 et 1846, ce qui est considérable pour une période d'un an. S'agissant de la mobilité à long terme, 65 % des individus changent de quintile entre 1845 et l'année de leur décès. L'ensemble de ces résultats soulève de sérieuses questions quant à l'idée, longtemps admise, d'une élite ploutocratique dont les membres constitueraient un groupe stable.

**élites – électeurs censitaires – grandes fortunes – ploutocratie – mobilité économique individuelle – appariement de sources quantitatives – listes électorales – impôts directs – données successorales – XIX<sup>ème</sup> siècle**

*Classification JEL : D31, H20, N33*

## 1. Introduction

Who are the members of the elite? According to the common definition, the elite consists of a small group of individuals who have a great amount of wealth and exert a strong influence over political decisions in a given country. This seemingly straightforward definition of the elite, however clear, is too static to be entirely convincing. The wealth criterion raises some interesting questions about the consistency of the elite and its stability over time.

The recent economic literature on intragenerational wealth and income mobility shows that there is considerable movement and that being rich is a transient state. Using Swedish tax data and tracking wealth at the household level over the period 1968-2005, Hochguertel and Ohlsson [2012] observe the mobility of the top three percent of wealth distribution. It appears that the duration in this quantile is about six years, which is quite short. Moreover, the wealth-age profile is consistent with the life-cycle hypothesis, people in their sixties being more frequently rich. Auten and Gee [2009] examine income mobility in the US economy over the periods 1987-1996 and 1996-2005. They use panel data, follow taxpayers, adjust for household size and show that mobility is high, both upwards and downwards. For

instance, 55 percent of taxpayers changed quintile between 1996 and 2005. The median income of those in the lowest quintile grew more than the median income of those in the highest one. Belonging to the top one percent is transient: about 40 percent of those in that percentile in 1996 were still present in 2005. In a set of two complementary papers, Auten, Gee and Turner ([2013] AER and [2013] NTJ) look at, among other things, the question of yearly persistence at the top of the income distribution in the short run (*i.e.* one to five consecutive years). The authors ask the question of whether individuals in the top one percent are “old neighbors or new friends”. The detailed analysis of persistence rates show that both types of individuals exist. 41 to 49 percent of individuals who were in the top one percent in a base year ranging from 2000 to 2005 are also present five years later. 23 to 31 percent are continuously present over the five-year periods. The authors also underline the effect of macroeconomic conditions on the variations of persistence rates between the different five-year periods they observe. For example, one-year persistence rates tend to be lower during recessions.

As yet, very little has been done concerning intragenerational wealth or income mobility over earlier time periods. The dramatic long-term trend in rising wealth inequality has been well documented for the 19th century, especially for Paris and France from 1807 onwards. Piketty, Postel-Vinay and Rosenthal ([2004], [2006] AER, [2006] working paper, [2014]) have made extensive use of estate tax returns. However, the use of cross-sectional data can hardly give an idea of the patterns of individual mobility at this time and cannot address the question of individual heterogeneity. Piketty, Postel-Vinay and Rosenthal underline the importance of these issues for assessing the possibility of opportunities in an ever more unequal society experiencing economic development (industrialization, financial capitalism). According to the authors, the decline in the share of aristocratic wealth from the 1850s onwards suggests that mobility “might have been quite high” during the 19th century, aristocrats being replaced by industrialists and bankers in top fortunes. It is clear that these broad intuitions require closer scrutiny. A better knowledge of individual mobility during the 19th century is necessary to assess both economic efficiency and social fairness at that time of profound changes. Was high inequality bad for growth? Was upward mobility possible for the talented, enterprising individuals despite all sorts of constraints and barriers (credit, human capital)? To what extent did Vilfredo Pareto’s [1916] process of the circulation of elites occur in this highly unequal society?

In this article my objective is not to answer the complex questions of efficiency and fairness but to contribute to the knowledge of what individual mobility in the 19th century was. To do so, I have built an original dataset that allows the study of wealth mobility of a specific group: the franchised Parisian voters of the year 1845. The threshold for enrolment on electoral lists is very high. The franchise is limited to male citizens paying a *cens* of at least 200 francs in direct taxes, *i.e.* a threshold corresponding approximately to the top three percent of the male Parisian population in 1845. Although considerably limited in terms of demographic size (16,048 voters out of a Parisian population of one million inhabitants according to the 1846 cen-

sus<sup>1</sup>), the group of franchised Parisian voters is of high significance, both politically and economically. This group – and more particularly its richest fraction – provides the interesting example of a mid-19th century urban elite. Different sources have been matched in order to follow the individual trajectories of the members of this group in terms of economic wealth. The comparison between the franchise Parisian lists of the years 1845 and 1846 gives the possibility of studying short-term wealth mobility (the resulting database is henceforth called the “short-term database”) in so far as franchise lists indicate the detail of the direct taxes paid by each of the franchised voters. Here, direct taxes will be used as a proxy for wealth. Of course, the relevance of this proxy will be discussed throughout this article. Long-term wealth mobility will be studied too by matching the 1845 electoral list and the Parisian Tables of successions and absences (TSA) of the years 1845 to 1859 (henceforth “long-term database”). These tables contain information about the wealth at death of individuals.

The resulting dataset represents a unique opportunity to study economic mobility during the 19th century within a highly unequal urban society. Between the last years of the July Monarchy and the first years of the Second Empire, Paris was indeed a capital city which experienced large-scale changes: political revolutions, industrial and financial development, demographic growth, urban renewal, real estate speculation. Thus, Paris appears to be an interesting observatory in order to measure economic and social mobility. Recent research (Delbos [2014]) based on the dataset I built has revealed – among other striking results – the elites’ considerable mobility in terms of movements into and out of the group of franchised Parisian voters. Among individuals who appeared at least one time on the franchise Parisian lists of the years 1845, 1846 and 1847, only three quarters were present every year. This means an overall mobility rate of 25 percent, which is considerable inasmuch as it is observed over a very short period of time (two full years). Thus, franchised Parisian voters appear to be an “instant class”. They do not form a close elite group. However, this overall mobility rate mixes the economic and geographic dimensions of mobility. Although it is difficult to disentangle these two dimensions with the database at my disposal, there is consistent evidence that economic mobility is dominant (Delbos [2014]). Besides short-run mobility into and out of the group, franchised Parisian voters are also characterized by high mobility in the long run as measured by quintile change, wealth at death of individuals being compared to the amount of direct taxes paid in 1845. Persistence is low. At first glance, long-run wealth mobility seems to be random, both upwards and downwards.

These different elements raise important issues about measuring individual economic mobility both in the short and long run. In this article, I show that short-term mobility – based on the comparison between the direct taxes paid by voters in 1845 and 1846 – proves to be substantial. 14 percent of individuals changed quintile between 1845 and 1846, which is considerable over a one-year period. Moreover, in the long run, 65 percent of indi-

1. At national level, there are 248,000 franchised voters out of a French population of 36 million, *i.e.* a proportion of 1.4 percent if the male population is considered.

viduals changed quintile, as measured by comparing direct taxes paid in 1845 and wealth at death. However, measuring long-term mobility is a much more complex exercise than measuring short-term mobility because the tax-based voting franchise and wealth do not have the same structure. This article studies the comparability between these two variables and analyzes wealth at death conditional on the amount of direct taxes paid at another point in the life-cycle of individuals. Despite the strong differences in definition between these variables, the data set shows consistent correlations across time. All these results raise serious questions about the long-held idea of a stable plutocratic elite group that can be found among historians in the 1960s and the 1970s (see, for example, Bergeron and Chaussinand-Nogaret [1979] about the elites in the Napoleonic era, and Tudesq [1964] about the “notables” under the July Monarchy).

The rest of this article is organized as follows: section two is dedicated to the presentation of the data sources, along with a thorough discussion of the comparability between the tax-based voting franchise and wealth. Section three describes the voters’ short-term economic mobility in terms of direct taxes between 1845 and 1846. Section four analyzes long-term mobility by comparing the direct taxes paid by voters in 1845 and their wealth at death. In this section, the study is aimed at disentangling “true” economic mobility from the effects of the difference in definition between the tax-based voting franchise and wealth. Section five concludes.

## 2. Data

### The franchise lists

In order to study economic mobility in the mid-19th century, I have two types of data sources at my disposal: franchise Parisian lists on one hand and Parisian Tables of successions and absences (TSA) on the other hand. The electoral franchise lists of the July Monarchy are very precious documents insofar as they allow social historians (such as French scholars Daurand [1963] and Tudesq [1964]) and economists (Delbos [2014]) to have a precise knowledge of the upper parts of the bourgeoisie, nobility, notability and landownership of the time. The printed, official franchise lists of the 1840s are generally well preserved (Kent [1971]) and easily readable. For a given geographic level (department, electoral *arrondissement*, canton, town), they provide detailed information on male French citizens who are qualified to elect members of the Chamber of Deputies. To be qualified, male French citizens must pay a *cens* of at least 200 francs in direct taxes<sup>2 3</sup> and be age 25 or older according to the Electoral Law of April 19, 1831.

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2. Members and correspondents of the Institut de France and retired military officers, under specific conditions, are qualified as franchised voters if they pay at least 100 francs in

For a given canton (or arrondissement, as regards Parisian lists), franchised voters are sorted according to alphabetical order. For each voter, the lists contain the following elements<sup>4</sup>: full name, title of nobility (if any), occupation or function, honorary position, address, date of birth, the total amount of direct taxes paid and their breakdown by tax district and tax type. Voting qualification derives from the summation of direct taxes. There are four types of direct taxes, all created during the French Revolution: (i) a real property tax (*contribution foncière*), (ii) a two-component tax (*contribution personnelle et mobilière*) consisting of a poll tax and a tax proportional to the rental value of dwelling, (iii) a tax on doors and windows (*contribution sur les portes et fenêtres*) and (iv) a tax on industrial and commercial activities (*contribution sur les patentes*) consisting of a fixed charge which depends on the type of activity and the size of town population and a charge proportional to the rental value of occupied premises. Note that this complex tax on industrial and commercial activities was revised by the *patente* law of April 25, 1844, that is to say just before the period I study (see Koepke [1980] for a presentation of the 1844 *patente* reform). It is also very important to point out that the *contribution personnelle et mobilière* is not a tax on moveable assets, contrary to what the French term *mobilière* might mistakenly suggest. This means that some rich individuals whose wealth consists essentially of moveable assets are not qualified as franchised voters<sup>5</sup>. It is particularly the case of *rentiers*, that is to say individuals living off capital income. Real property remains the basis of wealth in the mid-19th century, but *rentiers* make up a non-negligible part of the Parisian bourgeoisie of the time (Tudesq [1958] and Daumard [1963])<sup>6</sup>.

The real property tax accounts for most of the direct taxes paid by franchised voters. For instance, in the industrializing but still largely rural department of Seine-Inferieure, the total direct taxes paid by franchised voters in 1845 break down as follows: 68 percent for the real property tax, 10 percent

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direct taxes. Since these voters constitute a negligible part of the electorate, they are excluded from analysis.

3. In an electoral arrondissement, if there are less than 150 franchised voters, the largest direct tax payers under the 200-franc *cens* complete the electoral list. This provision concerns primarily poor, rural arrondissements.

4. For a more precise account of the organisation and content of franchise lists, see Tudesq [1958] and Kent [1971].

5. In doing so, it is as if such wealthy individuals voluntarily excluded themselves from the electoral franchise whereas they could easily have acquired some real property somewhere in France so as to meet voting qualifications. These individuals had maybe no interest in purchasing real property or voting.

6. Estimating the proportion of "pure" *rentiers* in the Parisian bourgeoisie is a difficult task. A "pure" *rentier* is an individual living off capital income, who has no (or little) real property and who has never worked in his life. If I consider male Parisian individuals who died between 1845 and 1859 with 50,000 francs or more, I estimate that the proportion of "pure" *rentiers* is, in all likelihood, around 10 percent. Their economic mobility pattern cannot be measured with the data at my disposal. Piketty, Postel-Vinay and Rosenthal ([2014], see Appendix B, Table B18) find much higher proportions concerning the share of *rentiers* in the Parisian society in 1872. Within the P90-P99 percentiles of wealth distribution, 53 percent of individuals are *rentiers* and, within the top one percent of wealth distribution, they are 63 percent. First, this difference is due to the fact that the authors define *rentiers* as individuals whose wealth at death is smaller than the capitalized value of their inherited wealth. Second, this also suggests that, in the mid-19th century, Paris was far from being the *rentier* society it would become at the end of the 19th century.

for the personal tax, 4 percent for the tax on doors and windows and 18 percent for the *patente*. In Paris, the average breakdown is the following: 65 percent for the real property tax, 7 percent for the personal tax, 1 percent for the tax on doors and windows and 27 percent for the *patente*, thus reflecting the significant weight of merchants, traders, small businessmen, craftsmen, industrialists and bankers in the Parisian electorate. Outside Paris (and most probably outside other big cities too), real property can be regarded by and large as a *sine qua non* to be qualified as voter. In rural areas, amounts paid for the *patente* are generally small. In Paris, the picture is quite different and it is possible to be qualified without paying any real property tax. Thus, the *patente* plays an important role in shaping the sociology of the franchised Parisian electorate.

There is a little-known aspect of the voting franchise: it is the family dimension of the calculation rules that enable male individuals to add, under the conditions prescribed by the Electoral Law, the direct taxes paid by women and children, so as to meet voting qualifications (Verjus [1998]). The direct taxes paid by the wife, even in case of separation of property (but not in case of judicial separation), are added to those of the husband. The father adds to his own direct taxes those of his minor children, on condition that he is entitled to use their property. Besides these cases, the widow or the separated or divorced woman has the right to delegate the direct taxes she pays to the son, grandson, son-in-law or grandson-in-law she designates. Unfortunately, franchise lists are silent on these calculations and delegations, so that it is practically impossible to identify the voters who benefited from this system and were thus able to meet voting qualifications<sup>7</sup>.

Is it possible to assert that franchise lists are exhaustive in terms of headcount of male citizens paying at least 200 francs in direct taxes? By and large, I think it is the case. There are, however, three main reasons as regards non-enrolment (Tudesq [1958] and Kent [1971]). Firstly, enrolment procedures can be quite complex because of the multiplicity of required supporting documents that have to be produced in a short period of time (for instance, for individuals who pay taxes in many different departments). If one document is missing, enrolment will not be possible. Secondly, political opinions may, in part, explain non-enrolment on franchise lists. Simply by invalidating one document, a prefect can try to block the enrolment of individuals who are politically hostile to the regime. Of course, an appeal against the prefect's decision can be made but it is a long and complex procedure. Conversely, some individuals exclude themselves from the lists by political indifference, negligence or (mainly legitimist) reluctance to swear allegiance to King Louis-Philippe (an act which was required before voting for the first time). Legitimist abstention was particularly high at the beginning of the July Monarchy but then, in the 1840s, Legitimists tend to get more and more involved in the electoral field. Thirdly, it is important to underline that members of the jury are randomly drawn from franchise lists. Insofar as jury duty is an expensive, time-consuming activity, some citizens

7. Information on the date of marriage of voters would be helpful to count the number of voters who met qualification just after marriage. Their access to the voting franchise is probably due to marriage.

are tempted to avoid this legal obligation and the best way to do this is to stay out of the lists. This behavior was a matter of concern for prefects. To conclude, it is very difficult to estimate the number of individuals who exclude themselves or are excluded from franchise lists. Nevertheless, a few clues suggest that the magnitude of non-enrolment remains limited. This ensures that franchise lists are a reliable source concerning top taxpayers.

## The Tables of successions and absences

The Parisian Tables of successions and absences (TSA) are the other source of data I use (and that were previously used by Piketty, Postel-Vinay and Rosenthal [2004] and [2006]). The Tables of successions and absences – termed thus since 1825 – are maintained by a specific tax administration (*Administration de l'Enregistrement*) which was created in 1790 (and existed until 1969) in order to collect inheritance taxes. The TSA are intended to control estate tax registration (the estate tax was created in 1791 and was a flat tax until 1902). For a given *bureau* of the *Enregistrement* administration, a TSA consists of a 200-sheet register in which each hand-written entry corresponds to a decedent who died and/or had some wealth in the area covered by the *bureau*. In principle, there is one *bureau* for each chief town of canton but there may have been changes over time. In Paris (the capital city is not subdivided into cantons) there were seven *bureaux* until 1859, each *bureau* covering generally two *arrondissements*. After the annexation of surrounding municipalities by Paris in 1860, there are nine *bureaux* (then 14 in 1921 and finally 20 in 1955). The TSA are sorted both alphabetically and chronologically (which will be of great help in matching them with franchise lists). More precisely, a register contains individuals with names beginning with the same initial letter. Once a register is full, the administration opens a new one, which explains why TSA are arranged chronologically according to time periods of varying length (generally between two and six years for the Parisian TSA of the mid-19th century).

The TSA contain the following information: the decedent's name, first name, title of nobility (if any), occupation (or former occupation), address, age at death, date of death, marital status (sometimes left blank), date of the declaration of succession, information about heirs (generally limited to the indication of their kinship ties), amount of non-real estate, real estate income (the value of which is assessed by the tax administration on the day of death)<sup>8</sup>, address of real estate. Note here that from the 1870s onwards (that is to say after my period of interest), the TSA no longer contain numeric information about wealth. If some possession is left at death, it then becomes necessary to refer to the declarations of succession (with the help of the dates indicated in the TSA) contained in the registers of transfers following death (*registres de mutation par décès*). This operation makes post-1870 data collection much more tedious.

8. Total wealth is usually defined as the sum of the amount of non-real estate plus twenty times the (assessed) value of real estate income.

The estate tax becomes progressive in 1902, which means that estate tax returns have henceforth to be aggregated at individual level in order to compute the amount of estate tax to be paid. Before this date, a decedent may appear in the TSA registers of different *bureaux*, according to the location of estate<sup>9</sup>. Given the flat-rate taxation system, estate taxes were paid at the *bureau* level. There was no need to centralize estate tax returns. Such dispersion must be kept in mind for the data collection process.

Last but not least, I briefly consider the question of the reliability of estate tax data. According to Piketty, Postel-Vinay and Rosenthal ([2006] AER), tax evasion was, in all likelihood, very limited during the 19th century insofar as estate was taxed at a very low rate (one percent for transfers to heirs in the direct line). The tax administration had the capacity to control changes in asset composition or in account ownership and, if necessary, crack down on tax evaders.

## Definition of the sample, matching process and issues

Because of the size of both the franchised Parisian electorate and the Parisian population, it has proved necessary to restrict data collection and matching to a well-defined sample. First of all, given the way in which individuals are sorted in the franchise lists and the TSA, it is easy to limit the sample to individuals with names beginning with the same initial letter. In 1845 there are about 1,700 franchised Parisian voters whose names begin with letter B (12 percent of Parisian voters). This substantial sample is the second largest group in terms of initial letter after letter D group (about 1,900 individuals), but its representativeness is greater than that of letter D group. Many nobles are classified in letter D group because they often have the French particle *de* (or one of its variants) in their names. Of course, the particle *de* is not necessarily synonymous with belonging to the nobility. In letter D group, individuals bearing an explicit title of nobility are 5.3 percent. An additional 10.7 percent have names with the particle but no explicit title of nobility. In the whole electorate, “explicit” nobles are 1.2 percent and additional “potential” nobles are 3.1 percent. It is clear that nobles are strongly overrepresented in letter D group, hence an overrepresentation of large landowners in that group – and hence a possible strong underestimation of true economic mobility, since real property is expected to be more stable than other forms of wealth, which will be confirmed by our analysis. Statistics on nobility for letter B group are close to those for the whole electorate: “explicit” nobles are 0.9 percent and “potential” nobles are 2.0 percent. Thus, letter B group is a good candidate for estimating true

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9. Note that non-real estate was, in principle, included in the estate tax returns of the *bureau* covering the area where the decedent had his place of residence. However, some decedents whose residence (as indicated in the Parisian TSA) was outside Paris can be found with non-real estate located in Paris. This is particularly the case for very rich foreigners.

economic mobility<sup>10</sup>. Moreover, given that names including the particle are not necessarily classified under letter D in the TSA registers and the franchise lists, this may cause specific difficulties when matching individuals from these two data sources. For all these reasons, it is preferable to choose letter B group.

Insofar as franchised voters belong *a priori* to the richest part of the population (they are, at least, the top-three-percent direct tax payers)<sup>11</sup>, it is quite natural to focus on the wealthiest decedents and to look whether these individuals appear on the franchise list of the year 1845. In other words, I assume some wealth persistence over time. For each of the seven Parisian *bureaux*, I therefore decide to restrict to male decedents with real estate or at least 20,000 francs in non-real estate at death. Examining all decedents with real estate maximizes the chances of finding, in the TSA, the franchised Parisian voters who paid taxes on Parisian real property in 1845. The 20,000-franc threshold concerning non-real estate is not too restrictive, in my opinion, because it is far lower than the 95th percentile of the Parisian distribution of (real plus non-real) wealth at death, as calculated by Piketty, Postel-Vinay and Rosenthal ([2004], see the authors' Table A2) for adult decedents in 1847 (P95 is equal to 41,420 francs) and 1857 (59,030 francs)<sup>12</sup>. Besides, the 20,000-franc threshold is higher than the 90th percentile of the Parisian distribution (7,662 francs in 1847 and 12,967 francs in 1857). Thus, the 20,000-franc threshold allows clearly for the observation of a relatively wide range of downward mobility trajectories.

A decedent's estate being disaggregated by *bureau* (a disadvantage of having a decentralized flat-rate taxation system for inheritance), collecting estate data from outside Paris would be an enormous task. In this article, observed wealth at death is limited to its Parisian part. In the case where the decedent has a non-Parisian residence, non-real estate cannot be observed (see footnote 9). That is why I restrict my sample to individuals with a Parisian residence at death. Moreover, since non-Parisian real estate is not observed, one can think that a potentially sizeable part of wealth is left aside, especially for large landowners. Franchise Parisian lists may then be helpful to have a rough idea of the proportion of non-Parisian estate because direct taxes are aggregated at national level for each franchised voter and electoral lists indicate the breakdown by tax district<sup>13</sup>. On average, individuals in my

10. Even in the most unfavourable case where economic mobility for "explicit" nobles and "potential" nobles is zero, and on the assumption that economic mobility for non-nobles is homogeneous across all letter groups, given the proportions of non-nobles in letter B group (97.1 percent) and in the whole electorate (95.7 percent), economic mobility as measured by letter B group would be only 1.46 percent higher (this result derives from the ratio of the two given proportions of non-nobles) than mobility as measured for the whole electorate.

11. I say *a priori* because moveable assets are not taken into account when calculating direct taxes.

12. The authors give, in Table A2, the top fractiles of wealth at death in Paris on a decadal basis for the 19th century. The years 1847 and 1857 fall within my period of interest.

13. Here, it must be emphasized that the annual revision of electoral lists was a gigantic task for the administration. In each department, the prefect had the legal obligation to update the lists on the basis of the diverse rolls concerning the direct taxes paid nationwide by voters. There were 100,000 such rolls for the franchised voters of the Seine department according to the prefect's annual report (Rambuteau [1837]). The prefect also had to detect potentially new voters and add them to the franchise lists.

long-term database<sup>14</sup> paid, in 1845, 17 percent of their direct taxes in non-Parisian tax districts (concerning the tax on real property, the proportion rises to 21 percent). This non-negligible proportion will have to be taken into consideration when measuring economic mobility between 1845 and the year of death of individuals.

There is another possible bias as regards collecting data on wealth at death. Given that the matching process between TSA and franchise lists is carried out on the basis of each Parisian *bureau* taken separately<sup>15</sup>, wealth at death is biased downwards for decedents who have less than 20,000 francs in non-real estate in the Parisian *bureau* of their residence and no real estate in that *bureau*. However, the average decedent in my long-term database has 138,000 francs in non-real estate (out of a wealth at death of 283,000 francs). The potential bias is therefore limited to only 7 percent of the average decedent's observed wealth.

Data collection is limited to a well-defined time period too. Concerning my short-term database (see footnote 14), I wanted to choose two consecutive years so as to measure economic mobility on an annual basis. In the Archives of Paris, I had at my disposal, for the July Monarchy, the franchise lists of the years 1842 and 1844 to 1847. I excluded the 1844 electoral list insofar as the reform of the *patente* did have an immediate, strong impact on the composition of the franchised Parisian electorate, so that measuring economic mobility on the basis of the direct taxes paid by voters in 1844 and 1845 would not be a good idea (necessity of an unchanged tax framework for analysis). I excluded the 1847 electoral list too, inasmuch as the last years of the July Monarchy were marked by a severe economic (and political) crisis that led to the collapse of the regime in February 1848. The suffrage was then granted to all male citizens aged 21 or over. As a result of these considerations, 1845-1846 is the only pair of consecutive years that proves to be satisfactory<sup>16</sup>.

Concerning the long-term database, I use TSA registers of the years 1845-1859. Thus, it must be kept in mind that the 1847-1848 crisis is possibly a factor of higher economic mobility. The period ends in 1859 because of the extension of the limits of the City of Paris on January 1, 1860. Each of the nine new TSA *bureaux* covers two or three new Parisian *arrondissements* and thus generally mixes parts of the former Parisian *arrondissements* with parts of the incorporated suburbs. Given that for each decedent wealth at death is aggregated at *bureau* level (the only distinction is between real and non-real estate), TSA registers do not specify the value of real estate that is precisely located in the former limits of Paris. This is problematic when it appears that for a given

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14. Please keep in mind that the long-term database matches the 1845 franchise Parisian list to the TSA Parisian registers of the years 1845 to 1859. The short-term database matches the franchise Parisian lists of the years 1845 and 1846.

15. TSA registers are not previously matched together before being matched to franchise lists. It would take a long time.

16. It could be nevertheless interesting to add the electoral list of the year 1847 to the analysis so as to study short-term mobility in two different economic contexts. It would be of particular interest to see whether the crisis has an impact on mobility, as measured by direct taxes, and to what extent. However, concerning information on direct taxes, I restricted data collection to the years 1845 and 1846. Detailed data collection for the year 1847 and the question of the impact of the 1847-1848 crisis are left for further research.

*bureau* a decedent has buildings or lands that are located on both sides of the former limits of Paris. A quite tedious solution would be to open the declarations of succession of such post-1859 decedents.

Lastly, I would like to add here that matching individuals is far from being a trivial operation (Delbos [2014]), especially when it comes to matching franchise lists and TSA. The process is complex and cannot be easily automated since there are many elements of uncertainty, in particular as concerns the TSA registers. A decedent may have several first names but the TSA are generally not exhaustive, contrary to franchise lists. Father and son may have exactly the same first name. Brothers may have one of their first names in common. Besides, the spelling of surnames is not entirely fixed during the 19th century. In addition to these issues, TSA registers may contain some illegible words (information is hand-written), but numbers are generally easy to read. However, age at death, when indicated, may sometimes be inaccurate. Finally, geographic (and, at the margin, occupational) mobility can also make the matching decision trickier.

## Measuring economic mobility

My measures of both short- and long-term mobility do not fall within a standard framework. The measure of short-term mobility is based on a multidimensional proxy for wealth that adds four different types of tax. Moreover, direct taxes do not take into account either moveable assets or income. As Tudesq [1958] put it, franchise lists provide indications on “acquired wealth” (*i.e.* lands, buildings, premises) rather than on “easy-to-mobilize wealth”. Thus, annual variations in the amount of direct taxes paid by an individual reveal downward and upward changes in structural terms: sale or purchase of real property, transfer or inheritance, entrance into activity or retirement, *patente*-sharing between partners, expansion (or reduction) of premises, change in the type of activity, changes concerning the residence that impact on the *contribution mobilière* or the levy on doors and windows, changes in marital status or family situation, etc<sup>17</sup>. There is clearly a tension between the very short time period of observation (one year) and the nature of the underlying causes of observed changes. Here, moveable assets can be viewed as an unobserved buffer. Inasmuch as these moveable assets may act as buffer assets between observed structural changes, it is possible that my measure of short-term mobility overestimates true economic mobility. This has to be kept in mind when interpreting the results. For all these reasons, it is preferable to rely on a relative rather than an absolute measure of economic mobility. Because of the size of the short-term database (1,518 individuals), measuring movements in terms of quintile changes seems to be convenient.

17. Changes in the amount of direct taxes from one year to another may also be due to the correction of some erroneously printed or computed numbers or an exceptional delay in updating a voter's tax situation. In order to limit these problems, I use the tables of rectification that amended the electoral lists initially drawn up by the administration. There were four semimonthly tables of rectification. For 1845, the last two are unfortunately missing.

As regards the measure of long-term mobility, I would like to highlight the different dimensions of the discrepancy between the *cens* and wealth observed at death. Firstly, the direct taxes indicated in the franchise lists are aggregated at national level for each voter, whereas I observe wealth at death as only indicated by the Parisian TSA. Nonetheless, Parisian wealth at death may, in part, derive from non-Parisian land revenues or business income or be due to changes in the geographical composition of property (for instance, the sale of a voter's country house one decade after 1845, so as to purchase a luxurious Haussmannian building in Paris). Secondly, a similar reasoning may apply to the fact that moveable assets are not taken into account in the tax-based voting qualification. Non-real wealth at death may indeed derive from property revenues or business income, *i.e.* from a property or an activity that was subject to direct taxation in the 1845 franchise lists. Thirdly, the 20,000-franc threshold in non-real estate introduces a downward bias in the measure of wealth at death. On average, this bias is very limited but it might account for a non-negligible part of the fortune of the less wealthy individuals whom I collected in the TSA. Fourthly, because of the family dimension of the tax-based franchise, there is dissociation between the amount of direct taxes that are taken into account in order to meet voting qualifications and an individual's own wealth. The direct taxes that are indicated in the franchise lists do not necessarily derive from a voter's own property, but possibly from the delegated direct taxes of other well-defined members of his family. Thus, for some voters, the 1845 proxy for wealth – direct taxes as indicated in the franchise lists – tends to be biased upwards. This may impact on my measure of individual mobility. Unfortunately, franchise lists can be seen as a black box with respect to this issue. Despite these difficulties, it is necessary to explore the data so as to decide whether the franchise lists provide a good proxy for individual wealth or not.

### 3. Analyzing short-term mobility

Short-term mobility is measured by quintile change in the direct taxes paid by voters who are present in both the 1845 and 1846 franchise Parisian lists. Due to the 200-franc threshold that is inherent to the definition of the franchise lists, changes in direct taxes cannot be observed for voters who move into or out of the lists. Nevertheless, 90 percent of the individuals who are in the 1845 Parisian lists are still present in 1846. Despite some sizeable economic and geographic yearly mobility, it is possible to observe changes in direct taxes for the vast majority of the 1845 Parisian voters. Short-term mobility shows some interesting features. Most voters (86 percent, see the main diagonal in Table 1a and the statistics of Table 1b) remain in the same quintile in 1845 and 1846 but, with a 14-percent rate change in quintiles, tax volatility can be seen as high for a one-year period. There is both upward and downward mobility. Three percent of individuals moved up or down two or more quintiles. Table 1a reveals a very regular mobility gradient: the bigger the change in quintile is, the less frequent it is. Table 1b shows that there is remarkable symmetry between upward and downward quintile

changes. These facts suggest the existence of random economic shocks that shape the mobility trajectories of individuals.

It is important to underline here that the mobility I observe is not driven by some problematical measurement error. For each individual, I have made sure that the total amount of direct taxes is correct and corrected it if necessary. Moreover, in order to work with correct direct tax amounts insofar as possible, I have also used information from the two tables of rectification that are available for 1845 (see footnote 17). Lastly, quintile mobility is not due to small changes around quintile limits. It can be observed that for 95 percent of the individuals who change quintile between 1845 and 1846, the amount of direct taxes they pay increases or decreases by 10 francs or more (and respectively, for 75 percent of individuals, it changes by 50 francs or more). Thus, threshold effects are very limited.

**Table 1a. Short-term economic mobility of franchised Parisian voters as measured by change in direct taxes between 1845 and 1846**

		Direct taxes 1846					Total
		Quintile limits	200-249 fr	250-344 fr	345-509 fr	510-838 fr	
Direct taxes 1845	200-248 fr	265	30	9	2	0	306
	249-343 fr	24	249	21	7	1	302
	344-509 fr	6	21	247	23	6	303
	510-839 fr	8	3	23	259	11	304
	840-10,295 fr	1	2	2	13	285	303
Total	304	305	302	304	303	1,518	

**Table 1b. Mobility statistics related to Table 1a**

Moved up 2 or more quintiles	1.6%
Moved up	7.2%
Same quintile	86.0%
Moved down	6.8%
Moved down 2 or more quintiles	1.4%

Mobility patterns may vary significantly across the group of franchised voters. The composition of the *cens* could have an impact on short-term mobility. In order to study this impact, and because of the heterogeneity of the economic composition of the franchised electorate, I divide this population into four subgroups according to the type of direct taxes that are paid by individuals. I take into consideration the two main components of the *cens*, namely the real property tax and the *patente*. Four subpopulations are thus defined by crossing two dummy variables: paying a real property tax

(or not) and paying a *patente* (or not). Voters who pay a real property tax are expected to be more stable than voters who pay a *patente* insofar as the latter is subject to the risks of economic competition, whereas the former is based on land rent.

From a methodological point of view, I will compare mobility between sub-populations in terms of initial quintiles (*i.e.* the quintile limits defined in Table 1a), but I will also have a look at within-mobility (with recomputed quintiles for each group) since each subpopulation is not homogeneously distributed across the quintiles of the year 1845, as shown in Table 2. The economic structure of the 1845 electorate varies considerably across quintiles. The distribution of voters who pay a real property tax but no *patente* exhibits a remarkable gradient. These voters account for only 23 percent of the individuals in the bottom quintile but for 70 percent in the top quintile. Concerning the voters who pay a *patente* but no real property tax, the gradient is reversed: they account for 61 percent of the individuals in the bottom quintile, but for 8 percent only in the top quintile. Let me notice that qualified voters who pay neither a real property tax nor a *patente* are essentially present in the lower quintiles (they pay generally a quite huge *contribution personnelle et mobiliere* and sometimes a considerable levy on doors and windows), but are very few (2 percent or so). All in all, the franchised Parisian electorate is very heterogeneous and this must be kept in mind when it comes to studying its mobility. Using initial quintiles enables to observe the movements of a subpopulation in comparison with the dynamic distribution of the whole population. Recalculating quintiles for a given subpopulation enables to measure the within-mobility of that subpopulation. Both types of measure provide interesting and complementary information about mobility.

**Table 2. Structure of the 1845 Parisian electorate by quintile (statistics for voters present in both the 1845 and 1846 lists)**

With initial quintiles					
Real property tax in 1845		> 0	> 0	= 0	= 0
Patente in 1845		= 0	> 0	> 0	= 0
Quintiles of the year 1845	200-248 fr	(---) 23.2%	13.7%	(+++) 60.8%	(++) 2.3%
	249-343 fr	(---) 28.8%	18.2%	(+++) 51.0%	(+) 2.0%
	(ref.) 344-509 fr	47.5%	15.5%	36.7%	0.3%
	510-839 fr	50.3%	(+++) 25.3%	(---) 24.4%	0.0%
	840-10,295 fr	(+++) 70.0%	(++) 22.4%	(---) 7.6%	0.0%
All quintiles		44.0%	19.0%	36.1%	0.9%
Subpopulation size		667	289	548	14

Comparisons with third quintile: \*\*\* statistically significant at the 1% risk level, \*\* statistically significant at the 5% risk level, \*statistically significant at the 10% risk level. The symbols + and - give the sign of comparison.

There are statistically significant differences in terms of mobility between the four subpopulations that have been defined in Table 2. The results of Table 3a suggest, as expected, that real property is linked to more stability, whereas the *patente* tends to be associated with more downward and particularly upward mobility. 89 percent of the voters who pay a real property tax but no *patente* in 1845 stay in the same quintile in 1846. About 83 percent of those paying a *patente* remain stable (whether or not they pay a real property tax in 1845). Voters who pay a *patente* but no real property tax move up more frequently (9 percent) than voters who pay a real property tax but no *patente* (about 6 percent). Given that voters who pay a *patente* but no real property tax tend to belong to the lowest quintiles in 1845 (see Table 2), they are more likely to move up. Lastly, the few voters who do not pay either a real property tax or a *patente* belong to the lowest quintiles in 1845 and stay mostly (93 percent) in the same quintile in 1846. Within-mobility calculations (Table 3b) suggest that upward and downward movements for a given subpopulation are quite symmetrical. Besides, a stability gradient becomes apparent (the proportion of individuals who remain in the same quintile decreases significantly from the first- to the fourth-column subpopulation). However, although tempting, comparing within-mobility would not be appropriate. For instance, the relatively high within-mobility of voters who pay neither a real property nor a *patente* tax (only 79 percent stay in the same quintile) must not be overemphasized inasmuch as absolute changes in the amount of their *cens* are generally very small and the granularity of the measure is, in the present case (quintiles for 14 individuals), obviously too fine.

**Table 3a. Short-term economic mobility for different subpopulations of the 1845 Parisian electorate (with initial quintiles)**

	With initial quintiles			
Real property tax in 1845	> 0	> 0	= 0	= 0
Patente in 1845	= 0	> 0	> 0	= 0
Subpopulation size	667	289	548	14
Moved up 2 or more quintiles	0.6%	(++) 2.4%	(+++) 2.6%	0.0%
Moved up	5.5%	7.6%	(++) 9.1%	7.1%
Same quintile	89.0%	(—) 83.4%	(—) 83.6%	92.9%
Moved down	5.5%	(+) 9.0%	7.3%	0.0%
Moved down 2 or more quintiles	1.4%	1.4%	1.6%	0.0%

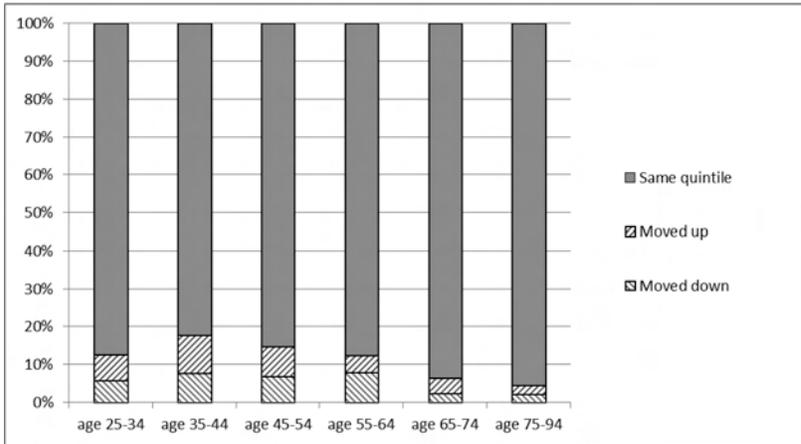
Comparisons with first-column subpopulation: \*\*\* statistically significant at the 1% risk level, \*\* statistically significant at the 5% risk level, \*statistically significant at the 10% risk level. The symbols + and – give the sign of comparison.

**Table 3b. Short-term economic mobility for different subpopulations of the 1845 Parisian electorate (with recomputed quintiles)**

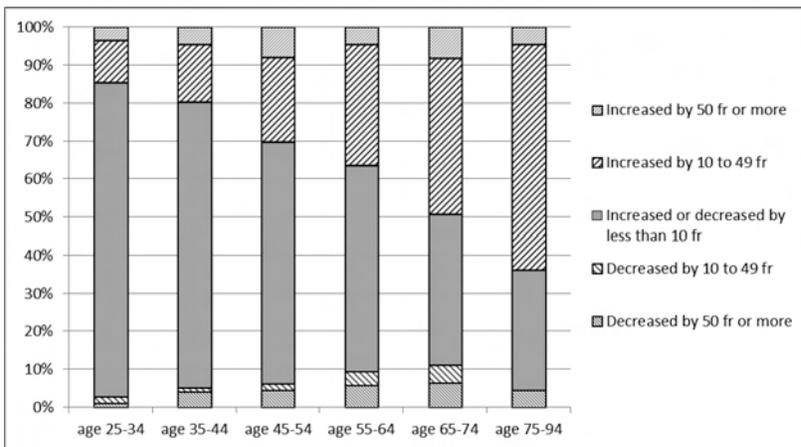
With recomputed quintiles				
Real property tax in 1845	> 0	> 0	= 0	= 0
Patente in 1845	= 0	> 0	> 0	= 0
Subpopulation size	667	289	548	14
Moved up 2 or more quintiles	0.8%	2.1%	3.1%	7.1%
Moved up	6.9%	8.0%	9.7%	7.1%
Same quintile	88.0%	83.4%	80.3%	78.6%
Moved down	5.1%	8.6%	10.0%	14.3%
Moved down 2 or more quintiles	2.1%	2.1%	2.6%	0.0%

Introducing an age variable into the analysis helps to understand the underlying causes of mobility. In Figure 1, I observe quintile changes between 1845 and 1846 by age groups in 1845. Assuming that potential generational effects do not alter the general aspect of the bar graphs, the figure can be seen as an age profile for voters present in both the 1845 and 1846 Parisian lists<sup>18</sup>. The mobility-age curve exhibits an inverted U-shaped pattern, with a maximum for the 35-44 age group. This result – which concerns voters present both in 1845 and 1846 – does not mean that mobility is necessary low for individuals in the youngest age group or for individuals in older age groups. There is, assuredly, high mobility for such age groups too, as is suggested by Delbos [2014], who shows that the mobility-age relationship in terms of movements into and out of the franchised Parisian electorate follows a U-shaped curve.

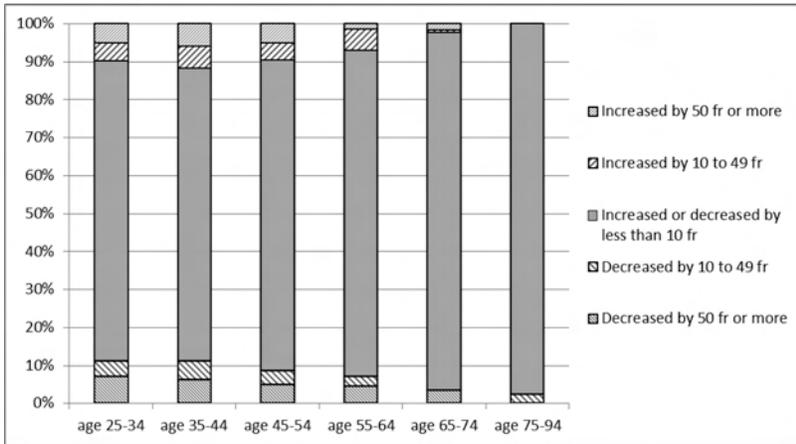
18. On the one hand, it must be kept in mind that this kind of age profile is nevertheless biased inasmuch as the changes in the amount of direct taxes paid by the individuals who moved out of the franchise Parisian lists in 1846 cannot, unfortunately, be known (and, conversely, for individuals who were not in the lists in 1845 but qualified as Parisian voters in 1846). On the other hand, it is also undoubtedly interesting to focus on analyzing the movements of the voters who manage to stay in the Parisian electorate.



**Figure 1. Quintile changes over 1845-1846 by age groups in 1845**



**Figure 2a. Absolute changes in real property tax over 1845-1846 by age groups in 1845**



**Figure 2b. Absolute changes in *patente* over 1845-1846 by age groups in 1845**

The observation of absolute changes in the two main components of the *cens* (real property tax and *patente*)<sup>19</sup> by age group sheds light on the dynamics at work. There is considerable difference between Figures 2a and 2b. Concerning changes in *patente* (Figure 2b), movements are very small for the vast majority of individuals. For 82 percent of the voters (all age groups taken together), the *patente* tax increased or decreased by less than 10 francs (or remained at the same level) over the 1845-1846 period. Bigger changes (10 francs or more) are more frequent at the beginning of the voters' life-cycle (around 22 percent for age groups 25-34 and 35-44), that is to say when voters are likely to start and run their business. For older age groups, big changes in the amount of *patente* are less and less frequent, from 18 percent for the 45-54 age group to 2 percent for the 75-94 age group. Except for the oldest age group, for which big changes are only downwards (voters who were still in activity tend to retire from business), sizeable movements are both upwards and downwards, with remarkable symmetry<sup>20</sup>, which suggests the hustle and bustle of economic life.

Figure 2a provides a very different picture. As opposed to what is observed for *patente* movements, small changes (less than 10 francs) in the amount of real property tax between 1845 and 1846 become gradually less frequent as age groups get older, from 83 percent for the 25-34 age group to only 32 percent for the 75-94 age group. Moreover, there is no symmetry between upward and downward movements by 10 francs or more. Sizeable increases in the amount of real property tax become gradually more frequent as age groups get older, from 15 percent for the 25-34 age group to 64 percent for the

19. Changes in the amount of tax are given for the whole sample (1,518 individuals). This means that calculated changes are not conditional on whether the voter pays a real property tax or a *patente*.

20. The extent of downward changes is however underestimated since I observe only voters who stay in the Parisian electorate in 1846.

75-94 age group. Although more and more frequent with age, increases in the amount of real property tax do not have a strong impact on quintile changes at older ages (see Figure 1). Concerning big increases by 50 francs or more in the amount of real property tax, one can note two peaks, at age groups 45-54 and 65-74. These peaks correspond presumably to early and normal retirement ages, that is to say moments when the voters decide to convert their built-up capital into real property so as to get prepared for their old age. Except for the oldest age group, sizable decreases in the amount of real property tax also become gradually more frequent with age (from 3 percent for the 25-34 age group to 11 percent for the 65-74 age group, but only 5 percent for the 75-94 age group). As compared with the frequency of sizeable increases in real property tax, this trend is relatively limited, all the more so as I observe only individuals who stay in the Parisian electorate in 1846. While most individuals strive hard to accumulate real property, or inherit, or benefit from the direct taxes paid by their spouse, some others sell a part of their real property for more liquid assets or maybe transfer it to family members.

Even though individuals are not followed year after year over their entire life-cycle (do I observe one-shot changes or gradual changes in Figures 2a and 2b?), all these different elements suggest the portrait of a franchised bourgeoisie whose ultimate horizon – for those who meet with economic success or inherit – is accumulating real property, in accordance with the famous injunction “Enrich yourselves!” expressed by Louis-Philippe’s minister François Guizot.

## 4. Analyzing long-term mobility

This section is aimed at analyzing long-term mobility on the basis of the voters found in the Parisian TSA between 1845 and 1859 with a Parisian address and a total wealth of 20,000 francs or more<sup>21</sup>. In order to measure long-term mobility, I compare two different economic variables: the *cens* as indicated in the franchise lists of 1845 and wealth at death as collected in the Parisian TSA. Because of the discrepancy between the *cens* and wealth, it is not sure that I only measure “pure” economic mobility. This point will be discussed in detail. Before proceeding to the analysis, it is necessary to describe briefly the sample that results from matching the 1845 franchise Parisian lists with the Parisian TSA of the years 1845-1859<sup>22</sup>.

The overall matching rate is almost 24 percent (see Table 4), *i.e.* 399 individuals out of 1,681. This rate may seem low but, given data constraints, turns out to be satisfactory and makes it possible to perform a proper analysis of long-term mobility. The 24-percent matching rate is mainly explained by the fact that post-1859 Parisian TSA are not included in the analysis

21. Wealth is measured in current French francs. There are two reasons for this. First, inflation was low during the 19th century and can be neglected (Bouvier [1997]). Second, it allows comparability over the period with works by other scholars (Piketty, Postel-Vinay and Rosenthal [2004] and [2006] working paper).

22. Here, the objective is not to make an in-depth econometric analysis of the matching rate (see Delbos [2014]) but to provide some descriptive statistics on the profile of the voters found in the Parisian TSA.

insofar as the extension of Paris makes it tedious to calculate the value of real estate that is located precisely in former Parisian limits. The vast majority of voters from the oldest generation (78 percent of the 75-94 age class of 1845) are found in the TSA, but only 5 percent of the youngest generation. Generational effects on the matching rate are very strong because the elites' life expectancy proves to be high: some franchised voters of the 1845 lists can be found at death in the TSA of the 1880s (and probably in the TSA of later decades)<sup>23</sup>. The matching rate increases with the amount of real property tax that was paid in 1845, from 12 percent for voters who paid no real property tax to 40 percent for those who paid a tax of 800 francs or more. This result not only illustrates the strong link between real estate at death and real property in 1845, but also the fact that older voters tend to have more real property than younger generations.

**Table 4. Statistics resulting from matching the franchise Parisian lists of the year 1845 with the Parisian TSA of the years 1845-1859**

1845 variables		found in TSA	not found in TSA	matching rate
25-34 years old		(---) 2.5%	14.0%	5.3%
35-44 years old		(---) 12.1%	31.7%	10.6%
45-54 years old		(---) 24.3%	34.2%	18.1%
55-64 years old		(++) 29.8%	14.4%	39.3%
65-74 years old		(++) 20.8%	4.8%	57.6%
75-94 years old		(++) 10.5%	0.9%	77.8%
Real property tax	0 fr	(---) 18.0%	42.9%	11.6%
	1-199 fr	10.3%	12.1%	20.9%
	200-399 fr	19.3%	17.0%	26.1%
	400-799 fr	(++) 27.1%	15.9%	34.6%
	800 fr and more	(++) 25.3%	12.1%	39.5%
Patente	0 fr	(++) 67.1%	38.5%	35.2%
	1-149 fr	7.8%	9.8%	19.8%
	150-199 fr	(---) 6.8%	12.3%	14.7%
	200-299 fr	(---) 7.0%	19.0%	10.3%
	300 fr and more	(---) 11.3%	20.4%	14.7%
Tax districts	only Parisian	84.2%	82.1%	24.2%
	not only Parisian	15.8%	17.9%	21.6%
Overall				23.7%
Size		399	1,282	1,681

Comparisons with second-column subpopulation: \*\*\* statistically significant at the 1% risk level, \*\* statistically significant at the 5% risk level, \*statistically significant at the 10% risk level. The symbols + and – give the sign of comparison.

23. According to Piketty, Postel-Vinay and Rosenthal ([2006] working paper, see the authors' Table 1), the average age at death for adult male individuals who belong to the top one percent of the distribution of Parisian wealth at death is 68 under the July Monarchy and the Second Empire and then 71 over the 1870-1890 period.

Matching rates show an opposite pattern concerning the level of *patente* in 1845. 35 percent of voters who paid no *patente* are found in the TSA but only 10 percent of those who paid a *patente* tax of 200-299 francs. The matching rate goes back up to 15 percent for a *patente* tax of 300 francs or more in 1845 but still remains at a significantly low level. The negative relationship between the amount of *patente* and matching rates is due to the fact that younger voters are more likely to pay a *patente* than older ones. Moreover, this relationship also suggests that the *patente* is associated with very diverse levels of wealth, not only because of the high volatility of economic activities but also because the *patente* is silent on one's business financial health (the *patente* is not a tax on profits). Lastly, the matching rate of voters who pay direct taxes in districts that are located only in Paris is – as one would expect<sup>24</sup> – higher than the matching rate of other voters, but the difference (2.6 percentage points) is not statistically significant<sup>25</sup>.

Given that voters paying a *patente* tax (which is associated with more mobility) are underrepresented in the long-term database, whereas voters paying a real property tax (which is associated with more stability) are overrepresented, my measure of long-term mobility, all other things being equal, may underestimate true economic mobility. However, there exist also opposite age effects due to data truncation. Because post-1859 TSA are not included in the analysis, the age distribution of the sample tends to be biased toward two types of individuals: individuals who are particularly old and individuals from younger generations who are likely to die earlier than the rest of their age cohorts. If such individuals tend to be in bad health, the cost of health care may lead to lower wealth accumulation compared to healthy individuals and result in higher individual economic mobility. All in all, underestimation or overestimation of economic mobility could be expected. However, given that young generations are only a very small proportion of the sample and given that the elite's high life expectancy may be linked to favourable health conditions, it is likely that underestimation prevails over overestimation.

Thus, the results of Tables 5a and 5b most probably underestimate true economic mobility. Long-term mobility, as described by quintile changes, shares some common features with short-term mobility, namely the decreasing mobility gradient on both sides of the main diagonal and the symmetry between upward and downward movements. Mobility over the 1845-1859 period can be described by the matrix. Wealth at death conditional on the voting franchise seems difficult to predict. The main diagonal is not very full: 35 percent of the 1845 voters are in the same quintile at death, 32 percent moved up and 33 percent moved down. A quarter of voters moved two or more quintiles. Because of the selection bias resulting from data collection and matching rules, quintile limits of the 1845 *cens* are higher than those concerning the whole electorate. Given the discrepancy

24. One could think that voters who pay a part of their direct taxes outside Paris are more likely to leave Paris and even get rid of their Parisian property. Here, it should be made clear again that the long-term database contains only voters who have a Parisian address at death.

25. Nevertheless, running a standard probit regression of the effect of the variables in Table 4 on the matching probability shows that paying direct taxes in strictly Parisian districts has a very significant positive effect.

between the *cens* and wealth, the rest of this article is aimed at disentangling “true” economic mobility from the effects of the difference in definition between the tax-based voting franchise and wealth.

**Table 5a. Long-term economic mobility of franchised Parisian voters as measured by matching the electoral lists of the year 1845 with the Parisian TSA of the years 1845-1859**

		Parisian wealth at death					
		20,220-67,399 fr	67,400-119,999 fr	120,000-207,540 fr	207,541-411,607 fr	411,608-3,697,350 fr	Total
Direct taxes 1845	201-296 fr	32	24	11	9	4	80
	297-437 fr	20	25	16	10	9	80
	438-622 fr	12	16	27	14	11	80
	623-1,067 fr	7	12	21	21	19	80
	1,068-10,295 fr	9	3	5	26	36	79
	Total	80	80	80	80	79	399

**Table 5b. Mobility statistics related to Table 5a**

Moved up 2 or more quintiles	13.5%
Moved up	31.8%
Same quintile	35.4%
Moved down	32.8%
Moved down 2 or more quintiles	12.0%

Quintile limits of wealth at death show a very wide range of economic positions. In 1845, the ratio between the richest and the poorest voter is 51 in terms of direct taxes. At death – all dates of death between 1845 and 1859 taken together –, the ratio is 183 in terms of Parisian wealth. The ratio of the ratios results in a 3.6-fold increase. This increase is so high for a fifteen-year period (and all the more so as the richest individual dies in 1848) that it might reflect not only some long-run widening inequality among franchised voters but also – and maybe first and foremost – the difference in definition between *cens* and wealth. For more robustness, instead of using extreme values, I consider, in Table 6, the inter-decile ratio P90/P10 over the period. The inter-decile ratio is 6.5 for direct taxes paid in 1845 and 14.8 for wealth at death. The ratio of the ratios is 2.3. Because death does not occur in the same year for all individuals, I calculate inter-decile ratios by three-year periods. Even in the first time period (1845-1847), there is a big difference between the inter-decile ratio for wealth at death (11.3) and the inter-decile ratio for direct taxes in 1845 (4.8). The resulting 2.3-fold increase cannot possibly be due to widening inequality over a very short time span of two years or less. What I observe here is the difference of measure between *cens*

and wealth. So as to eliminate, insofar as possible, the effects of the geographic discrepancy between *cens* and wealth, Table 6 also shows inter-decile ratios restricted to the voters who paid in 1845 their direct taxes in Parisian districts only. The difference of range between wealth (9.7) and *cens* (4.7) over the 1845-1847 period is very clear and may be mostly due to the fact that moveable assets are not directly taken into account in the voting franchise, hence a supplementary factor of inequality. Subsequent periods in Table 6 show a steady increase in inter-decile ratios for wealth at death (from 11.3 in 1845-1847, or 9.7 in the restricted case, to 20.8 in 1857-1859), which would suggest a dramatic rise in inequality over the period. However, individuals only die once, so that wealth is not observed longitudinally over the period, which makes any further analysis difficult<sup>26</sup>.

**Table 6. Inter-decile ratios P90/P10 for the *cens* in 1845 and wealth at death by time periods**

Year of death by time period	1845-1847	1848-1850	1851-1853	1854-1856	1857-1859	All periods
For all voters:						
Inter-decile ratio for Parisian wealth at death	11.3	13.4	12.2	18.3	20.8	14.8
Inter-decile ratio for the <i>cens</i> in 1845	4.8	8.3	5.6	6.0	7.1	6.5
Ratio of the ratios	2.3	1.6	2.2	3.1	2.9	2.3
Number of individuals	63	98	87	74	77	399
For voters who paid their direct taxes of the year 1845 in Parisian districts only:						
Inter-decile ratio for Parisian wealth at death	9.7	12.2	13.7	15.8	20.8	14.8
Inter-decile ratio for the <i>cens</i> in 1845	4.7	6.0	5.4	5.5	4.3	5.2
Ratio of the ratios	2.1	2.0	2.5	2.9	4.8	2.9
Number of individuals	53	76	77	64	66	336

26. The inter-decile ratio for the *cens* in 1845 could be seen as a correction factor which takes into account initial conditions. The evolution of the ratio of ratios between 1845 and 1859 would then provide a very rough indication of the rise in inequality among Parisian voters of the year 1845.

In terms of relative position at death, it must be underlined that the top quintile of my long-term database is equivalent to the top 0.5 percent (P99.5-100) of the whole distribution of Parisian wealth at death, as computed by Piketty, Postel-Vinay and Rosenthal ([2004], see the authors' Table A2)<sup>27</sup>. The bottom quintile of my database corresponds to the percentiles around P95.

The bottom quintile has a particular meaning because individuals who belong to this quintile would have been very (or quite) unlikely to be qualified as voters in their year of death (had the restricted franchise survived the French Revolution of 1848), on the basis of their Parisian wealth as indicated in the TSA. Let me focus on the real property tax and the (relatively) simple example of a real property owner. Here, my objective is to have an idea of the real property tax rate in order to calculate a rough equivalence scale between the Parisian amount of the 1845 real property tax and the assessed value of real estate income at death that is given by the Parisian TSA. I restrict my long-term database to the years that are closest to the franchise lists (*i.e.* 1845-1847), so as to reduce – insofar as possible – economic mobility and long-term fluctuations in the value of real property. I also take into consideration only individuals with non-zero real property tax in 1845 and non-zero real estate at death, so as to rule out the most obvious cases of economic mobility or added/delegated direct taxes from other family members. Then it is possible to obtain an estimate of the real property tax rate. It is the coefficient from the zero-intercept linear regression of the Parisian real property tax on assessed real estate income (the regression is run on 40 individuals). The estimated real property tax rate is 6.6 percent<sup>28</sup>. However, this is an average, seeming rate. This is an average rate because the real property tax depends on land classification. This is a seeming rate, because the family dimension of the voting franchise cannot be completely eliminated: the 6.6-percent rate thus overestimates the “true” average real property tax rate. Nevertheless, the obtained equivalence scale suggests that a Parisian real property owner can qualify as a franchised voter – on the sole basis of his real property tax – if the value of all his real properties is 60,000 francs or more<sup>29</sup>. This 60,000-franc threshold is an underestimate (since the 6.6-percent tax rate is an overestimate). Moreover, if the property owner has some moveable assets, he can easily cross the upper limit of the bottom quintile of wealth at death. All in all, from this point of view, belonging to the bottom quintile is clearly synonymous with moving out of the franchised electorate.

However, the voting franchise is obviously far more than a real property tax. The “piecemeal” nature of the franchise allows many non-landed individuals to qualify as voters, which adds complexity to the analysis. So, the question is whether one-fifth (a substantial proportion) of the 1845 Parisian

27. I have compared the authors' results for the years 1847 and 1857 with the quintile limits I got for those years.

28. The 95-percent confidence interval for the coefficient is [5.6 percent, 7.6 percent]. The  $R^2$  for the regression is high (0.83).

29. Calculation details: given that the estimated real property tax rate is 6.6 percent, a 200-franc real property tax is equivalent to a 3,030-franc real estate income, that is to say a real property that is worth 60,606 francs (see footnote 8).

electorate has experienced real – or seeming – impoverishment, on the basis of my Parisian “observatory” of wealth at death. A close examination of each individual who finishes his life in the bottom quintile shows that the economic and geographic composition of the *cens* plays a great role. These individuals can be classified into four broad categories.

Firstly, in more than 35 percent of cases, individuals paid a *patente* in 1845 but no real property tax. For most of them, wealth at death consists only of a small amount of moveable assets. Very few have acquired real property since 1845. These people were apparently not able to extract wealth from their business. They owed their voting qualification to the *patente*, a tax that is regardless of one’s business financial situation. Of course, it cannot be ruled out that some of these individuals might have almost entirely spent the hypothetical fortune they managed to amass over their post-1845 life-cycle. However, the relatively short time span between 1845 and death reduces the significance of this kind of explanation.

Secondly, in 25 percent of cases, individuals do not leave any Parisian property at death, whereas they did pay a real property tax in Parisian districts in 1845. Such evolutions represent big shifts in the composition of wealth. These voters might have sold all their Parisian properties but the money from the sales seems to have vanished too. This would mean considerable impoverishment over a relatively short time period. Have some of these voters – who still reside in Paris at death – swapped their Parisian real properties for buildings and lands in the suburbs or in the provinces? This cannot be ruled out completely. The total loss of Parisian real property could also result from inter vivos gifts. Last but not least, the family dimension of the Electoral Law could explain why some voters who paid a real property tax in 1845 do not own any property at death. Their *cens* included the direct taxes of some members of their family. As a consequence, this fictitious situation causes considerable seeming mobility.

Additionally, in another 15 percent of cases, voters seem to have lost a sizeable part of their Parisian real property. Besides the above-mentioned types of explanations (sales, inter vivos gifts, added or delegated taxes), a partial loss in the amount of real property could also be due to a decline in their market value. However, this type of explanation is very unlikely in the general Parisian context of a steady increase in the market value of residential property that was impaired only by the economic and political crisis of the years 1848-1850 (Daumard [1965]). It is not easy to gauge whether a voter has lost a part of his real properties, because I do not have any precise list of the buildings and lands on the basis of which the real property tax is established in 1845. I have only at my disposal the list of the relevant tax districts without any further detail, since the real property tax is aggregated at district level (a voter could own more than one building in a given district). So, one solution is to compare the Parisian amount of real property tax paid in 1845 with the Parisian value of real estate left at death. More precisely, if the ratio of real property tax to assessed real estate income is abnormally high in comparison with the previously estimated real property tax rate (*i.e.* at least one and a third times higher than 6.6 percent), then I consider that there is a partial loss of property.

Thirdly, in 10 percent of cases, individuals paid their real property tax in non-Parisian districts only. In Parisian districts, the amount of the other taxes they paid was generally small. Since the TSA do not aggregate a decedent's wealth at national level (contrary to the *cens*), this discrepancy results in the seeming impoverishment of landowners whose Parisian wealth at death is essentially reduced to a very low amount of moveable assets, whereas their nationwide wealth might consist largely of unobserved provincial property.

Fourthly, in the remaining cases, situations are very diverse. The individuals in question managed to qualify as voters in 1845 because their "piece-meal" franchise was made up of various direct taxes in small amounts. For instance, some of these members of the petty bourgeoisie both ran a mediocre business and had some Parisian property. In such conditions, it was difficult for them to escape from the lowest quintiles. Their wealth at death consists generally of a mix of real estate and moveable assets in very modest amounts too.

Among voters who are in the top quintile of wealth at death, less than a half (46 percent) were in the top quintile in 1845. This suggests that access to the top elite group was not restricted to a few privileged individuals or, at least, that top fortunes were very volatile. But this high mobility could also be due in part to the difference in definition between *cens* and wealth. In order to disentangle these effects, I study the characteristics of individuals who were in the top quintile, according to whether they moved into, or remained in, or moved out of that quintile, and compare them to individuals who were in the bottom quintile. Despite the small number of observations, the figures shown in Table 7 lead to interesting conclusions when taken as a whole. The vast majority of individuals in the top quintile of wealth at death have Parisian real estate, be it in 1845 (81 percent on average) or at death (85 percent), with almost no difference at death between individuals who were already in the top quintile in 1845 and those who were not. From this point of view, the top quintile of wealth at death is much more homogeneous than the bottom quintile, in which half of individuals paid a real property tax in Parisian districts in 1845 and less than one-third (29 percent on average) have real estate at death. Concerning the acquisition and (total) loss of Parisian real property, there are clearly divergent paths between the two extreme quintiles of wealth at death.

**Table 7. Movements into and out of extreme quintiles between 1845 and death**

	Bottom quintile			Top quintile		
	Move in	Remain in	Move out	Move in	Remain in	Move out
Subpopulation size	48	32	48	43	36	43
Pay a Parisian real property tax in 1845	48%	53%	56%	77%	86%	77%
Have acquired Parisian real properties since 1845	4%	9%	15%	12%	6%	7%
Have lost all Parisian real properties since 1845	33%	19%	4%	2%	8%	23%
Have Parisian real estate at death	19%	44%	67%	86%	83%	60%
Average amount of non-real estate at death	35,869	22,321	129,397	428,126	462,758	88,689
Average amount of (Parisian) real estate at death	6,957	17,385	76,334	315,161	502,722	125,952
Have more Parisian real property at death *	4%	13%	42%	58%	36%	9%
Parisian real property is stable *	0%	16%	21%	23%	25%	19%
Parisian real property is always zero	48%	38%	29%	12%	8%	16%
Have less Parisian real property at death *	48%	34%	8%	7%	31%	56%
Pay a real property tax in non-Parisian districts in 1845	19%	9%	6%	7%	33%	40%
Avg. share of non-Parisian real property tax in cens **	69%	65%	52%	35%	55%	67%
Pay a patente tax in 1845	52%	59%	44%	30%	19%	16%
Average age in 1845	55.9	51.1	54.9	58.1	59.7	63.6
Average age at death	61.8	58.0	63.3	67.7	66.7	69.2
Average life span from 1845 to the year of death	5.9	6.9	8.4	9.6	7.0	5.6

Percentages may not add due to rounding.

\* In order to determine whether an individual has more or less Parisian real property at death than in 1845, the ratio of the real property tax paid in Parisian districts in 1845 to assessed real estate income at death is compared with the estimated real property tax rate (6.6 percent). If there is an upward or downward change by less than one third, then I consider that there is stability.

\*\* Shares are calculated on the basis of individuals who pay a real property tax in non-Parisian districts.

Strikingly enough, individuals who move out of the top quintile are much less wealthy – in terms of both real and non-real estate – than individuals moving into or staying in the top quintile at death. The difference is so large that it must be explained, at least in part, by the discrepancy between direct taxes and wealth. This is suggested by several facts.

Firstly, the average level of non-real estate for individuals who move out of the top quintile is particularly low (about 89,000 francs) compared with the corresponding level for those in the top quintile at death (444,000 francs). A hypothesis could be that these individuals really lost a substantial part of their Parisian wealth or converted it to unobserved non-Parisian real estate. But it is also possible that these individuals already had small amounts of moveable assets in 1845. Conversely, individuals who move into the top quintile at death tend to catch up with individuals who were already in the top quintile in 1845 (respectively 428,000 francs in non-real estate versus 463,000 francs). Actually, individuals from the three lowest quintiles in 1845 even have more non-real estate at death (571,000 francs on average) than individuals who were already in the top quintile in 1845. This is not the case for real estate. All these observations suggest that some of the individuals who move into the top quintile at death had presumably large amounts of moveable assets already in 1845 and did not belong to higher quintiles at that date because the voting franchise does not take moveable assets into account.

Secondly, concerning non-Parisian real property in 1845, a double effect is noticeable. Not only did individuals moving out of the top quintile pay a real property tax in non-Parisian districts more frequently than individuals moving into that quintile (40 percent versus 7 percent), but the share of the non-Parisian real property tax in the total *cens* of individuals paying such a tax was also higher (respectively 67 percent versus 35 percent). This pattern is reversed for movements into and out of the bottom quintile. A sizeable part of the wealth of individuals moving out of the top quintile or moving into the bottom quintile is most probably located outside my Parisian “observatory” of wealth at death, thus resulting in seeming downward mobility. More generally, Table 8 shows that there is considerable downward mobility for individuals who paid all or part of their real property tax in non-Parisian districts in 1845. In particular, among individuals paying their real property tax in strictly non-Parisian districts, nearly half of them (48.6 percent) moved to a lower quintile and more than one quarter (28.6 percent) moved down two or more quintiles<sup>30</sup>. Here, it should also be noted that restricting the population to voters who paid their real property taxes in Parisian districts only leads to mobility results (61 percent) that are slightly lower than statistics in Table 5b (65 percent). However, even though

30. Given that non-Parisian real estate is unobserved at death, one might think that removing the non-Parisian amount of the direct taxes paid in 1845 would correct for this discrepancy. Actually, that is not a good idea. Recalculating the quintiles of the year 1845 on the basis of the direct taxes paid in Parisian districts leads to massive upward mobility for individuals who paid their real property tax in strictly non-Parisian districts in 1845 (69 percent move up, 46 percent move up two or more quintiles). Seeming upward mobility is due to the fact that the Parisian direct taxes paid in 1845 by these individuals are quite small in comparison with the taxes paid by other individuals and that their non-real property, which is only taken into account at death, is not negligible.

paying a real property tax in non-Parisian districts in 1845 very often results in downward mobility, it can also be associated with huge amounts of observable wealth. Table 7 reveals, for instance, that among individuals who belong to the top quintile both in 1845 and at death, no less than one-third paid a real property tax in non-Parisian districts in 1845 and this tax accounted for more than half (55 percent) of their total *cens*.

Thirdly, almost one-quarter (23 percent) of individuals who move out of the top quintile no longer have Parisian real property at death. More than half (56 percent) have less Parisian real property at death, with regard to the previously estimated real property tax rate. Movements are very similar for individuals moving into the bottom quintile. The family dimension of the tax-based voting franchise may, in part, account for these downward movements – as well as a hypothetical geographic reorganization of real property from Paris to the provinces.

Lastly, it cannot be excluded that some individuals suffered from the crisis of the years 1847-1848. Even if it is not possible to answer this question with the data at our disposal, this economic and political crisis may have impacted some aspects of the mobility pattern. For instance, the crisis may have impoverished some wealthy individuals. This could partly explain why individuals who moved out of the top quintile are, on average, particularly less wealthy than individuals remaining in, or moving into, that quintile.

**Table 8. Real property tax districts in 1845 and long-term mobility (with initial quintiles)**

With initial quintiles			
Real property tax districts in 1845	only Parisian	Parisian and non-Parisian	only non-Parisian
Subpopulation size	265	27	35
Moved up 2 or more quintiles	12.1%	(-) 0.0%	11.4%
Moved up	32.4%	(—) 11.0%	22.8%
Same quintile	38.9%	44.5%	28.6%
Moved down	28.7%	(+) 44.5%	(++) 48.6%
Moved down 2 or more quintiles	8.7%	18.5%	(+++) 28.6%

Comparisons with first-column subpopulation: \*\*\* statistically significant at the 1% risk level, \*\* statistically significant at the 5% risk level, \*statistically significant at the 10% risk level. The symbols + and – give the sign of comparison.

In my short-term analysis of economic mobility, I compared the direct taxes paid by living individuals over a fixed one-year period (1845-1846). Besides the question of mortality, one difficulty in my long-term analysis is

the fact that the year of death is not the same for each individual and that the position in the life-cycle in 1845 varies from an individual to the other. This variability is of great interest but, in my long-term database, there are only a handful of individuals within each cell defined by crossing generation and year of death. In order to use standard econometric techniques (as in Auten and Gee [2009], or Hochguertel and Ohlsson [2012]), an ideal data set would consist either of (a) many individuals whose years of death are identical or (b) many individuals belonging to the same generation in 1845. In the case (a), one would observe the economic mobility of individuals from all generations over a fixed time period. In the case (b), one would study the mobility and mortality factors of a given generation over time, whatever the years of death might be. The operations described in cases (a) and (b) could then be repeated for different years of death or generations in order to have some comparability. Unfortunately, building such data sets would be particularly time-consuming and is therefore left for potential further econometric research.

Table 7 shows that age and time interact with the measure of mobility. Individuals in the bottom quintile in 1845 tend to be younger than individuals in the top quintile, which reflects different positions in the life-cycle. The average age at death seems to depend on wealth: it is higher for individuals who were in the top quintile in 1845 and for newcomers to that quintile. Conversely, individuals who are always in the bottom quintile have the lowest average age at death. So, there seems to be a noticeable relationship between economic mobility, living conditions and mortality. Lastly, a longer life span between 1845 and death is clearly associated with individuals who move into the top quintile or out of the bottom quintile. This upward mobility is due in part to the fact that the average level of wealth at death of individuals is increasing over the time period of analysis, from about 134,000 francs in 1845 to 464,000 francs in 1859. As a consequence of defining quintiles of wealth at death over a time period and not a single year, individuals who belong to the top quintile at death are more and more overrepresented over time (see Table 9), hence increasing upward mobility over time (Table 10).

**Table 9. Structure of the wealth distribution at death by time periods**

With initial quintiles					
Year of death by time period		1845-1849	1850-1854	1855-1859	All periods
Quintiles of wealth at death	20,220-67,399 fr	25.6%	20.8%	(—) 13.1%	20.0%
	67,400-119,999 fr	21.0%	21.5%	17.2%	20.0%
	120,000-207,540 fr	21.8%	19.4%	18.9%	20.0%
	207,541-411,607 fr	18.1%	20.2%	22.1%	20.0%
	411,608-3,697,350 fr	13.5%	18.1%	(+++) 28.7%	20.0%
Subpopulation size		133	144	122	399

Comparisons with first-column subpopulation: \*\*\* statistically significant at the 1% risk level, \*\* statistically significant at the 5% risk level, \* statistically significant at the 10% risk level. The symbols + and – give the sign of comparison.

**Table 10. Long-term economic mobility subdivided by time periods (with initial quintiles)**

With initial quintiles			
Year of death by time period	1845-1849	1850-1854	1855-1859
Subpopulation size	133	144	122
Moved up 2 or more quintiles	6.8%	10.4%	(+++) 24.6%
Moved up	21.8%	27.1%	(+++) 48.4%
Same quintile	35.3%	36.8%	33.6%
Moved down	42.9%	36.1%	(—) 18.0%
Moved down 2 or more quintiles	14.3%	15.3%	(—) 5.7%

Comparisons with first-column subpopulation: \*\*\* statistically significant at the 1% risk level, \*\* statistically significant at the 5% risk level, \* statistically significant at the 10% risk level. The symbols + and – give the sign of comparison.

So as to analyze more precisely the effects of time on mobility and wealth, I conclude my exploration of economic mobility with a complementary study of how the structure of wealth is changing over time. Table 11 presents linear correlations between the direct taxes paid in 1845 and Parisian

wealth at death for different five-year periods. I use linear correlations because I expect a linear relationship between direct taxes and wealth, especially for real property. Whereas economic mobility between 1845 and death is observed longitudinally, this is not the case for the evolution of correlations over time, since individuals only die once. However, the results shown in Table 11 are very suggestive of what could be the strength of the link between direct taxes and wealth for the same individual over time.

The correlation between the *cens* paid in 1845 and Parisian wealth at death is 0.43 in the first sub-period (1845-1849), which can be considered a fair correlation. This correlation, calculated over a five-year period, is far lower than the yearly correlation of 0.92 between the direct taxes paid in 1845 and 1846, which would tend to suggest the discrepancy between *cens* and wealth. Moreover, this correlation does not change much over time whereas I would have expected a decrease in correlation. In order to highlight increasing change in the structure of wealth over time, it is necessary to focus on each of the components of the *cens* in 1845 and wealth at death. The correlation between the *cens* in 1845 and real estate at death tend to decrease over time, from 0.45 in 1845-1849 to 0.32 in 1855-1859. This trend is obviously driven by the main component of the *cens*, namely the real property tax. The correlation between this variable and real estate at death decreases from 0.54 to 0.31. Correlations involving non-real estate at death show that there is a positive link between this variable and the total *cens* (and the real property tax too). The correlation coefficients are significant but quite low. This result is consistent with the fact that non-real property is not taken into account in the voting franchise. The *cens* reflects only partially non-real property. Concerning the *patente* tax, the correlation with non-real estate is good over the 1845-1849 period (0.41, or 0.54 when individuals who paid no *patente* in 1845 are removed) but tend to vanish in subsequent periods, which underlines the volatility of industrial and commercial activities. Lastly, there is a significant negative correlation between the *patente* tax paid in 1845 and real estate at death over the two first time periods (1845-1849 and 1850-1854). This negative relationship between *patente* and real estate shows that individuals who run a business do not have large amounts of real property and may acquire more real property only later on (the correlation is almost zero in the last time period). When individuals who did not pay any *patente* tax in 1845 are removed from correlation calculations, there is no link between the level of *patente* in 1845 and the amount of real estate at death.

**Table 11. Linear correlations between the cens and Parisian wealth at death by time periods**

Year of death by time period	1845-1849			1850-1854			1855-1859		
	Wealth	Non-rl	Real	Wealth	Non-rl	Real	Wealth	Non-rl	Real
Correlations calculated on the basis of all individuals who died in the indicated time period									
Cens 1845	**0.43	**0.28	**0.45	**0.46	**0.30	**0.37	**0.38	**0.29	**0.32
Real property tax 1845	**0.39	**0.21	**0.54	**0.46	**0.26	**0.40	**0.35	**0.24	**0.31
Patente 1845	**0.31	**0.41	*- 0.15	- 0.12	0.02	**_ 0.18	0.03	0.03	0.01
Parisian cens 1845	**0.65	**0.42	**0.71	**0.46	0.10	**0.55	**0.39	*0.16	**0.45
Parisian real property tax 1845	**0.53	**0.26	**0.77	**0.45	0.06	**0.57	**0.34	0.12	**0.42
Parisian patente 1845	**0.31	**0.41	*- 0.15	- 0.13	0.02	**_ 0.20	0.03	0.03	0.01
Non-Parisian real property tax 1845	0.05	0.04	0.04	*0.15	**0.29	- 0.06	0.09	**0.26	- 0.11
Correlations conditional on individuals who paid a strictly positive tax in 1845									
Real property tax 1845	**0.37	**0.21	**0.48	**0.47	**0.39	**0.33	**0.36	**0.32	**0.26
Patente 1845	**0.56	**0.54	0.13	- 0.08	- 0.09	- 0.02	0.21	*0.33	0.09
Parisian real property tax 1845	**0.57	**0.32	**0.77	**0.49	**0.24	**0.48	**0.36	**0.21	**0.37
Parisian patente 1845	**0.56	**0.54	0.13	- 0.10	- 0.09	- 0.07	0.21	**0.32	0.09
Non-Parisian real property tax 1845	0.32	0.28	0.20	**0.52	**0.64	- 0.03	0.42	*0.68	- 0.29

Non-rl = Non-real estate, Real = Real estate

Significance of Pearson correlation coefficients: \*\*\* statistically significant at the 1% risk level, \*\* statistically significant at the 5% risk level, \* statistically significant at the 10% risk level.

When the geography of the tax districts in which the voters paid their direct taxes in 1845 is taken into account, results are even clearer. The correlation between the Parisian part of the *cens* and (Parisian) wealth at death is quite substantial in the first sub-period (0.65) and then decreases over time (down to 0.39). The correlation between the Parisian real property tax paid in 1845 and real estate at death follows a similar pattern, from a remarkably high correlation of 0.77 in the first sub-period (in spite of the family dimension of the voting franchise that interferes with my attempt to measure true economic mobility) down to 0.42 in the last sub-period. Concerning correlations with the Parisian part of the *patente* tax, there is almost no difference in comparison with previous results because the *patente* tax is essentially paid in Parisian districts (there is a close geographical connection between residence and industrial or commercial activities). Correlations between non-real estate at death and each of the Parisian components of the direct taxes paid in 1845 shows that the link between non-real estate and these variables is temporary and tends to diminish with time. Lastly, a look at the non-Parisian part of the real property tax paid in 1845 reveals a quite substantial correlation with non-real estate at death (except for the first sub-period – the reasons for this are unclear), which confirms that non-real estate at death derives, in part, from non-Parisian land revenues.

## 5. Conclusion

*Cens* and wealth do not have the same structure but the discrepancy between these two variables should not be overemphasized. Under some conditions, the level of *cens* given in the electoral franchise lists – or, at least, its different components – can be regarded as an interesting proxy for wealth. Within the framework of a Parisian observatory of wealth, particular attention must be paid to the non-Parisian direct taxes because they suggest that a substantial part of wealth at death is likely to be unobserved. If the time period between the observation of the direct taxes and wealth at death is short (*i.e.* no more than five years or so), non-real estate at death remains relatively well correlated with the different components of the tax-based voting franchise. However, defining an equivalence scale between direct taxes and non-real property would not be self-evident. Most importantly, the franchise lists and the TSA are quite precious when it comes to studying shifts, especially changes in the amount of (Parisian) real property over time. Despite the difference in definition between *cens* and wealth, the data set proves to be quite consistent, as is suggested not only by the study of correlations over time and the description of the movements of voters into and out of extreme quintiles, but also by the parallel that can be drawn between short-term and long-term mobility<sup>31</sup>. Nevertheless, the fact that there is consistency does not mean that the study of long-term mobility on

31. It should be noted here that studying long-term mobility on the basis of the franchise lists of several successive years could be fruitful.

the basis of a comparison between direct taxes and wealth is an easy task. There is strong evidence that, in addition to widening inequality, long-term mobility was substantial during the 19th century. Economic positions within the elite were changing over time. The structure of individual wealth was also changing over time. Relatively many individuals managed to be temporary members of the “happy few”. But the variables from the data set provide a “blurred” vision of long-term mobility. One must be cautious when focusing on the mobility of a single individual.

Our results show that the Parisian electorate was very heterogeneous, both in 1845 and at death. Heterogeneity was continuously renewed between these two dates, as is suggested by my attempt to define the economic life-cycle profile of voters. The process of wealth accumulation and deaccumulation needs further investigation but, beyond this important question, our results can be interpreted in terms of political representation of wealth. The discrepancy between *cens* and wealth implies that the political elite and the economic elite do not coincide perfectly. Some very wealthy individuals are excluded from the franchise (individuals whose wealth consists essentially of moveable assets). Others, although not very rich, are included because they meet voting requirements (for instance members of the petty bourgeoisie who pay a *patente* tax). As a consequence, the tax bias raises the question of the nature of the electoral franchise – a kind of imperfect plutocracy.

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