**02 INFORMATION ABOUT PRINCIPAL INVESTIGATORS/PROJECT DIRECTORS(PI/PD) and
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PI/PD Name: Jean-Laurent Rosenthal

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Race:
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☐ Asian
☐ Black or African American
☐ Native Hawaiian or Other Pacific Islander
☒ White

Disability Status:
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☐ Hearing Impairment
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Black or African American. A person having origins in any of the black racial groups of Africa.
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List of Suggested Reviewers or Reviewers Not To Include (optional)

SUGGESTED REVIEWERS:
Emmanuel Saez, Department of Economics UC Berkeley.
David Weir, ISR University of Michigan.
Peter Lindert, Department of Economics UC Davis.
Anthony Atkinson, Nuffield College Oxford.
Clayne Pope, Department of Economics Brigham Young University.
Stanley Engerman, Department of Economics, University of Rocherster.
Joseph Ferrie, Department of Economics Northwestern University.

REVIEWERS NOT TO INCLUDE:
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COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

PROGRAM ANNOUNCEMENT/SOLICITATION NO./CLOSING DATE/if not in response to a program announcement/solicitation enter NSF 04-2	FOR NSF USE ONLY
PD 98-1320 **08/15/04**	**NSF PROPOSAL NUMBER**

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SES - ECONOMICS

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TITLE OF PROPOSED PROJECT   **Wealth Inequality and the Great Shocks of the Twentieth Century; Evidence from France 1912 1946**

REQUESTED AMOUNT	PROPOSED DURATION (1-60 MONTHS)	REQUESTED STARTING DATE	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE
$ **268,994**	**36** months	**03/01/05**	

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PI/PD DEPARTMENT **Economics**	PI/PD POSTAL ADDRESS
PI/PD FAX NUMBER **310-825-9528**	**Los Angeles, CA 90024** **United States**

NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Electronic Mail Address
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CO-PI/PD				
CO-PI/PD				
CO-PI/PD				
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CERTIFICATION PAGE

Certification for Authorized Organizational Representative or Individual Applicant:

By signing and submitting this proposal, the individual applicant or the authorized official of the applicant institution is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding debarment and suspension, drug-free workplace, and lobbying activities (see below), as set forth in Grant Proposal Guide (GPG), NSF 04-2. Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U. S. Code, Title 18, Section 1001).

In addition, if the applicant institution employs more than fifty persons, the authorized official of the applicant institution is certifying that the institution has implemented a written and enforced conflict of interest policy that is consistent with the provisions of Grant Policy Manual Section 510; that to the best of his/her knowledge, all financial disclosures required by that conflict of interest policy have been made; and that all identified conflicts of interest will have been satisfactorily managed, reduced or eliminated prior to the institution's expenditure of any funds under the award, in accordance with the institution's conflict of interest policy. Conflicts which cannot be satisfactorily managed, reduced or eliminated must be disclosed to NSF.

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By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant is providing the Drug Free Work Place Certification contained in Appendix C of the Grant Proposal Guide.

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Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency?   Yes ☐   No ☒

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Certification Regarding Lobbying

This certification is required for an award of a Federal contract, grant, or cooperative agreement exceeding $100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding $150,000.

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The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

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Project Summary

Until World War I wealth inequality in most industrialized economies was high. Then, in the next half century, it collapsed. In Paris, for instance, the share of wealth owned by the top 1% fell by half (from 70% to 35%). Although there has been significant variation in wealth concentration in developed economies since the end of World War II, in a historical perspective we have been living in a world of diminished inequality. In collaboration with Thomas Piketty and Gilles Postel-Vinay, I propose to investigate the collapse of wealth inequality by examining estate tax records from Paris in the period from 1912 to 1946. To do so I plan to collect detailed information of the composition of estates for individuals who died in Paris during the years 1912, 1922, 1927, 1932, 1937 and 1946. These years will give us access to one cross section before and one after each of the great shocks this era—WWI, the Great Depression, and WWII).

Intellectual merit of the proposed activity:

Although there has been increasing recognition of the importance of the changes in inequality that occurred between 1914 and 1950, relatively little is known about how the process unfolded. These data will complement data sets we have already collected from 1807 to 1902 and will allow us to compile homogeneous series on wealth concentration in Paris and France from 1807 to 1946 that complement published series that run from 1902 to 1984. Our data offer detailed information on the identity of the decedents and on the nature of the wealth they left behind. Hence we will be able to better understand why the very rich failed to maintain their relative position, and why the middle class started to accumulate assets at a much faster rate after rather than before WWI.

Broader impacts resulting from the proposed activity:

Understanding the decline in inequality that occurred during the first half of the twentieth century is important in its own right. More recently however, a number of economists have become interested in the consequences of the great shocks of the first half of the twentieth century on institutions. For some, these set back the development of private financial markets in those countries where the shocks were worst. Yet, to understand the political economy of institutional change, we need to know exactly what kinds of people were affected by the shocks and how that may have changed their preferences for one set or another of institutions. On another level, we suspect that older cohorts had a much more difficult time overcoming the adverse consequences of the shocks than did younger ones. Beyond the lost generations on the battlefield, WWI and WWII may also have destroyed a generation of savers. As such, studying the first half of the twentieth century may provide some important clues at to the persistent effects of very large shocks and thus be of relevance to present day concerns. Indeed developing economies in Eastern Europe, Latin America, Africa and elsewhere have been engulfed in very large shocks that have had important effects on wealth accumulation to understand them we can only turn to history for those play out over many decades.

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Appendix (List below.) **(Include only if allowed by a specific program announcement/ solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)**		

Appendix Items:

*Proposers may select any numbering mechanism for the proposal. The entire proposal however, must be paginated. Complete both columns only if the proposal is numbered consecutively.

<center>**Project Description**</center>

<center>**Wealth Inequality and the Great Shocks of the Twentieth Century;**
Evidence from France 1912-1946.</center>

Prior to World War I wealth inequality in most industrialized economies was high by contemporary standards. Then, in the next half century, it collapsed. In Paris, for instance the share of wealth owned by the top 1% fell by half (from 70% to 35%). Although there has been significant variation in wealth concentration in developed economies since the end of World War II, in a historical perspective we have been living in a world of diminished inequality. In collaboration with Thomas Piketty and Gilles Postel-Vinay, I propose to investigate the collapse of wealth inequality by examining estate tax records for Paris from 1912 to 1946. These data will complement data sets we have already collected from 1807 to 1902 and will allow us to compile homogeneous series on wealth concentration in Paris and France from 1807 to 1946 that complement published series that run from 1902 to 1984. Our data offer detailed information on the identity of the decedents and on the nature of the wealth they left behind. We can thus investigate in detail why inequality collapsed, something the published data do not allow and this begin to answer some key questions about the critical processes behind both changes in wealth accumulation and inequality.

The study of inequality has a long tradition in economics. For several decades the dominant approach was known as the Kuznets hypothesis (Kuznets 1955). Kuznets proposed a two sector model of economic development where the onset of industrialization increased inequality (because income in the industrial sector was higher than agriculture). But. Kuznets suggested, later on in the development process, as agriculture shrank in importance, inequality would decline. Kuznets conjectured that the decline in inequality in the U,S, that occurred during and after the Great Depression was evidence of such a process. In Europe other scholars demonstrated the existence and possible growth of inequality over the period of industrialization (e.g. Lindert 1986; Soltow and Van Zanden 1998) and pointed to the decline in income inequality that set in after WWI. Thus the persistent inequality observed in other parts of the world was somewhat of a puzzle.

In more recent years this account of the significant swings in the level of income and wealth concentration has been challenged. Scholars now have a far greater appreciation for the extent of inequality within a given occupation or place of residence. In Europe at least, even prior to industrialization there was a great deal of variance in wealth even within the occupational categories associated with agriculture and this was also true in urban areas (Sussman 2004, Soltow and Van Zanden 1998). It also appears that inequality increased both in urban and rural areas during the nineteenth century (Bourdieu, Postel-Vinay, and Suwa 2003), as both the share of decedents with no estate increased and among those with estates, the share of the top percentiles increased over time. Finally the increase in inequality was much more rapid in the new (urban and industrial) sector than it was in the traditional rural areas. In fact, if we consider the rise in inequality that occurred during the nineteenth century, increases in inequality within the urban-industrial population are more important than changes in the relative importance of the rural and urban sectors.

<center>1</center>

Much the same has occurred for the second, downward part of the Kuznets curve. The new scholarship (Piketty, 2001, Piketty and Saez, 2003) emphasizes the differential impact of negative shock and changes in fiscal policies. In the case of income, the negative shocks of WWI, the Great Depression and WWII hurt capital income much more than wages. Then the high rates of marginal taxation kept the very rich from accumulating wealth quickly and thus reconstituting large capital incomes. For the distribution of wealth, the effect of crises is less straightforward and thus worthy of detailed investigation. Indeed, the decline in income concentration comes from a large drop in the return to financial capital relative to wages. When we consider the distribution of wealth, wages are irrelevant. To understand the extent to which the very rich are hurt more by shocks than the middle class we must measure the relative returns to different assets and the composition of portfolios across the distribution of wealth. It is far from obvious that crises hurt the very rich more than any one else. Take, for instance, WWI when inflation hurt bonds far more than equities. Because the very rich typically owned more equities than the middle class (whose wealth was concentrated in family enterprise, real estate or government bonds) one might expect the very rich to have done better. Hence it may well be that the primary mechanism to redistribute wealth is fiscal and in particular progressive estate taxation.

Much of the new evidence is based on tabulations of individual returns published by government statistical offices (e.g. Piketty 2001, Piketty and Saez, 2003 Kopzuk and Saez 2003, Dell 2004). These tabulations are extraordinarily valuable in describing the evolution of wealth concentration, but they suffer several important drawbacks. They begin either in the very late nineteenth or early twentieth centuries. Further the tabulations are never detailed enough to allow any thorough analysis of the causes of variation in wealth concentration. Returns are at best broken down by one variable (say residence) therefore precluding multivariate analysis. Moreover, the tabulations are rarely broken down by age, sex, profession or any other key social variables. In many cases access to the original returns is impossible because they were destroyed or they are sealed for a century. In other cases it is the sheer size of the task that makes collection of the data impractical. When studying inequality, capturing the top of the distribution accurately is critical to accurate estimates.

In one case at least we can remedy these problems. By using French estate tax data we gain a rich window into the evolution of wealth inequality. Indeed, the French estate tax dates back to the French Revolution, providing a remarkably long term data source. Furthermore, the registers containing the individual declarations are available in the archives. In a recent paper Thomas Piketty, Gilles Postel-Vinay and I use estate tax returns to construct homogeneous series of wealth concentration for Paris and for France from 1807 to 1902 (Piketty, Postel Vinay and Rosenthal 2004). We propose to extend this work by collecting data on all estates left behind by individuals who died in Paris during the years 1912, 1922, 1927, 1932, 1937 and 1947. Doing so will allow us to track in detail the decline in the relative importance of very large estates in the first half of the twentieth century. We can thus investigate the relative importance of inflation during WWI, increased fiscal pressure on the top of the wealth and income distribution, and the collapse of equity prices after 1929.

Beyond the Measurement of Wealth Inequality.

The new recent empirical evidence has given us much more accurate measures of inequality for France and for many other countries as a whole. Although each source of data can be criticized for one reason or another the overall pattern is clear. The collapse of wealth concentration during the first half of the century in England, the U.S. and France is inescapable; smaller but similar trends occurred in Germany and Canada as well (Atkinson 2003, Piketty, 2001, Kopczuk and Saez 2003, Dell 2004, Saez and Veal 2003).

But how did this process unfold? The primary evidence for the decline in wealth concentration comes from estate tax data. But the sources used so far are too coarse to allow us to understand the precise nature of the reasons for the relatively more rapid accumulation of resources by the middle class, as well as the decline of the wealth of the very rich. While both phenomena occurred during the same period (1914-1945) they need not have been driven by the same processes.

To understand the process of decline in wealth concentration we need to be able to collect detailed evidence both about the very rich and about the rest of the population. A random sample, unless it is extraordinarily large, cannot provide an accurate estimate of the wealth of the very rich. Alternatively, one might imagine a stratified and nationally representative sample. Unfortunately that would require scholars to access all the depositories of estate tax records. For the twentieth century, many declarations remain in the attics or basements of local office of the finance ministry's revenue department, the rest are dispersed in the nearly 100 French departmental archives. A nationally representative sample would require traveling to hundred of locations, a prohibitively expensive endeavor.

Our project takes a radically different approach. We focus on a single location Paris—and collect all of the estate declarations for individuals who died in selected years. Because Paris is both a very large city and many of the very wealthy in France live and die there. Our samples thus allow us to study both the very rich and the middle class. In fact, understanding the evolution of inequality in France requires understanding the evolution of inequality in Paris. Moreover the city has long been the financial center of the country and innovations diffuse from Paris to the rest of the country. Paris was also on the forefront of demographic change in France because life expectancy at age 20 rose rapidly in the capital during the interwar period anticipating changes that would occur after WWII in the rest of the country. While it would clearly be desirable to have a non-Parisian sample, that will have to wait. Focusing on Paris alone has already given us considerable insight as to the extent of increases in inequality during the nineteenth century (both for Paris and the whole of France) and allowed us to eliminate Kuznets-like phenomena as the explanation for these patterns. Working with data from Paris has another set of virtues. The entirety of the capital's estate records has survived, having escaped destruction from wars, fire, or neglect. Further the records for the period we are interested in have been deposited at the Paris archives. They thus are easy to access.

Using the Paris estate data we can focus on the very rich. In their case we want to examine the relative importance of the negative shocks and of progressive taxation. While the shocks of WWI to WWII were very large they were not the first to hit the country. During the French Revolution, financial assets were essentially wiped

out, but inequality remained quite high even in the early nineteenth century. It then increased massively during the nineteenth century, as the very rich accumulated assets at a more rapid rate than the rest of the population. Progressive taxation did not really become important until WWI, and thus does not bear much on what those died in the interwar period owned. What they had inherited was transmitted under a low tax regime. Latter cohorts of the very rich had to accumulate despite both high death duties and high marginal rates of income taxation.

By studying estates by birth cohorts we hope to be able to differentiate the impact of taxation from the impact of shocks. We postulate that taxation weighed more heavily on the younger cohorts (because they did not enjoy any of the low tax regime) while shocks preyed more heavily on the elderly who were more likely to own bonds.

For the middle class we have several distinct hypotheses we want to explore. One is change in lifecycle savings patterns. Between 1912 and 1945 the fraction of the adult population dying at an age of 80 or more doubled (from 7 to 14%). Those dying older than 70 jumped from 23% to 40%, while those who died in their twenties fell from 10% to 5%. As individuals lived longer and longer, the importance of saving for the latter stages of life took on new importance. Such large scale changes could have spurred savings for the broad population and increased the number of individuals with positive estates—in particular at relatively younger ages.

Although one reason for the existence of positive estates is lifecycle savings coupled with uncertain dates of death, bequest motives surely play an important role. During the first half of the nineteenth century factors driving both lifecycle savings and bequests changes considerably. Fertility fell steadily over the course of the nineteenth and early twentieth centuries. As a result, the number of individuals with no direct descendents probably rose; that would have created more households without bequest motives. From a bequest perspective this would have reduced the number of households leaving an estate behind. On the other hand, the relative dearth of children to provide support in old age would have increased lifecycle savings, and thus the number of positive estates. Because we can break up the population between those with direct descendants and those without, we can gain at least an upper bound on the contribution of demography to the rise in middle-class estates.

Beyond demography there are financial developments worthy of note. The progressive expansion of pensions during the late nineteenth and early twentieth century would have reduced the need for individuals to accumulate other resources. Although pensions were, in effect, a form of involuntary savings, they may well have complemented more traditional accumulation. Indeed, early on at least, pensions were reserved for the most well-off of wage earners and government employees, hence it may well be that they were an infra-marginal development.

Finally, the rise of legislation facilitating condominium ownership in the 1930s opened up an asset to the middle class that had hitherto been reserved for the very rich. Parisian real estate, in particular, had long been the most concentrated of all forms of wealth because buildings were largely indivisible, and of a much greater value than the median positive estate.

While estate declarations are not an ideal way to observe wealth, they do allow us to examine each of these hypotheses. Indeed, declarations systematically list the heirs allowing us to know whether wealth was being transmitted to direct descendants.

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They report the payments to the estate (for the time that ran between last payment and the day of death). Finally, they report real estate ownership in great detail and thus allow us to date when home ownership was democratized in Paris. And, of course, they most often report age, which allows us to infer at what age these developments affected a particular person.

Our investigation will not only shed light on the causes behind the more rapid accumulation of wealth by the middle class, but also on the consequences of inequality itself. The extent of progress here will be more limited because we will not link estates across generations and hence we do not observe whether the estate one person leaves behind is the result of inheritance or accumulation. Nevertheless we can make some headway by examining a few questions of great import to understanding the consequences of inequality. To begin with, one can ask questions about the extent to which declines in concentration of wealth alleviate credit constraints. Indeed we do know the liabilities of estates and we can track the fraction of estates that have liabilities over time. To the extent that liabilities rose for wage earners, one would conjecture that access to credit was simply a way to tap into assets in the face of negative shocks like illness. To the extent that liabilities rose for business owners, one might conjecture that the decline in concentration was associated with an increase in entrepreneurship.

Estate Tax Data.

From the celebrated work of Alice Hanson Jones to more recent use of published tabulations, wealth at death data have been used extensively to study the distribution of wealth all over the world. Most studies rely on probates (Jones, 1980 Lindert 1986) yet probates suffer from several problems: not all wealth is enumerated and, more importantly, in most societies only a fraction of deaths lead to a probate.[1] How one extrapolates the wealth of those with probates to the whole of the population has dramatic effects on conclusions about the distribution of wealth. Estate tax data do not require such complex extrapolation because the heirs to any estate above a predetermined threshold must file a declaration and paid the tax. In the French case, everyone was required to file a declaration because even the smallest estates were required to pay death duties; hence there no need for any extrapolation. Further the quality of the declarations is quite high. By the twentieth century the tax administration had been collecting such duties for a hundred year and it had gotten very good at tracking down wealth (Piketty, Postel-Vinay, and Rosenthal 2004).[2]

Some thirty years ago, a team led by Adeline Daumard began seminal work on the evolution of inequality based on complete and detailed enumeration of estates in five cities for four years in the nineteenth and early twentieth centuries. Although a volume was published the project was never completed and the data have never been made publicly available. The preliminary results did show a significant increase in

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[1] In France at least the fraction of probates estates varies across regions and declines throughout the nineteenth century—thus unlike the estate tax data, they are subject to serious selection bias problems.
[2] The one significant omission records during the nineteenth century seems to be that estates that only contained the personal effects of individuals of very modest wealth were not subject to the tax. While this omission increases the number of individuals who were recorded as dying poor, it has little effect on measures of the concentration of wealth.

wealth inequality in France during the nineteenth century (Daumard 1976). Daumard's most recent sample data was prior to WWI, hence it offers no information for the period of declining wealth concentration.

Another project has attempted to produce a representative sample of estates for France by recovering all estate declarations for individuals whose last name started with TRA and linking these declarations with demographic evidence (Bourdieu, Postel-Vinay and Suwa 2003). Yet there were so few large estates in the TRA sample that it cannot be used to study the distribution of wealth, and the current data set offers far less information for the interwar period than for the preceding decades. Hence relatively little has been made of such records. More recently, Thomas Piketty has used the published tabulations of estate taxes to reconstruct the aggregate evolution of wealth at death in France (Piketty 2001). As noted above, however, the published tabulations are insufficient to answer any detailed questions about the evolution of wealth.

Data Collection

The key effort of this project will be the collection of six complete cross sections of estates for Paris for the years 1912, 1922, 1927, 1932, 1937 and 1946.[3] We plan a three year effort. We will collect the first three cross sections (1912, 1922, and 1927) during the first year of the grant. We will collect the other three cross sections (1932, 1937, and 1946) in the second year. Year three will be devoted to completing journal articles.

We will start with 1912, as a bench mark year prior to WWI. 1912 is interesting for its own sake because the public statistics suggest that the concentration of wealth at death peaked on the eve of WWI. A better understanding of the social characteristics of those who died very wealthy relative to the rest of the population would be valuable. Indeed there are two hypotheses as to why wealth was so concentrated at that time. The first emphasizes declining demographic rates in the nineteenth century and inheritance as the major sources of great estates. The more rapid growth of these great estates would be attributed to their heavier than average investment in equities and Parisian real estate—both of which enjoyed higher returns than bonds. The second hypothesis emphasizes the growth of very large firms which created one generation millionaires out of innovators, successful managers, and financial intermediaries. Comparing them to either the decedents in the nineteenth century or those of the interwar period will of itself yield valuable information. 1922 will serve to observe the structure of estates after the great inflation of WWI, while 1927 will do the same thing during the boom of the 1920s. 1932 and 1937 will serve to examine the Great Depression. 1946 will close off the panel with an observation after WWII (when French wealth was a low point).

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[3] We chose 1946 rather than 1947 because we would like to complete data collection within two years of receipt of the grant. Estate declarations must be filed within six month of a death, because paying taxes is better done later than sooner, the declaration for deaths in one year are mostly filed in May and June of the following year. Recovering the estate declaration for 1947 would thus require us to gain access to declarations filed in 1948; those however, will not be available until 2008 or three years at least from the grant's inception.

Building on the methodology we developed for the nineteenth century, we will not collect exhaustive information from each estate. Indeed doing so would be prohibitively expensive. Instead, for each individual filing a declaration we plan to collect only the information that is relevant to our research.

To begin with, we must collect some administrative information that will allow us and other scholars to locate the records. Further the records are estate declarations, but an estate can lead to more than one declaration because of amendments or errors and to properly measure individual wealth we must be able to aggregate all the declarations that relate to the same estate.[4]

We will also collect key social and demographic information including the first three letters of the decedent's last name (to serve as check for declaration aggregation), gender, age, date of death, marital status (i.e. the legal nature of the deceased's household whether single, widowed, married under community property or married under contract), profession, and heirs in direct line of descent. Gender and age are required if one is to reconstruct sex-specific wealth by age information. Profession is required to break out those individuals who would have received a pension which would matter to wealth at death in any lifecycle savings model. Similarly the existence of heirs in direct line of descent is important to understand bequest motives.

We will break out wealth into several categories: (1) real estate in Paris (2) real estate outside of Paris (3) equities (4) bonds (5) retirement annuities (6) other finance (including cash) and (7) all other household wealth. This represents a much greater level of detail on wealth than what we collected for 1902, but it is also a long way from the exhaustive list of all assets that one might consider. Our choice of these different categories is directly related to the hypotheses we want to investigate. Because WWI had its most detrimental effect on bonds, while the Great Depression was hardest on equities, and WWII engulfed nearly all types of financial assets, we must be able to track what types of wealth suffered and who owned it. We want to break out retirement annuities as well. Again our goal is to examine the effect of this innovation on lifecycle savings. Heirs were required to compile the gross wealth of the descendent, and then net out the liabilities. We will also collect the total amount of liabilities as well as some information about the extent of intermediated liabilities (e.g. debts to banks) and medical expenses.

To estimate the cost of this data collection effort we use the cost of collecting the 1902 cross section. In that year there were 36,366 adult deaths and only 9,830 of these had an estate. Collecting the data for 1902 required about 700 hours of work (while information about most estates can be collected very quickly those of value take far more time). We can use published data about the number of adult deaths in Paris drawn from the *Annuaire Statistique de la Ville de Paris* and information about the total number of estates published by the Ministry of Finance to infer the likely number for Paris in selected years (1913, 1929 1938 and 1947). Table 1 below, displays these estimates along with estimates of the time it will take to collect the data.

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[4] The way we construct our study allows later scholars who want to study sub samples of estate declaration in exhaustive details to use our cross sections to design stratified samples easily and to find the records included in their samples without difficulty.

As noted above, we have already collected nine cross sections from the nineteenth century (1807, 1817, 1827, 1837, 1847, 1857, 1867, 1877, 1887,) and one at the beginning of the twentieth century (1902) for the paper already written. Since then we have added 1812, 1822 and 1832 so as to be able to study cohort specific impacts of the inflation of the French Revolution. Hence we have already gained considerable experience in collecting these kinds of data. We have also trained research assistants (graduate students in History at the Ecole des Hautes Etudes) to do the work with laptop computers and digital cameras when necessary. Furthermore, during the last two years we have gained an extraordinary level of cooperation from the staff at the Archives de Paris where the records are located. Hence the technical issues of data collection have been resolved. I will spend summers in Paris supervising data collection, and my coauthors will do the supervision during the rest of the year.

Table 1: Decedents and Estates in Paris

	Number of adult deaths.	Share of Adults dying with an Estate	Number of Estate Declarations	Data collection (hours)	Cost @ $17/hour
1912	36,680	0.33	12,262	873	$14,844
1922	33,300	0.37	12,300	876	14,890
1927	31,780	0.40	12,852	915	15,558
1932	31,725	0.47	14,805	1,054	17,923
1937	30,274	0.53	16,013	1,140	19,385
1946	24,861	0.56	14,037	999	16,992
Total			82,269	5,858	$99,393

Note to Table 1: Numbers of death adult death are defined as death of individuals aged 20 or older as published in the *Annuaire statistique de la ville de Paris*. The share of adult death with positive estates was published in the *Bulletin de Statistique et Législation Comparée* for 1913, 1929 1938 and 1947. We use the 1913 fraction for 1912, the average of 1913 and 1929 for 1922, the 1929 figure for 1927, the average of 1929 and 1938 for 1932, the 1938 figure for 1937, and the 1947 figure for 1946.

Analysis

Although the estate data provide a complete picture of an individual's wealth at a point in time, it does so at the time of death, which is not random. Furthermore, individuals only die once implying that all comparisons across estates must perforce be on guard for problems of selection. Clearly there is negative relationship between wealth and mortality. Hence when large negative shocks occur individuals die younger and thus accumulate less wealth.

Our first level of analysis will be to make pair wise comparisons of two cross sections close in time. With the cross sections we can investigate the decline in wealth concentration by testing several hypotheses. First, by comparing the 1912 to the 1922 cross sections we can gain some understanding of the distribution of losses from the inflation of WWI. We can estimate the exposure of individuals of particular ages, sex, wealth and occupation to the inflation and then examine whether the decline in wealth we observe from 1912 to 1922 is consistent with that exposure. We can do the same from 1927 to 1932 regarding the collapse in wealth associated with the Great Depression (where we can use secondary sources to estimate the decline in equity values). We can do it again from 1937 to 1946 to examine losses from WWII.

Such paired comparisons are only a first step because they make a number of very strong assumptions: that each of the shocks (WWI, the Great Depression and WWII) was unanticipated, that savings behavior was not changing over time, and that it was relatively unresponsive to the shocks. Nevertheless, we have strong priors about the direction of the biases that using wealth at death data over time may impart. In fact, it is likely that we will underestimate the effect of the shocks on wealth. Consider WWI. To begin with, although the Great War was not a complete surprise, its intensity and the extent of inflation it caused were unanticipated. To the extent that individuals responded to the inflation, they would have done so by raising their savings rate and by diversifying their portfolio. Both of these responses should have been easier for the wealthy than for the middle class; hence, again we are likely to underestimate the extent of the shock to the wealth of the very rich. Clearly then, some of these biases can be bounded by comparing differences in the wealth attainments of one age cohort to another across two cross sections—in effect using difference in difference approaches

Even then, we face the possibility that savings behavior was changing over time for reasons not related to the shocks that we are investigating. Two such factors are potentially important. First, demographic changes (persistent declines in natality and mortality) would affect bequest motivation. Second, the late nineteenth century saw the first large expansion of pension systems in France, and the people who died in the interwar period were the first cohorts to have large numbers of retirees. Fortunately our data collection scheme will allow us to control for both of these factors because we will know whether individuals had direct heirs and whether they had a pension or expected to get one (given their employment at time of death).

Moreover, because we are collecting cross-sections every five years during the interwar period, we can also examine cohort wealth by age at death and thus check to see whether pensions created significant differences across cohorts. Our investigation of wealth by age at death is to some extent hampered by the fact our sample period currently ends in 1946. By the 1930s 10% of the adults who died in Paris were 80 or more years old. By implication the last cohort that we will fully cover will be that born in the 1860s. But these individuals were already in their late 50s on the eve of WWI, that is beyond the income peak of the lifecycle. For cohorts who were young adults on the eve of WWI (and managed to survive the war) we will only be able to reconstruct wealth at death for those died aged 60 or less. However, we hope to gain access to the data for the period 1950-2000 at a later date.

For the whole period, we also have access to detailed information about inflation, changes in GDP, equity and bond prices, as well as changes in real estate value. Hence, we can calculate in detail what effect changes in assets valuation had on

different asset portfolios. We also have access to detailed information from French censuses. These censuses are taken quinquenially, hence we will have a unique census/ estate tax cross section match so that we can use the 1911 census to get the characteristics of the living population to go with the 1912 estate tax data, and so forth.

Publication Plans

Obviously the foremost contribution of this project will be the new data sets on inequality that we will compile. We will also exploit these data in at least three different papers.

The first paper will deal with the causes of the collapse in wealth concentration during the first half of the twentieth century. It will provide far greater detail than is currently available as to what sets of estates were hardest hit and what sets of estates grew fastest.

Our second paper will contrast the consequences on inequality of the inflation shock of the French Revolution to that of WWI. Although the shock of WWI was far more severe in demographic and economic terms than the Revolution, financial were also far better developed in 1914 than in 1789. Among the questions we want to examine is the extent to which such financial development help dampen the shock to wealth?

Our third paper will look at wealth accumulation by younger cohorts (those born after 1900) relative to older cohorts by examining wealth concentration among those who died young (aged less than 70). By truncating our samples this way we can compare the accumulation behavior of cohorts over quite long periods of time and get some handle on the impact of different institutional changes on wealth accumulation.

Understanding the decline in inequality that occurred during the first half of the twentieth century is important in its own right. After all, it is perhaps the most important event affecting the distribution of wealth in developed economies. More recently however, a number of economists have become interested in the consequences of the great shocks of the first half of the twentieth century on institutions. For some, these set back the development of private financial markets in those countries where the shocks were worst (Rajan and Zingales 2003, Perroti and Von Thadden 2003). Yet, to understand the political economy of institutional change, we need to know exactly what kinds of people were affected by the shocks and how that may have changed their preferences for one set or another of institutions. On a different level, we suspect that older cohorts had a much more difficult time overcoming the adverse consequences of the shocks than did younger ones. Beyond the lost generations on the battlefield, WWI may also have destroyed a generation of savers. As such, studying the first half of the twentieth century may provide some important clues at to the persistent effects of very large shocks and thus be of relevance to present day concerns. Indeed developing economies in Eastern Europe, Latin America, Africa and elsewhere have been engulfed in very large shocks that have had important effects on wealth accumulation to understand them we can only turn to history for those play out over many decades.

Recent NSF Funding

None.

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Reed College,   1984   B.A.   History.
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PUBLICATIONS RELEVANT TO THE PROJECT.

"Wealth Concentration in a Developing Economy : Paris and France, 1807-1994."
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the United States during the mid Nineteenth Century." With Naomi R.
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Synergistic Activities.

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