

NBER WORKING PAPERS SERIES

THE SAVINGS OF ORDINARY AMERICANS:
THE PHILADELPHIA SAVING FUND SOCIETY IN
THE MID-NINETEENTH CENTURY

George Alter

Claudia Goldin

Elyce Rotella

Working Paper No. 4126

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
July 1992

This paper is part of NBER's research program in Development of the American Economy. Any opinions expressed are those of the authors and not those of the National Bureau of Economic Research.

NBER Working Paper #4126
July 1992

THE SAVINGS OF ORDINARY AMERICANS:
THE PHILADELPHIA SAVING FUND SOCIETY IN THE MID-NINETEENTH CENTURY

ABSTRACT

We explore the savings behavior and saving rates of ordinary Americans through their accounts at the Philadelphia Saving Fund Society, the oldest mutual savings bank in the United States founded in 1816 to encourage thrift among the working poor. Our sample contains the 2,374 accounts opened in 1850, of which one-quarter were linked to the 1850 census manuscripts. Savings accounts were generally brief affairs; only 30 percent lasted more than 5 years. But median balances mounted to about three-quarters of annual income in about three to four years. Deposits and withdrawals were infrequent, but substantial. The median deposit was about 1 to 2 months of gross income whereas the median withdrawal represented about 2 to 3 months but occurred far less often. Account holders, then, did not generally use their accounts for the short-run fluctuations in income we suspect they experienced. Only female servants, as a group, used their accounts for life-cycle savings eventually amassing large nest eggs through steady but slow accumulation. Men often used their accounts to hold funds on route to acquiring physical property. Estimated saving rates range from a low of 12 percent to a more sensible one of 21 percent among only active accounts.

George Alter
Department of History
Indiana University
Bloomington, IN 47405

Claudia Goldin
Department of Economics
Harvard University
Cambridge, MA 02138
and NBER

Elyce Rotella
Department of Economics
Indiana University
Bloomington, IN 47405

To promote economy and the practice of saving amongst the poor and laboring classes of the community -- to assist them in the accumulation of property that they may possess the means of support during old age or sickness -- and to render them in a great degree independent of the bounty of others Of the charitable institutions that have had for their object the amelioration of the human condition, none perhaps deserve higher commendation than those which, under the title of Provident Societies or Savings Banks, have lately been established throughout the kingdom of Great Britain.
"Address of the Philadelphia Saving Fund Society to the Public," December 13, 1816 (Willcox 1916, pp. 25-26)

Savings, it is well known, are an essential ingredient to the process of economic growth, and thus their determinants are subjects of great interest, particularly for the nineteenth century when the saving rate may have doubled.¹ We are concerned here with the savings behavior of ordinary Americans in the mid-nineteenth century and their motives for saving as inferred from accounts at the Philadelphia Saving Fund Society, the oldest mutual savings bank in America established, as stated in the headnote, to encourage thrift among the working poor.

The magnitude of savings depends on an individual's motive for saving which in turn arises from an optimization process implicitly solved by the household. The optimization process is a rather complicated one, in which the individual attempts to allocate income over time, most often but not always, to smooth consumption when income is more variable. The variability in income might have a large deterministic component, for example when there is a planned time of retirement or a known period of unemployment. More plausibly, but with additional complexity, income could have a large stochastic component, for example when there are seasonal or cyclical layoffs and in times of sickness. Further, the moment of death is itself uncertain. Another possibility is that consumption could be lumpy, as in the purchase of a consumer durable or a home when credit or a mortgage is unavailable. Finally, consumer units could be subject to severe constraints on borrowing, rendering savings and other asset accumulation even more

¹ A statistic related to the saving rate, the ratio of gross private domestic capital formation to gross national product, increased greatly over the nineteenth century -- from 12 percent in 1840 to 20 percent in 1900 -- before declining during the twentieth century (Davis and Gallman 1978). See, however, Ransom and Sutch (1984) for somewhat revised savings rate data that diminish the magnitude of the savings rate increase across the nineteenth century.

important. Taken together, we have a complex dynamic, stochastic optimization problem which, when solved by consumer units, yields a time path of saving, as well as consumption and asset accumulation.² Although savings are the outcome of an optimization process, motives are often categorized as being ex post precautionary, target, or life cycle in nature.

In the data analyzed here, we can observe the time path of saving and of wealth accumulation at a particular financial institution. But we cannot observe the related time paths of consumption and income. From the longitudinal data on individual savings we may be able to infer the motives of savers. Our interest in discerning these motives for saving is twofold. One returns the subject to the macroeconomic issues with which we began -- the increase in the saving rate, and the other turns attention to the microeconomics of financial security. Aggregate savings in the economy will be higher when the solution to the agent's optimization problem reveals one type of motive than when it yields another. Thus attention has often centered around finding the emergence of life-cycle saving as well as accumulation for bequests. On a microeconomic level, saving motives give us insight into the lives of Americans before the advent of a greater network of safety nets and insurance in the forms of Social Security, Medicare, unemployment benefits, workmen's compensation, and more conventional pensions, health and life insurance. Markets were extremely incomplete in the nineteenth century, and savings, physical assets, and dependence on family and friends took their place.

Alternatives for potential savers of ordinary means in the mid-nineteenth century were also severely limited. The mattress and cookie jar were always available to those who wanted to squirrel away funds, but were probably insecure and certainly did not yield a return. Physical assets, such as land and buildings, could be purchased by those with sufficient funds, but they were considerably less liquid than cash. Consumer durables and semidurables, including clothing, jewelry, and furniture, were also a somewhat illiquid means of holding assets (however see Rotella 1990, on pawnbrokers). Savers of more ample means might hold the bonds of

² See, for example, Deaton (1989) and King (1985) for a fine summary of the theory of saving.

railroads or states, or they might invest money in a commercial bank. But for the small saver, that is the bulk of the American populace, there were few options. One relatively safe, convenient, and, with hindsight, secure method did exist for those who lived in or around many of the nation's large cities. They could deposit their money in a savings bank. One of the largest was the Philadelphia Saving Fund Society (PSFS), chartered in 1816 and existing, in some form, to this day. We analyze data on savings accounts from the records of PSFS to explore savings among primarily working-class Americans in the mid-nineteenth century, in particular their level of saving, yearly accumulation, and the time path of savings from which we infer *ex post* motives for saving.

In brief, we find that half the accounts opened by adult males in 1850 lasted for less than 2 years, and among those surviving to year 2, more than half did not make it to 5 years. The majority of the accounts opened in 1850, then, did not survive to the Civil War period which witnessed account closings on a massive scale. Balances in year 4 were between \$200 and \$225 or about eight-tenths of gross annual income for working-class people. Deposits were infrequent but large, and withdrawals were even less frequent and somewhat larger. Final withdrawals were substantial in size and could have been payments for physical assets, about which we have some independent evidence. Two other groups of savers -- adult females who were not servants and female servants -- are also considered here. The accounts of servants had the longest duration. Slow, methodical saving left these women with large nest eggs in their advanced years. While men shifted their assets from the bank to physical forms, female servants, with fewer options of this nature, used the bank as their primary form of life-cycle saving. Annual net saving, among the adult male account holders, probably exceeded 20 percent of gross annual income during the active years of the account.

Savings Banks: Motives and Operation

The Philadelphia Saving Fund Society (PSFS) commenced operation on December 2, 1816, thereby becoming the first savings bank in the United States. Its first account holder was a black male servant in the household of the founder, Condé Raguét, a merchant, diplomat, and

free trade advocate who was influenced by literature on English savings banks. It was Raguet who suggested "that as the name of 'Bank' had become so unpopular with the Legislature, it would be expedient to call the institution by some other name in order to secure a Charter" (Willcox 1916, p. 18). By the time the Savings Fund Society had received a charter from the state legislature in February, 1819, there were savings banks in Boston, Baltimore, and a number of other cities. By 1820, there were ten U.S. savings banks serving 8,635 depositors, 665 of whom had accounts at PSFS (Payne and Davis 1956, p. 18; Willcox 1916, table following p. 166).

Those who founded and managed savings banks put forward a rationale of benevolence. PSFS, in its first public statement, defined savings banks as charitable institutions "to promote economy and the practice of saving amongst the poor and laboring classes of the community" (Willcox 1916, p. 25). They saw their institution as an appropriate place for saving motivated by precautionary, target, and life-cycle objectives. A pamphlet, laced with homilies from Franklin, publicized the bank's founding and trumpeted the virtues of "gradual accumulation and ultimate provision for the casualties of life and the wants of age." In a series of examples of accumulation based on regular deposits, the pamphlet shows how an apprentice could save enough to set up his own business and a family could provide dowries for children (Willcox 1916, pp. 35, 38-41).

The men who joined Raguet as officers of the Society were among the most prominent social and business leaders of Philadelphia. They promised to use their expertise to "afford a secure and profitable mode of investment for small sums (returnable at the will of the depositor on a short notice) to mechanics, tradesmen, laborers, servants and others, who have no friends competent or sufficiently interested in their welfare, to advise and assist them, in the care and employment of their earnings" (Willcox 1916, p. 26). The legislature took seriously the claim that the Society was to serve the humbler members of the population and enacted a limit on aggregate deposits, dropped in 1851, hoping to discourage acceptance of deposits from the wealthy. The limit on individual deposits imposed by PSFS from 1828 to 1869 was \$200 (Willcox

1916, p. 45, table following p. 166).³

Other scholars have examined whether savings banks were in fact charitable institutions that served the poor and working class. Albert Fishlow (1961), in a study of British savings banks, found that by far the largest group of depositors were servants. Small tradesmen, artisans, and otherwise unidentified women and children were also well represented among account holders, but few members of the industrial working class had accounts. Wealthy individuals, attracted by the high government-subsidized interest rate in British savings banks, held over half of the aggregate account balances. In a detailed examination of the Savings Bank of Baltimore, Peter Payne and Lance Davis (1956) argue that the Baltimore bank remained true to its stated philanthropic principles through the first half century of operation despite the lack of state oversight. Strict limits were placed on weekly deposits and periodically the bank examined its rolls and returned the deposits of those with large balances and employed in occupations untypical of "the thrifty poor" (pp. 32-36). Alan Olmstead (1976), who studied 12 New York savings banks, expresses more skepticism regarding the stated philanthropic motives of savings bank trustees. He speculated that some who served as trustees did so to gain favored access to credit for real estate purchases and other ventures (pp. 14-19). In his examination of depositors, Olmstead found that despite the preponderance of servants and workers among account holders, many were members of the middle and upper classes who held substantial balances (pp. 50-55). Although our purpose is not to examine the motives of savings bank trustees, it appears that the Philadelphia Saving Fund Society maintained its philanthropic character and was among the most conservative of all savings banks throughout at least the first

³ Although it is not clear from the written record whether the limit of \$200 was placed on gross or net deposits, the accounts suggest that it was net. When the bank was founded there was no limit, but a limit of \$500 was imposed in 1819 in conjunction with the bank's receiving a charter from the state. This ceiling was reduced to \$200 in 1828 and remained in effect until inflation during the Civil War so eroded the dollar that the limit became binding on too many customers. It was raised to \$500 from 1870 to 1876 and then lowered to \$300 from 1876 to 1897.

century of its operation.⁴

The Philadelphia Saving Bank at Mid-century

By 1850 PSFS had 10,229 account holders and total deposits in excess of \$1.7 million.⁵ At this size it was considerably larger than the average U.S. savings bank which had 2,327 account holders and about \$400,000 in deposits. The average PSFS balance was \$172, exactly equal to the national mean (PSFS Annual Report 1850; Payne and Davis 1956, p. 18).

The Society reached the 1850s in good financial shape having weathered the difficulties of the early 1840s when all but nine banks in Philadelphia failed. By this time PSFS's investment portfolio was heavily dominated by mortgages of which the managers could say proudly that "not one cent of the principal has been lost by the Society" (Willcox 1916, p. 181). In the early 1850s the bank was bumping against the statutory ceiling on aggregate deposits which was removed in 1851, allowing more rapid growth thereafter. The mid-1850s was an unsettled period in U.S. financial history with financial panics in 1854 and 1857. The bank experienced a large deposit outflow and a decline in the number of accounts at the end of this period. This instability, however, was minor compared with the difficulties attending the early Civil War period when the

⁴ By conservative we mean that it carefully guarded the safety of its accounts. It held a contingent fund that was considered large for its liabilities, and thus was only able to pay a somewhat lower rate of return. What information we have on interest rates paid by other Philadelphia savings banks does indeed suggest that the rate paid by PSFS was lower than that paid by some, but not all, others. Olmstead reports that the Bank for Savings in New York City was a prudent and conservative bank and often paid a lower rate than other mutual savings banks (1976, p. 36, table 3).

⁵ About 220,000 males and females \geq 20 years old lived in Philadelphia county in 1850, which became the city's boundaries in the early 1850s. Thus the 10,229 accounts represent about 5 percent of the county's adult population. We do not know for certain, but possibly 70 percent of the account holders lived in the central portion of the city and its neighboring wards to the north and south, the five wards searched in the linkage. (Note that we only searched addresses that we could find on city maps and these exclude some we believe were living in these wards.) These represent 4.4 percent of the area's adult population in 1850. The majority of these individuals lived in the central portion of the city, its first ward. The account holders whom we suspect were living in that ward were 9.6 percent of the adult population living there. That is, our best guess is that a large percentage of the city's adult working-class population held accounts at PSFS or held an account there at some point in their lives.

number of accounts fell by 40 percent and total deposits were nearly halved. The bank met these extraordinary demands for deposits by using its very large contingent fund and by selling securities from its portfolio (Willcox 1916, pp. 179-189). This experience confirmed the managers in their belief that a large contingent fund was efficacious even though it meant paying lower interest rates than offered by other savings banks in the city.

By 1850, PSFS had grown considerably, was professionally managed, and occupied its own impressive building, but it still professed its original ideals. In his 1850 Annual Report, bank President Clement Biddle argued that evidence on deposits and withdrawals showed that "the benefits of the institution have been legitimately conferred on the large classes of humble and helpless, but thrifty and prudent, persons for whose protection, and consequent improvement, the Philadelphia Saving Fund Society was established." In that year 38 percent of all male account holders were "mechanics, artisans, or handycraftsmen" and another 28 percent were in business or professional occupations; 43 percent of female account holders were "domestic servants, nurses, or housekeepers." PSFS then was similar to other savings banks in the clientele it served, particularly in its high representation of female servants.

The Philadelphia Saving Fund Society Data

The archives of the Philadelphia Saving Fund Society (PSFS) contain two types of records bearing on the Society's account holders, beginning with the bank's operations in 1816. To open an account, one had to sign the "signature record," and furnish street address and occupation, in addition to depositing a modicum of money.⁶ An account number was then assigned by the bank, and deposits, withdrawals, and account balances were subsequently recorded in enormous ledger books, as well as in the passbook issued to each account holder. There are, thus, two types of records in the archives: the "signature books" and the "account ledgers," linked to each other by account number, as well as name of the account holder. We have collected

⁶ The bank imposed a minimum deposit of \$1.00, but did not pay interest on less than \$5.00.

information on all accounts that were opened in 1850, although the sample analyzed here is but a subset of that one. Our choice of 1850 was to enable linkage of account holders to the Philadelphia federal census manuscripts of that year.⁷

Our data consist of two samples, one nested in the other, where the larger "sample" is the entire population of accounts opened in 1850. Initially, we collected information from the signature records for all accounts opened in 1850, of which there were 2,374. For all account holders living in center-city Philadelphia (ward 1, containing 17 subwards, and the four closest wards to the North and the South), we attempted a linkage to the census using name, occupation, and address.⁸ We successfully linked 642 account holders and then collected their account records from the ledger books.⁹ Only after we analyzed these records did we determine the value of drawing the entire population, that is the 1,733 additional accounts for those we could not, or chose, not to link.¹⁰ In addition to the running account, information on sex, occupation, and signature literacy, all from the signature books, the linked sample gives us relationship to household head, age, property value (real estate) of the household, and literacy, among other variables recorded in the 1850 census. Thus, we will rely on the smaller linked sample when age and relationship to the household head are needed and the larger sample when they are not. We term the smaller of the two "linked," while the other is the entire population of accounts

⁷ We chose not to use 1860 because those accounts would have been immediately affected by the financial turmoil attending the Civil War.

⁸ Address was not given in the 1850 census but was added by the Philadelphia Social History Project to the photocopy of the census manuscript we used at the University of Pennsylvania. The Philadelphia Social History Project used city and business directories to find the addresses. Although all city residents were not included in the directories, enough were to infer the addresses of most others under the (generally correct) assumption that census takers walked up and down city blocks.

⁹ It should be noted that the linkage rate is not 27 percent ($= 642/2,374$), but closer to 50 percent because we only attempted to link account holders who lived in the center portion of the city.

¹⁰ We have, at present, 75 percent of the unlinked accounts and will have the completed sample by the end of the summer.

opened in 1850, although we analyze here only those opened by adults.¹¹

The data set is, it should be realized, both truly longitudinal and cross sectional. We have, for each account holder, information that pertains to 1850. Some variables did not change over time (birth date, sex), but some clearly could have (occupation, address, signature literacy). We also have running accounts of balances, deposits, withdrawals, and interest accruals from the ledgers that last until the account was closed. We have, at present, no information on whether an account was opened in the same name at a later date.

Two features of the sample must be considered in the interpretation of the data. All accounts in the sample were opened in 1850, and thus we are observing the survivors of a process. The financial holdings of these survivors, moreover, are for only one type of asset -- their savings at PSFS. For the 642 individuals linked to the U.S. population census we also have the value of real estate, although very few account holders declared this form of wealth.¹² Although we are able to look at only one form of liquid wealth, it is likely that, aside from cash, this form was the only one being used. Ordinary Philadelphians in 1850 did not have many options when it came to savings banks. Two were listed in the Philadelphia city and business directory for 1850: PSFS, centrally located on 6th Street, and the Western Savings Bank, located (not surprisingly) more westerly on 10th Street. By 1853 a third institution, the Savings Fund of the U.S. Company, located on 3rd and chartered in 1851, was listed, and in 1854 the Saving Fund of the National Safety Trust Company was in operation. The latter institution, and many of those advertising later in the 1850s, were aimed at the very small saver and had more convenient hours

¹¹ We infer that they were adults by the absence of the terms lad, girl, boy, or the phrase "in trust for" in the column for occupation in the signature record.

¹² Just 28 out of 642 did, of whom 25 were adult males. The fraction of all adult males in the sample who were listed as owning real estate ($[25/260] = 0.07$) is slightly lower than that in the 1850 census among three groups of males, where the individual fractions are: 0.13 for native-white men, 0.06 for Irish-born males, and 0.07 for German-born males (Hershberg and Williams 1981, p. 416). Aggregating these data using the percentages in the PSFS linked sample yields an overall fraction owning real estate of 0.094, where the distribution among places of birth in the PSFS linked sample of males is: native-born, 0.406, Ireland 0.346, Germany 0.115, and other 0.132.

than PSFS. By 1855 the city and business directory reported 7 savings banks in Philadelphia, but in 1850 PSFS was just about the "only game in town" for the relatively small saver.

Characteristics of the Account Holders and the Accounts

Account Holders

Among the accounts linked to the 1850 federal population census manuscripts, 59 percent were held by females.¹³ Relationship to the household head was inferred, as it must be using the 1850 census, from information on last name, age, and order on the census manuscripts.¹⁴ Although the majority of males were heads of household and the majority of non-servant females were wives, the unknown category looms large for both. Evidence from 1880 suggests that most of those in the unknown category were boarders. Among male account holders professionals, tradesmen, and skilled craftsmen were slightly overrepresented. Among female account holders, servants were substantially overrepresented.¹⁵

Males and females who were not servants were distributed across the various age groups in Table 1 in about the same proportion, but female servants were disproportionately in the 20 to 29 year range -- indeed 54 percent were. Most opened their accounts, it seems, when they found their first employment. We know that some of the wives who had accounts were helping

¹³ The bank maintained detailed records of its account holders and these show that among all accounts in 1850 (of which there were 10,229), 44 percent were females, and 44 percent of the females were servants (counting housekeepers and nurses as domestics). Because the accounts of women lasted longer than those of men, women should have been overrepresented among account survivors relative to their proportion among those who opened accounts. Among the women whom we coded as servants, 87 percent lived in the households of others. That is, the vast majority of female servants boarded with their employers.

¹⁴ Not until 1880 did the U.S. federal population census inquire about relationship to household head.

¹⁵ Even though the PSFS sample is not entirely representative of the entire population of Philadelphians in 1850, the linked sample appears to be a rather unbiased sample of the entire group of accounts opened in 1850. Table 2 indicates nearly identical percentages with regard to the three main groups -- males, female nonservants, and female servants, and the duration distributions and the occupational percentages for males are also quite similar.

their husbands circumvent the upper limit on new accounts.¹⁶ Because we have little information on many of the female nonservants and their accounts seem a heterogeneous bunch, they are the most difficult to analyze and will generally not be discussed.

Most accounts begun in 1850 were brief affairs. Fully 43 percent, across all groups, closed within two years. Although 30 percent lasted at least 5 years, just 13 percent of the accounts extended beyond 10 years.¹⁷ Brief account histories in the PSFS records, however, do not necessarily imply that asset accumulation ceased for those who closed accounts. Rather, the data, we shall see, are consistent with an interpretation that many account holders, when they closed their accounts, moved resources to other assets, although we cannot be certain of this.

Longer accounts were disproportionately held by the very young, female servants, female heads of household, women in general, and those with unknown relationship to the head of household, among both sexes. Male heads of household and males in general had relatively brief accounts. Fully one-half of all accounts opened by adult males closed before 2 years while only 31 percent of those opened by female servants did. The fact that, among men, the most stable and settled group -- male heads of household -- had the briefest accounts, while the apparently least settled group -- probably boarders -- had the longest accounts, suggests that the closing of an account may have often involved moving funds to other assets, rather than drawing it down to meet exigencies. Various aspects of the accounts, to be detailed later, suggest they were not being used primarily to smooth consumption over the short run, what is often called "precautionary saving." Male account holders, in particular, appear to have used the accounts to amass sufficient funds to purchase another asset, sometimes business property.

¹⁶ This was clearly the case for those wives who opened their accounts precisely when their husbands did with exactly \$200, which was the upper limit for net accumulation in a particular year.

¹⁷ Although withdrawals increased in 1854 and 1857, accounts did not close with more frequency in those years. They did, however, close disproportionately more in 1861. Our sample, however, is rather small by the Civil War, and thus the distribution of account lengths is probably not much affected by the Civil War. We cannot investigate the separate roles of duration and year since all of our accounts began in 1850.

Among adult males who opened accounts in 1850, more than 50 percent had a trade, owned a store, were professionals or skilled craftsmen. Because we have no information on income, occupation provides our only evidence regarding whether the bank fulfilled its objective of encouraging thrift among the lower-income groups in society. A minority of male account holders were from the very lowest rungs of the occupational ladder, although among women the proportion, as indicated by those who were servants, was considerably higher. The dominant occupation for males was in the trade and skilled category. We do know that a few of the wealthier citizens of Philadelphia had accounts at PSFS. Among our account holders, for example, is a 5-year old named Wharton Sinkler, who was to become one of the city's richest men, and several Biddles, likely relatives of the bank's president in 1850, Clement Biddle.

Accounts: The Long and the Short of It

Summary information on central tendencies among balances, deposits, and withdrawals is provided in Table 2 for adult males, adult females who were not servants, and female servants by eventual length of account. An immediately obvious aspect of the accounts is their magnitude. For very brief accounts (up to 2 years duration), average balances for males were \$82 or about one-third annual income, while accounts of medium duration (2 to under 5 years) were \$161 or about six-tenths annual income.¹⁸ Maximum balances for accounts of 2 to under 5 years were \$224 or eight-tenths annual income.

Accounts lasting from 2 to 15 years began life with nearly identical values, with an initial deposit of \$70 to \$90 for males, \$70 for females, and \$35 for female servants. Accounts that closed early generally began with less, as did, oddly enough, those that lasted an exceptionally

¹⁸ A recent study of wages paid to civilians hired by the U.S. Army reveals that the daily wage in 1850 for laborers was \$1.075, for artisans \$1.434, and for clerks \$2.352 (Goldin and Margo 1992). Most account holders were in either the laborer or artisan group. The question, then, is how many days per year a laborer or artisan could expect to find work. If the working year were 10 months long and each month contained 26 working days, annual income for a laborer would have been \$280 in 1850. It should be noted, however, that many of the account holders were self-employed, and we have no way of knowing what their annual incomes were, other than to appeal to labor market equilibrium. Median balances, deposits, and withdrawals did not differ greatly for adult males by occupation, with the exception that laborers had smaller deposits.

long time. Subsequent deposits were somewhat less than half the initial amount for all three groups and did increase, to a point, with the length of the account. Thus the subsequent median deposit for a male account holder was \$30 to \$40 for accounts lasting 2 to 15 years and \$15 for a similar account held by a female servant. The median withdrawal (excluding the last) was far larger than the median deposit (excluding the first), and the ratio of withdrawals to deposits for males was about 1.8.

To understand how accumulation took place, when it did, one must also look at the number of deposits and withdrawals per year. Deposits among adult males occurred about every 10 months for the 2 to 5 year accounts, while withdrawals occurred only once every 3 to 4 years, if that. Accounts, then, were not very active and became even less active with time, particularly with regard to deposits.

Final withdrawals were in amounts that greatly exceeded average withdrawals -- often three times the amount -- suggesting, but not establishing, that funds were shifted to alternative uses rather than being drawn down to meet payments of various sorts. Note that we have no direct evidence from the account records concerning whether the account was closed because of a move from the Philadelphia area or because of death. As we noted before, accounts of the more geographically stable groups were briefer than were those of boarders, for example, and thus we believe that the majority of accounts closed because individuals shifted funds into other assets, (e.g., property).

We have evidence on this score, although it is somewhat meager. City and business directories for Philadelphia were published annually during the 1850s. By tracing account holders who closed their accounts we can see if they left the directory or purchased additional property. Because these directories, like today's phone books, could have been a year or so out of date, we employ the rule that movement out of the directory just before or in a period of two years after the account was closed constitutes leaving the city, and a purchase of property within two years of closing the account also constitutes evidence of the use of the funds. We also limited our

attention to accounts that were closed before 1857 and to male heads of households, who were the only group routinely covered in the directories.

Thus far we have searched only 41 names of male heads of households. Of these, we found 32 names at least once or 78 percent. The remaining 22 percent could have escaped the attention of the directory or left town too soon after their arrival to be counted. Of the 32 we did find, 22 percent (or 7) left town sometime just before or after they closed their account, 38 percent (or 12) had a change of address, and 22 percent (or 7 of the 12) had listings that suggest they purchased real estate, that is they acquired an additional address or expanded into a neighboring lot. Thus, very few of those who closed their accounts did so because they were leaving town, and considerably more were engaged in some type of transfer of funds into real estate. We do not have a compelling story for the remaining 13 of the 32 accounts we traced, but the purchase of a horse, a carriage, or a piece of machinery would not be apparent in the directories we have consulted. We find this small amount of evidence to be compelling and to suggest that, at least for many of the male heads of households, the bank provided a means of storing and accumulating funds for the purchase of physical assets.

Our point is that final withdrawals differed so greatly from withdrawals that did not close the account that it seems unlikely that month to month exigencies were responsible for most account closings.¹⁹ Similarly, because the initial deposit was about twice as large as subsequent deposits, for all but the very longest accounts, many account holders already had substantial accumulations and thus may have been shifting between assets when they opened the account.

¹⁹ Simulation models as in Deaton (1989) would be needed to establish this point more formally and forcefully. If account holders were saving for precautionary reasons, the amount of the final withdrawal would, by necessity, be greater on average than previous withdrawals. That is, if an individual's income were subject to stochastic shocks, savings would be used every now and then to smooth consumption. A series of bad draws (e.g., spells of unemployment) or one considerably bad one (e.g., one long spell of unemployment) could cause the individual to reduce the account to zero and be forced to close it. Thus, the final withdrawal would have to be larger than the previous ones, on average. But final withdrawals in the PSFS accounts seem, to our eye, to be larger than ones consistent with a model of precautionary savings.

The Life Cycle of Accounts and Life-Cycle Savings

Two aspects of the life cycle are of interest here -- those relating to the account and those to the individual. Those concerning the account are summarized in Table 3 in which median balances, deposits, and withdrawals are given in intervals by eventual length of account. This mode of presentation enables one to observe how account behavior changed over the course of the account, given its eventual length. Thus one can see whether accounts that died early differed in their deposit (or balance or withdrawal) histories from those that lasted a long time.

Independent of the eventual length of the account, accumulation appears to have taken place for the first several years. Accounts then reached a plateau and subsequently declined in magnitude. The median account for males rose to a bit less than a year of gross income in 1850, also independent of the eventual length.

Long and short accounts of from 2 to 15 years in eventual duration did not differ greatly or systematically early in their lives. This point was made before with regard to the initial deposit, and a similar conclusion can be reached for either median balances, deposits, or withdrawals by reading across the rows of Table 3. There are some exceptions to be sure, but generally there is little to distinguish the accounts that survived to old age from those that died young. We are not certain, at this point, why longer accounts cannot be distinguished from the shorter ones early in their lives. One possibility is that the process that generated long and short accounts was random and that the longer ones belonged to fortunate individuals whose bank accounts survived the various shocks to income over the lifetime of the account (and the person).

Given the detail we have presented in Tables 2 and 3 on the account holders and the accounts, we can easily characterize the median saver and the process of accumulation and deaccumulation. Consider the median male whose account lasted 4 years. It began with \$71. During its early years deposits were made somewhat more regularly than once a year, and withdrawals occurred about once every three to four years. Deposits were about one-half the initial amount or about \$40 (in 1850 dollars), with the exception of the first year when they were

less. Withdrawals were, on average, about seven-tenths of the initial deposit or \$50, but being less frequent than deposits contain more variance in the sample. Because deposits occurred three to four times more often than withdrawals, accumulation took place. Further, accounts at PSFS were interest-bearing and accrued interest at the rate of 4 to 5 percent during most of the period we are considering.²⁰ Using the numbers for the median account for males in the sample, an account that lasted, say, for two years had an expected value of about \$150; the average (male) saver at four years would have accumulated a sum of money equal to about \$200. Final withdrawals were for approximately the amounts just given, as can be seen with reference to Table 2. The accounts did not mount and then decline slowly. Rather, they mounted and were then terminated. Thus the typical PSFS savers added to their accounts infrequently but regularly, dipped into them rarely but not for inconsiderable sums, and closed their accounts by withdrawing rather substantial sums of money.

This depiction of the median saver implies that many used other forms of credit, as well as other forms of asset holding. Their accounts at PSFS were not used as the counterpart to our checking accounts. Rather, they were more like our money-market accounts. Cookie jars and mattresses may have enabled account holders to accumulate cash. When the cash reserve reached some target level, possibly having been drawn down several times in the interim, it was carted off to the bank. We find no evidence that the bank discouraged people from bringing in relatively small sums, and there are many entries for deposits under \$5.00.²¹ Similarly, on the

²⁰ Interest paid by PSFS, as given in the records of the bank, accrued at the rate of:

| | |
|-----------|--|
| 1850-56 | 4.0 % |
| 1856-58 | 4.8 % |
| 1859-63 | 5.4 % |
| 1864-79 | 4.8 % |
| 1880 | 4.0 % |
| 1881-82 | 3.0 % |
| 1883-85 | 3.0 % to \$1500; 2.0 % > \$1500 |
| 1886-88 | 3.0 % to \$1500; 2.0 % to \$4000; 1.0 % > \$4000 |
| 1889-1906 | 3.0 % |

²¹ The minimum deposit, we have already mentioned, was only \$1.00.

downside, our savers must have been extended credit by the landlord, grocery store, tavern, friends, and family, and gone with some regularity to the local pawnshop. At some time, it appears, all came due, sending the saver back to PSFS to withdraw what appears to be a very large sum of money.²² Savers, it seems, were not withdrawing amounts to tide them by for a few weeks or a month at a time. Rather, they were withdrawing 2 to 3 months of average gross income, just as they were depositing 1 to 2 months of average gross income. These withdrawals, of course, could just as well have been used for large purchases or to meet payments on a mortgage. It seems clear from the regularity of withdrawals from some accounts that some savers were using these funds to repay loans. On the basis of the information at hand, we cannot distinguish between withdrawals to meet exigencies, often called precautionary savings, from those to meet scheduled payments, often called target savings. We speculate that target savers withdrew larger sums than precautionary savers, and thus the pattern described above suggests, but does not prove, the predominance of target saving.

The infrequency of both deposits and withdrawals was probably not due to high transactions costs, although there may have been long lines on certain days and at certain times. Virtually all account holders in the linked sample lived within walking distance of the bank and many lived within a few blocks. The bank's hours were Monday and Thursday from 9 AM to 1 PM and again from 3 to 7 PM; it was, therefore, open 20 hours a week in 1850 and somewhat more later in the decade. We do not know how many bank clerks handled business during these hours, and we suspect, but are not certain, that a special window was set aside for opening and closing accounts.²³ The clerks, it appears from the bank's history, balanced the books after hours. If one clerk handled all account openings and closings and another dealt with the more

²² This reckoning could have been institutionalized as part of the New Year. We do observe more account activity in January than during any other month.

²³ Our suspicion comes from the fact that opening an account involved signing the signature record and closing an account required consulting the same large record book. Other banks at that time had separate days or hours and separate windows for the opening and closing of accounts (Olmstead 1976).

usual transactions, then a deposit or withdrawal would have occurred about every 4 minutes. Two clerks would have allowed twice as much time per transaction.²⁴ With one clerk there could have been long queues at certain hours that discouraged transactions, although we have found no record that the bank had regular queues of customers.

An important feature of individual saving behavior is the early planning for one's old-age and retirement needs, termed life-cycle saving. When individuals save for old-age needs, savings are generally higher than when saving fulfills more precautionary, short-run functions. Thus the search for when Americans began to save for the long-run is a subject of great interest among those seeking the reasons why the aggregate saving rate rose across the nineteenth century (e.g., Ransom and Sutch 1984). To use the PSFS records to observe life-cycle saving we must limit attention to the linked accounts which include the age of the account holders.

We have already established that short and long accounts, early in their histories, were similar in terms of average balance, deposits, and withdrawals. Thus, we will consider short and long accounts to be portions of the same account history. By pooling the data we can increase sample size to observe how savings change as an individual ages, rather than just as the account age. That is, both the age of the account holder and the age of the account are potential determinants of deposit balances. Figure 1 graphs median balance by the age of the account holder for three age groupings at which the account was opened. Adult males and female servants are considered separately. The graphs, therefore, give a life-cycle view of the account histories both in terms of the individual and the account.

Only female servants show much evidence of continuous accumulation and thus what might be interpreted as life-cycle accumulation. The reasons may be obvious for they probably had no other forms of wealth, such as physical property. Because they were generally unmarried

²⁴ At 20 hours a week, the bank was open 1,040 hours a year. There were 10,229 active accounts in 1850, of which 2,374 had been opened in 1850. There were 15.7 transactions -- deposits and withdrawals, excluding first and last -- average annually. Given the hours of the bank and the assumption that there was one clerk for ordinary transactions, there were 15.4 transactions every hour or one every 4 minutes.

and often separated from their families of origin, they did not have access to the insurance provided by income sharing within the family nor to intergenerational transfers for old-age security. It should be recalled that we know the account holder's occupation only in 1850 and occupations often changed over time. Most servants opened their accounts in their twenties and many must have married and left service. The survivors among the account holders who began as servants may have remained in service, and thus we may be observing the life-cycle savings of individuals who had no other stores of value for their old age security.

Among the adult males, the age of the account holder appears to have been more important in determining his median balance than was the length of the account. Had we more linked accounts for the group of 50 to 59 year olds, for whom the sample is too small to graph, we could provide additional support for this statement because accounts were substantially larger for them. Although there is considerable noise in the sample, there is evidence in Figure 1 to support the contention that age mattered for the balances of the adult males. A 50-year old man, for example, who opened his account at age 35 had nearly the same balance as a 50-year old who opened his account at 45. Quite the opposite appears to have been the case among the female servants. For them, account length predominated. That is, the three lines would be nearly identical if graphed against length of account, rather than age. Males, therefore, to a far greater degree than female servants, must have been moving funds from one form to another over their life cycles. Their bank accounts were a stop along the way, often to enable the accumulation of greater wealth for the purchase of another asset. Female servants, however, appear to have used their PSFS accounts for the bulk of their life-cycle saving. Their saving, therefore, began when their accounts began.

Those whose accounts lasted more than a decade constitute a group who appear to have been saving at PSFS for life-cycle reasons. Further, as can be seen in Table 4, such individuals ended their accounts at rather old ages, almost independent of the age at which they began their accounts. Those who continued using PSFS may, like those in the servant group, have had

limited access to alternative forms of accumulation such as real property.

Seasonality and the Role of Occupation

If a motive for saving was to meet short-run exigencies, we would expect to find considerable seasonality and variability by occupation in withdrawals. We know from data for the late nineteenth century that the vast majority of laborers and manufacturing workers across the skill spectrum were idle for 2 to 3 months out of the year (Goldin and Margo 1991). The seasonality of withdrawals and deposits is given in Table 5 for accounts lasting at least 2 years. We have restricted account length in this manner because a large proportion of all accounts opened in January (for reasons that are still unclear). Account histories are, therefore, altered by the month of opening for at least a year. Subsequent deposits also display the seasonal behavior that characterized the initial deposit. A disproportionate number were made in January. One possibility is that workers were given end-of-year bonuses or Christmas presents; alternatively, the New Year may have been a time for reckoning all accounts.²⁵

We find only slight seasonality in withdrawals. The professional and managerial group withdrew more often in the spring, while laborers withdrew more often in the late winter. On the basis of the seasonality data, there is scant evidence for a precautionary motive to saving at PSFS. Because withdrawals were always infrequent, the cell sizes are rather small and we hesitate to draw firm conclusions.

Inferring Saving Rates from Account Data

The account information can be used to infer saving rates, that is the net additions to the account, although various difficulties arise. Because accounts were relatively brief affairs most of the activity will be contained in the several years following 1850. One cannot know with certainty whether those who closed accounts were failed savers or were individuals whose goals

²⁵ Account closings did not occur with greatest frequency in January. Rather, the month of the most account closings was May, which may mean that accounts closed because people left the city. Note as well that seasonality in account opening and closing could not be related to the payment of interest because PSFS, in contrast to the New York City banks in Olmstead's sample (Olmstead 1976) paid interest on amounts held to the time of withdrawal.

were realized by the accumulation of sufficient funds to invest in property or another financial asset. It seems clear from the size of the accounts when they closed that the majority were not ended by the "failed saver" group. Rather, at least among male account holders, they were individuals whose goals appear to have been met and the linkage to the city and business directories suggests that physical property was purchased with the fruits of their thrift. All we can claim is that we are measuring the saving rate of those who had savings accounts and make comparisons to other periods of time using that criterion. More troubling is that accounts often became inactive over time. Many that survived the first 5 years, have deposit activity once every 3 years rather than once or twice a year. Such inactivity might indicate that the person was saving in another form rather than having stopped saving entirely. We can accommodate either interpretation by constructing conditional or unconditional means or the saving rates.

Considering males only, the unconditional mean change in account balances was \$55 in the first year (1850 to 1851), \$33 in the second, and \$34 in the third (not including first deposit or final withdrawals). After the first 3 to 4 years, the accounts declined in size, particularly for those that survived to the Civil War years. Among males who opened an account in 1850, mean savings over the length of the account was about \$33, which is approximately what it was in the second and third years of the account. Among female servants, the amount was about \$10, somewhat less than it was in the second and third years of the account.

Another measure of saving is the addition to active accounts under the assumption that inactive accounts do not represent inactivity of individual saving but rather inactivity in a particular form (i.e., in a savings bank). We define inactivity as no transactions in a given year, either deposits or withdrawals. For adult males, annual saving over the length of the account doubles to about \$60 and that for servants to about \$20 using the stated criterion of activity.²⁶

²⁶ These figures are derived by weighting the net savings data in each year by the proportion of survivors in the entire sample. The procedure could result in an upwardly biased figure if the inactive accounts become active and vice versa from year to year. Then we are omitting accounts that do not have activity because saving is actually zero.

We have, then, two estimates of the saving rate. For males the lower estimate is about 12 percent of annual income and the higher estimate is 21 percent, assuming an annual income of \$280. Recall that we do not have a cross section of all accounts open in 1850 but rather all accounts that were opened in 1850. Only if the distribution of account durations in cross section were the same as for accounts begun in the same year -- that is, only if a steady state were achieved -- would the computed mean saving rates be applicable to all account holders.

The earliest data we have found with which to make comparisons is that for Michigan furniture workers in 1889 (see Goldin and Margo 1991 for a discussion of this data set).²⁷ For each family we have the amount held in a savings bank or elsewhere at interest, the amount of saving, and the earnings of the worker.²⁸ Thus we can condition on similar attributes to those we have in the PSFS sample, most notably that the individual had a savings account (or had money held at interest). Men with money held at interest had (median) annual saving of \$60 and mean income of \$540, yielding a saving rate of 11 percent. Curiously, there are few negative values and many missing values for saving. If one, instead, conditions on positive saving and money held at interest, (median) saving is \$100, yielding a saving rate of 19 percent. In the PSFS sample, a comparably generated figure would be higher -- about 30 percent, with median saving of \$86 conditional on positive saving.

Although the comparability between the two sets of data is not perfect, it does appear that those saving at PSFS saved a substantial fraction of their income. When their accounts experienced at least either one withdrawal or one deposit in a year, computed saving rates were

²⁷ Adams (1980) analyzed the savings of workers at the DuPont gunpowder mill from 1813 to 1860 and found saving rates of about 15 percent. Saving among these workers was made particularly costless and may even have been encouraged by the firm's manner of crediting their wages directly into their accounts. DuPont workers were, moreover, not a representative cross section of ordinary Americans.

²⁸ It should be noted that we use the stated amount of savings not the amount derived from family earnings minus family expenditures. The latter estimate is considerably higher than is that offered by the families, suggesting that stated expenditures did not exhaust the total for the year. It should also be pointed out that there were very few cases of dissaving in the sample.

so high that PSFS account holders were probably using their accounts for all of their savings. Thus, even though this paper has analyzed savings in only one financial instrument, it is likely that additions were channeled to it alone when the accounts were active.

Summary

Although the account holders at PSFS were a diverse lot, accounts opened in 1850 can be characterized as not very active throughout their lifetimes, brief in duration, and relatively large in size. Most savers were not, it appears, using PSFS to tide them over from month to month to meet the exigencies we know they faced in the mid-nineteenth century. The amounts that were withdrawn were large in comparison with income, and the amounts that were deposited were also fairly large. Unless most savers had access to other forms of credit, including the kindness of family and friends, the PSFS accounts do not appear to have been used to fill the precautionary motives we had imagined they would be. Rather, for many savers, particularly adult males, PSFS provided a means to store and accumulate funds for the purchase of other assets.

Despite this general characterization, there were discernible subgroups whose motives for having savings accounts appear, *ex post*, to have been life cycle in origin. Many female servants, at least at the end of their account histories, had saved for old-age security. Without access to family and not having the need for property, female servants were a likely group to have been saving in this fashion.

What do these accounts tell us about the amounts working-class people saved in the mid-nineteenth century and about the role of saving fund societies like PSFS? We cannot be certain that our savers did not have accounts elsewhere, although their options were extremely limited in 1850, and we know that some owned real property or lived with others who did. Thus, on that score the savings accounts give us a lower bound to the net worth of our account holders, albeit a good estimate of liquid wealth other than currency or specie. On the other hand, we are capturing individuals who opened savings accounts and thus who had accumulated a sufficient

amount of cash (and acquired ample mental fortitude) to engage in institutional thrift. With these caveats in mind, the account histories suggest relatively large amounts of savings. Among male account holders whose accounts would last 4 to 5 years, the median balance was almost equal to annual gross income, and the annual saving rate for active accounts was just over 20 percent.

We can compare that fraction with a similarly constructed number for the more recent period. In 1983 median family income in America was about \$20,000 (U.S. Board of Governors 1984). Median liquid assets (e.g., checking, saving, money market, certificates of deposit) for families in that range, who held any assets of this type, were about \$1,800 (although the mean was about \$10,000, p. 686) or 10 percent of median family income.²⁹ Median total financial assets (including liquid assets plus, e.g., bonds and stocks) of families in that range, and again for families with some assets of that type, were about \$2,000 (although \$13,000 for the mean, p. 686). Thus, by just about any standards those who saved at PSFS had, as a fraction of their annual gross income, accumulated a large nest-egg.

We began this paper with a statement about the rise of aggregate savings in the nineteenth century and of the need to discover how it was that Americans managed to amass such ample savings at that time. In terms of savings accounts, such as those at PSFS, life-cycle considerations, it appears, were beginning to have some appeal for a small fraction of Americans, those for whom family and property were not available routes. Many saved in these accounts, it seems, to accumulate funds to purchase another asset, possibly also to fulfill a life-cycle function. Did PSFS, through its role in decreasing transactions costs and paying interest, increase the supply of funds, or did it merely enable the more efficient allocation of capital? We have no obvious proof, but it seems to us that "the large classes of humble and helpless, but thrifty and prudent" would have found it far more difficult to accumulate in the absence of PSFS, although they may have met their month to month exigencies in exactly the same manner.

²⁹ Thus we are conditioning in precisely the same manner as the PSFS accounts implicitly are, namely the mean level of savings conditional on having any savings, defined in some manner.

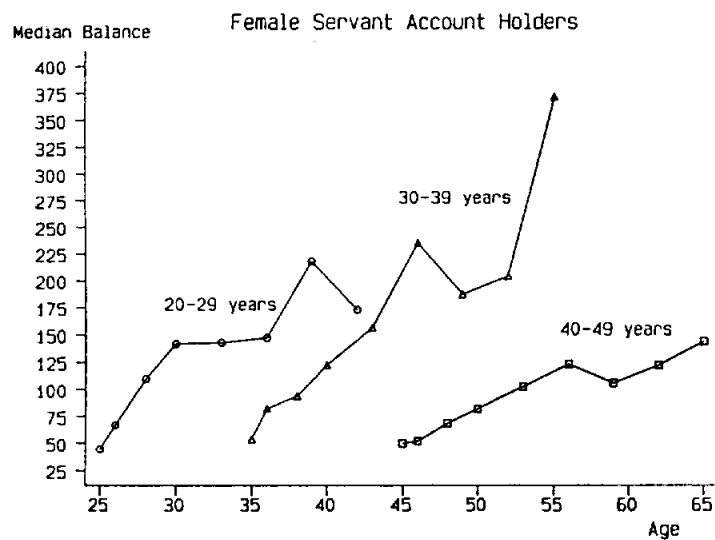
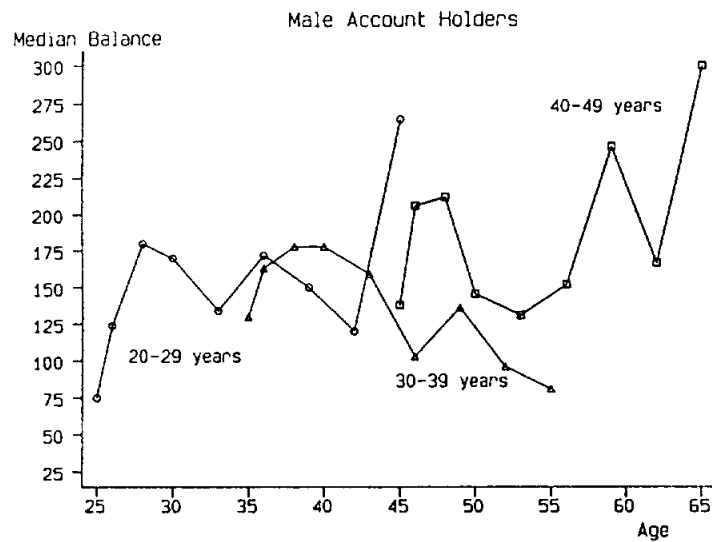


Figure 1: Life-Cycle Savings for Males and Female Servants, 20-49 years old in 1850

Source: PSFS Accounts, 1850 Linked Sample

Notes: The age intervals, 20-29, 30-39, and 40-49, are the ages of the individual when the account was opened in 1850. Each data point is the median of the (deflated, 1850 = 100) balance in all accounts (for the stated group) in a given interval (0 < 1, 1 < 2, 2 < 4, 4 < 6, 6 < 9, 9 < 12, 12 < 15, 15 < 18, 18 < 21 years). The last observation for female servant 20 to 29 years old was a large outlier and was dropped.

Table 1: Characteristics of Account Holders by Length of Completed Account and Sex

| | All | Length of Completed Account | | | |
|--|------|-----------------------------|-------------|--------------|------------|
| | | 0 < 2 years | 2 < 5 years | 5 < 12 years | ≥ 13 years |
| Males | | | | | |
| Age in 1850 | | | | | |
| 0-14 | 6.8% | -- | 4.6% | 25.9% | 3.8% |
| 15-19 | 7.2 | 9.3% | 6.2 | 3.7 | 7.7 |
| 20-24 | 14.1 | 16.1 | 13.8 | 11.1 | 11.5 |
| 25-29 | 19.4 | 17.8 | 23.1 | 18.5 | 19.2 |
| 30-34 | 14.4 | 15.3 | 15.4 | 9.3 | 19.2 |
| 35-44 | 18.6 | 21.2 | 20.0 | 11.1 | 19.2 |
| 45-54 | 11.8 | 10.2 | 10.8 | 18.5 | 7.7 |
| 55-64 | 4.9 | 5.9 | 6.2 | 1.9 | 3.8 |
| ≥ 65 | 2.7 | 4.2 | -- | -- | 7.7 |
| Relationship to head of household^a | | | | | |
| Head | 50.6 | 54.2 | 55.4 | 46.3 | 30.8 |
| Wife | -- | -- | -- | -- | -- |
| Child | 19.8 | 14.4 | 18.5 | 35.2 | 15.4 |
| Kin | 3.0 | 1.7 | 3.1 | 1.9 | 11.5 |
| Servant | 5.3 | 4.2 | 9.2 | 1.9 | 7.7 |
| Unknown | 21.3 | 25.4 | 13.8 | 14.8 | 34.6 |
| Number of observations ^b | 263 | 118 | 65 | 54 | 26 |
| Occupation (from signature book)^c | | | | | |
| Prof. and manag. | 12.1 | 11.0 | 10.9 | 12.5 | 26.1 |
| Trade and skilled | 36.4 | 38.6 | 37.3 | 33.7 | 21.7 |
| Trans. and semiskilled | 34.1 | 36.2 | 29.0 | 36.5 | 32.6 |
| Laborer | 13.4 | 10.4 | 18.1 | 15.4 | 13.0 |
| Domestic service | 2.1 | 1.6 | 3.6 | 1.0 | 2.2 |
| No occupation | 1.8 | 2.2 | 1.0 | 1.0 | 4.3 |
| Number of observations ^d | 708 | 365 | 193 | 104 | 46 |

| | | | | | | | | | |
|--|------|------|------|------|------|--|--|--|--|
| Female nonservants | | | | | | | | | |
| Age in 1850 | | | | | | | | | |
| 0-14 | 6.6 | 3.8 | 6.8 | 8.5 | 9.7 | | | | |
| 15-19 | 4.4 | 6.3 | 1.7 | 5.1 | 3.2 | | | | |
| 20-24 | 13.6 | 12.7 | 18.6 | 8.5 | 16.1 | | | | |
| 25-29 | 16.2 | 26.6 | 15.3 | 6.8 | 9.7 | | | | |
| 30-34 | 17.1 | 17.7 | 18.6 | 20.3 | 6.5 | | | | |
| 35-44 | 21.1 | 16.5 | 22.0 | 27.1 | 19.4 | | | | |
| 45-54 | 11.4 | 10.1 | 6.8 | 11.9 | 22.6 | | | | |
| 55-64 | 7.9 | 6.3 | 10.2 | 6.8 | 9.7 | | | | |
| ≥ 65 | 1.8 | -- | -- | 5.1 | 3.2 | | | | |
| Relationship to head of household ^a | | | | | | | | | |
| Head | 13.6 | 10.1 | 15.3 | 11.9 | 22.6 | | | | |
| Wife | 39.9 | 45.6 | 42.4 | 40.7 | 19.4 | | | | |
| Child | 16.7 | 13.9 | 16.9 | 15.3 | 25.8 | | | | |
| Kin | 4.4 | 5.1 | 1.7 | 6.8 | 3.2 | | | | |
| Unknown | 25.4 | 25.3 | 23.7 | 25.4 | 29.0 | | | | |
| Number of observations ^b | 228 | 79 | 59 | 59 | 31 | | | | |
| Female servants | | | | | | | | | |
| Age in 1850 | | | | | | | | | |
| 0-14 | | | | | | | | | |
| 15-19 | 11.3 | 16.7 | 10.6 | 7.1 | 10.5 | | | | |
| 20-24 | 31.3 | 26.2 | 34.0 | 31.0 | 36.8 | | | | |
| 25-29 | 22.7 | 28.6 | 23.4 | 19.0 | 15.8 | | | | |
| 30-34 | 8.0 | 4.8 | 10.6 | 4.8 | 15.8 | | | | |
| 35-44 | 17.3 | 19.0 | 14.9 | 21.4 | 10.5 | | | | |
| 45-54 | 6.6 | -- | 6.4 | 11.9 | 5.3 | | | | |
| 55-64 | -- | -- | -- | -- | -- | | | | |
| ≥ 65 | 3.3 | -- | -- | 4.8 | 5.3 | | | | |
| Number of observations ^b | 150 | 42 | 47 | 42 | 19 | | | | |

^a Relationship to head of household was inferred from information on last name, age, and order on census form.

^b For the Linked 1850 Sample only.

^c Occupations are given for adults males only because too few female nonservants had listed occupations.

^d For the 1850 Sample.

Sources: PSFS Accounts, Linked 1850 Sample and 1850 Sample

Table 2: Characteristics of the Accounts, by Length of Completed Account and Sex

| | All | Length of Completed Account | | | | | |
|--|------|-----------------------------|-------------|--------------|---------------|---------------|------------|
| | | 0 < 2 years | 2 < 5 years | 5 < 10 years | 10 < 15 years | 15 < 20 years | ≥ 20 years |
| Balances: | | | | | | | |
| Average balance (median) | 117 | 82 | 161 | 200 | 205 | 189 | 199 |
| Males | 117 | 82 | 161 | 200 | 205 | 189 | 199 |
| Female nonservants | 103 | 64 | 120 | 128 | 148 | 120 | 108 |
| Female servants | 80 | 38 | 83 | 93 | 90 | 85 | 225 |
| Maximum balance (median) | | | | | | | |
| Males | 179 | 102 | 224 | 318 | 396 | 393 | 669 |
| Female nonservants | 162 | 83 | 190 | 235 | 301 | 280 | 340 |
| Female servants | 120 | 46 | 123 | 147 | 177 | 136 | 599 |
| Number of observations (for mean balance) & percentage of group | | | | | | | |
| Males | 708 | 365 | 193 | 83 | 29 | 19 | 19 |
| | 100% | 52% | 27% | 12% | 4% | 3% | 3% |
| Female nonservants | 555 | 218 | 144 | 107 | 37 | 18 | 31 |
| | 100% | 39% | 26% | 19% | 7% | 3% | 6% |
| Female servants | 365 | 112 | 112 | 76 | 33 | 11 | 21 |
| | 100% | 31% | 31% | 21% | 9% | 3% | 6% |
| Deposits: | | | | | | | |
| Amount of first deposit (median) | | | | | | | |
| Males | 60 | 50 | 71 | 90 | 75 | 50 | 58 |
| Female nonservants | 50 | 50 | 73 | 70 | 63 | 50 | 50 |
| Female servants | 31 | 25 | 35 | 40 | 35 | 25 | 50 |
| Average deposit, excluding first (median) | | | | | | | |
| Males | 26 | 17 | 31 | 40 | 32 | 25 | 60 |
| Female nonservants | 26 | 15 | 25 | 34 | 29 | 28 | 33 |
| Female servants | 15 | 9 | 14 | 16 | 17 | 16 | 28 |
| Deposits per year (median), excluding first* | | | | | | | |
| Males | 0.96 | 1.16 | 0.96 | 0.93 | 0.62 | 1.36 | 0.36 |
| Female nonservants | 0.71 | 0.96 | 0.87 | 0.62 | 0.82 | 0.43 | 0.38 |
| Female servants | 0.72 | 0.56 | 0.97 | 0.66 | 0.74 | 0.43 | 0.68 |

| | All | Length of Completed Account | | | | | |
|--|------|-----------------------------|-------------|--------------|---------------|---------------|------------|
| | | 0 < 2 years | 2 < 5 years | 5 < 10 years | 10 < 15 years | 15 < 20 years | ≥ 20 years |
| Withdrawals: | | | | | | | |
| Average withdrawal, excluding last (median) | | | | | | | |
| Males | 50 | 31 | 55 | 67 | 68 | 78 | 108 |
| Female nonservants | 40 | 29 | 30 | 45 | 59 | 58 | 54 |
| Female servants | 25 | 15 | 22 | 29 | 34 | 21 | 23 |
| Withdrawals per year (median), excluding last^a | | | | | | | |
| Males | 0.18 | 0.00 ^b | 0.21 | 0.29 | 0.30 | 0.42 | 0.25 |
| Female nonservants | 0.16 | 0.00 ^b | 0.23 | 0.16 | 0.27 | 0.25 | 0.19 |
| Female servants | 0.14 | 0.00 ^b | 0.17 | 0.17 | 0.19 | 0.29 | 0.20 |
| Amount of last withdrawal (median) | | | | | | | |
| Males | 109 | 89 | 172 | 196 | 113 | 109 | 75 |
| Female nonservants | 95 | 62 | 121 | 102 | 152 | 89 | 63 |
| Female servants | 90 | 41 | 104 | 98 | 119 | 83 | 231 |

^a Excludes the first 6 months of the account and accounts open for less than 6 months.

^b The median number of withdrawals per year, excluding the last, is zero.

Source: PSFS Accounts, 1850 Sample.

Notes: Dollar values are deflated using the Hoover consumer price index, 1851 to 1880, for which 1850 = 100 (U.S. Bureau of the Census 1975, series E-174). The 1850 figure is extrapolated on the Bezanson series for Philadelphia (U.S. Bureau of the Census 1975, series F-97). Where possible, children have been excluded (e.g., lad, girl, boy).

Table 3: The Life Cycle of Accounts: Account Characteristics (in constant dollars, 1850 = 100) by Length of Completed Account and Interval, for Males, Female Nonservants, and Female Servants

| | All | Length of Completed Account | | | | | |
|--------------------------|-----|-----------------------------|-------------|--------------|---------------|---------------|------------|
| | | 0 < 2 years | 2 < 5 years | 5 < 10 years | 10 < 15 years | 15 < 20 years | ≥ 20 years |
| Males | | | | | | | |
| 0 < 1 year | 96 | 75 | 103 | 101 | 113 | 80 | 117 |
| 1 < 2 | 140 | 107 | 151 | 155 | 206 | 122 | 170 |
| 2 < 4 | 207 | | 198 | 233 | 192 | 216 | 235 |
| 4 < 6 | 212 | | 245 | 225 | 170 | 210 | 213 |
| 6 < 9 | 174 | | | 214 | 162 | 170 | 170 |
| 9 < 12 | 162 | | | (190) | 139 | 222 | 115 |
| 12 < 15 | 155 | | | | (414) | 157 | 96 |
| 15 < 18 | 79 | | | | | 79 | 80 |
| 18 < 20 | 92 | | | | | (278) | 228 |
| Number of obs. | 709 | 365 | 193 | 83 | 29 | 19 | 19 |
| | | | | | | | |
| Average Balance (median) | | | | | | | |
| Female nonservants | | | | | | | |
| 0 < 1 year | 83 | 63 | 101 | 100 | 74 | 100 | 100 |
| 1 < 2 | 105 | 72 | 132 | 129 | 98 | 103 | 140 |
| 2 < 4 | 131 | | 116 | 138 | 143 | 135 | 149 |
| 4 < 6 | 117 | | 99 | 119 | 141 | 111 | 147 |
| 6 < 9 | 118 | | | 108 | 150 | 118 | 86 |
| 9 < 12 | 139 | | | 145 | 177 | 169 | 101 |
| 12 < 15 | 79 | | | | (187) | 106 | 53 |
| 15 < 18 | 63 | | | | | 87 | 44 |
| 18 < 20 | 83 | | | | | (147) | 79 |
| Number of obs. | 555 | 218 | 144 | 107 | 37 | 18 | 31 |
| | | | | | | | |
| Average Balance (median) | | | | | | | |
| Female servants | | | | | | | |
| 0 < 1 year | 45 | 36 | 51 | 51 | 56 | 35 | 50 |
| 1 < 2 | 67 | 51 | 72 | 78 | 62 | 56 | 54 |
| 2 < 4 | 90 | | 102 | 98 | 71 | 59 | 79 |
| 4 < 6 | 110 | | 131 | 102 | 98 | 85 | 115 |
| 6 < 9 | 109 | | | 110 | 100 | 100 | 138 |
| 9 < 12 | 129 | | | 99 | 123 | 121 | 186 |
| 12 < 15 | 107 | | | | 64 | 100 | 144 |
| 15 < 18 | 141 | | | | | 81 | 204 |
| 18 < 20 | 276 | | | | | (26) | 295 |
| Number of obs. | 365 | 112 | 112 | 33 | 76 | 11 | 21 |

| | | Length of Completed Account | | | | | | |
|--------------------|------------|---|-------------|--------------|---------------|---------------|------------|--|
| | | 0 < 2 years | 2 < 5 years | 5 < 10 years | 10 < 15 years | 15 < 20 years | ≥ 20 years | |
| | | Average Deposit, excluding first (median) | | | | | | |
| All | | 25 | 25 | 35 | 20 | 12 | 50 | |
| Males | | 34 | 40 | 33 | 33 | 25 | 53 | |
| | 0 < 1 year | 39 | 37 | 42 | 40 | 22 | 75 | |
| | 1 < 2 | 35 | 32 | 44 | 21 | 21 | 64 | |
| | 2 < 4 | 44 | | 49 | 46 | 17 | 51 | |
| | 4 < 6 | 40 | | (114) | 33 | 14 | 68 | |
| | 6 < 9 | 67 | | | (91) | 49 | (67) | |
| | 9 < 12 | 27 | | | | (21) | 69 | |
| | 12 < 15 | 65 | | | | | (65) | |
| | 15 < 18 | | | | | | | |
| | 18 < 20 | | | | | | | |
| Female nonservants | | 24 | 25 | 25 | 24 | (23) | 38 | |
| | 0 < 1 year | 30 | 31 | 33 | 30 | 25 | 40 | |
| | 1 < 2 | 39 | 40 | 40 | 29 | 24 | 57 | |
| | 2 < 4 | 38 | 27 | 44 | 28 | (22) | 44 | |
| | 4 < 6 | 35 | | 33 | 35 | 45 | 36 | |
| | 6 < 9 | 37 | | (43) | 38 | 36 | 37 | |
| | 9 < 12 | 36 | | | (26) | (32) | 42 | |
| | 12 < 15 | 27 | | | | (30) | 27 | |
| | 15 < 18 | 35 | | | | (37) | 35 | |
| | 18 < 20 | | | | | | | |
| Female servants | | 14 | 15 | 15 | 13 | (11) | 15 | |
| | 0 < 1 year | 15 | 15 | 15 | 15 | (12) | 16 | |
| | 1 < 2 | 18 | 19 | 18 | 18 | (16) | 18 | |
| | 2 < 4 | 18 | 23 | 18 | 18 | 14 | 21 | |
| | 4 < 6 | 18 | | 22 | 16 | (14) | 20 | |
| | 6 < 9 | 23 | | (23) | 18 | (28) | 30 | |
| | 9 < 12 | 29 | | | (10) | (39) | 30 | |
| | 12 < 15 | 17 | | | | (7) | 19 | |
| | 15 < 18 | 37 | | | | | 37 | |
| | 18 < 20 | | | | | | | |

| | Length of Completed Account | | | | | |
|--------------------|-----------------------------|-------------|---|---------------|---------------|------------|
| | 0 < 2 years | 2 < 5 years | 5 < 10 years | 10 < 15 years | 15 < 20 years | ≥ 20 years |
| All | | | Average Withdrawal, excluding last (median) | | | |
| Males | | | | | | |
| 0 < 1 year | 42 | 37 | 50 | 87 | (55) | (175) |
| 1 < 2 | 47 | 35 | 39 | 52 | (15) | (60) |
| 2 < 4 | 66 | | 61 | 52 | 69 | (71) |
| 4 < 6 | 55 | | 79 | 48 | 38 | 60 |
| 6 < 9 | 54 | | | 54 | 27 | (90) |
| 9 < 12 | 61 | | | (67) | 30 | (62) |
| 12 < 15 | 49 | | | | (29) | (65) |
| 15 < 18 | 61 | | | | | (33) |
| 18 < 20 | 113 | | | | | (15) |
| | | | | | | (12) |
| | | | | | | (224) |
| | | | | | | (148) |
| | | | | | | (93) |
| | | | | | | 92 |
| | | | | | | 68 |
| | | | | | | (49) |
| | | | | | | (69) |
| | | | | | | (176) |
| Female nonservants | | | | | | |
| 0 < 1 year | 30 | 25 | 25 | 57 | (30) | (50) |
| 1 < 2 | 30 | 30 | 30 | 29 | (52) | (57) |
| 2 < 4 | 32 | | 28 | 49 | 57 | 21 |
| 4 < 6 | 44 | | (16) | 37 | 91 | (26) |
| 6 < 9 | 29 | | | 23 | 45 | (36) |
| 9 < 12 | 28 | | | (11) | 33 | (27) |
| 12 < 15 | 32 | | | | (24) | (26) |
| 15 < 18 | 96 | | | | | (63) |
| 18 < 20 | 50 | | | | | (105) |
| | | | | | | (25) |
| | | | | | | (25) |
| | | | | | | 68 |
| | | | | | | 57 |
| | | | | | | 32 |
| | | | | | | 30 |
| | | | | | | 64 |
| | | | | | | 116 |
| | | | | | | (42) |
| Female servants | | | | | | |
| 0 < 1 year | 15 | 11 | 20 | (15) | (20) | (25) |
| 1 < 2 | 20 | 18 | 17 | 25 | (23) | (17) |
| 2 < 4 | 20 | (21) | 29 | 25 | 17 | (15) |
| 4 < 6 | 22 | | (18) | 27 | 18 | (15) |
| 6 < 9 | 23 | | | 82 | 20 | (6) |
| 9 < 12 | 37 | | | | 40 | (36) |
| 12 < 15 | 13 | | | | | (7) |
| 15 < 18 | 21 | | | | | (11) |
| 18 < 20 | 28 | | | | | 13 |
| | | | | | | 24 |
| | | | | | | 28 |

Source: PSFS Accounts, 1850 Sample.

Notes: Dollar values are deflated using the Hoover consumer price index, 1851 to 1880, for which 1850 = 100 (U.S. Bureau of the Census 1975, series E-174). The 1850 figure is extrapolated on the Bezanon series for Philadelphia (U.S. Bureau of the Census 1975, series F-97). The intervals include the lower bound and exclude the upper bound, e.g., 2-4 is 2 years exactly to just under 5 years. Where possible, children have been excluded (e.g., lad, girl, boy). Numbers in parentheses are for cells with fewer than 10 observations.

Table 4: Median Age at Last Withdrawal, for Accounts Lasting \geq 13 Years

| Age at which account was opened | Median Age at Which Account Was Closed | | |
|------------------------------------|--|-----------------------|--------------------|
| | Males | Female Nonservants | Female Servants |
| 0-14 | 32 | 36 | |
| 15-19 | 60 | 65 | 55 |
| 20-24 | 37 | 49 | 50 |
| 25-29 | 46 | 50 | 54 |
| 30-34 | 51 | 65 | 71 |
| 35-44 | 63 | 64 | 60 |
| 45-54 | 61 | 65 | 65 |
| 55-64 | 87 | 73 | |
| \geq 65 | 86 | 84 | |

Source: PSFS Accounts, Linked 1850 Sample.

Table 5: Seasonality in Withdrawals and Deposits, for Accounts ≥ 2 Years, by Occupation for Males

| | Prof. & Manag. | Trade & Skilled | Transp. & Semi-skilled | Laborers |
|-------------------------------------|----------------|-----------------|------------------------|----------|
| Withdrawals | | | | |
| January | 7.8% | 11.2% | 9.0% | 12.0% |
| February | 5.6 | 9.3 | 7.8 | 9.3 |
| March | 6.7 | 8.7 | 11.2 | 10.7 |
| April | 10.6 | 9.3 | 9.0 | 9.3 |
| May | 10.6 | 7.3 | 9.3 | 9.3 |
| June | 10.6 | 8.4 | 9.9 | 5.3 |
| July | 7.3 | 7.9 | 6.8 | 6.0 |
| August | 9.5 | 7.3 | 7.8 | 4.7 |
| September | 7.3 | 8.4 | 5.9 | 8.0 |
| October | 7.3 | 6.5 | 7.8 | 10.0 |
| November | 9.5 | 7.6 | 7.1 | 6.7 |
| December | 7.3 | 8.1 | 8.4 | 8.7 |
| Number of observations ^a | 179 | 356 | 322 | 150 |
| Deposits | | | | |
| January | 14.2% | 10.6% | 10.8% | 12.3% |
| February | 10.1 | 8.3 | 8.9 | 4.7 |
| March | 7.7 | 9.1 | 9.9 | 10.8 |
| April | 10.1 | 12.4 | 10.0 | 11.3 |
| May | 7.4 | 10.4 | 9.1 | 8.9 |
| June | 8.2 | 9.0 | 7.7 | 8.7 |
| July | 10.2 | 8.6 | 8.0 | 8.1 |
| August | 6.9 | 7.5 | 7.4 | 8.1 |
| September | 7.1 | 7.3 | 8.1 | 7.0 |
| October | 6.1 | 6.0 | 6.2 | 8.1 |
| November | 4.7 | 5.8 | 6.5 | 6.2 |
| December | 7.2 | 4.9 | 7.3 | 5.8 |
| Number of observations ^a | 635 | 1261 | 1075 | 530 |

^a Number of observations refers to the number of withdrawals or deposits, not the number of individual accounts.

Source: PSFS Accounts, 1850 Sample.

Note: Withdrawals exclude the final withdrawal.

ACKNOWLEDGEMENTS

We would like to thank the University of Pennsylvania for providing funds for the collection of the PSFS data through the Work-Study program and through PARSS, and to Shawn Weldon and V. Chapman-Smith at PSFS who facilitated the data collection on site. A Grant-in-Aid of Research from Indiana University is enabling the completion of the data set. Several undergraduate research assistants at the University of Pennsylvania were instrumental in the data collection. Lisa Schweitzer began the project and skillfully devised the protocol that subsequent assistants used in the linkage process. Thu Tran, Emily Becher, and Alex Gould followed her excellent example. Alex later collected the larger sample of PSFS accounts. We thank them all for their diligence. We are also grateful to Lance Davis who commented on an earlier version, presented at the Economic History Association in September 1991. Lee Craig, William English, Alan Olmstead, Elmus Wicker, and seminar participants at the University of Arizona, the Federal Reserve Bank of Cleveland, Indiana University, Research Triangle, UCLA, and the University of Iowa all offered valued suggestions for improvement.

References

- Adams, Donald R. (1980) "Earnings and Savings in the Early Nineteenth Century," Explorations in Economic History, 17 (April): 118-34.
- Davis, Lance. (1965) "The Investment Market 1870-1914: The Evolution of a National Market." Journal of Economic History 25 (September): 355-93.
- _____. and Robert Gallman. (1978) "Capital Formation in the United States during the Nineteenth Century." In The Cambridge Economic History of Europe, Vol. VII The Industrial Economies: Capital, Labour, and Enterprise, Part 2. Cambridge: Cambridge University Press.
- Deaton, Angus. (1989) "Saving and Liquidity Constraints." National Bureau of Economic Research Working Paper No. 3196, (December).
- Fishlow, Albert. (1961) "The Trustee Savings Banks, 1817-1861." Journal of Economic History 21 (March): 26-40.
- Goldin, Claudia and Robert A. Margo. (1991) "Downtime: Voluntary and Involuntary Unemployment." Paper presented to the Historical Labor Statistics Conference, Lawrence, Kansas (June).
- _____. and _____. (1992) "Wages, Prices, and Labor Markets before the Civil War." In C. Goldin and H. Rockoff, eds., Strategic Factors in Nineteenth Century American Economic History. Chicago: University of Chicago Press.
- Hershberg, Theodore, et al. (1974) "Occupation and Ethnicity in Nineteenth Century Cities: A Collaborative Inquiry." Historical Methods Newsletter 7 (June): 174-216.
- _____. and Henry Williams. (1981) "Mulattoes and Blacks: Intra-group Color Differences and Social Stratification in Nineteenth Century Philadelphia." In T. Hershberg, ed., Philadelphia: Work, Space, Family, and Group Experience in the Nineteenth Century. New York: Oxford University Press.
- Keyes, Emerson W. (1876) A History of Savings Banks in the United States. 2 vols. New York: Bradford Rhodes.
- King, Mervyn. (1985) "The Economics of Saving: A Survey of Recent Contributions." In K. J. Arrow and S. Honkapohja, Frontiers of Economics. New York: Basil Blackwell.
- Olmstead, Alan L. (1976) New York City Mutual Savings Banks, 1819-1861. Chapel Hill: University of North Carolina Press.
- Payne, Peter Lester, and Lance Edwin Davis. (1956) The Savings Bank of Baltimore, 1818-1866: A Historical and Analytical Study. Baltimore: Johns Hopkins Press.
- Philadelphia Saving Fund Society. (1850) Annual Report for the Year.
- Ransom, Roger L. and Richard Sutch. (1984) "Domestic Saving as an Active Constraint on Capital Formation in the American Economy, 1839-1928: A Provisional Theory." Working Papers on the History of Saving, No. 1 (December).

Rotella, Elyce. (1990) "Visiting Uncle: Pawnshop Activity and the Business Cycle in the Late Nineteenth Century." Typescript, Indiana University.

United States Board of Governors of the Federal Reserve. (1984) "Survey of Consumer Finances, 1983." Federal Reserve Bulletin (September).

United States Bureau of the Census. (1975) Historical Statistics of the United States: From Colonial Times to the Present. Washington, D.C.: GPO.

Willcox, James M. (1916) A History of the Philadelphia Saving Fund Society, 1816-1916. Philadelphia: J.B. Lippincott Company.