2018.06.02

How Much Do Spillovers Affect Checking and Savings Account Ownership

in Low-Income Neighborhoods?

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Abstract

We used an unexplored database to separately estimate determinants of lower-income individuals' demand for checking or savings accounts. The estimated effects on savings account demand often differed importantly from their effects on checking account demand. Demands differed across individuals' characteristics, across neighborhood characteristics, and by the extent of bank account ownership in individuals' neighborhoods. Relative to Whites, both Hispanics and Blacks were less likely to have checking accounts, but more likely to have savings accounts. Women were more likely to have checking, but not savings, accounts.

We hypothesized a "spillover effect" that varied across neighborhoods, in that reduced acceptance of checks for payments in a neighborhood reduced the demand for checking, but not savings, accounts. Consistent with the hypothesis, we found that (instrumented) neighborhood checking-account intensity affected whether individuals had checking, accounts. In contrast, demand for savings accounts, which we hypothesized to have smaller spillover effects, were less affected by neighborhood bank account intensity. We also found that demand for checking accounts by individuals who owned cars, and thus were less constrained to their neighborhoods, was less affected by neighborhood checking-account intensity. As often found previously, proximity of bank branches had modest, if any, effects on whether individuals had bank accounts.

I.   Introduction

We used an unexplored survey dataset on the financial activities and attitudes of low-and-moderate-income individuals to analyze their demands for checking and for saving accounts. We found some strong similarities and some striking differences in the determinants of demand for savings and for checking accounts. In addition to strong effects of individual socio-economic and characteristics, we also found evidence that individuals were more likely to have checking accounts when their neighbors did. We suggest that differences across neighborhoods in retailers' and landlords' acceptance of checks may help account for such spillover effects. We found weaker evidence of such spillover effects on saving accounts. We also found that the effects of neighborhood checking-account intensity were noticeably weaker for those who owned cars, and thus could more easily make payments by check in other neighborhoods.

Surveys have long indicated that about 10 percent of U.S. households have neither checking nor savings accounts. Because our survey data were collected during 1998-1999, we note data from that period. Prescott and Tatar (1999) noted that about 15 percent of households had no bank account, i.e., were "unbanked." The Board of Governors of the Federal Reserve System (1999) reported that 13 percent of families had no bank account in 1998. For example, the U.S. General Accounting Office (2002) estimated that about one-third of recipients of federal-government benefits had no bank accounts. Empirical studies by Caskey (1994a), Hogarth and Anguelow (2004), and other found that the unbanked were more likely to be lower income, younger, less educated, unemployed, and minorities.

We used unexplored data from a 1999 survey of about 2000 low and moderate income (LMI) individuals in New York City and in Los Angeles. The survey was carefully constructed and provided the answers to a large number of questions about their financial activities, including their means of receiving and making payments.

The data provide new information about the unbanked that allows us to test a number of hypotheses about the banking choices of LMI individuals. One distinguishing feature of our survey data was that it allowed us to investigate where and how much choices about savings accounts differed from choice about checking accounts. Previous studies have focused on whether households or individuals had any bank account. The

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costs, benefits, and risks of checking accounts can differ considerably from those of savings accounts and they also likely differ considerably across individuals. Our separately estimating checking and savings account choices provided information about the differential effects of income, education, and other socioeconomic variables on the demands for those accounts.

In addition, having data for checking and for savings accounts helped us investigate two sets of neighborhood effects on banking choices. The first neighborhood effect that we consider is the effect on the demand for checking accounts and for savings accounts of <u>non</u>-banking characteristics of each individual's neighborhood, such as its racial and ethnic composition and its crime rates. The data did point to some significant neighborhood effects of this type.

The more interesting of the neighborhood effects, however, were connected with the banking characteristics of the neighborhood.[1] Our hypothesis is that checking (but much less so for savings) accounts involve neighborhood-related spillover effects. (Our measure of a neighborhood is a Census tract.) The more individuals in a neighborhood that have and want to use their checking accounts, the more that neighborhood retailers would benefit from accepting checks.

Refusing to take checks would reduce bounced-check-related losses, but it would also reduce revenues. The more potential customers that have and want to use checks, the more the balance is likely to tilt toward retailers profitably deciding to accept checks. (We presume that retailers have a general policy with guidelines about whether to accept checks, but that there is considerable scope for discretion about which checks to accept under which circumstances.

 Under our hypothesis, then, the greater the extent to which an individual's neighbors have checking accounts, the greater likelihood that any retailer would accept checks and the greater the expected number of retailers that would accept checks. The greater the number of retailers that accept checks, the greater the benefits of, and thus demand for, a checking account by an individual.

Our hypothesis of such spillover effects implies, as spillover effects often do, that a neighborhood may equilibrate with a low acceptance rate for checks and a low market

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[1] We used each individual's census tract as the definition of their "neighborhood".

share for checking accounts. Retailers then would forgo little revenue by refusing checks for payment and households would have reduced incentives to have (costly) checking accounts. On the other hand, equilibrium might be established with high rates of check acceptance and high rates of checking account ownership. By contrast, savings accounts cannot be directly used for transactions, but need to be converted to cash or checking account balances to be used for payments. As a result, we argue that the spillover effects of neighbors' savings accounts are likely to be much smaller or non-existent. Our empirical results tend to support that perspective.

To implement and test our hypotheses, we used our survey data to estimate, by neighborhood, the shares of the individuals that had checking accounts and that had savings accounts. We then used instrumental variables (IV) methods to reduce the correlation of the neighborhood data with the disturbance terms. The resulting estimates pointed to significant differences between the individual-based demands for checking and savings accounts. Differences were especially notable in the estimated effects of race, ethnicity, education, and sex. Differences across accounts were much less notable for income, age, employment status, and individuals' and parental banking experiences.

The resulting IV estimates also produced statistically and economically significant effects of neighborhood checking accounts on individuals' demands for checking accounts. By contrast, neighborhood checking accounts had no discernible impact on savings accounts. The estimated effects of the extent of savings accounts in a neighborhood were weaker than those of checking accounts, but they were sometimes significant.

Following the implications of our neighborhood-spillover hypothesis, we looked to see if being able easily to access retailers outside one's immediate neighborhood reduced the size of the neighborhood checking-account spillover effect. Some individuals could more readily avail themselves of retailers outside their neighborhood (e.g., Census tract). In our sample, about half of LMI individuals owned cars. Owning a car makes it easier to shop at greater distances. If one's neighborhood is less likely to accept checks for payments, owning a car makes it easier to get to retailers that do accept checks. We found that owning a car (statistically significantly) reduced the effect of neighbors' having checking accounts on individuals having checking accounts. Adding an

interaction term of car ownership and shares of neighborhood checking account ownership then also reduced the estimated effect of neighborhood saving account ownership to statistical insignificance. These car-ownership results then further supported our hypothesis of substantial checking-account-related spillovers and weak or non-existent spillovers connected to savings accounts.

Section II describes the survey and presents some summary statistics of the survey data. Section III discusses the costs and benefits of checking and of savings accounts. In section IV, we advance our hypothesis that spillover effects, or spillovers, can be important to the demand for bank accounts, and more for checking than for savings accounts. We present our empirical strategies and statistical findings in section V. Section VI concludes.

II.   Description of the survey and its main findings
Survey design

The data we use are from the Survey of Financial Activities and Attitudes, which was commissioned by the Office of the Comptroller of the Currency (OCC) and administered between October 1998 and March 1999. It differs from the Federal Reserve Board's long-running Survey of Consumer Finances in several respects. While the latter is national in scope, uses the household as its basic unit, and samples a broad range of income levels, the former was administered only in New York City and Los Angeles, used individuals as its basic unit, and specifically sampled people with low to moderate incomes (LMI). In addition, because the Survey of Financial Activities and Attitudes was undertaken to provide a detailed and accurate portrait of LMI individuals' banking attitudes, it was constructed with a generous assortment of control variables.

The survey yielded approximately 1,000 responses from individuals in each locale. It was conducted using both telephone and personal interviews by interviewers who were fluent in both English and Spanish. The overall response rate was about 73 percent.

The survey employed a multistage stratified random sample design. Census tracts were the primary sampling unit. The survey was administered in 42 LMI census tracts—21 in New York City and 21 in Los Angeles. Stratification of the census tracts was based

on income and race/ethnicity with approximately numbers of low-income and of moderate-income Census tracts. The survey also sampled approximately equal numbers of majority Black, majority White, and majority Hispanic neighborhoods, as well as a few integrated tracts, as shown in Table 1.

The survey posed several personal finance questions, such as: whether respondents had bank accounts, and, if so, whether they were checking or savings accounts; where they cashed checks; how they made payments; whether they used banks or other nonbank companies; whether prices and proximity affected their choices; and whether they used credit cards. The survey respondents also answered several questions about their socioeconomic demography, such as age, language proficiency, income, home ownership, education, sex, family size, and race.

Findings on receiving and making payments. In the late 1990s (when the survey data were collected), the most numerous transactions were in cash.[2] Check transactions were the second most common payment instrument and were about triple the sum of the number of credit card plus debit card transactions. (Since the late 1990s, of course, the numbers of debit card transactions, which require checking accounts to be debited, have grown enormously and now exceed the numbers of credit card transactions.)

In the survey, most individuals receive some payments in cash and some via checks: About one-half of individuals that did have bank accounts received their income via checks; about 40 percent of banked individuals received income via direct deposit into their bank accounts. Similarly, about one-half of households that did not have bank accounts received their incomes via checks. Of course, the unbanked had no accounts to receive direct deposits. About 20 percent of the unbanked were paid in cash, compared with fewer than 10 percent of banked households that received their incomes in cash.

Banked households typically deposited their income check; naturally, nearly all of the unbanked converted their receipts, which often came in the form of checks, into cash. One way to do so was to use check-cashing outlets (CCOs). Nearly one-third of individuals who cashed their checks used check-cashing outlets (CCOs) to do so, rather than using banks.

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[2] See Stavins (2001).

Perhaps surprisingly, our survey showed that nearly one-fourth of the unbanked cashed their income checks at banks. In practice, banks have often been willing, even for no fee, to cash not only checks that were payable *to* the banks' customers but also checks that were payable *from* the banks' customers. Thus, it was not uncommon for some unbanked employees to cash their paychecks at the banks (whose names would be printed at the top of their paper checks) used by their employers.[3] These check-cashing banks could, of course, readily ascertain whether their customers' accounts had sufficient funds. Berry (2004) reported that about 1/3 of the unbanked cashed checks at banks.

Over 60 percent of the banked paid some bills by check, while over 30 percent of unbanked paid their bills in cash. Money orders were commonly used by both the banked and the unbanked. Nearly two out of five unbanked households sent payments via money orders and nearly one out of five banked households sent money orders.

Characteristics of the unbanked.

The Federal Reserve's 1998 Survey of Consumer Finances reported that about 10 percent of families had no bank account of any kind; of that group, 83 percent had annual incomes of less than $25,000.[4] Caskey (1994a, 1997a) provided further evidence on the characteristics of the unbanked, concluding that they were likely to have lower incomes, to be less educated, non-White, younger, and living paycheck-to-paycheck. Bond and Townsend (1996) confirmed many of the Caskey findings when they estimated a probit model of bank account ownership using data from the Survey of Consumer Finances. Hogarth and O'Donnell (2000) applied a logit model to pooled data from five Surveys of Consumer Finances (1983, 1986, 1989, 1992, and 1995). They reported that income, net worth, homeownership, spending all of one's income each month, race, ethnicity, age, educational level, and employment status (i.e., white collar relative to unemployed) were each statistically significantly correlated with being unbanked.

Many of the same patterns hold in the data from our survey. Table 2 shows the account status (in percent), by individual or neighborhood characteristics. Columns 1 and

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[3] See Prescott and Tatar (1999). Note that, in subsequent studies, Berry (2004) reported that about one-third of the unbanked cashed checks at banks, and Barr et al. (2009) reported that 83 percent did so.

[4] Because our sample data were collected during 1998 and 1999, the 1998 Survey is most relevant. Surveys for several other years paint similar pictures. In this paper, "bank" refers to saving banks, thrifts and credit unions, as well as commercial banks

2 show the percentages for the unbanked and for the banked. Columns 3 and 4 show the percentages for those who had only a savings or only a checking account. Column 5 shows the percentages for those who have both savings and checking accounts.

In Table 2, column 1 shows that 30.4 percent of all individuals in our survey were unbanked. The table also shows that Hispanics and Blacks were more likely to be unbanked than Whites: 42.9 percent of Hispanics and 24.2 percent of Blacks were unbanked, while only 7.8 percent of Whites in our survey were unbanked. Of low-income (less than $30,000 annually) individuals, 44 percent were unbanked, and over half of the unemployed were unbanked. Individuals who owned homes or cars were more likely to be banked than those who didn't own homes or cars.

Survey variables' labels, definitions, and descriptive statistics

Table 3 provides descriptive labels and definitions for the account-status, individual, and neighborhood variables in the survey that we used to estimate the effects on whether and how individuals were banked.

Table 4 provides a different view of our survey data. Table 4 shows the percentages of the banked (column 1) and of unbanked (column 2) that had the individual or neighborhood characteristic in each row. Thus, table 4 shows that, of the unbanked, 63.3percent were Hispanic, while only 3.8 percent of the unbanked were White.

Survey Design

Two technical aspects of the survey sample design are relevant to our estimates. First, an exogenous stratification scheme was employed. This scheme can increase the variance of the sample relative to the population and thereby increase estimation precision. Exogenous stratification, however, does not bias multivariate regression estimates. Second, the survey used cluster sampling, as opposed to random sampling, across entire census tracts. Cluster sampling targeted relatively small areas. e.g., a block or an apartment building) within census tracts. The benefits of cluster sampling include both lower overall survey costs and higher response rates.

Both exogenous stratification and cluster sampling imply that all members of the population did not have equal probabilities of being sampled. Therefore, weighted means provide a better estimate than simple means of population parameters. Cluster sampling also implies that the common econometric assumption that disturbance terms have zero

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covariance across survey respondents may be violated. We use robust, clustered standard errors to account for the potential non-zero covariance of disturbance terms across survey respondents within clusters.

For many questions in the survey, respondents were permitted to answer "don't know" or "refused." Respondents most often availed themselves of this option for questions regarding their incomes, although some also elected not to disclose race, ethnicity, and/or education. Respondents who answered "don't know" or "refused" for any question about account ownership status were deleted from our sample. Respondents who answered "don't know" or "refused" for two or more questions designed to yield information on independent variables were also deleted from our sample. When such an answer appeared for only one question involving an independent variable, we use information the respondent provided about the other independent variables to estimate the respondent's answer for the missing variable. To fill in the missing information, we use the jackknifing technique discussed in Greene (2000).

An underlying assumption of the models we estimated was that individuals choose whether or not to have a bank account. In some cases, however, this assumption can be violated. Banks can refuse to provide deposit accounts services if, for example, an individual writes many bad checks. From our sample, we removed data for the 23 individuals who responded "The bank will not let me have an account" to the survey question "What are the main reasons you do not have a bank account?" Our final sample contained 1,812 respondents, about equally split between those in New York City and those in Los Angeles.

III.   Costs and Benefits of Checking and Savings Accounts

In choosing whether and which bank account to have, individuals presumably consider the benefits, costs, and risks of savings and checking accounts relative to the payment and safekeeping alternatives that they have. Among the most common alternatives chosen were money orders and cash.

Survey respondents, both banked and unbanked, typically cited account expenses as important factors in their account choices. Perennially, one of the most common, if not the single most common, answers that the unbanked gave in Federal Reserve Surveys for

not having bank accounts was that they wrote too few checks or didn't have large enough balance to make the accounts worthwhile. In contrast, rarely did respondents cite either the benefits or costs of proximity of bank branches or ATMs as reasons for their choices about bank accounts.

These answers seem to be especially pertinent to checking accounts because typically savings accounts, unlike checking accounts, imposed no monthly fees, imposed no costs for printing paper checks, had low if any required minimum balances, and imposed no fees based on low dollar balances. Checking accounts, however, typically involved sizeable expected (and often risk of unexpected) pecuniary costs.

How expensive were checking accounts?

The Board of Governors of the Federal Reserve System (1999) reported that monthly checking account fees averaged about $6 for non-interest-bearing checking accounts, but that such fees might typically be waived if the checking account balance never dipped below $500 during the month. For interest-bearing checking accounts, fees typically would be waived if the account balance always exceeded, say, $1000 during the month.[5] (The fed funds rate averaged about 5 percent during 1999.)

The Fed also reported that fees per bounced check that were charged by banks averaged about $18 per item in 1999. In addition, businesses that received bounced checks often charged an additional fee of similar magnitude. Stango and Zinman (2008) calculated that annual overdraft fees charged to households who incurred overdraft fees on checking accounts with debit cards averaged $211 and that total account fees averaged $479. Thus, for checking accounts, total average costs and risks of unexpected costs associated with bounced checks were substantial. The consulting firm Raddon (2005) documented, not surprisingly, that accounts with lower average balances and account holders with lower incomes on average tended to bounce more checks.

Partly because of the magnitudes and frequencies of such fees, banks began to offer "bounce protection" or "courtesy pay" programs. Raddon (2005), a banking consulting firm, estimated that about one-third of checking account holders had bounce protection. Under such programs, for selected bounced checks (depending on the size of the check, the customer's history, and so on) banks pay the checks that would otherwise

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[5] See U.S. Transactions Monitor (2004).

bounce. That averts a bounced check and provides the bank with a fee of an amount similar to a bounce fee, with the banks' hoping that customers would make the check good later. Such programs avoided the costs, complications, and embarrassments of bouncing checks, as well as the merchant fees, since the checks did not bounce.

Direct Benefits and Costs to Households of Checking Accounts

Checking accounts offer several benefits to households. Conveniently, checks allow payments to be sent any distance by dropping a check in the mail at any time. Writing and mailing checks takes far less time and effort than hand delivering cash payments for example. Money orders can also be used to make payments at a distance. Money orders can be sent almost anyplace, but do incur explicit per-item fees (probably about $1 per money order in our survey areas and time period) and require visiting during business hours a retailer or bank that sells money orders. Most money orders were purchased not from banks, but rather from retailers, such as grocery or drug stores.

Being able to efficiently send payments long distances can be especially valuable to households that have loans outstanding. Though borrowers can sometimes visit local bank branches to make loan payments, the dwindling share of all loans that are both originated and retained by local lenders means that borrowers very often must send their payments to very distant processing centers. (For example, one of the authors typically mailed to South Dakota the payments on the credit card extended by a local branch of a bank.) And, of course, checks can often be used for in-person payments.

Checks also offer the benefit of "float," in that debits are not made from checking account balances until at least a couple of days after the payee credits the check writer's account. The value of float depends not only on the length of the time delay and on the interest rates that are earned on checking accounts and are charged on the account being paid. Float also reduces expected costs to check writers by helping to avoid fees and penalties (including any effects on credit scores) attributable to late payments.

By permitting households to hold less cash (both at home and on person), checking accounts may also reduce expected losses and risks due to crime. Thefts of unwritten checks are likely to have expected costs to households that are much less than those attributable to holdings and theft of cash.

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Checking accounts also entail costs and risks for households. Because checking accounts are costly for depositories to service, accounts often have either explicit monthly fees or below-market-interest-rate minimum balance requirements. Check-writers also pay for printing fees associated with paper checks.

Perhaps looming larger for LMI households are the penalties that arise from overdrafting of checking accounts. Caskey (1997a) stressed the "extra" account fees, such as bounced-check charges (which are often levied separately by the bank and by the bounced-check named payee), deter LMI individuals and households from being banked.

Caskey (2001a) noted that managing a checking account can be particularly difficult and potentially very expensive for the very poor. When an account's average balance is quite low, the expected costs attributable to bouncing checks and thereby incurring pecuniary and nonpecuniary costs are correspondingly high.

Another disadvantage of using checking accounts is that canceled checks leave a paper trail that some customers prefer not to leave. Checking and to a lesser extent savings accounts may seem to be complicated or at risk of loss to some potential account holders. Immigrants, for example, might have such concerns are that they have little or bad experience with banks in their home countries, or they might be deterred by their lack of familiarity with English.

Spillover Effects on the Benefits of Checking Accounts

Here we argue that the reduced acceptance of checks for payments in LMI neighborhoods reduces the number of individuals who have checking accounts, which in turn reduces the incentives for retailers to accept checks. Thus, in LMI neighborhoods checking accounts may provide less payment service than elsewhere. We provide some empirical evidence that checks are less readily accepted for payments in some neighborhoods. Later, we provide statistical evidence that conforms to the perspective that, ceteris paribus, the usefulness of checking accounts fluctuates with the extent to which checks are accepted.

The demand for checking accounts also depends on the extent to which they can be used. The more that checks are accepted, the greater the value of a checking accounts. And, the greater the ensuing demand for checking accounts, the greater the incentives of retailers and other businesses to accept checks. When a larger share of potential

customers have and prefer to use checking accounts, the larger the expected numbers of lost customers due to a business's not accepting checks for payment.

Before our investigation of the bank account choices of LMI individuals, we overestimated the extent to which checks could be used in LMI neighborhoods. Berry (2004) reported that about 20 percent of landlords in his Boston survey data would not accept checks for rent payments. Seidman, et al. (2005) [SEIDMAN AND TEACHER 2004 IN REFS] reported that 35 percent of landlords would not accept checks for rent payments. Barr, et al. (2009) reported that only 45 percent of landlords in their data would not accept checks. While 65 percent of the banked had landlords that accepted checks, only 38 percent of the landlords of the unbanked accepted checks.

In addition, friends and families of LMI individuals often don't have bank accounts. Seidman, et al. (2005) reported that about one out of five of the friends and families of the banked and two out of five of the friends and families of the unbanked did not have bank accounts. The fewer of one's friends and families that can give or accept checks, the smaller the benefits that one gets from having a checking account.

Savings accounts

Savings accounts offer the benefits of security as well because they are illiquid in the sense that funds cannot be transferred directly, even with a savings account passbook, to a payee without the account holder obtaining cash. That illiquidity is also an inconvenience for the account holder, of course. In that regard, money orders are more liquid, being able to convey payments in person or by sending them over long distances, say out of state or to a landlord or public utility.

Having either a checking or a savings account also permits those account holders to accept and deposit the checks and money orders that others use. Such payments received are often payroll or government benefit checks, but they can also be gifts or other payments. For fees, recipients of checks can also obtain cash from check cashing operations. And, in practice and to a surprising extent in our sample data, we observe that very often banks will cash checks that were written by the banks' depositors for no fees, regardless of whether the payee has an account at those banks or anyplace else. That practice of course reduces the net benefit of having bank accounts.

Retailers

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Virtually all payees accept cash or money orders. Fewer payees accept personal checks as payments. There seems to be little difference in the time requirements for retailers to deposit cash, money orders, or checks. (Of course, funds cannot be directly transferred from savings accounts to payees.) The advantages to retailers (and payees generally) of cash and money orders are that they involve no credit risk. Receiving payments via cash can expose retailers to robbery risks. (Accepted checks would impose little robbery risk on retailers.) Virtually all of the considerations would also apply to landlords.

Retailers often attempt to levy bounced check penalties on check-writers. However, between forgoing such penalties, say for sufficiently valuable, repeat customers, and not being able to collect them from other customers, means that accepting checks can, on net, be a cost to retailers. Nonetheless, to varying degrees, retailers accept checks. Retailers likely regard accepting checks as raising their revenues. Accepting payments via checks raises the numbers of customers that retailers have and raises the average amount that otherwise currency-constrained customers will purchase. Thus, retailers face the trade-off of increased revenues and increased costs when they accept payments via checks. Below we discuss some of the factors that are likely to tilt the balance toward retailers' accepting checks.

What about banks?

We assume that banks do not have appreciably different supply functions for checking or saving accounts across the census tracts in our sample, which consists of fairly concentrated LMI neighborhoods in NYC and in LA. Of course, banks may well deny bank accounts to specific individuals. Our survey identified those who were denied and we left them out our our empirical analysis. That banks often deny opening accounts for those who have bounced enough checks in the past, despite the magnitude of overdraft fees and that retailers and not banks suffer credit losses from checks that are never made good, offers some testimony to how costly bounced checks and how unprofitable some customers are. Depositories may have sufficiently strong business reasons to not systematically vary their supplies of bank accounts across these neighborhoods.

IV.   Hypotheses

We consider two, not mutually exclusive, explanations of neighborhood characteristics' effects on individuals' choices of bank accounts. First, banks may provide a lower level of service or marketing effort in some identifiable groups of neighborhoods (perhaps, for example, differentially to higher and lower income or to minority neighborhoods); if so, then the likelihood of having a bank account might be lower in low-income neighborhoods. Second, the spillover effects of others having bank accounts (and, in particular, checking accounts) are important, and perhaps especially so in some neighborhoods.

When checking account ownership is common in a neighborhood, then retailers there would be more likely to accept checks as a form of payment. This situation is self-reinforcing: Retailers who refused to take checks would risk losing business from check-using customers. Similarly, in neighborhoods with low levels of checking account ownership, retailers might be less willing to accept checks. Thus, the utility of owning a checking account is, in part, determined by one's neighbors' decisions about checking account ownership. Importantly, we would not expect a similar spillover effect of neighborhood savings accounts onto individual demands for checking accounts. And, because savings accounts carried no appreciable transactions capability during this time period, nor would we expect the extent of neighborhood savings accounts to spill over onto the demand for savings accounts.

Finally, we hypothesize that the spillover effects observed should be smaller for car owners relative to non-car owners, because car owners could easily avoid low check acceptance in their neighborhood by driving to merchants that accept checks outside of their local area. In effect, car ownership enlarges the neighborhood to encompass more check-taking merchants. In that case, otherwise similar individuals who owned a car would be able to realize more fully the benefit of a checking account by driving to merchants that accept checks as payments.

To try to capture any spillover effects, we included variables to control for the ownership percentages at the neighborhood level of checking accounts and of savings accounts. Because this variable would be correlated with the neighbors' individual disturbance terms, we used an instrumental variables (IV) method to estimate the effects

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associated with the neighborhood ownership percentages. To test for systematic differences in the supply of banking services or of marketing efforts, our regression specifications included the racial and ethnic racial composition of each neighborhood. If banks provided less service in minority or LMI neighborhoods, then we would expect significantly negative estimated effects of the racial composition of the neighborhood in determining the ownership of checking and of savings accounts. Whether such effects would be particularly strong for one type of bank account is not obvious a priori.

V.   Methods and Results

Empirical approach

We begin with models that relate an individual's economic and demographic characteristics to individual bank account status. To facilitate comparison with previous research, we begin with a (0, 100)-dummy, dependent variable that denotes whether an individual had any bank account (i.e., banked versus unbanked). For individual i, bank ownership is called y_i, where $y_i=0$ if the individual has no form of bank account and $y_i=100$ if the individual has a bank account. We assume that household i's reservation price is p_i* and p_i is the market price. Then

$$y_i = 100 \text{ if } p_i* \geq p_i \quad \text{and} \quad y_i = 0 \text{ if } p_i* < p_i.$$

Following the previous literature, we estimate

$$\text{probability}(y_i = 1) = \beta x_i + \varepsilon_i,$$

where x_i are observables for individual i.

Specifications with controls only for individual characteristics

Our specifications in column 1 of Table 5 are substantially similar to the specifications in previous research, such as those used in Caskey (1994a) and Hogarth and O'Donnell (2000). [6] We then separately specify whether an individual had a checking account (column 2) or a savings account (column 3), where the dependent variable is 100 if individual i had such an account and 0 otherwise.

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[6] The results shown in Tables 5, 6, and 7 were obtained via probit. The results in Table 9 were obtained, not via probit, but via instrumental variables estimation. Explicit estimates of the first-stage implicitly used for the IV estimates in Table 9 are shown in Table 8. The estimated signs and statistical significance of OLS estimates of the specifications in Tables 5, 6, and 7 were broadly similar to the probit results shown in the tables.

We found that income, wealth-associated variables (such as those indicating ownership of health insurance, home ownership, and car ownership), age, bank account ownership as a child, and whether one's parents had a bank account are each statistically significant (at the 5 percent level or better) and are all associated with a greater likelihood of owning a bank account. Factors that significantly reduced the likelihood of owning a bank account were unemployment, not being in the labor force ("permanently unemployed"), and receiving government payments. We also found weakly significant effects for gender, with females more likely to be banked than males. These findings are broadly consistent with previous research.

Unlike Hogarth and O'Donnell (2000) and Caskey (1994a), however, our estimates do not show a significant effect of race (Black) or ethnicity (Hispanic) on bank account ownership.[7] In fact, a test for the joint significance of the Black and Hispanic variables does not reject insignificance (p-value = 0.31). To understand whether the divergence between our results and previous research was due to our use of a larger number of socioeconomic variables or to differences in sampling, we undertook the following exercise: To make our specification more like those of Hogarth and O'Donnell and Caskey, we re-estimated the specification shown in column 1 of Table 5 after removing the variables that indicated car ownership, health insurance, government payments, bank account ownership as a child, and whether one's parents had a bank account (results not reported). As in the more complete specification, we detected no significant effect of race or ethnicity. The test of the hypothesis of joint significance of the Black and Hispanic variables had a p-value = 0.20. This result suggests that differences in sample designs may be the source of the different results.

Distinguishing between Checking and Savings Accounts

Columns 2 and 3 of Table 5 show the results of applying the specification used for column 1 to the decision about whether to have a checking or to have a savings account, respectively. Many of the results (such as income, wealth, age, not being in the labor force, household size, government payments, whether parents had a bank account,

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[7] The race and ethnic groups that we used were Blacks and non-Black Hispanics. Non-Hispanic Whites were the vast majority of the omitted category.

and whether the individual had a bank account as a child) are similar to those in column 1 in terms of their sign and significance level.

However, modeling the checking and savings account decisions separately also revealed some important differences. Column 2 shows that individuals who lived in larger households were less likely to have checking accounts. One possible explanation is that larger households increased the odds that someone in the household had a checking account that could indirectly provide checking account services to the unchecked. The sign for household size in the savings account regression was also negative, but not significant.

The results also indicate that females, although not differentially likely to have savings accounts, were much more likely to have checking accounts than males; perhaps this is because females feel more at risk carrying cash or using ATMs. In addition, living in LA is associated with a higher likelihood of owning a checking account and a lower likelihood of owning a savings account (relative to NY). Likewise, more education is associated with an increased likelihood of having a checking account, though it is not associated one way or the other with owning a savings account. This result makes sense upon considering the different costs and benefits of the two accounts to customers. For example, it requires far less attention and financial acumen to avoid extra fees with savings accounts than to avoid those with checking accounts (such as overdraft fees).

The final result we point is one that addresses the inconsistent finding that minority status is an insignificant determinant of bank account ownership. Our results indicate that being a minority has a strongly significant negative effect on the likelihood of having a checking account, and a similarly strong positive effect on the likelihood of having a savings account. Several explanations could account for these results. Minorities might face higher costs when using a checking account (e.g., demand for extra identification), or banks might systematically supply different service across neighborhoods, or, for whatever reason, checks might be less readily accepted in minority neighborhoods, which would reduce the value of checking accounts to all residents there. In what follows, we try to make some headway in separating the mechanisms through which such neighborhood effects operated.

Results when neighborhood controls are included

      Neighborhood characteristics could be important for several reasons. The location of banking outlets might make a bank more or less convenient to everyone in a given neighborhood. Similarly, banks might vary their supply of banking services or marketing in some neighborhoods. Higher crime rates might affect everyone's demand for banking services; in some communities carrying or holding cash might be unwise, and this may raise the demand for bank accounts, especially checking accounts which allow payments and receipts to be mailed.

      To explore these possibilities, we added six variables that measure neighborhood characteristics: percent of the neighborhood population that was Hispanic, percent of that population that was Black, three crime rates (robbery, burglary, and larceny), and a measure (in the number of city blocks) of the distance to the nearest bank branch. This measure of proximity to a branch equals the median response of each cluster of respondents in the survey sample. Specifically, building on the earlier model, we now estimate

$$\text{probability}(y_i = 1) = \beta x_i^{o} + x_i^{u} + \gamma m_i^{o} + n_i^{u} + \varepsilon_i ,$$

where x_i^{o} are observables for individual i, x_i^{u} are unobservables for individual i, n_i^{o} are observable neighborhood characteristics, and n_i^{u} are unobservables for each neighborhood.

      Our results are reported in Table 6. We find that adding these measures of neighborhood characteristics had little effect on the significance of the coefficients for individual characteristics, with all variables retaining their original sign and, in most cases, their general level of significance. Borderline (less than 10 percent but greater than 5 percent) significance was detected for the coefficients on the neighborhood's percent Hispanic and percent Black for checking accounts. Percent Hispanic, however, was strongly, negatively significant in the savings account regression. Although the branch proximity measure was not significant for either checking or savings accounts, it was marginally significant in the banked specification, as shown in column 1. None of the measures of crime had detectable effects on bank accounts. Overall, the estimates point to some neighborhood effects, notably those tied to racial and ethnic composition, as

important determinants of an individual's choice to have a bank account, particularly a checking account.

Adding neighborhood deposit account ownership rate controls

In Table 7, we replace (and supplement) variables describing economic and demographic features of an individual's neighborhood with variables that measure the average account ownership rate in each individual's Census tract. These variables are intended to capture spillover effects that one's neighbors' account ownership might have on an individual's account ownership. These estimates attempt to distinguish between neighborhood demographic effects and neighborhood account ownership effects. In this final specification, we test the hypothesis that the spillover effect is weaker for those who own a car than for those who do not own a car. Again, building on the earlier model, we now estimate

$$\text{probability}(y_i = 1) = \lambda \text{NB\%}_i + \beta x_i^o + x_i^u + \gamma m_i^o + n_i^u + \varepsilon_i \; ,$$

where x_i^o are observables for individual i, x_i^u are unobservables for individual i, n_i^o are observable neighborhood characteristics, and n_i^u are unobservables for each neighborhood. NB%i is the percentage of the neighborhood that owns a checking account.

Instrumental Variables Estimates

Because the neighborhood banking measures would be correlated with the neighbors' individual disturbance terms, we used an IV method to estimate the effects associated with the neighborhood ownership percentages. As instruments, we used variables that we regarded as likely to be correlated with the census tract (neighborhood) checking and savings account means but not with the disturbance terms. We took as our instruments for these two neighborhood means the median household income and median homeownership rate in each census tract, in addition to the other predetermined variables listed in Table 8. In the "first stage" regressions in Table 8, the former two variables were significantly related to neighborhood banking variables as, to a lesser extent, were the race and ethnicity variables.

Table 9 has IV estimates of the same specifications that appeared in Table 7, where we used OLS. If neighbors' decisions to own a bank account affected individuals' decisions about having checking or savings accounts, then we would expect

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to detect significant connections between them. In column 1, higher levels of checking account ownership in the neighborhood were indeed associated with a greater likelihood that an individual would have a checking account. The effects of neighbors' savings accounts were significant only at the 10 percent threshold and the estimated effect was negative.

In the savings account regression shown in column 2, we found that the average checking account ownership rate at the neighborhood level had negative but insignificant effects on an individual's having a checking account. But, as with checking accounts, individuals' likelihood of having a savings account rose significantly with the neighborhood rate. These results could be regarded as evidence of the existence of spillover effects for both checking and savings accounts. However, as we did not originally posit savings account spillovers, their significant effects are difficult to reconcile with the spillover explanation.

Non-bank-account vs. other neighborhood effects

Perhaps a weakness of the specifications in columns 1-4 was that our measure of spillover effects absorbed neighborhood effects other than just banking-related spillovers. To explore whether omitting non-bank-account, neighborhood variables might have importantly biased our estimates, we also estimated those specifications with the addition of the non-bank-account neighborhood variables.

The results are shown in columns 5-8. With both sets of neighborhood variables included, columns 5-6 try to distinguish between the influence that one's neighbors have via bank-account-related spillover effects, while controlling for other neighborhood effects, such as crime, discrimination based on race and ethnicity, and bank location. (We also found that the addition of the non-bank-status neighborhood variables had very little impact on the sign and significance of the other, individual-level variables.) In columns 5-8, larger percentages of Blacks and of Hispanics in a neighborhood were estimated to be significantly related to lower likelihoods of having checking accounts. One of the crime rates was also a significant neighborhood effect.

The augmented models shown in columns 5-8 of Table 9 still affirm a spillover effect in checking accounts: A greater number of checking accounts among one's neighbors was associated with greater likelihoods that individuals would have checking

accounts themselves. This is consistent with the spillover effect. At the same time, column 4 shows that, as hypothesized by the spillover effect, neighbors having either checking or savings accounts had no detectable effect on savings accounts. Still, neighbors having savings accounts did have a mild effect on checking accounts. Taken together, these results suggest that neighborhood characteristics had important effects on individuals' decisions to have checking accounts, but they had no detectable effects on savings accounts.

In columns 3-4 and columns 7-8, we estimated whether spillover effects might be reduced by individuals' car ownership. We hypothesized that car owners could more easily avoid the spillover effect than non-car owners, in that cars essentially enlarge the neighborhood to encompass more merchants. In that case, otherwise-similar individuals who owned cars would be able to realize more fully the benefits of checking accounts by driving to merchants who accepted checks.

To test this hypothesis, we interacted our measure of neighborhood deposit account rates with a (0, 100) indicator of an individuals' car ownership. The results provide modest support for the hypothesis: the estimated coefficient on the interaction term was negative, but significant only at the 10 percent level. The negative estimate (-136) was about the same size as the direct effect of neighborhood checking (105), suggesting that the net effect of neighborhood deposit account ownership on a car owner's having a checking account was not significantly different from zero. Approximately equal size effects also showed up in the savings account results in column 6, although neither effect was statically significant. Thus, we detected signals that spillover effects affected non-car owners having checking accounts, while the influence of neighbors' banking had little effect on the banking of car owners. Once again, we find no evidence of neighborhood level effects for savings account ownership.

VI.   Summary and Conclusions

The estimates from our unexplored database confirm some old findings and present several new findings about the unbanked. Our estimates indicate that lower-income individuals are more likely to have bank accounts if they are employed, have higher incomes and education, and own cars or homes.

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We found important differences in the factors that determine whether individuals had checking accounts or saving accounts. Women were more likely to have checking, but not savings, accounts. Relative to Whites, Hispanics and Blacks were less likely to have checking accounts, but more likely to have savings accounts. These very different effects explain why we found that Hispanics and Blacks, in the specification in Table 6, were as likely as Whites to have some kind of a bank account.

We also found that neighborhood characteristics, and especially characteristics associated with neighbors' deposit account ownership, affected individuals having bank accounts, especially checking accounts. In contrast, we find less evidence that neighborhood characteristics, including the level of savings account ownership among one's neighbors, affected individuals having savings accounts. Proximity, as measured by the number of city blocks to the nearest bank branch, typically had modest, if any, effect on whether individuals had bank accounts.

The spillover benefits that checking accounts provide to others do not accrue to the holders of checking accounts. In that regard, the social benefits of checking accounts may exceed the private benefits, suggesting that there were fewer checking accounts than was socially optimal. Thus, one reason that so many were unbanked, and in particular were "unchecked," is that markets may not have fully valued checking accounts. Subsidies that accrue to holders of checking accounts might be warranted and improve efficiency.

If there are spillover effects in checking accounts, some neighborhoods may have developed suboptimal rates of checking account ownership. If so, then public policies could be value-enhancing. One policy might be to encourage more checking accounts, through subsidies or other means. That approach would differ from the prior policy recommendations that subsidized savings accounts be provided to lower income households.

References—to be added and completed.

Barr, M. et al.. 2009.

Berry. 2004.

Board of Governors of the Federal Reserve System. 1999. Fees and Services of
     Depository Institutions. Federal Reserve Board: 2-5.

Bond, P. and R. Townsend. 1996. Formal and Informal Financing in a Chicago
     Neighborhood. Federal Reserve Bank of Chicago. Economic Perspective.
     (July/August).

Caskey, J. 1994a. Who Has a Bank Account and Who Doesn't: 1977 and 1989. Eastern
     Economic Journal: 20 (1) (Winter).

Caskey, J. 1997a. Lower Income Americans, Higher Cost Financial Services. University
     of Wisconsin, Madison, School of Business: Filene Research Institute, Center for
     Credit Union Research.

Caskey, J. 2001a. Reaching Out to the Unbanked, Proceedings of Changing Financial
     Markets and Neighborhood Development, Federal Reserve System Neighborhood.
     Affairs Research Conference: 81-92.

Caskey, J. 2001b. Check Cashing and Savings Programs for Low-Income Households: An
     Action Plan for Credit Unions. Swarthmore College: Filene Research Institute,
     Center for Credit Union Research.

Greene, W. H. 2000. Econometric Analysis, Fourth Edition, Macmillan Publishing
     Company.

Hogarth, J. M., and K. H. O'Donnell. 2000. If You Build It, Will They Come? A
     Simulation of Financial Product Holdings among Low-to-Moderate Income
     Households. The Journal of Consumer Policy 7: 1-36.

Hogarth, J. M., C. E. Anguelow. Why Don't Households Have a Checking Account? The
     Journal of Consumer Affairs, Vol. 38, No. 1. (2004): 1-34.

Prescott, E. and D. Tatar. 1999. Means of Payment, the Unbanked, and EFT '99. Federal
     Reserve Bank of Richmond Economic Quarterly 85, (Fall): 49-70.

Raddon. 2005.

Seidman, Ellen and Teacher, Jennifer. February 2004. From Unbanked to Homeowner: Improving the Supply of Financial Services for Low-Income, Low –Asset Customers. Joint Center for Housing Studies. Harvard University: part 5, paper 2.

Stango V. and Zinman, J. 2004.

Stavins, J. 2001.

Table 1

Survey Census Tracts by Race and Income		
	Number of Tracts	
Selection Criteria	Low Income	Moderate Income
Majority Black	3	3
Majority Hispanic	3	3
Majority White	3	3
Integrated	1	2

Memo: 21 Census tracts were sampled in each city (NY and LA) according to this distribution.

Table 2

	Percentage by Account Status				
	(1) Unbanked	(2)	(3)	(4) Banked	(5)
		Any Account	Saving Only	Checking Only	Checking And Saving
Individual Characteristics					
All	30.4	69.6	12.8	18.5	38.3
Hispanic	42.9	57.1	15.4	15.2	26.5
Black	24.2	75.8	14.3	18.2	43.3
White	7.8	92.2	4.4	26.7	61.1
Low Income	44.0	56.0	16.3	18.7	21.0
Young	36.3	63.7	12.1	17.0	34.6
Temp Unemployed	58.2	41.8	12.7	11.4	17.7
Perm Unemployed	52.5	47.5	11.1	14.7	21.7
Health Insurance	22.9	77.1	12.2	19.4	45.5
Home Ownership	9.1	90.9	4.2	19.7	67.0
Car Ownership	13.8	86.2	9.4	22.3	54.5
Has Not Completed High School	52.7	47.3	16.2	13.4	17.7
Govt Payments	67.9	32.1	11.2	9.0	11.9
Small Household Size	27.8	72.2	12.9	18.6	40.7
Female	33.9	66.1	11.9	19.5	34.7
LA	23.5	76.5	8.0	22.3	46.2
Parents Had Bank Account	16.8	83.2	9.7	20.3	53.2
Had Own Bank Account as Child	11.4	88.6	7.4	20.7	60.5
Neighborhood Characteristics					
Low Percent Hispanic	26.0	74.0	13.4	18.7	41.8
Low Percent Black	28.1	71.9	10.3	19.9	41.7
Low Burglary Rate	34.0	66.0	14.6	17.9	33.6
Low Larceny Rate	37.5	62.5	15.4	15.0	32.1
Low Robbery Rate	23.2	76.8	12.4	20.5	43.9
Close to A Bank	34.7	65.3	16.9	18.0	30.4

Table 3

Variable Definifitions	
Variable Label	Definitions
Dependant Variables	
Unbanked	1= has no checking or savings account.
Savings	1= has savings account.
Checking	1= has checking account.
Individual Characteristics	
Income	7.5 if income <15; 22.5 if 15<income<30; 37.5 if 30<income< 45; 52.5 if income> 45.
Hispanic	1= Hispanic.
Black	1= Black and not Hispanic.
Temporarily Unemployed	1= temporarily unemployed.
Permanently Unemployed	1= unemployed for a long period of time (e.g. retired, homemaker, student, or disabled).
Health Insurance	1= covered by health insurance.
Home Ownership	1= own home.
Car Ownership	1= own car (or truck or other motor vehicle).
Education	Formal education (in years).
English illiteracy	1= cannot speak or read English.
Female	1= female.
Age	age (in years).
Government Payment	1=received government support payments (e.g. food stamps, welfare).
Parents Had Bank Account	1= A parent had a bank account
Had Account as Child	1= Had a bank account as a child
Household size	household size.
Neighborhood Characteristics	
LA indicator	1= Los Angles resident, 0= New York resident.
Blocks to bank	Median distance in blocks for each sampling cluster to the nearest stand alone bank office.
LA*Distance	LA*Distance to bank.
Percent Hispanic	Share of Hispanics in total population for each census tract.
Percent black	Share of blacks in total population for each census tract.
Percent own home	Share of housing units owned by occupant for each census tract.
Median HH income	Median household income for each census tract.

Memo: Incomes are stated in thousands of dollars.

Table 4

	All	Unbanked	Banked			
			Any Account	Saving Only	Checking Only	Checking And Saving
	(1)	(2)	(3)	(4)	(5)	(6)
	N=1812	N=551	N=1261	N=232	N=335	N=694
Individual Characteristics						
Hispanic (%)	44.9	63.3	36.9	53.9	37.0	31.1
Black (%)	36.3	28.9	39.6	40.5	35.8	41.1
White (%)	14.9	3.8	19.7	5.2	21.5	23.8
Income (Thousands)	28.4	19.4	32.3	23.8	28.9	36.8
Age	41.4	38.2	42.8	43.5	43.1	42.4
Temporarily Unemployed (%)	4.4	8.3	2.6	4.3	2.7	2.0
Permanently Unemployed (%)	25.9	44.6	17.7	22.4	20.6	14.7
Health Insurance (%)	75.9	57.2	84.1	72.4	79.7	90.2
Home Ownership (%)	23.6	7.1	30.8	7.8	25.1	41.2
Car Ownership (%)	48.5	22.0	60.1	35.8	58.5	69.0
Education (Years)	11.8	10.2	12.6	10.8	12.3	13.3
Govt Payments (%)	15.3	34.1	7.1	13.4	7.5	4.8
Household Size	3.1	3.5	2.9	3.2	3.0	2.8
Female (%)	53.6	59.7	50.9	50.0	56.4	48.6
LA (%)	50.7	39.2	55.7	31.5	61.2	61.1
Parent Had Bank Account (%)	53.9	29.8	64.4	40.9	59.1	74.8
Had Own Bank Account as Child (%)	20.8	7.8	26.5	12.1	23.3	32.9
Neighborhood Characteristics						
Blocks to Bank	3.7	3.6	3.7	3.0	3.7	4.0
Percent Hispanic	41.8	47.8	39.2	40.2	41.3	37.8
Percent Black	38.7	39.4	38.4	45.0	35.4	37.7
Robbery Rate	6.4	6.7	6.2	6.6	6.1	6.1
Burglary Rate	6.9	6.7	6.9	6.6	7.0	7.0
Larceny Rate	18.4	17.0	19.0	16.6	19.6	19.4

Means of Individual and Neighborhood Characteristics

Table 5

	Individual Effects		
	Banked (1)	Checking (2)	Savings (3)
Hispanic	-3.33	-11.8***	6.69
	(2.63)	(2.52)	(4.25)
Black	-2.49	-10.7***	5.90
	(2.93)	(2.86)	(4.15)
Income	0.33***	0.48***	0.55***
	(0.10)	(0.088)	(0.092)
Age	0.54***	0.32***	0.38***
	(0.079)	(0.072)	(0.10)
Temporarily Unemployed	-12.2**	-8.36*	-7.80
	(5.10)	(4.69)	(5.05)
Permanently Unemployed	-16.8***	-9.91***	-12.5***
	(2.27)	(2.78)	(2.80)
Health Insurance	18.7***	18.2***	15.0***
	(2.57)	(2.62)	(2.93)
Home Ownership	3.97	11.3***	9.42**
	(2.38)	(2.57)	(3.66)
Car Ownership	14.2***	14.7***	9.74***
	(2.31)	(2.42)	(2.68)
Education	0.47	1.01***	0.21
	(0.40)	(0.35)	(0.48)
Government Payments	-20.8***	-13.0***	-11.1***
	(3.14)	(2.59)	(3.22)
Household Size	-0.89	-1.58***	-1.19*
	(0.60)	(0.49)	(0.65)
Female	3.79*	5.92***	-0.14
	(1.98)	(2.19)	(2.52)
LA	-0.99	6.74**	-7.77***
	(2.37)	(2.54)	(2.84)
Parents Had Bank Account	10.9***	12.2***	10.5***
	(2.77)	(2.73)	(3.38)
Had Bank Account as Child	5.67**	6.19**	6.05*
	(2.17)	(2.64)	(3.51)
Constant	14.9*	-0.97	-0.27
	(8.35)	(7.28)	(9.89)
Observations	1812	1812	1812
R-squared	0.357	0.395	0.220

Clustered standard errors in parentheses. Statistical significance at the

Table 6

	Banked (1)	Checking (2)	Savings (3)
		Individual and Neighborhood Effects	
Hispanic	0.15	-8.56***	9.13*
	(2.99)	(2.80)	(4.57)
Black	0.096	-7.06**	6.50
	(3.99)	(3.03)	(4.91)
Income	0.33***	0.47***	0.54***
	(0.10)	(0.091)	(0.093)
Age	0.54***	0.32***	0.38***
	(0.079)	(0.074)	(0.10)
Temporarily Unemployed	-12.1**	-8.31*	-7.42
	(5.11)	(4.74)	(5.12)
Permanently Unemployed	-16.9***	-9.94***	-12.4***
	(2.28)	(2.80)	(2.73)
Health Insurance	18.2***	18.0***	14.6***
	(2.47)	(2.57)	(2.93)
Home Ownership	4.41*	11.8***	9.48**
	(2.39)	(2.55)	(3.66)
Car Ownership	14.3***	15.0***	9.86***
	(2.31)	(2.42)	(2.69)
Education	0.41	0.94***	0.25
	(0.39)	(0.34)	(0.47)
Government Payments	-20.1***	-12.5***	-10.4***
	(3.03)	(2.59)	(3.17)
Household Size	-0.77	-1.46***	-1.10
	(0.60)	(0.49)	(0.65)
Female	3.68*	5.88**	-0.22
	(1.98)	(2.18)	(2.54)
LA	1.12	7.16*	-3.23
	(3.15)	(3.98)	(4.11)
Parents Had Bank Account	10.7***	12.0***	10.1***
	(2.72)	(2.66)	(3.31)
Had Bank Account as Child	5.75**	5.93**	6.25*
	(2.17)	(2.58)	(3.37)
Percent Hispanic	-12.0*	-13.3*	-18.5***
	(6.13)	(6.94)	(6.61)
Percent Black	-4.45	-10.4*	-3.97
	(6.01)	(6.07)	(5.50)
Robbery Rate	0.043	0.39	0.49
	(0.59)	(0.79)	(0.78)
Burglary Rate	-0.31	-0.76	-1.01
	(0.90)	(1.27)	(0.92)
Larceny Rate	0.13	0.095	-0.29
	(0.21)	(0.31)	(0.23)
Blocks to Bank	-0.69*	0.25	0.27
	(0.35)	(0.44)	(0.52)
Constant	20.8**	6.58	13.5
	(9.30)	(9.74)	(12.1)
Observations	1812	1812	1812
R-squared	0.361	0.398	0.224

Clustered standard errors in parentheses. Statistical significance at the

Table 7

Network, Individual, and Neighborhood Effects, Ordinary Lease Squared Approach

VARIABLES	Checking (1)	Savings (2)	Checking (3)	Savings (4)	Checking (5)	Savings (6)	Checking (7)	Savings (8)
Checking Neighborhood Mean	50.1***	-30.2***	57.1***	-30.6***	65.4***	-29.8***	69.5***	-30.9***
	(6.14)	(6.63)	(6.58)	(6.84)	(7.66)	(5.72)	(8.06)	(6.04)
Saving Neighborhood Mean	-22.4***	80.4***	-22.3***	86.5***	-18.6**	86.5***	-19.0**	91.7***
	(7.29)	(7.70)	(7.21)	(10.1)	(9.08)	(6.31)	(9.18)	(8.27)
Check Neighborhood Mean * Own Car			-18.7*				-14.6	
			(9.78)				(9.52)	
Saving Neighborhood Mean * Own Car				-14.7				-13.2
				(14.1)				(15.0)
Hispanic	-5.86**	8.77**	-5.97**	8.71**	-7.51***	9.06**	-7.41***	9.11**
	(2.64)	(4.03)	(2.59)	(4.01)	(2.74)	(4.35)	(2.70)	(4.35)
Black	-5.32*	5.62	-5.68**	5.49	-6.54**	6.90	-6.65**	6.85
	(2.69)	(4.00)	(2.63)	(3.99)	(2.98)	(4.95)	(2.97)	(4.95)
Income	0.44***	0.51***	0.44***	0.51***	0.44***	0.52***	0.44***	0.52***
	(0.087)	(0.094)	(0.088)	(0.095)	(0.089)	(0.095)	(0.088)	(0.095)
Age	0.31***	0.38***	0.32***	0.38***	0.32***	0.38***	0.32***	0.38***
	(0.071)	(0.100)	(0.071)	(0.100)	(0.071)	(0.10)	(0.071)	(0.10)
Temporarily Unemployed	-8.47*	-8.47	-8.30*	-8.42	-8.28*	-8.29	-8.13*	-8.24
	(4.66)	(5.04)	(4.68)	(5.06)	(4.67)	(5.12)	(4.70)	(5.14)
Permanently Unemployed	-9.58***	-12.3***	-9.59***	-12.3***	-9.33***	-12.3***	-9.37***	-12.3***
	(2.71)	(2.77)	(2.73)	(2.77)	(2.68)	(2.78)	(2.70)	(2.77)
Health Insurance	17.5***	14.7***	17.4***	14.7***	17.4***	14.6***	17.3***	14.6***
	(2.49)	(2.94)	(2.52)	(2.94)	(2.45)	(3.02)	(2.47)	(3.01)
Home Ownership	11.9***	9.65***	12.1***	9.73***	11.7***	9.75***	11.8***	9.83***
	(2.52)	(3.50)	(2.53)	(3.51)	(2.51)	(3.55)	(2.54)	(3.56)
Car Ownership	14.9***	9.91***	25.5***	17.4**	15.0***	10.2***	23.3***	16.9**
	(2.38)	(2.70)	(6.24)	(7.12)	(2.43)	(2.72)	(6.15)	(7.64)
Education	0.90**	0.23	0.94***	0.26	0.94***	0.21	0.96***	0.22
	(0.34)	(0.44)	(0.34)	(0.44)	(0.34)	(0.45)	(0.34)	(0.44)
Government Payments	-11.0***	-9.42***	-10.3***	-9.21***	-10.7***	-9.33***	-10.2***	-9.14***
	(2.54)	(2.96)	(2.63)	(2.91)	(2.53)	(2.94)	(2.61)	(2.89)
Household Size	-1.36***	-0.91	-1.43***	-0.93	-1.41***	-0.90	-1.46***	-0.92
	(0.48)	(0.66)	(0.48)	(0.67)	(0.47)	(0.67)	(0.47)	(0.67)
Female	5.55**	-0.39	5.47**	-0.41	5.47**	-0.41	5.41**	-0.42
	(2.20)	(2.49)	(2.19)	(2.49)	(2.19)	(2.49)	(2.18)	(2.49)
LA	-3.12*	-5.09**	-2.67	-4.93**	-4.83**	-4.71**	-4.09*	-4.35*
	(1.78)	(2.39)	(1.72)	(2.43)	(2.39)	(2.26)	(2.34)	(2.34)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Parents Had Bank Account	12.2***	9.43***	12.1***	9.31***	12.1***	9.27***	12.0***	9.15***
	(2.61)	(3.37)	(2.62)	(3.39)	(2.60)	(3.34)	(2.60)	(3.36)
Had Bank Account as Child	5.67**	6.26*	5.96**	6.42*	5.93**	6.27*	6.16**	6.42*
	(2.64)	(3.45)	(2.61)	(3.42)	(2.61)	(3.46)	(2.59)	(3.44)
Percent Hispanic					10.8*	-2.23	9.20	-3.10
					(5.74)	(4.95)	(5.86)	(5.26)
Percent Black					3.59	-7.29	2.64	-7.71
					(4.48)	(5.25)	(4.60)	(5.47)
Burglary Rate					-0.97*	-0.88*	-0.91*	-0.84
					(0.52)	(0.51)	(0.52)	(0.53)
Larceny Rate					-0.29**	-0.040	-0.28**	-0.037
					(0.13)	(0.11)	(0.12)	(0.11)
Robbery Rate					1.06**	1.15***	1.06**	1.13***
					(0.42)	(0.34)	(0.41)	(0.34)
Blocks to Bank					0.53	0.33	0.46	0.30
					(0.46)	(0.42)	(0.45)	(0.43)
Constant	-15.2*	-25.4***	-19.3**	-28.4***	-26.6**	-27.4***	-28.4***	-29.3***
	(7.89)	(9.32)	(7.94)	(9.33)	(10.1)	(9.48)	(10.2)	(9.30)
Observations	1812	1812	1812	1812	1812	1812	1812	1812
R-squared	0.407	0.237	0.408	0.237	0.410	0.238	0.410	0.238

Clustered standard errors in parentheses. Statistical significance at the 10%, 5%, and 1% level is denoted by *, **, and *** respectively.

Table 8

	First Stage			
	Checking Neighborhood Mean (1)	Saving Neighborhood Mean (2)	Checking Neigh * Own Car (3)	Saving Neigh * Own Car (4)
Blocks to Bank	-0.0047	-0.0028	-0.0042	-0.00090
	(0.0076)	(0.0055)	(0.0040)	(0.0025)
Percent Hispanic	-0.41***	-0.17	-0.20***	-0.068
	(0.14)	(0.11)	(0.069)	(0.046)
Percent Black	-0.23**	0.058	-0.13**	-0.00062
	(0.096)	(0.078)	(0.052)	(0.032)
Median Household Income	-0.0034	-0.0011	0.0035	0.0032
	(0.0048)	(0.0045)	(0.0025)	(0.0020)
Govt Payment Percent	-0.38	-0.58	0.24	0.079
	(0.34)	(0.35)	(0.15)	(0.15)
Percent Own Home	0.29**	0.098	-0.019	0.042
	(0.13)	(0.14)	(0.056)	(0.056)
Median Household Size	0.00065	-0.021	-0.028	-0.040***
	(0.043)	(0.030)	(0.020)	(0.013)
Burglary Rate	-0.0023	0.0048	0.0035	0.0012
	(0.021)	(0.013)	(0.010)	(0.0060)
Larceny Rate	0.0070**	-0.00011	0.0017	-0.00097
	(0.0032)	(0.0029)	(0.0013)	(0.0012)
Robbery Rate	-0.0089	-0.0063	-0.0015	0.00032
	(0.011)	(0.0083)	(0.0038)	(0.0032)
Hispanic	-0.024***	-0.013	0.0027	0.00058
	(0.0083)	(0.0100)	(0.0079)	(0.0054)
Black	-0.016	-0.012	-0.0063	-0.0030
	(0.0093)	(0.0085)	(0.0072)	(0.0048)
Income	0.00059***	0.00037*	0.00023	0.00018
	(0.00019)	(0.00019)	(0.00017)	(0.00014)
Age	-0.000037	-0.000078	0.00030**	0.000036
	(0.00018)	(0.00015)	(0.00014)	(0.000091)
Temporarily Unemployed	0.0063	0.0085	0.0063	0.0032
	(0.0075)	(0.0088)	(0.0083)	(0.0075)
Permanently Unemployed	-0.0073	-0.0031	-0.0072	-0.0015
	(0.0048)	(0.0044)	(0.0052)	(0.0036)
Health Insurance	0.0098	0.0066	0.00015	-0.0013
	(0.0061)	(0.0041)	(0.0052)	(0.0029)
Home Ownership	-0.0051	-0.0049	0.013*	0.0051
	(0.0054)	(0.0037)	(0.0071)	(0.0055)
Car Ownership	0.0024	-0.0013	0.57***	0.51***
	(0.0059)	(0.0048)	(0.029)	(0.020)
Education	0.00059	0.00065	0.0011	0.00086*
	(0.00071)	(0.00070)	(0.00064)	(0.00051)
Government Payments	-0.027**	-0.017*	0.026***	0.0075
	(0.011)	(0.0089)	(0.0083)	(0.0055)
Household Size	-0.0021*	-0.0026**	-0.0030***	-0.0017**
	(0.0011)	(0.0010)	(0.00094)	(0.00072)
Female	0.0057	0.0047	-0.0014	0.0012
	(0.0036)	(0.0030)	(0.0057)	(0.0034)
LA	0.13**	0.020	0.12***	0.031
	(0.061)	(0.062)	(0.028)	(0.026)
Parents Had Bank Account	-0.0020	0.0028	-0.0017	-0.0066
	(0.0049)	(0.0050)	(0.0052)	(0.0047)
Had Bank Account as Child	0.0085	0.0070	0.013**	0.010**
	(0.0066)	(0.0050)	(0.0060)	(0.0040)
Constant	0.79***	0.73***	0.026	0.068
	(0.15)	(0.10)	(0.078)	(0.050)
Observations	1812	1812	1812	1812
R-squared	0.794	0.620	0.929	0.947

Clustered standard errors in parentheses. Statistical significance at the 10%, 5%, and 1% level is denoted by *, **, and *** respectively.

Table 9

Network, Individual, and Neighborhood Effects, Instrumental Variables Approach

VARIABLES	Checking (1)	Savings (2)	Checking (3)	Savings (4)	Checking (5)	Savings (6)	Checking (7)	Savings (8)
Checking Neighborhood Mean	45.9***	-13.5	93.5***	-12.6	139***	20.3	105***	9.10
	(12.6)	(13.1)	(22.1)	(14.2)	(41.7)	(33.2)	(39.4)	(38.5)
Saving Neighborhood Mean	-30.4*	53.2***	-31.0*	81.9***	-62.2*	39.2	-51.3	62.8
	(16.0)	(16.1)	(18.6)	(28.1)	(34.2)	(30.3)	(36.1)	(40.7)
Check Neighborhood Mean * Own Car			-112***				-136*	
			(38.3)				(71.3)	
Saving Neighborhood Mean * Own Car				-68.6				-65.3
				(48.5)				(61.2)
Hispanic	-7.19***	9.08**	-7.03***	9.28**	-6.44**	9.69**	-6.67**	9.82**
	(2.65)	(4.27)	(2.55)	(4.25)	(2.68)	(4.37)	(2.64)	(4.37)
Black	-6.21**	6.54	-7.71***	6.31	-6.13**	7.03	-7.80***	6.72
	(2.84)	(4.47)	(2.66)	(4.48)	(3.03)	(4.93)	(2.81)	(4.90)
Income	0.45***	0.52***	0.45***	0.52***	0.42***	0.51***	0.47***	0.52***
	(0.086)	(0.092)	(0.090)	(0.094)	(0.086)	(0.094)	(0.091)	(0.096)
Age	0.32***	0.38***	0.35***	0.38***	0.31***	0.38***	0.35***	0.38***
	(0.070)	(0.099)	(0.074)	(0.10)	(0.069)	(0.099)	(0.073)	(0.10)
Temporarily Unemployed	-8.35*	-8.29*	-7.37	-8.08	-7.99*	-7.91	-6.64	-7.62
	(4.57)	(4.93)	(4.81)	(5.01)	(4.66)	(5.01)	(5.03)	(5.08)
Permanently Unemployed	-9.68***	-12.3***	-9.67***	-12.2***	-8.75***	-12.0***	-9.81***	-12.1***
	(2.68)	(2.74)	(2.82)	(2.73)	(2.69)	(2.83)	(2.84)	(2.79)
Health Insurance	17.6***	14.7***	17.3***	14.5***	16.8***	14.3***	17.0***	14.1***
	(2.46)	(2.88)	(2.70)	(2.90)	(2.52)	(3.05)	(2.65)	(3.01)
Home Ownership	11.8***	9.67***	12.9***	10.1***	11.4***	9.53***	13.1***	9.94***
	(2.50)	(3.51)	(2.74)	(3.50)	(2.51)	(3.59)	(3.02)	(3.54)
Car Ownership	14.8***	9.89***	78.7***	44.7*	14.9***	10.0***	92.4**	43.2
	(2.35)	(2.66)	(21.7)	(24.3)	(2.43)	(2.72)	(41.3)	(30.5)
Education	0.92***	0.21	1.12***	0.30	0.95***	0.23	1.18***	0.31
	(0.34)	(0.45)	(0.35)	(0.45)	(0.34)	(0.45)	(0.35)	(0.46)
Government Payments	-11.6***	-9.60***	-6.99**	-8.42***	-9.30***	-8.79***	-6.37**	-8.13***
	(2.47)	(3.00)	(2.85)	(3.02)	(2.84)	(3.02)	(2.96)	(3.06)
Household Size	-1.44***	-0.96	-1.81***	-1.06	-1.41***	-0.96	-1.94***	-1.08
	(0.47)	(0.64)	(0.50)	(0.69)	(0.46)	(0.65)	(0.52)	(0.68)
Female	5.65***	-0.37	5.08**	-0.48	5.12**	-0.56	5.03**	-0.56
	(2.15)	(2.45)	(2.14)	(2.46)	(2.27)	(2.53)	(2.18)	(2.52)
LA	-1.81	-7.42***	-0.30	-7.29**	-16.3**	-10.9*	4.32	-7.80
	(2.70)	(2.82)	(2.81)	(3.01)	(8.15)	(6.08)	(10.7)	(7.74)

Parents Had Bank Account	12.3***	9.75***	12.0***	9.14***	12.4***	9.67***	12.0***	9.14***
	(2.65)	(3.31)	(2.74)	(3.30)	(2.62)	(3.26)	(2.75)	(3.32)
Had Bank Account as Child	5.73**	6.12*	7.40***	6.83**	5.93**	6.26*	8.06***	6.97**
	(2.58)	(3.36)	(2.68)	(3.30)	(2.63)	(3.32)	(2.79)	(3.45)
Percent Hispanic					30.1*	4.69	-13.4	-3.04
					(17.8)	(14.0)	(24.4)	(16.5)
Percent Black					18.5*	2.15	-6.12	-1.28
					(10.8)	(9.56)	(15.3)	(11.3)
Burglary Rate					-1.21	-1.05	-0.42	-0.86
					(1.29)	(0.85)	(1.10)	(0.80)
Larceny Rate					-0.75**	-0.37	-0.23	-0.32
					(0.37)	(0.29)	(0.41)	(0.32)
Robbery Rate					1.54	1.26*	0.67	1.08
					(0.98)	(0.72)	(0.78)	(0.74)
Blocks to Bank					0.79	0.47	-0.14	0.29
					(0.71)	(0.53)	(0.66)	(0.56)
Constant	-9.02	-20.3**	-35.7***	-35.4**	-47.8*	-29.1	-23.4	-32.5
	(8.59)	(9.47)	(12.7)	(14.9)	(27.7)	(19.8)	(25.2)	(21.5)
Observations	1812	1812	1812	1812	1812	1812	1812	1812
R-squared	0.406	0.235	0.380	0.231	0.396	0.232	0.362	0.229

Clustered standard errors in parentheses. Statistical significance at the 10%, 5%, and 1% level is denoted by *, **, and *** respectively.

Checking Neighborhood F-Stat	8.51	8.51	8.51	8.51	1.53	1.53	1.53	1.53
Saving Neighborhood F-Stat	8.45	8.45	8.45	8.45	2.05	2.05	2.05	2.05
Checking Neighborhood * Car Own F-Stat			8.58				1.27	
Saving Neighborhood * Car Own F-Stat				9.53				5.22