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Do Bank Accounts Help Families to Save? Evidence from the United Kingdom

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### Abstract

I use an electronic transfer mandate in the UK Child Benefit program, a transfer received by virtually all families with children, to estimate the effect of bank account ownership on the savings behavior of less educated families with children. With the mandate increasing account ownership by as much as 19 percent for less educated families with children, it provides an exogenous increase in account ownership to examine the causal effect of bank account ownership on the accumulation of financial assets. When a less educated family becomes an owner of a bank account, I find that bank account ownership increases financial assets at the mean. I also find evidence that ownership increases financial assets in the upper tail of the distribution. However, due to data limitations, more work needs to be done to investigate the savings response.

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#### I. Introduction

Before technological advancements, governments throughout the world distributed public transfers via coupon book or check. Now governments can pay benefits electronically into a recipient's bank account or onto a prepaid debit card, eliminating coupons and checks. Despite a trend towards electronic administration, we do not have a clear understanding of how it may affect the unbanked, that is, families that own neither a transaction nor a savings account. In particular, for unbanked families, a requirement that public transfers be paid electronically is an inducement to own an account and may alter other aspects of their financial behavior, as well.

The related normative question is whether governments *should* encourage bank account ownership. Some suggest that account ownership is below the socially optimal level and have implemented policies to encourage account ownership, in part, because bank accounts are assumed to help the poor to save. There is, however, little evidence to support this claim. If account ownership does aid in asset accumulation, bank accounts may improve the economic well-being of their owners by providing resources to smooth income shocks, invest in human and physical capital, and finance retirement. Knowing if bank accounts affect savings will help to answer this normative question and evaluate the welfare effects of these policies.

To credibly estimate the causal effects of bank account ownership on savings, changes in account ownership must be unrelated to observable preferences. Previous work establishes a correlation between bank accounts and financial assets but cannot purge unobservable preferences from the decision to own an account. In this paper, I use the modified administration of the universal UK Child Benefit program – changing electronic transfer from a payment *option* to a payment *requirement* – as a natural experiment to isolate exogenous variation in account ownership. This variation allows me to estimate the causal effect of owning a bank account on the savings behavior of families with children.

I first compare Child Benefit recipients across time to estimate the magnitude of the mandate's effects on ownership of accounts eligible to receive an electronic transfer of Child Benefits. Employing a quasi-experimental design, which compares the behavioral response of

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less educated families with children to less educated families without children, I find that the mandate substantially boosted bank account ownership, which I define as either ownership of a transaction account and/or savings account. Families with children increased their ownership of bank accounts 12 percentage points (19 percent) as a result of the mandate.

This increase in bank account ownership provides a new approach to investigate the causal relationship between bank accounts and savings. Previous work relies almost exclusively on studying voluntary participants in asset building programs and suffers from sample selection bias. The implementation of electronic transfer for recipients of the universal Child Benefit ensures that unobserved preferences for savings are uncorrelated with program participation. With an instrumental variable approach, I measure the effect of owning a bank account on financial assets. After three years in which the mandate was fully implemented, I find account ownership increases financial assets. Moreover, the increase occurs above the 77<sup>th</sup> percentile for this sample which suggests substantial heterogeneity in the response to bank account ownership. Problems inherent in the data limit strong conclusions but do suggest a positive response in savings to increases in bank account ownership.

The paper proceeds as follows: Section II provides institutional details on the UK Child Benefit, the electronic transfer mandate, and account options for Child Benefit recipients; Section III provides a conceptual background for the implementation of the mandate, policies to increase account ownership, and previous work examining the relationship between bank account ownership and other financial behavior. Section IV provides the methodology for the instrumental variable approach. Section V presents the data and measures used in the analysis. Section VI presents the results for each stage of the model. Section VII concludes.

### II. Background

## The UK Child Benefit

The Child Benefit is a tax-free benefit for families with children.<sup>1</sup> Benefits depend only on the number of eligible children, defined as a child under 17 or under 19 and enrolled full-time in non-advanced education or an approved training program. Families receive benefits monthly,

<sup>&</sup>lt;sup>1</sup> The government estimates take-up of the Child Benefit at 97 percent (House of Commons, 2006).

although single parent and lower income families can choose weekly receipt. Child Benefits are an important source of income to lower and middle income families.

Benefit levels are determined each fiscal year (April to March). One rate applies to the family's first child and a lower rate applies to each additional child. Measured in constant (2005) pounds, the first child rate increased during the 1990s and remained stable thereafter, while additional child rates have remained stable since 1990. By April 2008, parents received  $\pounds 18.80$  a week for their first child and  $\pounds 12.55$  a week for each additional child.

#### Electronic Transfer Mandate

The government announced the electronic transfer mandate for all public benefits, including the Child Benefit, in May of 1999.<sup>2</sup> The stated goal of the requirement was to prevent benefit fraud and reduce administrative costs, as well as promote "financial inclusion" (Select Committee on Trade and Industry, 2003).<sup>3</sup> The government considered the financially excluded to be families that lack access to financial services, particularly banking services, but also affordable credit, savings opportunities, insurance, and financial advice.

The government phased in the mandate between April 2003 and March 2005, ending the widely used order book (coupon book) where recipients exchanged benefit coupons for cash at the Post Office.<sup>4</sup> The mandate also ended the less often used giro cheque (check) form of receipt where beneficiaries received checks encashable at the Post Office or a bank. It placed no new requirements on those already receiving an electronic transfer into their bank account.

By April 2005, the government required all Child Benefit recipients to designate a conventional bank account, a new Basic Bank Account, or a new Post Office Card Account (POCA), to receive their payments. A conventional bank account includes both transaction accounts – bank accounts meant primarily for daily use – and savings accounts – accounts

<sup>&</sup>lt;sup>2</sup> All government cash transfers were affected, as discussed in further detail later. I focus on the Child Benefit because it has no income limitations and nearly full take-up.

<sup>&</sup>lt;sup>3</sup> The estimated cost of transmitting benefits via an order book is  $\pounds 0.68$ , while the estimated cost of an electronic transfer is  $\pounds 0.01$  (Herbert and Hopwood Road, 2006).

<sup>&</sup>lt;sup>4</sup> Recipients were not subject to the mandate until they received a letter from the Department of Work and Pensions (DPW) explaining their new account options. DPW staggered these letters over the phase-in period ("New Benefits System 'Poorly Promoted'", BBC News, March 13, 2003). Recipients could also adapt to the new regime before they received a notification letter.

primarily used to store funds. Basic Bank Accounts, available at commercial banks due to the strong encouragement of the government, are low-cost transaction accounts that differ from many other transaction accounts by lacking both an overdraft and a checkbook facility. For those unable or unwilling to open a bank account, POCAs allow electronic benefit receipt at the Post Office.<sup>5</sup> Without providing information on their designated account to the Benefits Agency, claimants would not receive their benefits.<sup>6</sup>

Owning a conventional bank account does not prohibit ownership of a Basic Bank Account or a POCA, just as bank account owners before the mandate could (and did) opt to receive benefits via a coupon or check.<sup>7</sup> I tabulate how families received their Child Benefits using FRS data in Table 1. Panel A displays the payment receipt methods in the pre-mandate period. In this period, 56 percent of all recipients received their benefit via a coupon book. More than half (52 percent) of bank account owners chose a coupon book rather than a direct deposit into their account. Receipt via a coupon book was also concentrated among the less educated.

Panel B of Table 1 shows the dramatic change in Child Benefit administration after the mandate. The data do not distinguish between electronic payment into a conventional bank account, Basic Bank Account, or POCA, but, as Table 1 shows, nearly all families (98 percent) report electronic receipt after the mandate's implementation.<sup>8</sup> Differences in payment method by education level also nearly disappear after the mandate.

#### Theoretical Background

If banks benefit consumers, why did at least 10 percent of families in both the US and the UK not own a bank account in 2003 (Aizcorbe et al., 2003; Treasury Committee House of Commons, 2006)? One explanation is asymmetric information between banks and consumers. Banks may expect that those with low current income, poor credit history, or previous problems managing a bank account pose more risk because they are more likely to overdraw

<sup>&</sup>lt;sup>5</sup> Any benefit recipient could open a POCA. An estimated 70% of all POCA users were banked (Allen, 2008). <sup>6</sup> Rare exceptions exist. For example, a legal appointee can collect their Child Benefits for an ill or disabled parent. Extreme hardship allows for a temporary waiver of the electronic transfer requirement.

<sup>&</sup>lt;sup>7</sup> Conventional bank account owners may transition to a Basic Bank Account due to the lower costs; they may use a POCA because they want to receive benefits at a Post Office or wish to separate Child Benefit income from other income (BMRB Social Research, 2006).

<sup>&</sup>lt;sup>8</sup> The few who do not report receiving electronic transfer may occur either from misreporting, extreme hardship, or a still valid coupon book. The last coupon books issued contained coupons valid until July 2005.

their account. As a result of the uncertainty produced by these applicants, banks charge more for these accounts, pricing these families out of the market, if accounts are available at all.

Families may not own a bank account for reasons not related to adverse selection. The high fixed costs of designing, marketing, and offering services specifically to low- and moderateincome individuals may prevent banks from offering these services (Barr, 2004). Some consumers may not apply for an account because they assume they will not qualify or they may be unaware about the availability of appropriate accounts. Minimum balance requirements and fees, such as those incurred for over withdrawal, may make accounts more expensive than some consumers are willing to pay. Banks may locate in commercial or upper income areas, providing less access to non-urban or lower income residents. The unbanked may also lack the financial education to fully understand the benefits of account ownership. Finally, a behavioral perspective posits even more reasons for families to forgo account ownership such as choice complexity, procrastination, and discomfort with banks (Bertrand et al., 2006).

The mandate and the creation of Basic Bank Accounts should increase account ownership for two reasons: an increase in demand caused by the mandate and the reduced price of Basic Bank Accounts. The new default of electronic transfer should also reduce procrastination in owning an account. The introduction of Basic Bank Accounts should appeal to families that were unbanked because available accounts were too expensive or had undesirable features while also providing a mental shortcut for those overwhelmed by banking options.

There are several channels through which owning a bank account might affect savings: a reduction in expenditures related to converting and storing income, access to an institutional mechanism to save, and a reduction in temptation to spend money. For example, a bank account allows consumers to reduce or avoid the direct and indirect costs associated with converting income into payments such as through utilizing a check cashing service. Accounts also provide a secure storage location that protects the asset from theft and avoids the need to store income through the purchase of another asset, such as gold or jewelry. Bank accounts may also introduce consumers to other savings products offered by banks, such as CDs,

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bonds, and tax-preferred retirement accounts. Finally, by placing money in a bank, it may reduce the temptation to spend this money.

In general, policies to increase bank account ownership are not adequately studied to determine their effectiveness. Only Washington (2006) considers such a policy using a large, nationally-representative sample. Washington examines US state laws requiring banks to offer low-cost accounts and concludes that these laws increase account ownership rates among minority households after two to three years. If this delay does not indicate that other factors better explain the behavioral response, her work suggests that demand responds slowly, as consumers adapt to new account offerings. In the context of the UK, her work indicates that the creation of Basic Bank Accounts should not have large effects on the banking behavior of unbanked consumers in the short term.

Additionally, there is little work examining the impact of bank account ownership on other financial behavior. Despite this, fairly consistent correlations exist between bank account ownership and savings behavior. Although there are conjectures that bank accounts directly affect savings behavior, account ownership may actually only provide access to the financial system or represent unobservable preferences for savings or financial literacy (Carney and Gale, 2001). The lack of a bank account is related to many indicators of financial hardship that may reduce the ability to save, including lower employment rates, lower earnings levels, lower education levels, and other factors (Barr, 2004; Carbo et al., 2007; Dunham, 2001; GAO, 2002; Hogarth and O'Donnell 1997; Hogarth, et al., 2004; Klawitter and Fletschner, 2006; Treasury Committee, 2006; Vermilyea and Wilcox, 2002).

The only research studying the link between account ownership and savings behavior to overcome the potential endogeneity of bank account ownership is by Aportela (1999). Aportela examines a natural experiment in Mexico where bank branches opened in the post offices of several towns and offered new low-cost savings options. Comparing towns affected by the expansion to towns that were not, he concludes that these new options increased the average household saving rate by as much as 8 percent. However, he cannot rule out that new

savings in the formal financial system was not a substitute for informal savings instruments, such as the purchase of durable goods.

Other research examining the link between bank accounts and savings largely consists of evaluating volunteers in small scale pilot programs, and, even amongst these likely motivated "savers", no consensus emerges about the effect of account ownership on savings (Beverly, et al., 2004; Barr, 2004; Grinstein-Weiss, et al., 2006; Linnenbrink, et al., 2006; Schreiner, et al., 2002). In sum, there is no clear evidence of a causal relationship between owning a bank account and level of financial assets. This may result from the absence of a relationship, a lack of independent variation, or the focus on the formal financial system to the exclusion of informal savings instruments.

#### IV. Methodology

Because the decision to own a bank account is likely related to unobservable preferences for savings, without identifying a source of exogenous variable, estimates will be biased by these unobservable preferences. My approach uses increase in account ownership created by the electronic transfer mandate in the Child Benefit program to estimate the causal effect of account ownership on savings. This strategy disentangles unobservable preferences for savings from unobservable preferences for program participation.

I estimate two-stage least squares (2SLS) and IV quantile regressions. In the first stage, I estimate a difference-in-differences specification that compares the change in account ownership for an affected group (less educated families with children) relative to an unaffected group (less educated families without children) after the implementation of the electronic transfer mandate in the Child Benefit program. Although all families had access to the newly available Basic Bank Accounts, the exposure of families with children to the Child Benefit mandate results in isolating the effect of the mandate on account ownership. Focusing on less educated families creates a sample that should be significantly affected by the mandate due to the correlation between education and account ownership, as well as the importance of Child Benefits to family income for lower income families. Contrasting the response of less

educated families with children to those without children allows comparisons of groups that face similar labor market and financial environments.

The second stage uses the increase in account ownership caused by the mandate to identify the effect of bank account ownership on financial asset accumulation. The mandate meets the two tests of a suitable instrument: it was orthogonal to preferences for savings and it increased bank account ownership for less educated families with children. In using variation arising from the mandate, I identify the effect of bank account ownership on the savings behavior of families with children who, absent the mandate, would have not owned a bank account. This is the local average treatment effect (LATE) described by Imbens and Angrist (1994).

### Threats to Identification

In addition to assumptions about the comparability of families with and without children, identification of the first stage requires that contemporaneous shocks do not differentially affect the account ownership choices of these families. The major concern arises from a series of reforms to the Family Credit, a wage subsidy to lower income parents working at least 16 hours a week. In 1999, the Working Families Tax Credit (WFTC) replaced the Family Credit. Subsequent reforms in 2003 split the WFTC into the Working Tax Credit (WTC) and Child Tax Credit (CTC). This series of reforms increased wage subsidies, expanded eligibility to higher income levels, and, eventually, in 2003, provided wage subsidies to those without children. Other policy reforms increased Child Benefits in 1997 and 1999 for couples and Income Support (cash welfare) in 1999 and 2000, as well as created the Children's Tax Credit for 2001 and 2002.<sup>9</sup> In total, these reforms material well-being improved and, potentially, bank account demand increased due to both employment increases and household income gains (Collard, 2007; Gregg et al., 2006).

I show how these reforms affected child-related benefits by plotting maximum weekly childrelated benefits, by employment status, for a single parent with two children in Figure 1a. Figure 1b plots account ownership rates for low-educated households with and without children over the same period. Child-related benefits grew dramatically from 1996 to 2008

<sup>&</sup>lt;sup>9</sup> The Children's Tax Credit, available from April 2001- March 2003, was replaced by the CTC in 2003.

but no obvious relationship emerges between this growth and account ownership rates. Moreover, similar pre-mandate trends exist in account ownership.

A second identification concern arises because the Child Benefit's mandate occurred simultaneously with an electronic transfer mandate in other benefit programs, the most common of which include Income Support, Incapacity Benefit (IB), Jobseeker's Allowance (JSA), and Disability Living Allowance (DLA).<sup>10</sup> If households without children responded to a mandate, it biases my first stage estimate towards zero; if those with children responded to another program's mandate, it introduces selection bias and invalidates my econometric approach. While the participation decision for each program is likely endogenous to unobservable, I investigate trends in participants of these programs. Except for DLA receipt for families without children, receipt rates remain similar or decline over time. I also find that self-reported health problems are correlated with receipt, providing an observable characteristic to test for the impact of the mandate in these programs on account ownership.

Finally, other policies encouraging asset accumulation are a concern. The government tried to tackle the upward trend in the portion of the population without financial assets – nearly 10 percent of the population in 1999 – with several other policies (Banks and Tanner, 1999). For example, the government encouraged asset accumulation through the Child Trust Fund, as well as expanded tax-advantaged savings programs.<sup>11</sup> I will address these through year fixed effects.

### Econometric Specification

My approach is summarized by the following set of equations:

- 1)  $BankAccout_{it} = \alpha + \beta_1 KIDS_i + \beta_2 POST_t + \beta_3 KIDS * POST_{it} + \beta_4 X_{it} + \kappa_r + \tau_t + \varepsilon_{it}$
- 2) Saving  $s_t = \phi + \delta_1 TREAT_i + \delta_2 POST_t + \delta_3 Account_{it} + \delta_4 X_{it} + \kappa_r + \tau_t + \eta_{it}$

<sup>&</sup>lt;sup>10</sup> Incapacity Benefit is a benefit to those medically incapable of working. JSA is an unemployment benefit. DLA is a means-tested benefit for disabled persons who work or would like to work.

<sup>&</sup>lt;sup>11</sup> Launched in 2005, the CTF is a publicly funded asset for children born after August 31, 2002. The CTF provides an initial public endowment of £250 or £500, depending on family income. This endowment, any additional public or private contributions, and interest grow tax-free. The CTF is neither owned nor accessible by the parent. Withdrawals occur only when the child turns 18 at which time the balance is available for any purpose the child chooses.

where *KIDS* is a dichotomous variable indicating the presence of children and, therefore, eligibility for the Child Benefit program; *POST* designates observations after March 2005 (rather than before April 2003); *X* are observable characteristics; and  $\varepsilon$  and  $\eta$  are error terms. The vector  $X_{it}$  controls for other characteristics that may be associated with financial behavior. These characteristics include: the maximum Family Credit, WFTC, Children's Tax Credit and/or WTC/CTC based solely on demographic characteristics (i.e., number and age of children); number of children squared; number of young children and its square; regional unemployment rate and its square; categorical variables for marital status, a nonwhite head; and, age of the head (in five year age groupings). Year fixed effects ( $\tau_t$ ) control for common time shocks. Region of residence effects ( $\kappa_r$ ) control for geographic differences in banking and financial services.<sup>12</sup> To meet the exclusion restriction, I exclude the difference-indifferences variable, *TREAT\*POST*, from the second stage equation. Estimates are weighted with household weights. I report robust standard errors clustered by family type, as well as pvalues from the Cameron et al. (2008) wild-cluster bootstrap in first stage and reduced form estimates.

#### V. Data

I use the FRS, a cross-sectional, nationally representative survey of the UK population conducted each year.<sup>13</sup> It provides detailed demographic, income, account, and financial asset information. I choose surveys from the pre-mandate (1998-2003) and post-mandate (2005-2008) period, excluding observations from the phase-in period of the mandate (2003-2005).<sup>14</sup> I limit my sample by dropping families where the oldest adult is at least 55 years old because these families could be subject to the electronic transfer mandate in the state pension program. I also drop families from Northern Ireland because data was not collected there until the 2002-2003 survey year. I adjust all income, benefit, and asset values to constant 2005 pounds using the Retail Price Index (RPI).

<sup>&</sup>lt;sup>12</sup>This is the smallest geographic unit available. I exclude households from Northern Ireland because data was not collected until the 2002-2003 survey year.

<sup>&</sup>lt;sup>13</sup> The survey period coincides with the fiscal year (April through March).

<sup>&</sup>lt;sup>14</sup> I drop the phase-in period (2003-2005) for two reasons. First, I do not know when families were exposed to the mandate. Additionally, in these years, the FRS does not distinguish between ownership of a Basic Bank Account and a POCA. This second reason prevents me from calculating my first stage equation.

I keep only less educated families, defined as those where all adults lack any educational or vocational credentials. This sample of families includes only those with the lowest level of job market skills. I categorize families as bank account owners if any adult owns a transaction and/or savings account.

I measure savings with the valuation of a family's total financial assets, created by the Department for Work and Pensions (DPW). For families that initially estimate their savings and investments at more than £1,500, the total financial assets equals the total actual value of their assets.<sup>15</sup> For those that initially estimate their savings and investments at less than £1,500 or refuse to provide an estimate, DPW assigns a value based on account interest earned. Because asset levels are so low amongst in my families, in addition to creating a dichotomous variable *Estimate1500* that represents whether or not a family initially estimates their savings and investments at more than £1,500, I create two indicator variables: *Asset10* and *Asset100* which represent families with at least £10 and at least £100 (equivalent to \$19USD and \$192USD) of financial assets, respectively. Finally, I create *LogAssets*, which is the natural logarithm of the continuous measure of financial assets. To ensure that the natural logarithm exists and it is non-negative, I assign families with financial assets of less than £1, a value of £1 before taking the natural logarithm.<sup>16</sup>

I present pre-period observable characteristics for my samples in Table 2. Although observable characteristics significantly differ between families with and without children, the presence of children could explain many of these differences. For example, families with children are less likely to be employed than those without (44 percent versus 52 percent) and, conditional on working, the main earner works fewer hours. The necessities of caring for children or the realization of greater productivity from home production are possible explanations for these differences. Similarly, families with children are less likely to be single than families without children (58 percent versus 70 percent), either because families with

<sup>&</sup>lt;sup>15</sup> Only families that estimate the value of their financial assets at between £1,500 and £20,000 have detailed data collected on their assets. The top censoring at £20,000 is less of a concern among the less educated population I focus because these groups are considerably less likely than the general population to own assets of this value.

<sup>&</sup>lt;sup>16</sup> This decision rule is binding 66% of families.

children are married (82 percent of non-single parents) or cohabitating.<sup>17</sup> Higher cohabitation and marriage rates explain the larger earned income of working families with children, but the difference is economically small. Owing to demographic trends in fertility, parents are 9 percentage points more likely to be nonwhite, as well as less likely to be either younger (under 25) or older (age 50 to 55) than those without children. Finally, families with children have much lower rates of homeownership than families without children (30 percent versus 51 percent) suggesting that families with children have lower levels of wealth.

I show the outcomes over time for my sample in Table 4. The low rates of bank account ownership – 63 percent and 72 percent of families in the pre-period – in the first row suggest there is a potential for a behavioral response to the mandate. Raw difference-in-differences, reported in Table 5, show a relative increase of bank account ownership rates of 13 percentage points. This suggests there was a large response to the change in policy.

These families also have low levels of financial assets. Few families have detailed asset information collected because they do not estimate their savings and investments are worth more than £1,500. Among families with children (Columns 1 and 2), the portion of families estimating they have £1,500 grows over time. A similar increase is not seen amongst families without children (Columns 3 and 4). This provides suggestive evidence that financial assets may have increased coincident with an increase in bank account ownership. However, there is little to no growth in the measured financial asset levels of these families, even at extremely low levels of financial assets: roughly one-fifth of families with children own at least £10 in financial assets and two-fifths of families without children own at least £10 in financial assets.

#### IV. Results

## First Stage Estimates: Account Ownership

I first estimate how the mandate affected ownership of accounts by estimating equation 1. The estimate, shown in Column 1 of Table 5, differs only slightly from the raw estimates, indicating that observable characteristics have limited explanatory power in the decision to

<sup>&</sup>lt;sup>17</sup> Adults in the UK do not have to be married to be treated as a family under the benefit system. Because the characteristics of the benefit unit determine eligibility for public benefits and the benefit unit is provided in the FRS, I use the benefit unit to construct my sample families.

own a bank account. The probability of owning a bank account increases by 12 percentage points (19 percent) for families with children compared to those without children.

## Robustness of the First Stage

The remainder of the table addresses identification concerns. In Column 2, I limit the sample to households with adults that work less than 16 per week to explore Family Credit reforms.<sup>18</sup> Those ineligible for in-work credits demonstrate a larger response than the full sample. The large magnitude raises concerns about the mandate within the previously discussed programs because each limits eligibility to those working less than 16 hours per week. I check for these programs with two different subsamples: households without health problems (Column 3) and households receiving at least one other program (Column 4) to select on those with similar unobservables.<sup>19</sup> Consistent with administrative reports that Child Benefit claimants were the highest proportion of benefit claimants (78.7%) to provide account information rather than request a POCA, Child Benefit households demonstrate larger increases than other recipients (Stapleton, 2005).

In Column 5, I examine an alternative treatment and control group, as well as explore a characteristic of the social support reforms previously used by Gregg et al. (2004). Because these reforms increased benefits to parents of young children (age 0 to 10) to a greater extent than parents of older children (age 11 to 15), I compare households with any young children to households with older children. Estimates are positive but insignificant, suggesting that the larger policy context did not significantly affect account ownership.<sup>20</sup>

In Column 6, I consider announcement effects in Column 6. Between May 1999 and March 2003 households did not adapt to the new regime, either due to the lack of a binding mandate or the absence of Basic Bank Accounts.

<sup>&</sup>lt;sup>18</sup> Results are similar if I examine hour thresholds less than 16 or if I focus solely on the household head.

<sup>&</sup>lt;sup>19</sup> I also examined recipients of each program individually. The conclusions are unchanged.

<sup>&</sup>lt;sup>20</sup> The positive sign could reflect the effect of adult age on account ownership because younger children tend to have younger parents. The data only provide adult age in five-year age groupings, limiting my ability to include age non-parametrically. Estimating this specification on subsamples of younger and older adults provides support for this hypothesis. This hypothesis is consistent with administrative reports that new benefit claimants (i.e. new parents) are more likely to choose electronic transfer into a bank account rather than a POCA (Allen, 2005).

Finally, I examine an additional treatment and control group by comparing the response of single mothers to childless single mothers in Column 7. I find large effects – up to 16 points – for single mothers.<sup>21</sup> This is too large to be explained by the one to five percentage point employment increases associated with in-work credits, inconsistent with declining Income Support receipt for single parents, and at odds with the timing of reforms to the social benefit system.<sup>22,23</sup>

The large increases in the propensity to own bank accounts suggest that the mandate had large effects on banking behavior. The relative increase of families with children to those without (who could also own a new Basic Bank Account), indicates that Basic Bank Accounts and other transaction accounts were a more popular choice amongst Child Benefit recipients than families without children. This is evocative of Washington's 2006 conclusions: expanding the supply of low-cost bank accounts, such as the Basic Bank Account, is not enough to substantially boost account ownership. However, these results indicate that mandating the ownership of an account capable of receiving an electronic transfer while also offering low-cost banking options does increase bank account ownership.

The first stage estimates show large, significant, and robust increases in account ownership arising from the mandate. This increase provides an exogenous change to identify the impact of bank account ownership on the accumulation of financial assets.

### Event Study

While Equation 1 includes year fixed effects and a covariate for the series of reforms to the Family Credit to control for potential confounders, I directly evaluate the assumption that underlying trends between households with and without children are uncorrelated with the mandate using an event study. I specifically estimate the following equation:

<sup>&</sup>lt;sup>21</sup> Research finds households with one adult are less likely to own an account than those with two adults.

<sup>&</sup>lt;sup>22</sup> The social support reforms eliminated benefit disparities between single parent and two parent households.

<sup>&</sup>lt;sup>23</sup> Brewer et al. (2006) and Francesconi and Van der Klaauw (2007) estimate employment increases from the WFTC of roughly five points for single mothers. Leigh (2007) estimates a one percentage point effect. Mulheirn and Pisani (2008) find a 2 to 3 point increase from the WTC among the childless.

3) Account<sub>ikt</sub> = 
$$\alpha + \sum_{i=-4}^{5} \pi_i \mathbf{1}(\tau_{kt} = i) + X_{it}\beta + \varepsilon_{ikt}$$

Where k references the presence of children, t indexes fiscal year,  $\tau$  denotes the event year, defined so that  $\tau=0$  corresponds to the first full fiscal year before the mandate's phase-in (April 2002 – March 2003). I include the same demographic and regional controls as the initial estimates. I drop observations from the phase-in of the mandate (April 2003 through March 2005) because the FRS did not distinguish between Basic Bank Accounts and POCAs in these years. Coefficients are reported relative to the last fiscal year prior to implementation.

Figure 2 plots the event-year coefficients from Equation 3 with and without controls. The figure shows the absence of a strong pre-trend and a clear break in transaction account ownership after the mandate. Results are nearly identical with and without controls and further support the validity of my econometric approach.

#### Second Stage Estimates: Effects at the Mean

Bank accounts are typically treated as a place to save money and build financial assets. To examine the effect of bank account ownership on savings, I estimate the effect of owning a bank account on each of four different financial asset measures: *Estimate1500, Asset10, Asset100, and LogAssets.* I begin with OLS and reduced form estimates before proceeding to 2SLS estimates.

Table 7 provides parameter estimates for the sample of families with no educational qualifications. To provide a benchmark against which to measure the IV estimates, the first column provides OLS estimates of equation 2 which do not correct for the potential endogeneity of bank account ownership on savings. The effects are large, statistically significant, and economically large. Owning a bank account increases the probability of estimating savings and investments at more than £1,500 by 14 percentage points (280 percent), the probability of accumulating £10 of financial assets by 38 points (183 percent), and the probability of accumulating £100 of financial assets by 31 points (49 percent). Using a continuous measure of financial assets produces similar results: owning a bank account increases financial assets by 260 percent.

The second column of each panel of Table 7 provides reduced-form estimates. These results are shown because Angrist and Krueger (2001) argue that the lack of a reduced-form relationship implies a lack of relationship in the IV approach. Therefore, an insignificant reduced-form estimate would provide evidence against an effect of account ownership on savings. Each reduced-form estimates for the continuous value of financial assets is statistically different from zero, although in most cases not economically significant. The largest effect is for total financial assets which increases by 26 percent with the mandate.

With these initial results, I address the potential endogeneity of bank account ownership with the 2SLS approach of Equation 2 in the final column of Table 6. The IV estimates for each outcome show that, after removing the endogeneity of bank account ownership, owning a bank account is significantly related to an increase in these financial asset measures. The similarity to the OLS estimates may indicate that families that were induced by the mandate to transition into account ownership may have greater preferences for savings than those that were not induced to transition into a bank account.

The results presented thus far are focused on estimates through the sample means. The mean, however, may not capture all the interesting or important effects of account ownership on financial asset accumulation. The next set of results considers effects in other portions of the distribution.

#### Second Stage Estimates: Effects Throughout the Distribution

As in other studies of savings behavior, there is likely substantial heterogeneity in the savings response among families that transition into bank account ownership.<sup>24</sup> I examine this heterogeneity with reduced-form quantile and IV quantile estimates using the *Asset* outcome (Chernozhukov and Hansen, 2006 and 2008). The quantile estimates do not include additional covariates due to difficulties in achieving convergence.<sup>25</sup>

<sup>&</sup>lt;sup>24</sup> Although the IV approach ensures that preferences for saving are uncorrelated with preferences for participation in the Child Benefit program, it is almost certainly true that previously unbanked families that were induced to own a bank account because of the mandate are not homogeneous in their preferences for savings, their ability to save, or their response to account ownership.

<sup>&</sup>lt;sup>25</sup> This is potentially an important limitation of these results. My IV estimates suggest that observable characteristics, particularly income and homeownership, are important for explaining a family's savings decision.

I begin with reduced-form quantile estimates for families with no qualifications. I plot the difference-in-difference estimator (solid line) and the 90 percent confidence interval (dashed lines) at the 5<sup>th</sup> through the 95<sup>th</sup> quantile in Figure 3a. Although the mandate had no effect on much of the financial asset distribution, it is associated with an increase in assets above the 70<sup>th</sup> quantile. Moreover, the estimate is economically large: the mandate is associated with an increase of up to £4,500 in financial assets. This increase provides additional evidence that the increase in account ownership will also increase savings for families and that, for some, the effects may be large.

Figure 3b provides the IV quantile estimates for families without any qualifications. As in the reduced form quantile estimates, the IV quantile estimates show that bank account ownership has no effect on the lower tail of the distribution of financial assets. However, bank account ownership leads to an increase in financial assets above the  $77^{th}$  percentile. The effect of owning a bank account on financial assets is substantial at the upper end of the distribution – the point estimate at the  $95^{th}$  percentile is nearly £6,100. The contrast between this estimate and the zero effect for most of the distribution reflects the substantial heterogeneity in the response to owning a bank account.

While these estimates do suggest some increase in savings, several sources of measurement problems present problems and speak to the need for additional analysis, perhaps with an alternative dataset. First, any changes in account values may be difficult to measure in cross-sectional data because of the low levels of financial assets that low-income families own, regardless if they own a bank account.<sup>26</sup> In addition, for much of my sample, the financial asset values are an assigned value based on the interest collected in their accounts. If either the interest earned is misreported or if accounts do not earn interest, it will be difficult to calculate a discernible change in financial assets.<sup>27</sup> In fact, some Basic Bank Accounts do not earn interest, which may make it impossible to measure changes in financial assets until

<sup>&</sup>lt;sup>26</sup> Meager financial asset levels may arise because low incomes increase the opportunity cost of foregone consumption and inadequate financial education may lead families to underestimate the importance of saving.
<sup>27</sup> The FRS does not ask if the account is interest bearing. Therefore, it is difficult to discern if the bank account earns interest on deposits or if no monies are held in the account to generate interest. These problems suggest that the structure of the FRS questionnaire should be changed to collect detailed account values on all respondents so that savings levels of lower income families can be more accurately measured.

families with Basic Bank Accounts accumulate enough savings to value the account at £1,500 or more.

Finally, due to difficulties in achieving convergence, the quantile estimates were generated without including additional covariates in the equation. It is likely that these omitted variables are important in explaining the decision to save. By not including these covariates, it may be difficult to find evidence linking bank account ownership to increases in financial assets.

## VI: Conclusion

In this paper, I use a new approach to identify the effect of bank account ownership on savings. I first show that an electronic transfer mandate in the UK had large effects on account ownership. Using this exogenous change in bank account ownership, I find that owning a bank account increases savings and the effects may be large. Because increasing financial assets was one of the mandate's goals, the mandate may have achieved some success. This conclusion however, has a number of caveats, including difficulties measuring the financial assets of lower income families, the data collection methods in the FRS, and the lack of included covariates. Problems with the financial asset data in the FRS suggests that additional work to validate these results should proceed with a different dataset.

Taken as a whole, these findings provide initial evidence for the notion that the poor may save more if only they had a bank account.<sup>28</sup> The amount of financial asset accumulation may be underestimated by families continuing to engage informal savings mechanisms such as purchasing durable goods. In some contexts including the stock of durable goods is useful for measuring household savings (Browning and Lusardi, 1996). In such a context, Fitzpatrick's (2009) finding of an increase in household appliances when families in the UK transitioned into account ownership could be a measure of increased household savings. Interpreting this finding as informal savings is consistent with evidence from the US suggests low- and middle-income families save by choosing the lump sum Earned Income Tax Credit (EITC)

<sup>&</sup>lt;sup>28</sup> Work in the US suggests that low-income families do not save because of asset tests in means-tested cashwelfare programs (Hubbard, et al., 1995; Ziliak, 2003; Hurst and Ziliak, 2006). As a result, low-income families save by accumulating durable goods because these often do not limit eligibility for means-tested programs. The UK maintains asset tests in their cash welfare program, Income Support, but the asset limits are so high (£16,000) that few potential applicants are affected. Thus, means-tested programs in the UK would not explain the decision to save through durable good purchase rather than financial assets.

payment (rather than the advanced EITC) and, when they receive their income tax refund, purchase a durable good (Edwards, 2004; Goodman-Bacon and McLanahan, 2008; Romich and Weisner, 2000; Smeeding, et al., 2000; Smeeding, 2002).

The UK's experience with the electronic transfer mandate is also useful for efforts to "bank the unbanked". The large increase in bank account ownership – up to a 17 percent increase – can inform US policymakers interested in transitioning the unbanked into the financial mainstream. The U.S. will require electronic transfer of all federal benefit payments by 2013 but plans to make payments via a prepaid debit card to those who do not provide bank account information. This may be a missed opportunity to achieve the goal of "banking the unbanked", as well as a missed opportunity to encourage savings among unbanked federal benefit recipients, particularly for unbanked recipients of Social Security, Supplemental Security Income (SSI), and the EITC.

If the US enacts a binding electronic transfer mandate, while also providing the option of a low-cost bank account appropriate for lower income populations, unbanked recipients will transition into bank account ownership. The effects on account ownership in the US could be smaller than the effects in the UK. Unlike the UK Child Benefit, most transfer programs in the US are means-tested and, therefore, recipients could be more sensitive to the transaction costs associated with compliance. Still, these means-tested programs could be a useful way to target such a policy at the unbanked. The motivation for such a policy, however, should not rest solely on the argument that it will help the poor to save because it is unlikely that owning a bank account will substantially change a family's financial assets.

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A. Pre-Mandate Period (April 1999	9 - March 2003)						
Coupon							
	Book	Bank	Check	Other			
All Families	57.3	42.1	0.3	0.4			
Do Not Own A Bank Account	96.0	2.2	0.9	0.8			
Own A Bank Account	53.4	46.0	0.3	0.3			
Education Groups by Recognized Qualifications							
Less Educated	84.4	14.3	0.7	0.6			
More Educated	53.1	46.3	0.3	0.4			

# Table 1. Payment Methods of Families Receiving Child Benefit, By Time Period

## B. Post-Mandate Period (April 2005 - March 2008)

	Coupon Book	Bank or POCA	Check	Other		
-	DOOK	UTUCA	CHUCK			
All Families	1.1	97.6	0.7	0.7		
Do Not Own A Bank Account	9.9	77.3	9.5	3.3		
Own A Bank Account	0.8	98.2	0.4	0.6		
Education Groups by Recognized Qualifications						
Less Educated	2.8	94.4	1.9	0.9		
More Educated	0.9	97.9	0.6	0.7		

Note: Authors' calculations using FRS data 1998-2003 and 2005-2008. Other methods of receiving the Child Benefit include the Benefit Payment Card project and payments made to registered charities on behalf of disabled persons. Families are considered owning a bank account if at least one adult in the family reports owning a Basic Bank Account, Current Account, NSB Investment Account, NSB Ordinary Account, or Savings or Investment Account. See text for definitions of less and more educated groups.

	With	Without
	Children	Children
	(1)	(2)
Working Families	0.439	0.517
	(0.496)	(0.499)
Net Earned Income, if	2.557	2.630
Working	(3.095)	(3.497)
Weekly Hours of Main	34.182	38.712
Earner, if Working	(16.617)	(14.441)
Single Adult	0.583	0.700
-	(0.493)	(0.458)
Nonwhite	0.173	0.082
	(0.378)	(0.274)
Homeowner	0.298	0.513
	(0.457)	(0.500)
Number of Children	1.953	-
	(1.085)	
Age 0 to 4	0.456	
	(0.691)	
Age 5 to 10	0.677	
	(0.815)	
Age 11 to 15	0.647	
8-	(0.775)	
Age 16 to 18	0.174	
6	(0.413)	
Age Distribution of Oldest Adult		
Under 25	0.091	0.161
Age 25 to 30	0.1140	0.052
Age 30 to 35	0.172	0.057
Age 35 to 40	0.2090	0.058
Age 40 to 45	0.188	0.072
Age 45 to 50	0.1120	0.100
Age 50 to 55	0.071	0.146
Age 55 to 60	0.0260	0.191
Age 60 to 65	0.0160	0.164
Observations	5,222	11,527

Table 2. Observable Characteristics from the Pre-Mandate Period for Families With Low-Education Levels, by Presence of Children

Note: Author's calculations using FRS data from 1998-2003. All statistics are weighted. Net earned income and child benefit values are both adjusted to constant 2005 pounds. Earned income is reported in hundreds of pounds per week.

	No Qualifications					
	V	Vith	Without			
	Chi	ldren	Children			
	Pre-Mandate	Post-Mandate	Pre-Mandate	Post-Mandate		
	(1)	(2)	(3)	(4)		
Account Ownership						
Own Bank Account	0.631	0.865	0.719	0.825		
	(0.483)	(0.342)	(0.450)	(0.380)		
Financial Assets						
Estimate1500	0.054	0.080	0.156	0.157		
	(0.225)	(0.272)	(0.362)	(0.364)		
Assets	1529.283	1011.586	5047.472	3507.633		
	(29873.04)	(10077.58)	(35748.35)	(30909.62)		
Asset10	0.205	0.214	0.394	0.364		
	(0.404)	(0.410)	(0.489)	(0.481)		
Asset100	0.150	0.151	0.339	0.301		
	(0.357)	(0.358)	(0.474)	(0.459)		
Observations	5,222	2,191	11,527	5,360		

Table 3. Outcomes Across Time for Families With Low-Education Levels, by Presence of Children

Note: Author's calculations using FRS data from 1998-2003 and 2005-2008. All statistics are weighted. Net earned income and child benefit values are both adjusted to constant 2005 pounds. Earned income is reported in hundreds of pounds per week.

	Pre-Mandate	Post-Mandate	
	(April 1998	(April 2005	Time Difference
	- March 2003)	- March 2008)	for Groups
Families with Children	0.631	0.865	0.234
	(0.007)	(0.008)	(0.010)
Families without	0.719	0.825	0.106
Children	(0.004)	(0.006)	(0.007)
Group Difference at	Point in Time:		
_	-0.088	0.079	
	(0.008)	(0.011)	
		Difference-in-Difference	0.128
			(0.013)

Table 4. Raw Difference-in-Difference Estimates of Impact of Mandate on Bank Account Ownership

U				1 1			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treat	-0.034	0.017	-0.063	0.017	0.008	-0.068	-0.066
	(0.034)	(0.037)	(0.033)	(0.044)	(0.018)	(0.023)	(0.038)
Post	0.101***	0.175**	0.098	0.191***	0.166	-0.009	0.084
	(0.013)	(0.010)	(0.017)	(0.018)	(0.044)	(0.026)	(0.010)
Treat*Post	0.120*	0.133*	0.118	0.105	0.046	0.001	0.160
	(0.020)	(0.016)	(0.025)	(0.021)	(0.022)	(0.028)	(0.019)
	[p=0.068]	[p=0.083]	[p=0.080]	[p=0.083]	[p=0.150]	[p=0.700]	[p=0.080]
Observations	24,300	13,999	14,923	12,196	7,413	16,749	8,844
Sample:	All Families	Families Working Less than 16 Hours Per Week	Families Without Health Problems	Families Receiving Other Benefits	Families With Children	Observations Prior to March 2003	Families Headed by Single Women
Treatment Group:	Families With Children	Families With Children	Families with Children	Families with Children	Young Children	Families with Children	Single Mothers
Control Group:	Families without Children	Families without Children	Families Without Children	Families Without Children	Older Children	Families without Children	Single Women Without Children

Table 5. First Stage Difference-in-Differences Estimates for Bank Account Ownership, Families with Low-Education Levels

Note: Author's calculations using FRS data from 1998-2003 and 2005-2008. All regressions are weighted and standard errors clustered by family type. The p-values derived from the Cameron et al. (2008) wild-cluster bootstrap are denoted in square brackets. Other covariates include the maximum Family Credit, WFTC, or WTC credit based on demographic characteristics; number of children under age 4; number of children squared; regional unemployment rate and its square; dichotomous variables for single adult family, nonwhite family; fixed effects for the five year age grouping of oldest adult; fixed effects for government region; and year fixed effects. Asterisks denote statistical significance as follows: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

	OLS	Reduced Form	2SLS
	(1)	(2)	(3)
Panel A. Families with an	nd Without Children	1	
Estimate1500	0.140**	0.019	0.158
	(0.032)	(0.010)	(0.082)
		[p=0.131]	
Asset10	0.376***	0.029*	0.239***
	(0.049)	(0.006)	(0.067)
		[p=0.068]	
Asset100	0.308***	0.033	0.278***
	(0.052)	(0.003)	(0.031)
		[p=0.083]	
Log Assets	2.601***	0.264	2.206
-	(0.422)	(0.054)	(0.551)
		[p=0.080]	
Observations	24,300	24,300	14,819
First Stage F Statistic			87.236
-			
Panel B. Single Mothers	and Single Women		
Estimate1500	0.088*	-0.0001	-0.001
	(0.038)	(0.005)	(0.027)
		[p=0.924]	
Asset10	0.298**	0.064	0.387***
	(0.065)	.0118543	(0.104)
		[p=0.080]	
Asset100	0.222**	0.055	0.329***
	(0.066)	(0.008)	(0.076)
		[p=0.080]	
Log Assets	1.907	0.432	2.651
-	(0.511)	(0.078)	(0.676)
		[p=0.080]	
Observations	8,844	8,844	8,844
First Stage F Statistic			83.357

Table 6. Effect of Bank Account Ownership on Financial Assets of Less Educated Families, by Methodological Approach

Note: Author's calculations using FRS data from 1998-2003 and 2005-2008. All regressions are weighted and standard errors clustered by family type. Other covariates include the maximum Family Credit, WFTC, or WTC credit based on demographic characteristics; number of children under age 4; number of children squared; regional unemployment rate and its square; dichotomous variables for single adult family, nonwhite family; fixed effects for the five year age grouping of oldest adult; fixed effects for government region; and year fixed effects. Asterisks denote statistical significance as follows: \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.



Figure 1a: Trends in Real Child-Related Benefits (2005 Pounds) for a Single Parent Family with Two Children, by Employment Status, 1996 - 2008

Source: Child-Related Benefit levels from the Institute for Fiscal Studies. Child-Related benefits for working households include Child Benefits, Family Credit, Working Families Tax Credit (WFTC), Working Tax Credit (WTC), Children's Tax Credit, Child Tax Credit (CTC). Child-related benefits for non-working households include Child Benefits, Income Support, Children's Tax Credit, and Child Tax Credit. All values adjusted to constant 2005 pounds using the Retail Price Index (RPI).



Figure 1b: Trends in Bank Account Ownership for Families with and without Children, 1996 - 2008

Source: Transaction account ownership rates for a sample of low-educated households tabulated from Family Resources Survey, Various Years.



Figure 2: Event Study For Bank Account Ownership for Families with Low Levels of Education



Figure 3a: Reduced Form Quantile Estimates on Distribution of Financial Assets, Families with Low-Education Levels

The solid line is the quantile estimate. The dashed line is the 90% confidence interval from a bootstrapped procedure with 999 replications. To ensure convergence, estimates do not include any covariates.



Figure 3b: IV Quantile Estimates on Distribution of Financial Assets for Families With No Qualifications

The solid line is the IV quantile estimate and the dashed line is the 90% confidence interval. To ensure convergence, these estimates do not include any covariates. Estimates are generated from Victor Chernozhukov and Christian Hansen's OX program generously provided by Christian Hansen.