

Belton, Willie; Oyelere, Ruth Uwaifo

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## The racial saving gap enigma: unraveling the role of institutions

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IZA DP No. 3545

## The Racial Saving Gap Enigma: Unraveling the Role of Institutions

Willie Belton  
Ruth Uwaifo Oyelere

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# **The Racial Saving Gap Enigma: Unraveling the Role of Institutions**

**Willie Belton**

*Georgia Institute of Technology*

**Ruth Uwaifo Oyelere**

*Georgia Institute of Technology  
and IZA*

Discussion Paper No. 3545  
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IZA

P.O. Box 7240  
53072 Bonn  
Germany

Phone: +49-228-3894-0  
Fax: +49-228-3894-180  
E-mail: [iza@iza.org](mailto:iza@iza.org)

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## **ABSTRACT**

### **The Racial Saving Gap Enigma: Unraveling the Role of Institutions**

It has been well documented in the literature that ethnicity matters significantly in the determination of savings. In particular, African-American savings lag far behind savings for other ethnic groups. Similarly, the literature also provides evidence of the long-lived nature of institutions and the link between institutions and culture. In this paper, we provide an explanation for the savings gap that still exists between African-Americans and White Americans even after accounting for appropriate factors that can lead to savings differentials. We initially provide evidence that the savings gap exists and persists after including several control variables in a regression analysis. We then provide evidence that the persistent gap can not be attributed solely to racial discrimination but can be explained by the response of culture to institutional scaffolding erected many years earlier. Using a novel within race decomposition we provide evidence that past institutions transmitted through culture can help to explain this persistent saving disparity.

JEL Classification: D14, D31, J15, J11, J71

Keywords: savings gap, institutions, race, culture

Corresponding author:

Ruth Uwaifo Oyelere  
School of Economics  
Georgia Institute of Technology  
781 Marietta Street  
Atlanta, GA 30318  
USA  
E-mail: [ruth.uwaifo@econ.gatech.edu](mailto:ruth.uwaifo@econ.gatech.edu)

# 1 Introduction and Background

North and Thomas (1973) define institutions as the formal and informal rules that govern human, social, economic, and political interactions. They suggest that the rise of the western world occurred because of the adoption of economic institutions which fostered economic growth through granting and protecting property rights of individuals. More recently, Acemoglu, Johnson and Robinson (2001, 2002) found ways to empirically test the impact of colonial institutions on the growth and development of the modern industrialized world. They find that not only do institutions matter for the initial development and creation of economic growth but have long-lived impacts on downstream outcomes in terms of social, economic, and political well being of societies. More specifically, they find that institutional differences across colonial powers help to statistically explain differences in economic growth across former European colonies four-hundred years later.

If institutions have the long-lived lasting impact suggested by Acemoglu, Johnson and Robinson, then it should be possible to examine the impact of historical institutions on modern social, political, and economic outcomes in modern U.S. society. The American Slavery of the 1500s to 1800s and modern social, economic and political outcomes in the African-American community, provide a unique opportunity to examine the impact of institutions on downstream outcomes in a particular community.

Our research examines the issue of saving in the African-American community relative to that of the majority community. Current research (see Altonji and Doraszelski (2002) and Gittleman and Wolff, 2000) suggest that after controlling for income, education and all other control variables that impact saving, research continues to find that saving is significantly less among African-Americans relative to Caucasian-Americans. This is a matter of concern for policy-makers and the future of the African-American community as increased saving could lead to increased investment in homeownership, education, and healthcare, which all tend to enhance the quality of life in the African-American community.

To provide evidence of the impact of past institutions on current savings behavior of African-Americans, we make use of data from the March Current Population Survey (CPS) derived from

Integrated Public Use Micro-data Series (IPUMS). First, we outline a simple model of how institutions through their impact on culture can have intergenerational impacts on savings behavior. Based on this simple model we develop testable hypotheses as to the impact of institutions on African-American saving. In particular, we hypothesize that the institutional impact of the American enslavement of Africans created an intergenerational non-saving culture within the African-American community i.e., African-Americans with similarly based African ancestry save less than comparable Africans and/or African-American who were not exposed to American slavery. Using a simple *personal saving* function similar to the Mincer earnings function, we first provide evidence of the existence of the, well documented, savings gap between African-American and Whites. Subsequently, we decompose the racial variables into several categories differentiating African-Americans (Blacks) who were exposed to American slavery indirectly through their enslaved ancestry, from those with parents whose ancestry, in all likelihood, escaped the direct impact of American enslavement. This novel decomposition allows us to examine the impact of past institutions on present outcomes. Employing both the Tobit and OLS regression models and using White Americans with U.S. born parents (WAUBP) as the reference group, we examine the relative savings behavior between Whites with American born parents and other racial groups. To prevent problems of omitted variable bias and provide consistent estimates we control for possible factors that could impact savings and/or wealth accumulation.<sup>1</sup> We generally find support for the hypotheses derived from our simple model, however, our inability to observe accumulated wealth for all subgroups makes it impossible to find substantial evidence in support of all model results. Based on our estimations, we find that there is a substantial savings gap of (28%) between comparable WAUBP and African-Americans with US born parents (AAUBP). In contrast, this negative gap is missing when we consider comparable Blacks whose predecessors did not pass through American slavery. This result raises questions as to difference in the saving behavior of Blacks with parents born in the United States relative to Blacks with foreign born parents. Could there be an intrinsic difference in the behavior of the two groups which is unrelated to the enslavement experience of African-American Blacks or does the institutional experience of African-American Blacks who passed through the culture altering institution

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<sup>1</sup>Some of the controls used are marital status , family size, region, employment status and gender.

of slavery, impact the saving behavior of their descendants two hundred years later? We address this issue by first decomposing the White American race variable, as we do with African-American Blacks. We find no difference in savings among comparable White American subgroups i.e., White American with White American born parents save no differently than White American who are descendants of recent immigrants. This finding provides sharp contrast to the similar decomposition for Blacks as savings for AAUBP is 80% less than comparable Blacks whose ancestors did not pass through American slavery. Second, we show that the savings difference between AAUBP and other groups cannot be driven by differences in inheritance. Given that we control for other potential factors that can lead to differences in savings across individuals and groups, our result suggest that the savings gap is not characteristics of all Blacks. In addition, our results provide evidence that the racial savings gap is linked in part to the impact of past institutions transmitted through culture.

Following the introduction the second section of this paper provides a short review of the literature related to wealth accumulation and race. In section 3 we highlight the data used and provide arguments for the choice of savings proxies. Section 4 provides a simple model that develops a relationship between institutions, culture and wealth accumulation. In section 5 we describe the econometric approach and in a step by step format, outline the identification strategy, provide econometric results and also offer robustness checks of key results. The final section contains a discussion of inferences, recommendations, and conclusion.

## 2 Literature Review

The literature has clearly documented the disparity in savings/wealth accumulation between African-Americans and Whites. However, the literature is much less clear as to why this disparity exist and has persisted over time<sup>2</sup>. Recent research suggests that the cause of the disparity can not be traced to a single specific dynamic but is a function of a number of social, economic, behavioral and institutional factors that impact the African-American community. More specifically, the literature appears to focus on racial differences in consumption, education and knowledge, economic discrimi-

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<sup>2</sup>Previous studies have investigated the sources of the Black/White wealth gap, including Blau & Graham (1990), Smith (1995), Avery & Rendall (1997), Menchik & Jianakoplos (1997) and Altonji and Doraszelski (2002). These papers provide further insight but fail to fully explain the wealth accumulation gap.

nation, inheritance patterns, family size and make-up and broadly defined institutional experiences. Charles, Hurst, and Roussanov (2007) argue that African-American and Hispanics tend to devote a larger share of their expenditure bundle to visible goods than do comparable Whites. They ruled out differences in preference functions across race and conclude that social status seeking models in which conspicuous consumption is used to reflect a household's economic position accounts for the larger share of African-American and Hispanic expenditures on visible goods. Chiteji and Stafford (1999) using PSID data, show that parental exposure of their children to financial options in the market place significantly increase the likelihood that their children will hold transaction accounts and stocks. Keister (2000) concludes that providing opportunities for low-income low-wealth households to invest in long-term sound financial assets and reducing barriers to education would go along way in reducing the level of wealth inequality. Kofi and Hurst (2002) argue that homeownership provides the foundation for wealth accumulation; however, after controlling credit proxies and demographics, Black mortgage applicants are 73% more likely to be rejected than White applicants. This difference in treatment accounts for a significant portion of the difference between Black and White homeownership and could shed light on the Black/White differences in wealth accumulation. Menchik and Jianakplos (1997) using the National Longitudinal Survey of mature men (NLS76) show that racial differences in the receipt of financial inheritance help to explain why the average difference in wealth accumulation between black and white household is larger than the average difference in income. After controlling for other factors that contribute to racial differences in wealth they show that financial inheritance may account for 10% to 20% of the average difference in black-white household wealth. Smith and Ward (1980) using panel data show that children are found to depress savings for young families but tend to increase savings for marriages of duration greater than five years. The decline in savings occurs because child birth acts to reduce female labor force participation and in effect reduce household income. Keister (2000) using the National Longitudinal Survey of youth 1979 cohort (NLS-Y79) finds that family size and family disruption in childhood are negatively associated with wealth accumulation, portfolio behavior and wealth mobility in adulthood. Further, Keisters (2000) finds support for the resource dilution argument which



states that as family size increase in terms of siblings, finite resources are spread more thinly across siblings i.e., each child benefits less from family material resources. The resource dilution literature finds that increased number of siblings has a negative impact on educational attainment. Given the positive relationship between educational outcomes and wealth accumulation, increased family size may be negatively related to wealth accumulation and savings. Beverly and Sherraden (1999) is the only available work which considers the savings impact of institutions. They argue that institutional variables such as access to institutionalized savings mechanisms, targeted financial education, attractive saving incentives and processes which facilitate savings are the reasons that the poor do not save. More specifically, the literature is void of any research on the impact of institutions on savings/wealth accumulation behavior across race.

North (1973) and (2005) defines institutions as the formal and informal rules which govern societal interactions. These rules represent the institutional scaffolding on which communities move through time and provide context for understanding the basic legal, political, economic and social paths of societal outcomes. When formal rules and processes are reinforced over time through realization of predicted outcomes, they tend to become a part of the societal fiber leading to more entrenched informal methodologies that impact culture. Culture tends to be long-lived as perspectives and perceptions of established outcomes become self-reinforcing and are passed from one generation to the next through word of mouth and/or perceived fundamental truism. North (1990) suggests that the establishment of a particular institution is generally focused on obtaining a specific outcome, but in many cases, have unintended consequences that can lead to path dependence with down-stream effects that could impact the long-term likelihood of societal success. North (1973) reveals that countries of 14th to 18th century Europe, had divergent economic paths because England through the success of it's parliament adopted institutions which were pro-growth and development whereas the monarch of Spain adopted a more centralized pro-tax approach to governing. These differences led to divergent growth paths as England became the most dominant world power during the 18th century while Spain's wealth and world-wide influence dissipated. Acemoglu, Johnson, and Robinson (2001) and (2002) using North's definition of institutions, have examined empirically the

impact of institutions on downstream outcomes in terms of economic growth across nation states. They show that the establishment of colonial institution of the 14th century help to explain divergent growth paths of former European colonies during the 1980s and 1990s. This research shows that not only do institutions matter but their impacts are long-lived. If colonial institutions implanted during the 14th century have been shown to impact the growth of former colonies some 300 to 400 years later, then examining the institutional history of African-Americans may provide insights as to why African-Americans given their income, education, and other demographics, tend to save less and/or consume more visible goods at a much higher rate than their White counterpart. The American slavery of the late 1500 through 1800s established enslaved Africans as property of their slave owners. Given this fact, slaves could not legally own property or establish independent residence. These facts leads one to believe that for African slaves, formal barriers existed preventing them from what Sowell (1981) termed a “future orientation.” Sowell (1981) argues that this characteristic appears to lead to a belief and behavior pattern that “sacrifices present comfort and enjoyment while preparing for future success.” More formally, the fact that African-American enslavement lasted for almost 300 years, and given long-lived nature of the impact of institutions through cultural adaptation and modification, could African-American exposure to American enslavement help to explain the low saving and/or high visible goods consumption behavior found in the modern African-American community?

## **3 Data**

### **3.1 General Description of Datasets**

To provide evidence of the indirect impact of institutions on African-American saving, we make use of the March Current Population Survey (CPS) which is micro-data that provides information about individual persons and households. The CPS is a monthly U.S. household survey conducted jointly by the U.S. Census Bureau and the Bureau of Labor Statistics. We derive multi-stage stratified samples of the CPS from IPUMS. The IPUMS-CPS data is available for 46 years (1962-2007). The nature of our identification strategy requires that we use data from 1994-2002. We select this period

because of the existence of certain important variables which, in many cases, were not surveyed until 1994. For example, parents' birth place is used as a control variable in our analysis but was not available in the CPS before 1994. Similarly, post 2002 the coding for race changed significantly as the variable that captures race was broken down into several subcategories making it more difficult to easily identify groups of interest. Specifically prior to 2003, the number of race categories ranged from 3 (white, negro, and other) to 5 (white, black, American Indian/Eskimo/Aleut, Asian or Pacific Islander, and other). The three category breakdown of race was thought to be too simplistic and was abandoned in 1988 for the more empirically useful five category breakdown. Beginning in 2003, respondents could report more than one race, and the number of codes rose to 21 making it more difficult to compare data prior to 2003 with data post 2003 with respect to race. Individuals who classed themselves as Black previously could now identify themselves as biracial and similarly others who identified themselves as White prior to this change could also claim multi-racial. One of the advantages of using the CPS via IPUMS is it make cross-time comparisons using the March CPS data more feasible as variables in IPUMS-CPS are coded identically or "harmonized" for 1962 to 2007.

### 3.2 Measuring Saving

Savings can be measured using different proxy variables. For most people, a significant portion of accumulated wealth is in the form of savings accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and other investments which pay interest.<sup>3</sup> In this paper we focus on these types of wealth accumulation and call it *savings* in a broad sense.<sup>4</sup> We measure savings using interest income for two reasons: First, the only data set that contains good estimates on actual savings and other interest bearing investments is the Survey of Consumer Finances (SCF). However, we cannot use this data set because it does not contain important race category variables needed for identifying the impact of historical institutions. For example, the SCF collects data on race but does not identify citizenship characteristic needed in our analysis. Further, it's publicly available

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<sup>3</sup>Note all these types of saving/ wealth accumulation have one thing in common, they pay interest.

<sup>4</sup>For the rest of the paper, when we mention savings, we are referring to the part of wealth highlighted above.

data does not provide detailed racial categories. Second, though interest income simply indicates how much pre-tax income the respondent received from interest producing accounts, it is strongly correlated with actual saving.<sup>5</sup> Given this correlation, interest income can be viewed as a reliable proxy for savings.<sup>6</sup>

As robustness checks, section 6 provides a companion analysis where capital gains and income from dividends are used as alternate proxies for saving. Dividend income is a much more narrow definition of wealth accumulation and is define in IPUMS as the amount of pre-taxed income that respondents received from stocks and mutual funds during the previous calendar year. Capital gain represents the numerical pre-tax increase or decrease in the value of a capital asset that accrues to an individual or tax-filing unit over the course of the previous calendar year. Capital gains also includes profits from the sale of certain assets, this includes stocks and other investments, such as investment property. This variable is not actually found through direct survey questioning of respondents but comes from the Census Bureau’s tax model. For more information about the model that generates values for individual or household capital gains, see the current population reports, series P60-18RD produced by US census bureau.

### 3.3 Descriptive Statistics

Table 1 provides an over view of the data sample used in this research. The sample includes 1,296,606 records where 84.04% of respondent selected race as White, 10.4% as Black, 1.41% as American Indian, Aleut or Eskimo, 3.63% as Asians of Pacific Islanders and 0.43% classify themselves as Other. Table 2 provides a summary of mean household income and measures of wealth holding for

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<sup>5</sup>The interest income variable we use captures how much pre-tax income (if any) the respondent received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which paid interest (Source IPUMS). Hence, one can easily imagine a scenario where there is perfect correlation between this proxy and the actual size of savings from these sources.

<sup>6</sup>If we assume as is true in most cases that interest income is a percentage of the actual saving, using interest income as a proxy for savings presents two interesting econometric challenges: First, most coefficient in the regression will be much smaller relative to their size if saving is measured directly. Secondly the standard errors are larger using the actual savings versus the interest income. These problems are not of significant concern since t statistics will remain approximately the same. The interpretation of the coefficients will be different to the extent that our results would refer to variation in interest income rather than savings. We deal with the problem of substantial difference in coefficients by using log of interest income. In this scenario, estimates on the independent variables using log interest income and log savings should not be statistically different.

Table 1: Breakdown of Data by Race

Variable	Observations	
Black US born	127,617	9.77
White US born	998,205	76.40
Black Naturalized	3,374	0.26
White Naturalized	31,427	2.41
Black Foreign	6,163	0.47
White Foreign	68,386	5.23
American Indian/Aleut/Eskimo	18,368	1.41
Asian or Pacific Islander	47,487	3.63
Other (single) race	5,579	0.43

both Blacks and Whites across citizenship status. These measures are adjusted for inflation using the GDP deflator with a base year of 2000. White U.S. born citizen and White naturalized citizen tend to receive significantly more interest income, capital gains, and dividend income than do U.S. born Blacks, naturalize Blacks, Black foreigners and White foreigners. This is not unexpected given that income for Whites is on average 30% higher than average income for Blacks. However, the interest income, income from dividends, and income from capital gains for Whites is on average four times that of Blacks. This result reaffirms the finding of Menchik and Jianakoplos (1997) which revealed that the White/Black average difference in household income is significantly smaller than the average White/Black wealth difference.

#### 4 Theoretical Framework: A Simple Model on the Role of Past Institutions

Initially, we assume that all economic agents are endowed with a propensity to save  $\theta_i$ . The propensity to save is a function of culture (C), institutions (I), and other factors (X). We assume culture is passed from one generation to the next through the family unit and following North (1990), we assume that culture responds to formal and informal rules of societal behavior i.e., culture is a function of institutions,  $[C=f(I)]$ . Since savings is a function of culture, the propensity to save  $\theta_i$  is passed on from one generation to the next via (C). We assume that in absence of any institutional

Table 2: Summary Statistics Race

Variable	Interest income	Capital Gain	Dividend	HH income
Black US born	247.42	429.15	101.49	32851
s.e	(2333.92)	(3698.26)	(1450.16)	(24118.01)
N	85837	85873	85873	114027
White US born	975.85	1123.54	494.92	44924.83
s.e	(4618.93)	(7706.07)	(3213.83)	(25418.82)
N	754346	754346	754346	869566
Black Naturalized	382.03	960.26	136.28	41495
s.e	(2864.95)	(6476.48)	(1158.39)	(25328.88)
N	3302	3302	3302	3025
White Naturalized	1066.02	1267.53	468.97	40503.76
s.e	(4946.27)	(8654.41)	(3326.58)	(25444.01)
N	30722	30722	30722	27498
Black Foreign	122.55	408.68	44.58	34779
s.e	(1212.33)	(3730)	(942.83)	(23362.33)
N	5557	5557	5557	5787
White Foreign	239.18	512.04	97.95	34473
s.e	(2283.51)	(5146.58)	(1335.09)	(22967.3)
N	61470	5146.53	61470	64353

impacts, economic agents in each country are forward looking, and are endowed with a culture of saving (CS) for the future. If we consider only the savings aspect of culture, then institutional incentives can drive agents to become savers i.e  $C=CS$  or non-savers  $C=NS$ . We also assume that there is a disincentive to save  $\tau$  that arises in wealthy countries where social programs exist to provided assistance to agents who fail to provide for their long-terms existence. We also assume that richer developed countries and/or developed countries with better market for credit, insurance and retirement, have higher  $\tau$ . We denote the effect of this disincentive to save as a reduction in CS, hence, for an individuals in a developed country  $C = CS - \tau$ . However, in developing countries because of the existence of missing markets (like credit, insurance, retirement plans) this disincentive is very small or nonexistent. For example no social security or pension plans exist for many people in developing countries. Therefore, saving money in a bank or accumulating wealth over time is the only way to prepare for retirement, i.e, we assume that for developing countries  $\tau = 0$ . We also

assume  $\tau = 0$  for individuals in a developed country if  $C = NS$ . This assumption is reasonable since  $C = NS$  provides the lower bound/extreme case of a nonsaving culture, hence,  $(S - \tau)$  is always strictly greater than  $NS$  implying  $NS - (CS - \tau) < 0$ .

Given the assumptions above, let us consider the impact of slavery on African-American society. Since the American slavery of the 1500 through the 1800s defined African slaves as property with no legal right to accumulate wealth, a legal institutional barrier to save existed for African slaves. Following North (1990), formal rules impact culture creating downstream outcomes that are self-perpetuating long after the formal rule have been removed.

Assume initially that  $\theta_A$  is an average African's propensity to save prior to enslavement. Slavery represents a negative institutional shock that impacts a proportion  $\alpha$  of Africans. Hence slavery divided Africans into two groups; African (A) who were not enslaved and Africans (AS) who were enslaved. The enslaved Africans were forcefully moved to a wealthy country. From above we know that  $\theta_i = F(CS, I, X)$  hence for a given level of X and I at time t= period post slavery,  $\theta_{AS} = F(C = NS, I, X) < \theta_A = F(C = CS, I, X)$ . Implying that slavery through the impact of legal institutions on culture, over time, removed a culture of savings, and replaced it with a culture of non-saving.

If culture (C) is not passed on generationally, and we consider savings behavior across time and generations, then African-Americans (AA) who are descendants of group AS (enslaved Africans) from the recent past, should exhibit savings behavior similar to that of White Americans (WA) with similar levels of X and I i.e.,  $\theta_{AA} = F(C = CS - \tau, I, X) = \theta_{WA} = F(C = CS - \tau, I, X)$ .<sup>7</sup> However, in our model we assume culture is passed down through generations, therefore,  $\theta_{AA} = F(C = NS, I, X) < \theta_{WA} = F(C = CS - \tau, I, X)$  for a given level of I and X. Also, in comparison to African (A) with the same I and X,  $\theta_{AA} = F(C = NS, I, X) < \theta_A = F(C = S, I, X)$ . Hence, culture (C) can be partitioned into three groups:  $C_1 = NS$  none saving culture,  $C_2 = CS$  saving culture, and a saving culture impacted by the disincentive arising from living in a rich country  $C_3 = C_2 - \tau$  where  $C_2 > C_3 > C_1$ .

Based on the simple assumptions above, we formulate a simple economic model examining savings

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<sup>7</sup>Recall we assume a  $\tau > 0$  in developed countries if  $C \neq NS$

behavior in the U.S., at the micro level. We define the savings stock of individual  $j$  as  $\Omega_j$ . For individual  $j$ ,  $\Omega_j = G(\theta_j \cdot \omega, Z, D)$  where  $\omega$  is equal to wage. This function implies that an individual's savings stock is a function of the propensity to save multiplied by  $\omega$ , a matrix of independent variables impacting savings behavior,  $Z$ , and a factor of discrimination  $D$ .<sup>8</sup> The variable  $D$ , takes on a value of zero for Whites and a negative value for Non-Whites. Given  $\Omega_j$  is a function of  $\theta_j$  and  $\theta_j = F(C, I, X)$  then,  $\Omega_j = G(F(C, I, X) \cdot \omega, Z, D)$ .

### Application of Model to the U.S. Labor Market Case

We apply the economic model described above to the U.S. labor market and develop testable hypotheses. The U.S. labor market consists of both foreigners and citizens. We define the group of Blacks that live in the U.S. and have  $C=CS$  as not exposed Blacks (NEB) while we refer to Blacks that live in the U.S. but have  $C=NS$  as group AA. For a given level of  $X$ ,  $Z$ , and  $I$ , where the intersection of  $X$  and  $Z$  is an empty set  $X \cap Z = \emptyset$ , consider U.S. labor market outcomes. We assume that individuals who immigrate to the U.S. from developing country (LDC), maintain  $\tau = 0$  because of their prior LDC experience.<sup>9</sup> These immigrants indoctrinate their American children with a similar view through cultural exchange i.e., for their children  $\tau = 0$ . Since U.S. born children, to immigrant parents, do not experience the missing markets in LDC, we assume that they do not indoctrinate their own child in this regard, i.e. grandchildren of immigrants acquire the disincentive to save.

We also assume that individuals who immigrate to the U.S. from other developed country (DC) have a lower or equal disincentive to save relative to U.S. citizens who have a  $\tau > 0$  [ $\tau_{DC} \leq \tau_{US}$ ]. Hence,  $\tau_{US}$  provides the upper bound in terms of saving disincentives.<sup>10</sup> Similar to immigrants from LDC, we assume that those from developed countries (DC) pass, on through culture, to their children, the  $\tau$  acquired from their homeland. However, their grandchildren acquire the  $\tau_{US}$ . Given

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<sup>8</sup>Past research like Martin and Hill (2000) provide evidence consistent with the presence of statistical racial discrimination in the auto-credit market. Such discrimination can affect savings and we assume that  $\Omega$  is a negative function of  $D$ .

<sup>9</sup>As mentioned earlier, poor developing countries do not have social programs to help economic agents who fail to provide for their elderly years.

<sup>10</sup>It is reasonable to make U.S. the upper bound because She is among the wealthiest countries in the world and we assumed earlier that wealthier DC have higher  $\tau$ .



these assumptions, if  $C=CS$ , all individuals with US born parents share the same  $\tau_{US}$ , however, individuals with foreign born parents share their parents  $\tau$  which is 0 for LDCs and greater than 0 for DCs. The only group of U.S citizens, whose parents are U.S. born but do not have  $\tau_{US}$  are those who have a  $\tau = 0$  because  $C = NS$ .

Given our basic economic model above, we make predictions regarding savings in the U.S. labor market and in the empirical part of this paper, we attempt to find evidence for these predictions.

**Prediction I:** Given that  $\Omega = G(F(C, I, X) \cdot \omega, Z, D)$

and  $C_{AA} = NS < C_{WA} = CS - \tau$

Since an increase in C leads to an increase in  $\Omega$

then  $\Omega_{AA} < \Omega_{WA}$  and  $\Omega_{AA} - \Omega_{WA} < 0$ .

Implying that for a given level of X, Z, D and I, savings stock of African Americans will be less than White Americans.

**Prediction II:** As  $\Omega = G(F(C, I, X) \cdot \omega, Z, D)$

and  $C_{FW} = CS - \tau \leq C_{WA} = CS - \tau$ , where FW is foreign White.

Then  $\Omega_{WA} \leq \Omega_{FW}$

Implying that for a given level of X, Z, and I, savings of WA would be less than or equal to that of FW. White WA saving stock would be less if the FW are from a developing country<sup>11</sup>. However the same result could hold for Whites from developed countries if FW are from a developed country with lower  $\tau$ . Conversely if  $\tau$  is similar for both countries then WA and FW from developed countries should have similar savings behavior all other things being equal.

**Prediction III:** As  $\Omega = G(F(C, I, X) \cdot \omega, Z, D)$

given  $D > 0$  for NEB and  $D = 0$  for WA

if  $\tau = 0$  for NB then  $C_{WA} = CS - \tau < C_{NEB} = CS$ ,

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<sup>11</sup>We assumed that developing countries have  $\tau = 0$

and  $\Omega_{NEB} \stackrel{\cong}{\cong} \Omega_{WA}$ .

Implying that for a given level of X, Z, and I, the stock of savings of NEB relative to WA will depend on the impact of discrimination, D, on the value of NEB savings relative to the impact,  $\tau$ , on WA. If D and  $\tau$  take on the same value, then there should be little difference in the savings across the two groups ceteris paribus.

**Prediction IV:** Given that  $\Omega = G(F(C, I, X) \cdot \omega, Z, D)$

and  $D_{AA} = D_{NEB}$  where  $D > 0$

as  $C_{AA} = NS < C_{NEB} = CS$

then  $\Omega_{AA} < \Omega_{NEB}$

Implying that for a given level of X, Z, D and I, the savings stock of African-Americans will be less than that of NEB. Note, African-American were exposed to slavery and develop a non-saving culture accounting for lower savings stock relative to immigrant Africans and their descendants who were exposed to slavery. However, both groups are exposed to similar discrimination patterns that would not account for the significant difference in savings across the two groups. This hypothesis is the basis of our identification strategy in providing evidence as to the impact of past institutions on savings of African-Americans. Figure one is an illustration of this. If slavery had no impact that is transmitted through culture, then  $\Omega_{AA} = \Omega_{NEB}$  ceteris paribus.

## 5 Econometric Model and Results

Significant empirical evidence already exists which reveal a savings gap between Black and White Americans. Blau and Graham (1990) note that after controlling for demographic factors and income differences, three fourths of the saving/wealth gap between Blacks and Whites still remained unexplained. Initially, we provide evidence of this gap using a savings econometric model based on the assumptions of our theoretical framework i.e., the stock of savings is a function of a set of variables  $\Omega_j = f(\theta_i \cdot (\omega), Z, D)$ .<sup>12</sup> Equation 1, our basic econometric model is a linear characterization of the function above.

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<sup>12</sup>A similar model is used by Chiteji and Stafford(1999) for wealth accumulation.

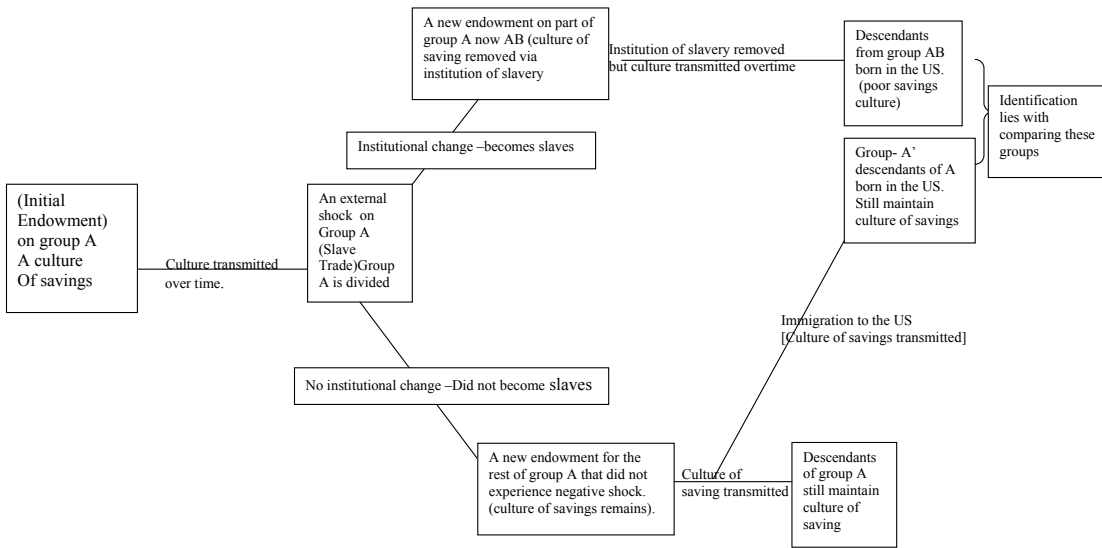


Figure 1: Illustration of the transmission of past institutions through culture

$$\Omega = \alpha + \gamma X + \delta F + \beta R + \theta W + \epsilon \quad (1)$$

In equation (1) we use interest income as a proxy for,  $\Omega$  (stock of savings),  $\alpha$  the constant term,  $X$  is a matrix of variables affecting savings,  $F$  is a matrix of relevant dummy variables including year but excluding race related variables,  $R$  is a matrix of race related dummy variables,  $W$  is wage and is deflated and  $\epsilon$  is the error term. Initially, we estimate this model using OLS and control for potential heteroskedasticity. Note in section 6, we address the potential problems of OLS when data is censored by using a Tobit model. Table 3 provides the results from OLS estimation of equation (1), where the racial dummy variables are Asian, American Indian and Eskimo, Black and Other.<sup>13</sup> In this regression Whites are the baseline for comparison. The variables in matrix  $F$  are dummies for marital status, year fixed effects, and employment status. The matrix  $X$  contains schooling, age, sex, number of children, and age squared. In the regression summarized in column (1) of Table 3, we include the log of wages as an independent variable because of the critical role of wages in the saving, investment, and ultimate wealth accumulation decisions. There is however, two potential problems with this variable: First wages may not be independent of the savings, decisions. Wages affect savings and savings could impact future wage decisions.<sup>14</sup> Second, by including wages we restrict the dataset to those who worked in the previous calendar year and exclude those who did not, potentially creating a selection bias.<sup>15</sup> Excluding wages from the model may deal with some of the potential biases highlighted, however, this exclusion could reduce the explanatory power of the model or create other biases (omitted variable bias). Hence, we present results with and without the wage variable throughout the paper. We also include personal weights when estimating all the regressions because the CPS uses a complex stratified sampling scheme, and weight must be used to produce unbiased results.

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<sup>13</sup>We do not interpret any result for the racial group, *Other*, as this category does not provide any clear information. Since the CPS allows the selection of *Other* by any surveyed person, this category contains any number people from various racial group who choose not to identify their race.

<sup>14</sup>Meaning that including wages as a regressor can create a simultaneity bias.

<sup>15</sup>Assigning zero wages for these individuals who are not working and including them in the analysis may not solve this problem but can creates other specification and estimation problems. For example some of those with zero wages are retired and live on pension while others are unemployed and live on government /welfare support.

Results of Table 3 confirms previous evidence noted in the literature and is consistent with our first prediction (Prediction 1). After controlling for standard variables that could impact savings, we find a substantial difference in savings for Whites and Blacks. The results of Table 3 suggest that Blacks, with similar levels of education, age, and number of children generally save 36% less than comparable Whites. This result is similar to the findings of Ariel Capital Management LLC and Charles Schwab Corp which in their examination of investing habits of African-Americans who earn more than \$50,000 per year, find that African-Americans have far less money invested in retirement accounts than do Whites. The median amount invested for Blacks is \$59,000, whereas White median investment is \$93,000 representing a 36% difference across race. Results in Table 3 reveal that when we do not control for wages, the savings gap increases to about 43%. All the variables in the saving equation of Table 3 have the expected signs and given that the estimated equation produces results similar to those found in the saving/wealth accumulation literature, the question still remains as to why the difference in saving behavior across race remain after including traditional accepted control variables. We hypothesize that these differences may be attributed to the impact of past institutions transferred through culture on saving behavior of African-Americans over time. In the sections below, we examine the potential impact of past institution on the savings of African-Americans in detail.

## **5.1 Searching For the Impact of Institutions**

### **5.1.1 Do Foreign Black and U.S. Black save similarly?**

Consistent with previous literature, we find a gap between White and Blacks saving behavior using equation 1. We know, however, that not all Blacks are American citizens, therefore we partition the sample into two groups, Blacks who are American and Foreign Blacks (FB). In a similar fashion we partition Whites into those who are American and those who are Foreigners (FW). Could the partitioning of our sample by race and place of birth, provide more information on the impact of institutions on culture and ultimate saving behavior patterns of Blacks and Whites over time? FB are newcomers to the U.S. so its most unlikely that they are descendants of American slaves and could potentially have acquired the nonsaving culture described in our model. Therefore, if our

model is consistent, we should observe differential saving behavior between U.S. Black and FB. Specifically, FB should save more than American Black all things being equal. In addition, if racial discrimination has a strong negative effect on saving, and the disincentive to save brought on by living in a wealth country has a smaller effect, FB should save less than WA or FW but still more than American Blacks. However, if exposure to American slavery is immaterial then savings for FB and American Blacks should be similar but less than FW or WA, all other thing being equal. To examine these issues we estimate equation 2 where  $R_i$  are dummy variables:  $R_1 \sim$ FB,  $R_2 \sim$  FW,  $R_3 \sim$  U.S Black,  $R_4 \sim$ American Indian,  $R_5 \sim$  Asian and  $R_6 \sim$  Other. The baseline comparison group is WA.

$$\Omega = \alpha + \gamma X + \delta F + \sum_i^6 b_i R_i + \theta W + \epsilon \quad (2)$$

Table 4 columns (1) and (2) provides estimation results of equations 2. Contrary to our initial prediction, we find that FW savings is 22% less than WA. The result for American Blacks relative to FB also appears to be counter to our prediction as the coefficient for American Blacks is larger than the coefficient for FB though not statistically different. At first glance, the result seems to indicate Blacks whether Foreign or American save much less than Whites. This contradictory result is not of particular concern since the dataset that we are using only captures part of Foreign Blacks' saving. According the World Bank 2007 report, the U.S. ranks first in remittances with a lion share of World Wide remittances of (\$42.2 billion). Developing countries including those in Africa and the Caribbean represent a significant portion of recipients of these remittances as developing countries received 75% of all remittances worldwide.<sup>16</sup> We note that countries within Africa, where most Black immigrants originate, though a small number of immigrants relative to other parts of the world, received remittance of \$10.8 billion. This finding on remittance suggests that comparisons between coefficients associated with FB, U.S. Blacks and WA cannot provide reliable comparisons of relative savings across the groups. Moreover, there are other variables that we do not observe that could differentiate these two groups and bias our estimates. Take for example language skills and

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<sup>16</sup>For more information on the data set from these numbers are calculated see [http : //go.worldbank.org/NN93K4Q420](http://go.worldbank.org/NN93K4Q420)

legal restrictions placed on noncitizen in term of opportunities that could increase or decrease the probability of saving. It is however of significance to note, that though we only observe a portion of savings for FB, the econometric model result reveals no statistical difference in the saving stock between this group and U.S. Black. Finally, finding that FB save less than any group of Whites does not raise concern. As the theory suggest, lower savings for this group could indicate significant racial discrimination in the market place and a low disincentive to save for Whites.

### **5.1.2 Are we Analyzing Whites the Right way?**

Examining savings for FW relative to WA provides similar challenges to comparing FB to U.S. Blacks in that savings for FW are not completely observed in the U.S. The results in Table 4 columns (1) and (2) reveal that FW savings is 23% less than U.S. Whites. Similar to the results for FB, this difference may reflect savings and/or remittance back to the country of origin. An alternate argument for this gap is that FW are from countries that are more wealthy than the U.S and would save less because wealthier DC posses a higher disincentive to save. Since the U.S. GDP per capita remains one of the highest in the world this argument is unlikely. The world ranking of the U.S. in term of wealth, provided the underpinning for the models assumption that the U.S. provides the upper bound for the saving disincentive. Hence, if FW saved only in the U.S., we should observe savings for FW equal or greater than White American. We do not observe this result in columns (1) and (2) of Table 4, suggesting that FW on average save outside the U.S. and similar to FB, do not make a good comparison group.

Note that, unlike FB who are generally from developing countries, FW are from both developed (FWDC) and developing countries (FWLDC). Given this difference in the makeup of FW, is it possible that FWDC save more in the US and remit less than their counterparts from LDC? This may be true because the level of development and institutional arrangement across DC are more similar than across DC and LDC countries. Hence, FWDC are more likely to save a larger share in the U.S. than FWLDC. Therefore savings shares in the U.S. for FB and FWLDC may be similar but different from FWDC. We estimate equation (3) to test for this difference, dividing FW into FWLDC and FWDC.

$$\Omega = \alpha + \gamma X + \delta D + \sum_i^7 b_i R_i + \theta W + \epsilon \quad (3)$$

In equation (3)  $R_1 \sim$ FB,  $R_2 \sim$  Black US citizen,  $R_3 \sim$  American Indian,  $R_4 \sim$ Asian,  $R_5 \sim$ Other,  $R_6 \sim$ FWLDC and  $R_7 \sim$  FWDC. Table 4 columns (3) and (4) reveal that FWDC and U.S. Whites tend to save in a similar fashion while FWLDC do not. A direct implication of this result is that FWDC save more in the U.S. than their counterparts from developing countries.<sup>17</sup> This result is consistent with the World Bank 2007 remittance data, which notes that high income OECD remittances receipt are less than 1/3 of developing countries' receipt. Similar savings for FWDC and WA noted in Table 4 is compatible with our theory's prediction (prediction 2). A possible interpretation of this result is that FWDC save in the U.S. and share similar disincentives to save as U.S. Whites.<sup>18</sup> Columns (3) and (4) of Table 4 provide evidence that FWLDC saving is 36% less than U.S. Whites but tend to save similarly to FB. The simple explanation is that they both save in their country of origin and we only observe a portion of their savings in the U.S.

We find evidence to support the hypothesis that U.S. Blacks save differently than do WA and FWDC. These preliminary results reveal little about the impact of institutions on African-American saving. However, this analysis has provided evidence, that foreigners do not make good comparison groups for U.S. Blacks or Whites given our inability to completely observe savings behavior for foreigners.

## 5.2 Could the answers lie in those who are Naturalized?

To investigate the role of institutions in explaining the savings gap, we need to identify two groups with similar characteristics who face similar challenges in the U.S. labor market. The only difference between these groups should be that one group's predecessors experienced American slavery and the other did not. Hence, one group is exposed to the savings culture created by American slavery through cultural heritage while the other is not. The first possible alternative is to sub-divide our

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<sup>17</sup>Another more unlikely scenario is that FWDC save equally at home and abroad but save so much more than everyone else leading to similar savings for this group and U.S Whites. Though this scenario is consistent with our hypothesis, there is no anecdotal evidence consistent with this possibility.

<sup>18</sup>It is possible that in reality that U.S whites actually save less than FWDC and we only observe similar savings because we do not view a part of FWDC savings. This possibility is consistent with Prediction 2:  $\Omega_{WA} \leq \Omega_{FW}$ .



sample of Blacks into two groups those who are U.S. born African-American and those who were born elsewhere and have become naturalized citizens<sup>19</sup>. Using this decomposition and employing OLS, we estimate equation (4) and as with all previous regressions, the robust standard errors are derived. Though Naturalized American Blacks (NAB) and American born Blacks shared the same African origin, there is a high probability that NAB predecessors were not American slaves. Hence, NAB have a high probability of not being exposed to the cultural impact of American slavery. Given that both groups are American citizens, and are likely to face similar challenges in the labor market, including discrimination, NAB may provide a reasonable comparison group.

$$\Omega = \alpha + \gamma X + \delta F + \sum_i^9 b_i R_i + \theta W + \epsilon \quad (4)$$

In equation (4)  $R_1 \sim \text{FB}$ ,  $R_2 \sim \text{FWLDC}$ ,  $R_3 \sim \text{FWDC}$ ,  $R_4 \sim \text{Black U.S. born}$ ,  $R_5 \sim \text{Naturalized American Whites (NAW)}$ ,  $R_6 \sim \text{NAB}$ ,  $R_7 \sim \text{American Indian}$ ,  $R_8 \sim \text{Asian}$  and  $R_9 \sim \text{Other}$ .

Table 5 provides a summary of the results of the savings regression where the decompositions of Blacks and Whites into naturalized citizens verses U.S. born citizens are added to the model. The results reveal no saving differences among NAW, FWDC, and U.S. born Whites. This result is not unexpected, however, the results for NAB is unexpected as a comparison of coefficients reveal that relative to the U.S. born Whites, there is no significant difference in the savings gap of NAB and U.S. born Blacks as both groups tend to save about 38-39% less than U.S born Whites. If our model is correct, all else held constant, NAB should save in a fashion similar to U.S. born Whites and greater than U.S. born Blacks who were impacted culturally.<sup>20</sup> This result, though inconsistent with our model is explainable but raises a few questions: First, do naturalized citizens represent the best comparison group for the purpose at hand? Second, do we observe complete savings behavior of naturalized citizen? The answer to the first question is not independent of conditions imposed by the second. While there is a high probability that NAB are not descendants of American slaves

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<sup>19</sup>We also do similar decomposition for U.S Whites. We refer to this group as Naturalized American Whites (NAW).

<sup>20</sup>We expected if the model is correct that NAB would save more than black U.S. born and either less or more than White Americans depending on the size of the disincentive to save for Whites and the discrimination factor experienced by NAB. We assume that NAB have a  $\tau = 0$  implying that Blacks are from developing countries. While not all Blacks are from developing countries most are so it is safe to make this assumption.

and hence, should not exhibit the cultural impact describe in our model, NAB are general from developing countries. As most NAB become U.S. citizen post 30 years of age, they tend to maintain a financial presence in both the U.S. and their country of origin<sup>21</sup>. In effect, the data does not capture a complete picture of the saving behavior of naturalized citizens. Since citizenship is not an instantaneous process, in most cases the uncertainty associated with obtaining citizenship creates a significant incentive for citizenship seekers to preserve ties in the country of origin enhancing the probability that U.S. financial data may not reflect the complete savings picture.<sup>22</sup>

### 5.3 Identifying the Impact of Culture

Given the identification problems with NAB relative to U.S. born Blacks, to obtain a decomposition that could shed light on the impact of institutions on savings behavior of African-American Blacks, we must identify two groups within the African-American community, who have a high probability of saving in the U.S. but one of the two groups has been impacted by American slavery through the cultural heritage.<sup>23</sup> Using the notion that culture is long-lived and passed to future generation, we decompose the U.S born sample in a novel way, by parental origin. Parent origin implies that we partition the sample into those whose parents were foreign born and those whose parents are U.S. born. Specifically, we partition U.S. born Blacks into those whose parents are U.S. born and have likely been impacted by American Slavery via the cultural channel, and parents of the second group are identified as foreign born, either FB or NAB, and are much less likely to be descendants of American slaves. Implicit in this identification strategy is the North-Acemoglu, Johnson, and Robinson notion that institutions influence culture and culture is long-lived, impacting downstream behavior and outcomes long after institutions have been changed or discarded. If the institution

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<sup>21</sup>Under certain strict conditions, some naturalized may be the comparison group we want. The subgroup of naturalized Blacks who could be a good comparison group category are those who grew up in the U.S. and became naturalized U.S. citizen at a very early age and began saving in the U.S. Unfortunately, the dataset does not provide information on when individuals became naturalized citizen.

<sup>22</sup>Note that after getting a permanent resident status, which can take up to 5 years post school, individual have to wait an average of five years to become citizens.

<sup>23</sup>If American Slavery institutions reduced or removed the culture of savings, then when we compare these two similar groups, we should find a significant difference in savings all other conditions being equal. Similarly, holding all other factors fixed, we expect AAFBP to save more or less than Whites. If we find that AAFBP save more (dummy coefficient of group positive and significant), then the impact of discrimination  $D$  is less than the disincentive to save  $\tau$ . If we note the opposite, the inference is simply the reverse and if both are equal then both effects cancel each other.

of American slavery has impacted downstream saving behavior of African-Americans in the North-Acemoglu, Johnson, and Robinson sense, then we should find differential savings behavior when comparing the behavior of African-Americans with U.S. born parents (AAUBP) to African-American with foreign born parents (AAFBP).

For completeness and further evidence of our thesis we define other groups apart from NAB and FB. There are many Africa-Americans with just one foreign born parent: African-American with Foreign Born Mothers (AAFBM) and African American with Foreign Born Fathers(AAFBF).<sup>24</sup> AAFBP are the only valid comparison group for AAUBP because AAFBM and AAFBF are more likely to have been exposed to the savings impact of American slavery from their American born parent. It is important to mention that these individuals may not exhibit this negative savings culture if they lived with the parent who was foreign born or if the foreign born parent had more bargaining power in the household, with respect to cultural transfer/resource allocation. Since we have no information in this regard, we are less concerned about results for AAFBM and AAFBF. Moreover, our theoretical model does not inform a forecast of the impact of such a cultural mix on savings behavior.

We estimate equation (5) which captures the decompositions discussed above.

$$\Omega = \alpha + \gamma X + \delta F + \sum_i^{15} b_i R_i + \theta W + \epsilon \quad (5)$$

In equation 5  $R_1 \sim$  AAFBM,  $R_2 \sim$  AAFBF,  $R_3$  is our variable of interest-AAFBP,  $R_4 \sim$  AAUBP,  $R_5 \sim$  WAFBP,  $R_6 \sim$  WAFBM,  $R_7 \sim$  WAFBF,  $R_8 \sim$  FB,  $R_9 \sim$  FWLDC,  $R_{10} \sim$  FWDC,  $R_{11} \sim$  NAW,  $R_{12} \sim$  NAB,  $R_{13} \sim$  American Indian,  $R_{14} \sim$  Asian and  $R_{15} \sim$  Other. Note in this analysis the baseline for comparison is White American with US born parents (WAUBP).

The results of the OLS analysis using racial decompositions discussed above are found in Table 6. We find that there is no statistical difference in the savings behavior of AAUBP, AAFBM, AAFBF, FB and NAB. Given that we do not observe full savings for FB and NAB we ignore these

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<sup>24</sup>We also decompose White Americans in a similar way for consistency sake and also as a further prove to the validity of our identification strategy and results. White American with Foreign Born Parents (WAFBP), White American with Foreign born Mothers (WAFBM) and White American with Foreign Born Fathers (WAFBF).

two categories. However, the results point to a similar savings gap for AAUBP, AAFBM, AAFBF in comparison to WAUBP. In contrast we find that AAFBP actually save more than the baseline group, WAUBP and about 80% more than other African-Americans (AAUBP, AAFBM, AAFBF). The higher savings of AAFBP than other African-American is consistent with the fourth prediction of our model. The higher savings of AAFBP relative to WAUBP is consistent with the model's third prediction and suggests that though the negative effect of discrimination ( $D$ ) occurs, the negative effect of  $\tau$  may be larger. Through the regression analysis, we attempt to control for other factors that lead to differential savings behavior across groups. If we are able to successfully do this, then the AAFBP and AAUBP we compare should be identical but for the cultural impact on one group. In this case, by comparing estimated dummy coefficients for AAFBP and AAUBP, we find support for the thesis that the impact of the institution of slavery is long-lived and can help explain the savings gap between White American and African Americans.

## 6 Robustness Checks

Could statistical regularities identified by this research be random artifacts of the data arising from poor model specification i.e., a failure to control for possible variables that could impact savings? Below we show that after adding other control variables suggested in the literature, as well as changing the modeling strategy all statistical results remain in tact. In addition to control variables already in the model, we add other variables including those identifying the region of the country where survey participant live and whether or not an individual works for government. Some have argued that many Blacks work for government because of the certainty associated with the receipt of a government retirement, reducing the need to save for retirement. We also include dummies for an individual's birth cohort and a dummy for homeownership. In section 5 we mention the potential problem we might face using OLS given the censored nature of the dataset. In the CPS, actual income related observations above certain upper threshold are not revealed. Therefore, we only observe a fixed upper limit for observations on interest income and wages above the threshold. In addition, all income related variables are nonnegative. These two restrictions, create a cluster at both the top and

bottom of the distribution for income variables in the data. In reality, it is possible for an individual to have negative savings as a person could have a positive balance on a credit card along with savings of zero. We do not observe negative savings in our data set, hence, the data is left censored at zero. Using OLS in the face of censored data could lead to biased estimates providing unreliable results. To provide a robustness check and to manage the potential censored data problem, we re-estimate our econometric models using a Tobit modeling strategy. Table 7 columns (1) and (2) provides OLS estimation results of equation (5) including the additional controls highlighted earlier. Columns (3) and (4) provide Tobit results for equation (5) with similar controls as the OLS regression. The Tobit results confirms earlier OLS findings which suggest that institutions and culture may help to explain the savings gap between Blacks and Whites. The Tobit estimates are general higher than OLS results for most variables, however, variables that are statistical significant remain the same across modeling strategies. Though there are no statistical significant changes in estimates for most variables, there are a few interesting changes in the size of the coefficients that should be noted. First, the gap in savings between WAUBP and African-American with one or two U.S. born parents (AAUBP, AAFBM, AAFBF) has decreased implying that including additional control variables may have been useful in obtaining better results. We note also that coefficients associated with AAFBM, AAFBF, AAUBP, and FB are, as in the OLS results, all statistically similar in size. Once again AAFBP tend to save more than WAUBP and save more than AAUBP. More specifically, results suggest that, all other things being equal, AAFBP savings is 87% higher than AAUBP. A potential argument can be made that there maybe something unique about the savings behavior of Americans with foreign born parents that is unrelated to our argument surrounding institutions and culture. If this argument is valid then WAFBP should save more than WAUBP. Table 7 provides evidence to the contrary, when we include wages in the model, we find that WAFBP save less than WAUBP. However, if we exclude wages from the model there is no significant difference in savings across the two groups. This result for Whites contrasted with AAFBP saving more than AAUBP, suggests that the savings gap, between AAUBP and AAFBP, is not linked to being an American with foreign born parents.

In earlier results, before including additional control variables, we found no significant difference in the saving of Asian relative to U.S. born White. This result is contrary to anecdotal evidence that points to Asians saving more than other racial groups in the U.S. However, after including additional controls variables we find that Asians savings is (7%) higher than WAUBP. This result is consistent across OLS and Tobit modeling strategies and with the findings derived from micro-and macroeconomic analysis suggesting higher savings in some Asian countries. (See Kraay (2000) for the Chinese case).

Upon examination of results in Table 7, it is possible to argue that the difference in the size of the coefficient associated with WAUBP and AAFBP appears implausible high relative to the difference in WAUBP and the Asian coefficient. Interestingly, there is no statistically significant difference between the coefficients on Asian and AAFBP though there values seem to be quite different (0.068 and 0.598 using OLS and 0.07 and 0.61 using the Tobit model ). More careful examination of both OLS and Tobit results reveal that the standard errors and the confidence intervals associated with the AAFBP dummy are large relative to those associated with the Asian variable. The results of the model suggest that both Asians and AAFBP save more than WAUBP but both groups save similarly. We note that the Asian result is consistent with our stylized model suggesting that immigrants from developing countries may save more than other groups because they lack the disincentive to save that is found in more wealthy countries.<sup>25</sup>

The results of this research appear robust, however, one could argue, as with most research, that the results are a function of omitting an important variable from our model. One such variable is innate ability and/or training. Much of the immigration research suggests that high ability and/or well trained individuals are more likely to migrate. Since ability and education are correlated, the inclusion of education as a control variable in our model helps address the high ability/training argument. Controlling for education in our model allows comparison of individuals with similar education levels and given the correlation between education and ability, we implicitly address the ability argument. Furthermore, there is little evidence which suggest that all immigrants are of high

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<sup>25</sup>It could be that Asian American with US born parents save similarly to WAUBP and our findings are driven by Asians with foreign born parents. This is an interesting possibility but is beyond the scope of this paper.

ability as many immigrants especially from developing countries come to the U.S. as refugees of war seeking asylum or through family reunification. If the immigrant high ability argument is true then we should observe the same increased savings behavior for WAFBP in comparison to WAUBP. Our results in Table 7 provides no evidence to this effect, WAFBP save similarly as WAUBP.

Our identification of the impact of the institution of American slavery on culture is based on the premise that there is no reason apart from the institutional shock transmitted through culture as to why AAUBP and AAFBP should save differently if WAUBP and WAFBP save similarly all other conditions held constant. However, a potential argument is that though this result reflects the indirect impact of the institution of American slavery on savings, the channel is not culture but inheritance. That is AAUBP have less savings not because they do not save similar to comparison groups, but rather have less inherited wealth. Less inheritance can be linked, in part to their ancestors enslavement with no capacity to acquire wealth. This argument implicitly assumes that AAFBP have significant inheritance similar to WAUBP. A rationale for this argument could be that AAFBP are more likely to be from high skilled families and hence receive larger inheritance. Although we do not discount the potential importance of inheritance in creating and perpetuating a savings gap, this argument does not explain our results. Menchik and Jianakplos (1997) show that after controlling for other factors that contribute to racial differences in wealth, financial inheritance may account for only 10% to 20% of the average difference in Black-White household wealth. Implying that there is still a large unexplained portion of this gap which we attempt to address in this paper. In addition, Altonji and Doraszelski (2002) results suggests that little of the difference between Whites and Blacks in the effect of income on wealth is due to differences in inter vivos transfers and inheritances. Moreover, there is no evidence that AAFBP have high inheritance since most black immigrants come from developing countries with poorly defined property rights, low income, corrupt governments and high levels of poverty. Even if we argue that the more educated migrate, we cannot argue that those who are wealthy immigrate, in fact, in most African countries it is the struggling educated middle class and not the wealthy ruling class who immigrate.<sup>26</sup> Hence,

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<sup>26</sup>As Uwaifo (2007) noted, return to education is really low in some African countries and might explain the brain drain from many African countries.

assuming that AAFBP have significant inheritance similar to WAUBP and differ from AAUBP has no bases. Given that AAFBP parents generally immigrate from developing countries, it is more plausible to assume that AAUBP and AAFBP have similar inheritance or that AAFBP have less. The issue of inheritance would not exist if our dataset allowed us to control for inheritance but it does not. Nevertheless, a unique way to test whether these results are driven by inheritance or culture is to compare savings for AAUBP, AAFBP, AAFBM and AAFBF, all other things being equal. If inheritance and not culture explains our results, then savings of AAFBM, AAFBF, AAFBP, should be similar. In contrast, savings of AAUBP should be less than these three groups. The rationale is that all African-Americans who have an immigrant parent received inheritance while AAUBP were less likely to receive inheritance resulting in a lower saving stock. However, if our results are linked to culture, then AAUBP, AAFBP and AAFBF should have similar saving behaviors because each of these groups have at least one parent who was culturally impacted. Table 6 provides evidence for culture versus inheritance, we find that there is no savings gap among AAUBP, AAFBF and AAFBM but these groups save less than AAFBP.<sup>27</sup>

A final robustness check, we examine alternative measures of stock of saving; dividend income and income from capital gains. Dividend income measures only income from stocks and mutual fund which along with capital gains represents only a small portion of the wealth accumulation portfolio for many individuals. Given the small coverage of savings provided by dividend income and capital gains and the fact that most survey participants had zero capital gains, our unique race decomposition could be more noisy and results subject to selectivity bias.<sup>28</sup> Despite these limitations, it is interesting to see if results change drastically when employing less inclusive proxies for savings. Table 8 provides both OLS and Tobit results. Focusing on the Tobit results in column (5), we find that the signs associated with most of the race dummy coefficients are similar to earlier results but interestingly, most coefficients are non-significant. There appears to be no differences in saving from dividend income when comparing AAUBP and WAUBP.<sup>29</sup> We do however, see a large

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<sup>27</sup>The similarity of the saving gap for AAUBP, AAFBM, AAFBF is also confirmed using the Tobit model and additional controls in Table 7 although the AAFBF coefficient is only significant at levels lower than 95%.

<sup>28</sup>Individuals select into owning mutual fund and stocks.

<sup>29</sup>It is possible that comparable WAUBP and AAUBP who select into owning mutual funds and stocks are receiving similar income from their investment in stock and mutual funds but the issue might be that many comparable AAUBP



difference in wealth from dividend income when we compare AAFBP to WAUBP. In fact, when using dividend income as a savings proxy, AAFBP performs significantly better than all other sub-groups.

When using capital gains as the savings proxy, we find that AAUBP have lower savings from capital gains than WAUBP. However, there is no statistical difference between the wealth from capital gains for AAFBP, WAUBP, and WAFBP. This result is consistent with our stylized model where we hypothesized that the savings stock for AAFBP could be less, greater, or equal to the saving of WAUBP, depending on the size of the discrimination factor and the disincentive to save from living in a rich country.<sup>30</sup> The capital gains savings proxy provides an interesting check of our results even though there are many limitations to using this variable. Capital gains represent profit or loss resulting from the sale or the increase in value of a capital asset as classified by federal income tax legislation. Further, we must keep in mind that this variable does not come from direct questioning of survey participants, but was constructed by Census Bureau's tax model. Despite the limitation of this variable, it is encouraging that we observe similar trends using capital gain as interest income. The findings from Table 8 reveal that the gap between AAUBP and other comparable groups is real. Second, here as in Table 7, though comparable WAFBP and WAUSP are identical in their capital gain and dividend, AAFBP and AAUBP are not and the relevant question is why? Our answer is that given the otherwise identical nature of these groups but for an institutional shock to one groups ancestors, there is only one explanatory factor, the negative effect of American slavery on a culture of savings that is enduring.

## 7 Conclusion and Recommendations

Our stylized model provides a few testable results. First, savings of African Americans who are descendants of slaves should be less than comparable US born White Americans given the saving altering culture of slavery. We find evidence of this result in all tables highlighted earlier. Our second prediction states that the savings of White US citizens should be less than or equal to White foreigners in the U.S. The savings of White Americans is less if compared to White foreigners from

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might not be selecting into this form of investment at all.

<sup>30</sup>We notice some of the other sub-groups like FWLDC and FWDC have higher capital gain. We do not have any particular explanation for this result and this finding could simply be as a result of the narrow proxy for saving used.

a developing country or to those from a developed country with a lower disincentive to save. We are unable to find concrete evidence supporting this hypothesis in our data set as most foreigners are saving elsewhere especially those from developing countries. Large scale remittances provide clear evidence of this behavior. If we focus solely on White foreigners from developed countries, it is possible to argue that this group is more likely to save in the U.S. Our results suggest that immigrants from DCs remit less and keep more of their stock of savings in the U.S. while their counterparts from developing countries remit more to their home country keeping less in America. Since we find no saving gap between comparable foreign Whites from developed countries and White Americans, this result provides suggestive evidence of a similar disincentive to save in the U.S. and other developed countries.

Our third prediction suggests, other things being equal, saving of Blacks not exposed to the cultural impact of American slavery, should be equal to White Americans if the dollar effect of discrimination is equal to the dollar effect of the disincentive to save resulting from living in a rich country. If the effect of discrimination is profound, we should find Whites have higher savings than unexposed Blacks, *ceteris paribus*. Similarly, if the dollar effect of the disincentive to save is greater than the dollar effect of discrimination, saving of unexposed Blacks should be higher than that of comparable American Whites. We find evidence for this prediction if we focus on a part of this group who are most likely saving in the U.S. because they were born here, AAFBP. As AAFBP save more than White Americans, our result suggests that the negative effect of discrimination on savings might be less than the disincentive to save effect.

The fourth result from our stylized model leads to our identification strategy which suggests that the negative institutional shock of American slavery, through its impact on culture, altered the saving behavior of the descendants of slaves. Hence, African-Americans who are descendants of African who were taken as slaves should save less than comparable African-Americans, who are not descendants from slaves, *ceteris paribus*. AAFBP are the valid comparison group because it is unlikely there is any historical/intrinsic difference between AAFBP and AAUBP but for the institutional shock affecting AAUBP. Using Tobit and OLS modeling strategies, we find evidence that support our

hypothesis. We provide supporting evidence for our identification of the impact of past institutions on savings by decomposing White Americans in an identical fashion as African-Americans (WAFBP WAUBP), noting no difference in savings patterns between these groups.

In summary, Table 7 captures our preferred specification and results from the Tobit model. Our results suggest that the saving gap widely documented and unexplained in the literature does not apply to all Blacks, in particular, AAFBP. When considering African-Americans whose recent ancestors were not exposed directly or indirectly to the culture derived from the slavery experience, we do not observe a saving gap. Given that African-Americans who were directly and/or indirectly exposed to American slavery and AAFBP who were likely not exposed share the same ethnic heritage and face similar labor market challenges, the only difference between comparable members of these groups is exposure to American slavery. Our research suggest that the difference in saving behavior across these two groups may be attributed to the culture altering institution of slavery.

Why are these results important? If the notion that slavery created a non-saving culture among African-Americans, and has been transmitted over time through the African American community, then there is need for intervention to attenuate or remove this negative culture from this group. If we think about slavery as a negative shock that has enduring impacts then there is need for a countering positive shock to the African-American community. Although our main goal is to create awareness of the impact of past institutions on economic decisions today, we hope this results creates a dialogue on how to change this culture. Specifically, programs aimed at incentivizing this community to save would help but awareness through the education process as early as possible is key and may lead slowly lead to a cultural change.

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Table 3: Preliminary Regressions: Basic Factors affecting Savings

Independent Variable	Dependent variable: Interest Income	
	(1)	(2)
log wage	0.214*	
	(0.005)	
Black	-0.378*	-0.43*
	(0.016)	(0.014)
American Indian/Aleut/Eskimo	-0.358*	-0.398*
	(0.051)	(0.046)
Asian or Pacific Islander	0.02	-0.001
	(0.02)	(0.018)
Other	-0.264*	-0.296*
	(0.071)	(0.065)
schooling	0.155*	0.162*
	(0.002)	(0.001)
age	0.051*	0.093*
	(0.002)	(0.001)
sex	0.026*	-0.912*
	(0.008)	(0.007)
<i>#ofchildren</i>	-0.096*	-0.112*
	(0.004)	(0.003)
cons	-1.511*	-0.048
	(0.094)	(0.053)
agesq	yes	yes
marst Dummy	yes	yes
empstat Dummy	yes	yes
year dummy	yes	yes
region dummy	no	no
govtwork dummy	no	no
cohort	no	no
$R^2$	17%	20%
N	347,114	498,607

Table 4: Preliminary Regressions: Does being Foreign or from a Developing country Matter

Variable:	Dependent Variable: Interest income			
	(1)	(2)	(3)	(4)
log wage	0.214*		0.214*	
	(0.005)		(0.005)	
Foreign Black	-0.421*	-0.493*	-0.422*	-0.494*
	(0.067)	(0.061)	(0.067)	(0.061)
Foreign White	-0.223*	-0.244*		
	(0.022)	(0.0198)		
U.S. Black	-0.383*	-0.435*	-0.384*	-0.435*
	(0.016)	(0.014)	(0.016)	(0.015)
American Indian/Aleut/Eskimo	-0.367*	-0.405*	-0.367*	-0.406*
	(0.051)	(0.046)	(0.051)	(0.046)
Asian	0.014	-0.008	0.014	-0.008
	(0.02)	(0.018)	(0.019)	(0.018)
Other	-0.272*	-0.305*	-0.274*	-0.307*
	(0.071)	(0.065)	(0.071)	(0.065)
educ99	0.154*	0.161*	0.153*	0.161*
	(0.002)	(0.001)	(0.002)	(0.001)
age	0.051*	0.092*	0.051*	0.093*
	(0.002)	(0.001)	(0.002)	(0.001)
sex	0.025*	-0.092*	0.023*	-0.093*
	(0.008)	(0.007)	(0.008)	(0.007)
no. child	-0.095*	-0.111*	-0.094*	-0.109*
	(0.004)	(0.003)	(0.004)	(0.003)
cons	-1.495*	-0.037	-1.48*	-0.026
	(0.094)	(0.053)	(0.094)	(0.053)
Foreign white LDC			-0.3603*	-0.398*
			(0.026)	(0.023)
Foreign White DC			0.074	0.06
			(0.042)	(0.036)
age sq	yes	yes	yes	yes
region	no	no	no	no
govtwork	no	no	no	no
cohort	no	no	no	no
$R^2$	18%	20%	18%	20%
N	347114	347114	498607	498607

Dummies for Marital status, year of data and employment status are included.



Table 5: Preliminary Regressions: Adding the Naturalized

Variable:	Dependent	
Interest Income	(1)	(2)
	Dependent Variable: Interest Income	
log wage	0.214*	
	(0.005)	
Foreign Black	-0.421*	-0.494*
	(0.067)	(0.061)
Foreign White LDC	-0.36*	-0.398*
	(0.026)	(0.023)
Foreign White DC	0.074	0.0603
	(0.418)	(0.036)
Black U.S. Born	-0.383*	-0.435*
	(0.017)	(0.015)
Naturalized American White	0.018	0.012
	(0.023)	(0.019)
Naturalized American Black	-0.393*	-0.434*
	(0.065)	(0.061)
American Indian/Aleut/Eskimo	-0.366*	-0.406*
	(0.051)	(0.046)
Asian	0.015	0.008
	0.12	0.018
Other	-0.274*	-0.306*
	(0.071)	(0.065)
educ99	0.153*	0.161*
	(0.002)	(0.001)
age	0.051*	0.093*
	(0.002)	(0.001)
sex	0.024*	-0.093*
	(0.008)	(0.007)
no of children	-0.094*	-0.11*
	(0.004)	(0.003)
cons	-1.48*	-0.026
	(0.094)	(0.053)
agesq	yes	yes
year	yes	yes
region	no	no
govtwork	no	no
cohort	no	no
$R^2$	18%	20%
N	347114	498607

Dummy variables include marital status, employment status, year fixed effects.

Table 6: Main Regression: Identifying the Impact of Culture

Dependent Variable: Interest Income	(1)	(2)
log wage	0.214*	
	0.005	
AA with foreign born Mother (AAFMB)	-0.448*	-0.433*
	0.181	0.163
AA with foreign born Father (AAFBF)	-0.354*	-0.33
	0.177	0.177
AA with foreign born parents (AAFBP)	0.65*	0.6*
	(0.28)	(0.262)
AA with US born parents (AAUBP)	-0.385*	-0.436*
	(0.017)	(0.015)
WA with foreign born parents (WAFBP)	-0.032	-0.093*
	(0.04)	(0.031)
WA with foreign born mother(WAFBM)	-0.005	0.044*
	(0.024)	(0.021)
WA with foreign born father (WAFBF)	0.051*	0.082*
	(0.024)	(0.019)
Foreign Black (FB)	-0.42*	-0.489*
	(0.065)	(0.061)
Foreign White (FWLDC)	-0.358*	-0.393*
	(0.026)	(0.023)
Foreign White DC (FWDC)	0.076	0.065
	(0.042)	(0.036)
Naturalized American White (NAW)	0.019	0.018
	(0.023)	(0.019)
Naturalized American Black (NAB)	-0.391*	-0.429*
	(0.065)	(0.061)
American Indian/Aleut/Eskimo (AAE)	-0.364*	-0.401*
	(0.051)	(0.046)
Asian	0.016	-0.003
	(0.019)	(0.018)
Other	-0.272*	-0.302*
	(0.071)	(0.065)
education	0.153*	0.161*
	(0.001)	(0.001)
sex	0.024*	-0.093*
	(0.008)	(0.007)
constant	-1.483*	-0.032
	(0.094)	(0.053)

Controls: Marital Status, age square, Employment status, year dummy, children, age

Table 7: Main Regressions with more Control Variables(OLS VS TOBIT)

Variables	OLS		Tobit	
	(1)	(2)	(3)	(4)
Dependent Variable: Interest Income				
log wage	0.237*		0.239*	
	(0.005)		(0.005)	
AAUBP	-0.278*	-0.332*	-0.278*	-0.331*
	(0.017)	(0.015)	(0.017)	(0.016)
Foreign Black	-0.248*	-0.295*	-0.244*	-0.292*
	(0.067)	(0.061)	(0.068)	(0.062)
AAFBP	0.599*	0.541*	0.609*	0.549*
	(0.279)	(0.26)	(0.286)	(0.265)
A/A/E	-0.26*	-0.304*	-0.27*	-0.316*
	(0.051)	(0.046)	(0.051)	(0.047)
Asian	0.068*	0.059*	0.07*	0.062*
	(0.02)	(0.018)	(0.02)	(0.018)
Other	-0.143*	-0.167*	-0.158*	-0.184*
	(0.071)	(0.064)	(0.073)	(0.066)
Naturalized White	0.022	0.03	0.021	0.03
	(0.023)	(0.019)	(0.023)	(0.019)
Naturalized Black	-0.353*	-0.373*	-0.353*	-0.371*
	(0.064)	(0.06)	(0.065)	(0.081)
Foreign White LDC	-0.186*	-0.212*	-0.193*	-0.219*
	(0.026)	(0.024)	(0.027)	(0.024)
Foreign White DC	0.127*	0.128*	0.13*	0.132*
	(0.042)	(0.036)	(0.042)	(0.036)
WAFBP	0.004	-0.064*	0.004	-0.065*
	(0.04)	(0.031)	(0.04)	(0.031)
education	0.164*	0.174*	0.165*	0.176*
	(0.002)	(0.001)	(0.002)	(0.001)
sex	0.063*	-0.067*	0.064*	-0.067*
	(0.008)	(0.007)	(0.008)	(0.007)
WAFBM	-0.005	0.047*	-0.004	0.048*
	(0.025)	(0.021)	(0.0248)	(0.021)
WAFBF	0.043	0.072*	0.041	0.072*
	(0.024)	(0.019)	(0.024)	(0.019)
AAFBM	-0.352*	-0.328*	-0.357*	-0.328*
	(0.178)	(0.16)	(0.183)	(0.164)
AAFBF	-0.294	-0.276	-0.302	-0.283
	(0.179)	(0.177)	(0.183)	(0.18)

Controls: Marital Status, age, age square, region dummy, own a home, year dummy, Employment status, government worker, cohort dummy, age squared, own home, number of children,

Table 8: Main Regressions (OLS VS TOBIT) :Robustness Checks

Variable:	OLS				Tobit			
	Dep. Var.: (1)	Div. Inc. (2)	Dep. Var.: (3)	Capital Gain (4)	Dep Var.: (5)	Dividend Inc. (6)	Dep. Var.: (7)	Capital Gain (8)
log wage	0.133* (0.008)		0.532* (0.008)		0.134* (0.008)		0.532* (0.008)	
AAUBP	-0.047 (0.038)	-0.066 (0.035)	-0.1* (0.013)	-0.131* (0.015)	-0.047 (0.039)	-0.67 (0.035)	-0.1* (0.011)	-0.131* (0.015)
FB	-0.07 (0.161)	-0.178 (0.152)	-0.058 (0.051)	-0.18* (0.063)	-0.066 (0.161)	-0.174 (0.152)	-0.058 (0.051)	0.18* (0.063)
AAFBP	1.54* (0.57)	1.307* (0.5)	0.116 (0.2)	0.288 (0.249)	1.538* (0.57)	1.304* (0.499)	0.116 (0.2)	0.288 (0.249)
A/A/E	0.09 (0.103)	0.033 (0.089)	-0.088* (0.037)	-0.134* (0.043)	0.087 (0.104)	0.03 (0.09)	-0.088* (0.037)	-0.134* (0.043)
Asian	0.019 (0.039)	0.028 (0.034)	-0.002 (0.019)	0.014 (0.022)	0.02 (0.039)	0.03 (0.034)	-0.002 (0.019)	-0.14 (0.022)
Other	0.117 (0.219)	0.089 (0.196)	0.006 (0.081)	0.015 (0.094)	0.125 (0.223)	0.095 (0.199)	0.006 (0.081)	0.015 (0.094)
NAW	0.038 (0.045)	0.063 (0.034)	-0.019 (0.022)	0.024 (0.023)	0.037 (0.045)	0.063 (0.035)	-0.018 (0.022)	0.024 (0.023)
NAB	-0.197 (0.153)	-0.199 (0.141)	-0.166* (0.056)	-0.194* (0.057)	-0.198 (0.157)	-0.2 (0.144)	-0.166* (0.056)	-0.194* (0.056)
FWLDC	0.23* (0.083)	0.189* (0.071)	0.062* (0.022)	0.007 (0.026)	0.23* (0.084)	0.189* (0.072)	0.062* (0.022)	0.007 (0.026)
FWDC	0.005 (0.077)	0.03 (0.067)	0.122* (0.036)	0.16* (0.043)	0.007 (0.077)	0.032 (0.067)	0.122* (0.036)	0.16* (0.043)
WAFBP	-0.134 (0.072)	-0.093 (0.054)	0.029 (0.039)	-0.037 (0.037)	-0.136 (0.072)	-0.094 (0.054)	0.029 (0.039)	-0.037 (0.037)
education	0.119* 0.003 35.46	0.13* 0.003 50.76	0.067* 0.002 36.91	0.134* 0.002 85.74	0.12* 0.003 35.41	0.131* 0.003 50.66	0.067* 0.002 36.93	0.134* 0.002 85.78
WAFBM	0.072 (0.046)	0.065 (0.037)	0.042 (0.025)	0.061* (0.025)	0.072 (0.046)	0.065 (0.037)	0.042 (0.025)	0.061* (0.025)
WAFBF	0.084* (0.041)	0.074* (0.032)	-0.031 (0.022)	0.001 (0.022)	0.085* (0.041)	0.074* (0.032)	-0.031 (0.022)	0.001 (0.022)
AAFBM	-0.356 (0.328)	-0.302 (0.311)	0.049 (0.123)	-0.051 (0.168)	-0.353 (0.327)	-0.3 (0.31)	0.049 (0.126)	-0.051 (0.168)
AAFBF	-0.732 (0.419)	-0.652 (0.345)	-0.159 (0.142)	-0.2 (0.148)	-0.728 (0.419)	-0.648 (0.345)	-0.159 (0.142)	-0.2 (0.148)
$R^2$	8%	11%	54%	37%	2%	2.5%	25%	14%
N	110,648	157,539	53,685	70,790	110,648	157,539	53,685	70,790

Controls: Marital Status, age, age square, region dummy, own a home, year dummy, Employment status, government worker, cohort dummy, age squared, own home, number of children,sex