

The Effect of Education on Financial Assets Holdings between Urban and Rural Households

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Abstract

The amount of financial assets holdings systematically differs between urban and rural families. Income, associated living costs, propensity to consume, and attitude towards financial institutions differ by whether a family lives in a rural or urban area. On average, urban households receive higher annual income than rural households do (U.S. Census Bureau, 2018). Since living expenses in rural areas are generally lower than those in the urban areas, per capita savings rates are higher among rural families. The allocation of assets varies significantly, and urban individuals hold more of their assets in home equities, retirement accounts, stocks, and mutual funds (Copeland, 2022). This paper uses the National Financial Well-Being Survey to investigate whether education level may differently affect the propensity to own financial assets of urban and rural households. Differences would have major implications for policy improvement as a way to enhance financial inclusion in rural areas, including spending on financial education, providing tax-related incentives for financial institutions to operate in rural areas, increasing accessibility, and creating consumer incentives for rural households to invest in financial assets.

Introduction

Financial literacy has played an important role in shaping the spending and savings behaviors of US households, and it has received enormous support from economists, politicians, and education specialists at both federal and state levels. As of recent, 40 states have financial literacy concepts embedded in their states' curriculum, while only 17 states have financial literacy as a part of graduation requirements (BRB, 2019). Not only does financial literacy affect the relative and absolute amount of savings, but it also dictates the type of assets people invest in. For instance, Cupak et al. (2020) found a positive correlation between financial literacy and investment in risky assets and debt securities.

While empirical evidence seems to suggest that financial literacy is positively related to education, the impact of education on the propensity to invest in financial assets is not uniform across different demographic groups. Education level might differently affect the propensity to invest in financial assets across urban and rural households for two key reasons. The first reason is that urban households have better access to the stock and bond markets because of higher availability of the internet, financial institutions, financial advisory services etc. and face relatively lower transaction costs. Thus, urban individuals can utilize the financial knowledge they have learned from school to the fullest extent. The second reason is that urban individuals have better access to jobs that offer generous and attractive retirement plans, and these plans tend to invest in portfolios of stocks, bonds, or indices. A person with a higher level of education can understand the contractual terms of these plans more fully than a person with a lower level of education can, so he or she is better off.

Literature Review

In the US, extensive research on the impact of financial literacy on financial assets holdings has been done and uniformly suggesting that there is a statistically significant positive relationship between the two variables (Cupak et al., 2020; Cole et al., 2012; Lusardi & Mitchel, 2014). Outside of the US, Koomson et al. (2022) found that, in Ghana, a higher level of financial literacy leads to a higher accumulation of total and productive assets in both male and female. Using a sample of Dutch households, Van Rooji (2011) found that individuals with lower levels of financial literacy are less likely to invest in stocks, and vice versa.

Other factors that explain the variation in the amount of financial assets holdings include confidence in financial skills (Cupak et al., 2020; Bannier & Neubert, 2016), cognitive ability (Christelis et al., 2010), age (Korniotis and Kumar, 2011), income group (Copeland, 2022), gender (Jianakoplos & Berasek, 1998), and geographic location (Copeland, 2022; Bumcrot et al., 2013). Research on the

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interactive impact of education and geographic location on financial assets holdings is limited. Therefore, this paper will fill this gap in the literature.

Method

We used probit and logit regression to estimate the following model:

$$P[FA^* = 1|X] = \Phi[c_0 + \delta_i educ'_i + \beta_1(urban) + \beta_2(somecollege) * (urban) + \beta_3(bachelor) * (urban) + \beta_4(graduate) * (urban) + \beta_5(male) + \beta_6(LMscore) + \beta_7(risktolerance) + \theta_i region'_i + \psi_i age'_i + \varphi_i pareduc'_i + \gamma_i race'_i + \varepsilon]$$

where FA is the latent variable for the propensity to invest in financial assets such that $FA^* = 1$ if $FA = 1$ and $FA^* = 0$ if $FA = 0$, where FA is an indicator variable for individuals who have non-retirement investment in stocks, bonds, or mutual funds or those who have a retirement account; $educ'_i$ is a vector of the highest education levels an individual has obtained, including high school or less (based group), some college, a bachelor's degree, and a graduate degree; $urban$ is an indicator variable for individuals living in urban areas; age'_i is a vector of age brackets, and individuals whose age is between 18 and 24 are in the based group; $pareduc'_i$ is a vector of the highest levels of education of the individual's mother or father, including high school or less (based group), some college, a bachelor's degree, and a graduate degree; $race'_i$ is a vector of race indicators where individuals who are not White, Black, or Hispanic are combined together as the referenced group. After controlling for key demographic variables, subjective and objective financial knowledge, and accounting for potential omitted variable bias, the errors are assumed to be normally distributed and following a standard normal distribution (i.e., $\varepsilon \sim N(0, 1)$). We further assume random sampling and the variables are identical and independently distributed. In addition to these assumptions, the sample size of 6,394 is sufficiently large enough for the estimators to have large-sample properties including consistency and asymptotic normality. Thus, maximizing the validity of inferences.

We will test the joint significance of β_2 , β_3 , and β_4 (i.e., the null hypothesis that $\beta_2 = \beta_3 = \beta_4 = 0$) at the 10%, 5%, and 1% significance levels using the likelihood ratio test such that $LR \sim \chi^2_3$. If the p-value is less than 0.10, 0.05, 0.01, we will reject the null hypothesis at the 10%, 5%, and 1% significance levels respectively.

Results

The likelihood ratio test yielded an LR statistics of 1.30 and a p-value of 0.730 in probit regression, and an LR statistics of 1.60 and a p-value of 0.656 in logit regression. We fail to reject the null hypothesis that the effect of education on the propensity to invest in financial assets is the same across urban and rural families at the 10%, 5%, and 1% significance levels. Furthermore, the variable for living in urban areas is statistically significant at the 5% level in probit regression and 10% level in logit regression, suggesting that the predicted probability of investing in financial assets is greater among urban families, ceteris paribus. On average, living in urban areas increases the predicted probability of investing in financial assets by approximately 4 percent, ceteris paribus. This result is aligned with Copeland (2022).

Furthermore, education variables are jointly significant at the 1% level in both regressions. Among the education dummies, obtaining a graduate degree has the highest coefficient (0.725 in probit and 1.202 in logit), followed by obtaining a bachelor's degree (0.695 and 1.159) and attending college (0.185 and 0.284). Looking at the average marginal effects among the models and comparing to those who have only earned a high school degree or less, attending college increases the predicted probability of owning financial assets by 5 percent while obtaining a bachelor's degree increases the predicted probability by 20 percent, and obtaining a graduate degree increases the predicted probability by 21 percent, ceteris paribus. This implies that the predicted propensity to invest in financial assets is positively correlated to education level, which is similar to the results in Cupak et al. (2020), Cole et al., (2012) and Lusardi & Mitchell (2014). The result further suggests that being a male does not have an impact on the predicted probability of investing in financial assets, contradicting to the result obtained in Jianakoplos & Berasek (1998).

Discussion

From our analysis, education increases the predicted propensity to own financial assets but does not affect the predicted probability to own financial assets of urban and rural households differently. The

result confirms that urbanites invest more in financial assets than rural households do, suggesting that policymakers must strive to create incentives to increase financial inclusion in rural areas. The positive relationship between financial knowledge and the predicted probability of investing in financial assets further motivates lawmakers and educators to improve the overall financial literacy level of Americans. Being more financially educated brings stability to the US and global economy.

Speaking of the weaknesses of our model, the data was collected in 2016 and it might not exactly reflect the financial mindset of today's US families. The occurrence of measurement errors is possible as individuals could have inflated or deflated their household income while completing the survey, which could negatively impact the consistency of the estimators. Therefore, this paper serves as a good starting point for future research in this area.

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