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The effect of racial/ethnic differences on the financial obligations ratio of renters

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Abstract

The purpose of this research was to investigate the effects of racial/ethnic status on the ratio of financial obligations payments to income among U.S. renter households. The proportion of homeowner households with a ratio over 40% has decreased since 2007, but the proportion of renter households with a ratio over 40% increased until 2013 and remained high in 2016. In 2016, 13% of homeowner households and 40% of renter households had a ratio over 40%. Previous research on the financial obligations burden used an arbitrary dummy variable for whether households had a high financial obligations ratio, but we used ordinary least squares (OLS) regressions on the natural log of the ratio. For renters, based on the OLS regression, households with Black, Hispanic, and Asian respondents had higher financial obligations ratios than otherwise similar households with a White respondent. Controlling for other variables, Hispanic households had a ratio about 26% higher than White households, Asian households had a ratio 16% higher than White households, and Black households had a ratio 10% higher than White households. While discrimination could be a factor in higher ratios for the groups other than Whites, immigrant status and other factors plausibly are related.

Keywords: Financial literacy; Financial obligations; Survey of consumer finances

1. Introduction

Debt and other financial obligations have been a concern for many years, and the consequences of having a high proportion of one's household budget committed to debt and other

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obligations could be seen in dramatic fashion in the Great Recession that started in December 2007 (NBER, 2010). Some people have concluded that excessive credit use was a contributing factor to the financial crisis leading up to the recession. Household financial obligations increased drastically in United States by the early 2000s, both in aggregate levels and proportionally to household earnings (Campbell, 2006; Debelle, 2004; Dynan & Kohn, 2006). The amount of the growth in household borrowing raised concerns about the sustainability of household finance and the probable consequences for personal finance system. Andriotis, Brown, and Shifflett (2019) concluded that Americans needed to go deep in debt for a middle-class lifestyle.

2. Literature review

2.1. Personal finance guidelines for debt and housing payments

Since the 1980s, scholars with a focus on personal finance have discussed using household financial ratio guidelines to help with personal financial burden management and evaluate whether households had appropriate financial behaviors (Griffith, 1985; Johnson & Widdows, 1985). Hanna, Yuh, and Chatterjee (2012a) reviewed some past recommendations and noted that a starting point for some guidelines was housing affordability, with the idea that housing costs should be no more than 30% of income. The U.S. government has had subsidy programs that tried to help low-income households pay no more than 30% of income for rent (McKenna & Hills, 1982, p. 24). Lytton, Garman, and Porter (1991) streamlined debt ratio guidelines and proposed that a safe debt limit for the consumer debt-service ratio should be 10% or less, and 16-20% should be considered that the household is fully stretched. They also discussed the debt-service ratio, defined as annual consumer and mortgage debt repayment divided by annual income, and suggested that a value of less than 30% for the ratio should be considered safe. Greninger, Hampton, Kitt, and Achacoso (1996) surveyed a sample of financial educators and financial planners for opinions on a variety of financial ratio benchmarks in household portfolios and found a median response for the debt service ratio as 35% for a reasonable limit and 45% as a danger point. A similar recommendation was summarized by DeVaney (2000), who suggested that the total debt payment to income ratio should not exceed 30-35% when using gross income.

2.2. Personal finance debt payment guidelines for renters

One limitation of the personal finance guidelines related to debt is that they do not apply appropriately to renters, because the guidelines treat consumer debt payments as independent of rent payments. Dynan et al. (2003) proposed use of a broader measure, financial obligations, which included obligations other than loan payments, rent, and vehicle lease payments. Dynan, Johnson, and Pence (2003) and Johnson (2005) presented analyses primarily based on aggregate data. Hanna et al. (2012a) were the first authors to provide analyses of household data in terms of the financial obligations ratio. Our analyses (Fig. 1) show that since 2007, the proportion of renters with financial obligations burdens over 40% of

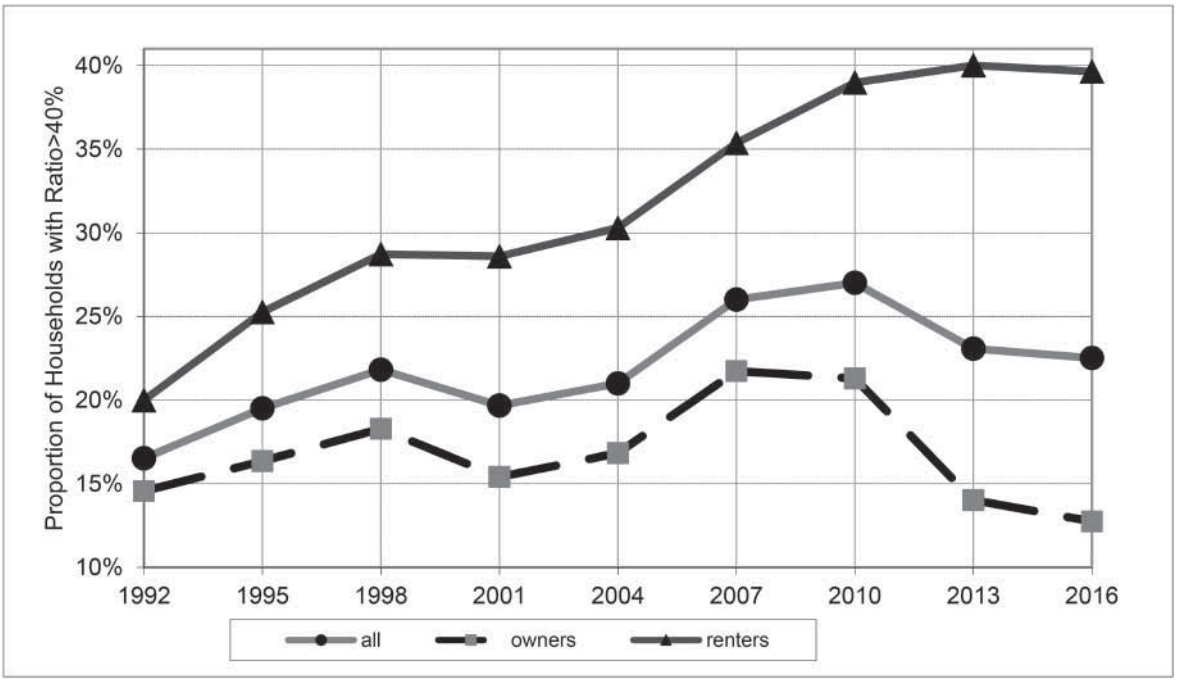

Fig. 1. Proportion of all households, of homeowners, and of renters, with financial obligations burden over 40% of income, 1992-2016. *Note:* Based on weighted analyses of Survey of Consumer Finance (SCF) datasets.

income increased in 2013 to 40% of renters, higher than at any year from 1992 to 2010, and remained at about the same level in 2016.

2.3. Consequences of not maintaining financial obligations payments

Turunen and Hiilamo (2014) reviewed 33 studies on the relationship between heavy debt loads and health and concluded that there could be serious health consequences. For renter households, having high financial obligations may also prevent accumulation of savings needed to buy a home. For renters, a consequence of not keeping up with rent payments could be eviction. There might be serious problems for households with limited liquid assets and access to credit. Badger and Bui (2018) reported on research estimating that there are millions of evictions in the United States, with some resulting in homelessness.

2.4. Theoretical basis of financial obligations guidelines

Moon, Yuh, and Hanna (2002) noted that none of the personal finance guidelines suggested by financial educators had been developed based on rigorous economic analyses. Hanna et al. (2012a) discussed the challenges of rigorously developing guidelines, because modeling the nonmonetary consequences of default could be complex.

Carrying heavy financial obligations might increase the risk to households, as a decrease in income might lead to loan defaults, including mortgage, car loans, and education loans, or evictions from rental housing. Trying to follow appropriate financial obligation or income ratio guideline can allow households to possibly maintain a more efficient consumption level

over their life cycle (Garman & Forgue, 2015; Lytton, Garman, & Porter, 1991). Analysis of financial obligations or income ratios can be useful in understanding households' financial health and can also be used as a guideline to assist households with appropriate financial management plans (Bae, Hanna, & Lindamood, 1993).

2.5. Racial/ethnic discrimination

Racial/ethnic discrimination has been extensively studied, mostly for lending and employment. There is a history of discrimination against Blacks, Hispanics, and Asians in the United States (e.g., see discussion in Kim, Hanna, & Lee, 2022; Park, 2022). Phelps (1972) proposed that when there is imperfect information between lenders and borrowers, the lenders would tend to use some observable signal (e.g., age, gender, and race/ethnic group) to distinguish between high risk and low risk customers. Lenders may charge higher interest rates and/or extend less credit to minority borrowers, due to the higher average default risk (Park, 2022). This practice is known as statistical discrimination, and is illegal, though might take place. Research on whether lenders currently discriminate has produced mixed results. Munnell et al. (1996) concluded there was discrimination against Blacks in mortgage lending, but others (e.g., Baek & Cho, 2021) have not found differences in loan denials if credit history and other factors are controlled. Given the competitive nature of lending and national markets, as well as the substantial amount of information available to lenders, it is possible that lending is not discriminatory, though this is still a matter of political controversy.

Rental markets are basically local in the United States, and information is more limited, so individual landlords might engage in taste or statistical discrimination. Rental discrimination may happen in various forms, such as taste or statistical discrimination. It may be related to the housing supply in the market, and taste discrimination is unlikely to persist in competitive markets (Martin & Hill, 2000). The Fair Housing Amendments Act of 1988 (FHA) prohibits housing discrimination based on "race, color, sex, religion, disability, family status, and national origin" (Fair Housing Act of 1988, Sec. 800, 1988). Yet, there continues to be evidence of housing discrimination in the United States and legal actions remain rare (Carpusor & Loges, 2006; Flage, 2018; Hanson & Hawley, 2011).

Many scholars have addressed discrimination in specific rental housing markets (Carpusor & Loges, 2006; Hanson & Hawley, 2011). Carpusor and Loges (2006) conducted a field experiment in Los Angeles area and found that rental applicants with either African American or Muslim sounding names received significantly fewer positive responses than applicants with White-sounding name. Ewens, Tomlin, and Wang (2014) studied a broader range of cities than Carpusor and Loges (2006) and provided additional the information to landlords, including occupation information and smoking preference, and so forth. They found that African American home-seekers received nine responses for every 10 a White home-seeker receives, and that including positive information does not affect the response rate difference between races. Hanson and Hawley (2011) tested racial discrimination in the rental housing market among 10 big cities. They used matched-pair audits conducted via e-mail for rental units advertised on-line. They classified their sample by both White names and African names, and social class. The authors concluded that discrimination occurred against African American names, however, when the content of the email messages implied the home-seekers

had high social class, discrimination effects were not found. Racial discrimination was more severe in neighborhoods that were near "tipping points" in racial composition, and for units that were part of a larger building.

If landlords discriminate in rental markets, it is possible that they will deny applications, extend security deposit, or charge higher rental rates. The impact of discrimination in rental markets could increase the financial obligations ratio of rental households.

2.6. Purpose of this research

Many issues are still unanswered related to household financial burdens. Dynan et al. (2003) and Johnson (2005) proposed a definition of household financial obligations payments, including rent, auto leases, homeowners' insurance and property taxes in addition to household debt payments but their estimates were based on aggregate household data. Hanna, Yuh, and Chatterjee (2012b) analyzed renter and homeowner households separately and found that the proportion of renter households with financial obligations over 40% of income was much higher than the proportion for homeowner households. Hanna et al. (2012a, 2012b) did not include was payments for alimony and for child support. There are legal consequences for failure to keep up with these payments, so we added them to our definition of financial obligations. The divorce rate in the United States has been rising during the past two decades (Greenwood 2012; Stevenson & Wolfers 2007), and Kennedy and Ruggles (2014) estimated that almost 50% of ever-married people had been divorced or separated in their late 50s. While for some households, alimony and child support payments are important, we found that only 6% of renter households report such payments, so our results overall were not substantially different from the Hanna et al. (2012a, 2012b) results.

Hanna et al. (2012b) found that the effects of household characteristics on having a heavy burden differed between renter and homeowner households. Additionally, Hanna et al. (2012a, 2012b) included household characteristics plausibly related to the extended lifecycle model but did not include some other variables plausibly related to bounded rationality. The 2016 Survey of Consumer Finance (SCF) is the first SCF dataset to include financial literacy measures, so we added a financial literacy score to the household characteristics analyzed by Hanna et al. (2012a, 2012b).

The primary research question for this study is: For renter households, **What is the effect of racial/ethnic status on the financial obligations over income ratio, controlling for other household characteristics?**

3. Theoretical background

3.1. Extended life cycle savings model

3.1.1. Consumption smoothing with certainty

The life cycle savings model is the classic normative model to analyze households' consumption and saving behaviors (Deaton 2005; Modigliani & Brumberg 1954). This framework

assumes that individuals plan an optimal consumption path to maximize overall expected lifetime utility. The central tenet of the normative life cycle model is that a consumer will attempt to have constant marginal utility of consumptions over time (Yuh & Hanna, 2010). With typical income patterns over the life cycle, households should borrow more in the early life stages and consume more than their income, spend less than income when household income is high, and dissave from accumulated assets during the retirement stage (Browning & Crossley 2001; Browning & Lusardi 1996).

Household borrowing decisions will depend on the level of current income, but also on expected future income levels (Yuh & Hanna, 2010). If an individual expects to have increased income, borrowing should be positive when he/she is young, and the proportion of borrowing should decrease as the household gets older. It may be rational to have negative net worth at some stages to smooth consumption (Chen & Finke, 1996). Consumers who are certain of large increases in real income will rationally borrow more than consumers who expect constant or declining real income (Hanna, Fan, & Chang 1995).

3.1.2. Consumption smoothing with uncertain incomes

The original life cycle model had the simplistic assumption of certainty about income, so the extended life cycle model was developed for greater realism, and uncertainty about future income patterns affects households' savings or net worth accumulation (Yuh & Hanna, 2010). If uncertainty of households' future income is included in the model, the extended life cycle certainty equivalence model implies that people should save more or borrow less with greater income uncertainty. Browning and Lusardi (1996) showed that higher income uncertainty was correlated with larger savings out of current income, and therefore, less borrowing. Hubbard, Skinner, and Zeldes (1995) suggested that social insurance might serve as a cushion, reducing the need for low-income households to save out of current income.

The main idea of the extended life cycle model is that a household should smooth consumption levels over its lifetime, although nonzero interest rates and discounting of the utility of future consumption might complicate the model. With all issues considered, the optimal consumption path will not be constant due to those complicating factors.

Xiao, Ford, and Kim (2011) discussed the basic life cycle saving model and extensions, such as the precautionary borrowings model, as economic theories that could be used to prescribe and/or explain household behavior. In the context of the life cycle saving model, saving, and borrowing behavior are logically connected, as implicit in the life cycle saving model are periods of dissaving when current income is low, and when a household has low levels of assets, dissaving must be accomplished by borrowing.

4. Method

4.1. Data

The dataset for this study was the 2016 Survey of Consumer Finances (SCF). The SCF is a triennial interview survey of U.S. families sponsored by the Board of Governors of the

Table 1 Distribution of financial obligations ratio for all households and for renters, 2016 SCF

Quantile	Renters
Mean	418%
Maximum	266,872%
99th percentile	240%
95th percentile	104%
90th percentile	77%
75th percentile	52%
Median	34%
25th percentile	23%
10th percentile	15%
5th percentile	10%
1st percentile	0%
Minimum	0%
Proportion with financial obligations >40% of income	40%
Weighted %	36%
Unweighted *N*	2,072

Note: SCF = Survey of Consumer Finance. Percentages are weighted.

Federal Reserve System with the cooperation of the U.S. Department of the Treasury (Bricker et al., 2017). Hanna, Kim, and Lindamood (2018) provide overviews of methodological issues related to use of SCF datasets.

4.2. Dependent variable

As the focus is on whether households have a heavy financial obligations ratio, it is important to consider the distribution of the ratio. Table 1 shows the mean levels and quantiles of the ratio for all households and renter households in the 2016 SCF. The mean level of the ratio was 418% for renters, and the maximum levels were extremely high, for instance, 266,872% for renters. Fig. 2 shows the cumulative distributions of the financial obligations burden for renters, and obviously the distributions are very skewed. We followed Hanna et al. (2012a, 2012b) in defining financial obligations to include rent, vehicle leases, debt payments, and real estate taxes on the household's residence. Additionally, we included households' alimony and child support payments in in financial obligations.

According to Hanna et al (2012a), rent payments include monthly rent on homes, site or farm/ranch, and lease payments include all monthly lease payments on vehicle. Households' debt payments include the total of monthly payments on all types of loans, such as credit cards, home mortgages, lines of credit, home improvement loans, land contracts, other residential property, vehicle loans, student loans, installment loans, margin loans, loans with insurance policies, pension loans, and other loans. We followed Hanna et al. (2012a) in assuming that monthly credit card payments were 2.5% of the credit card balance. Fig. 3 shows the proportions of each component of financial obligations among renters. On average, rent payments comprised 70% of financial obligations for renters, followed by loan payments.

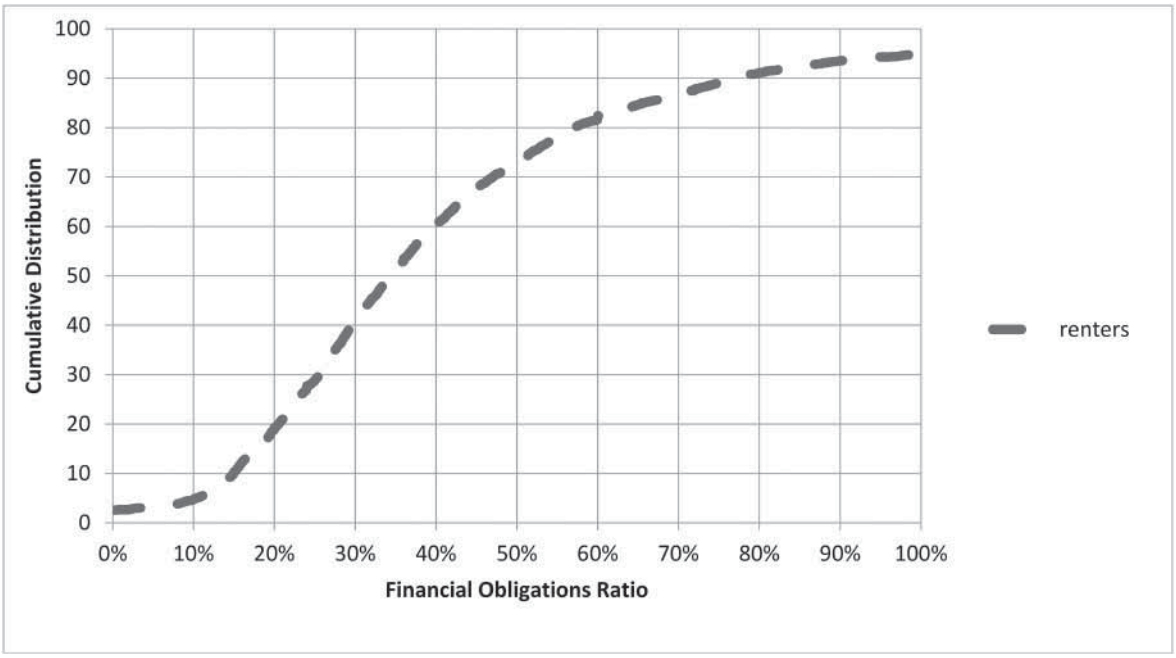

Fig. 2. Cumulative distribution of financial obligations ratio for renters. *Note:* Based on weighted analyses of renter households in the 2016 Survey of Consumer Finance (SCF) dataset.

4.3. Independent variables

Independent variables likely to be related to consumption were selected, mostly following the model used by Hanna et al. (2012a, 2012b). The explanatory variables include the age, education, and racial/ethnic self-identification of the respondent, household health (head

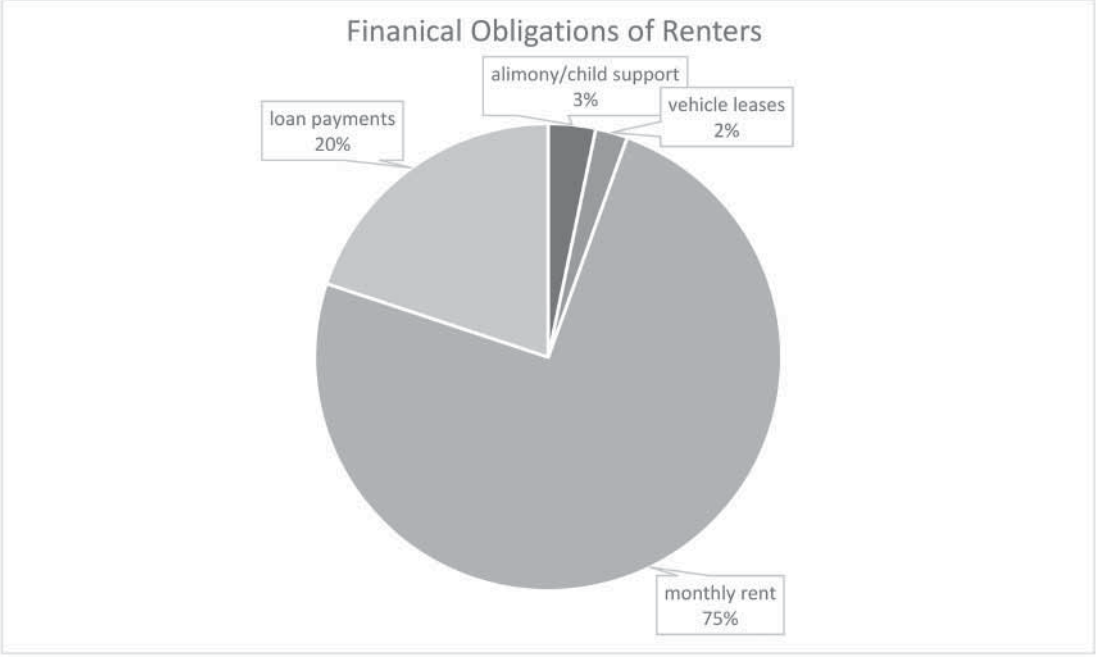

Fig. 3. Components of financial obligations of renters. *Note:* Weighted analysis of 2016 Survey of Consumer Finance (SCF).

Table 2 Distribution of median financial obligations ratio by racial/ethnic category, 2016 SCF

Characteristics	Distribution of renters (%)	Median of the financial obligations ratio (%)
Racial/ethnic identification		
White	52.62	31.39
Black	24.43	36.65
Hispanic	17.07	38.57
Asian/other	5.88	36.18

Note: SCF = Survey of Consumer Finance. Weighted analyses of 2016 SCF.

and/or spouse/partner in poor/fair health vs. good/excellent health). In addition to the variables used by Hanna et al., we added attitudinal variables: whether the household had education loan payments, whether the household had alimony/child support payments, risk tolerance, expectations for the U.S. economy, transitory income shocks (household income higher or lower than normal income), and expectations about whether the household's income would increase faster or slower than inflation. We also used the financial knowledge questions in the SCF, with one point for each correct answer, so the variable ranged in value from 0 to 3. We controlled for the natural log of income, setting it equal to log(0.01) for income equal to zero.

4.4. Ordinary least squares regression

To obtain more insights than the investigation of factors related to an arbitrary threshold, whether the financial obligations ratio is over 40%, we used an ordinary least squares (OLS) regression on the ratio on the natural log of the ratio. We tried an OLS regression on the actual ratio, but the estimated effects were extremely large and mostly insignificant. Using the log of the ratio reduced the influence of outlier values of the ratio.

5. Results

5.1. Descriptive results of financial obligations to income ratio and medians of ratios by household characteristics

To obtain better insights into patterns of household behaviors on financial obligations ratio, we analyzed the median financial obligations ratio by renters. Table 2 presents the median level of the ratio by categories of independent variables. The median ratio ranged from 31% for households with a White respondent to almost 39% for households with a Hispanic household. There was no particular pattern for the median ratio by age for renters, but the ratio for those with a graduate degree, 28%, was much lower than the ratio for those lacking a high school degree, 41%. The median ratio for renters who got all three financial knowledge questions correct was 31%, compared with 40% for those who got all the questions wrong. We do not discuss all the patterns that did not show substantial differences in median values of the ratio by subgroups, but the median ratio decreased substantially as income increased.

Table 3 OLS Regressions on log of financial obligations ratio for renters, 2016 SCF

Variable	Renter households		
	Coefficient	*p*	*SE*
Racial/ethnic identification of the respondent (reference = White)			
Black	0.0994	**0.0285**	0.0449
Hispanic	0.2283	**0.0000**	0.0518
Asian/other	0.1513	**0.0471**	0.0751
Log (income)	−0.4826	**0.0000**	0.0149
Age of respondent	−0.0041	0.5115	0.0062
Age squared/10,000	0.4083	0.5286	0.6372
Planning horizon (years)	−0.0020	0.6522	0.0045
Financial literacy score (0–3)	−0.0010	0.9621	0.0205
Have education loan	0.0762	0.0831	0.0433
Credit constrained	0.1460	**0.0012**	0.0439
Have alimony or child support payments	0.4297	**0.0000**	0.0732
Have a child under 18	0.0631	0.1483	0.0433
Risk tolerance (0–10 scale)	−0.0012	0.8569	0.0065
Employment status (reference = employee)			
Self-employed	−0.0371	0.5201	0.0574
Not in labor force	−0.0533	0.4059	0.0635
Retired	−0.1382	**0.0255**	0.0616
Expectation for the economy (reference = same)			
Expect better	0.0439	0.2768	0.0402
Expect worse	−0.0326	0.4784	0.0455
Respondent education (reference = high school degree)			
Education < high school degree	0.0572	0.3551	0.0617
Some college	0.1680	**0.0004**	0.0470
Bachelor's degree	0.2603	**0.0000**	0.0580
Post-bachelor's degree	0.2730	**0.0003**	0.0738
Household composition (reference = married couple)			
Single male	−0.2102	**0.0004**	0.0584
Single female	−0.1030	0.0532	0.0526
Unmarried couple	−0.0065	0.9133	0.0594
Poor or fair health	−0.0754	0.0687	0.0404
Expectation for household income (reference = increase faster than prices)			
Sure same	−0.0334	0.5569	0.0566
Sure less	−0.0566	0.4235	0.0692
Unsure	−0.0403	0.4604	0.0538
Income compared with a normal year (reference = about the same)			
Higher than normal	−0.1219	0.0554	0.0630
Lower than normal	0.1160	**0.0118**	0.0456
Intercept	3.8216	**<0.0000**	0.2166

Note: SCF = Survey of Consumer Finance; OLS = ordinary least squares. RII procedures, unweighted analyses, 2016 SCF. Significant P-values are given in bold emphasis to indicate significant results from analysis.

5.2. OLS regression results on log of ratios for renters

The OLS regression on the log of financial obligations ratio for renters is displayed in Table 3. For dummy variables, the percentage effect on the actual ratio can be computed as exp(coefficient)-1. All three racial/ethnic identity variables had significant positive effects, with estimated effects of 10 percentage points for Black, 26 percentage points for Hispanic,

Table 4 Effects of racial/ethnic status on financial obligations ratio for renters

Variable	% Effect
Reference category = White	
Black	10.45%
Hispanic	25.65%
Asian/other	16.33%

Note: Based on regression results in Table 3. Effect = exp(coefficient)-1.

and 16 percentage points for Asian/other (Table 4). The effect of the log of income was negative and implies a large negative decrease in the financial obligations ratio as income increases.

Age, planning horizon, risk tolerance, financial literacy, expectations for the economy, expectations for the household's income, and health did not have significant effects. The effect of the dummy variable for having an education loan was marginally significant (two-tail p value of 0.08). The dummy variables for being credit constrained, for having alimony or child support payments had significant positive effects. The retired variable had a significant negative effect compared with an employee household. Three of the education variables were significant. The results implied that the ratio increased with education.

6. Discussion and conclusions

For renters, based on the OLS regression, Black, Hispanic, and Asian renter households had higher financial obligations ratios than otherwise similar White renter households. The positive effects of being credit constrained for renters suggested that credit constrained households already had high financial obligations, rather than having been arbitrarily denied credit and other opportunities such as rental units.

Given that rent comprises 70% of the financial obligations of renters, if discrimination is important in explaining racial/ethnic differences in the financial obligations ratio, landlords might have a more important role than lenders. Rental discrimination may play a role in rental markets. If landlords deny applications, extend security deposit, or charge higher rental rates, minority renter households could obtain higher financial obligations than White renter households. The result that Hispanic and Asian households have higher ratios than otherwise similar Black households (Table 3) may be related to the high proportion of immigrants in the first two groups, perhaps leading to less familiarity with rental markets and less ability to obtain more affordable housing. There might also be geographic differences that we could not control due to the suppression of geographic information in the SCF (Hanna et al., 2012a).

While we did find racial/ethnic differences in the financial obligations of renters, it is not clear whether discrimination is the cause of these differences. Further research is needed to ascertain causes of the differences.

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