

Effects of the Great Recession on Debt Repayment Problems of Hispanic Households
in the United States

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경기 대침체 이후 가계의 부채상환 문제

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Abstract

The recent Great Recession of 2008 was a period of sharp economic decline throughout the late 2000s. All socio-demographic groups were impacted by the economic downturn, however, Hispanic households were particularly hard hit. It is not a recent phenomenon that minority groups often have greater problems related to credit and debt repayments. A better understanding of these racial/ethnic differences in credit and debt has been hindered by the propensity of many studies to pool all racial/ethnic minorities together and compare them to white households. Using a Heckman-type selection model with a combination of the 2010 and 2013 Survey of Consumer Finances datasets to study household debt repayment problems, we found that racial/ethnic groups have been differently impacted by the recent Great Recession in terms of debt repayment problems. Hispanic households were less likely to hold debt; however, those with debt were just as likely as white households and African American households to be delinquent in repayments. This finding is contrary to prior research that indicated Hispanics with debt were less likely than white and African American households to be delinquent on repayments prior to the Great Recession of 2008. We propose possible explanations for the increase in debt repayment problems, that includes increased assimilation into the U.S. culture of credit use, the circumstance of being more recent home buyers prior to the decline, and living in states that suffered the greatest decline in housing value.

Keywords

debt payment problems, Survey of Consumer Finances, the Great Recession

Introduction

U. S. households have become entrenched in a culture of debt, an ongoing problem that has been exasperated by the recent economic downturn. An increase in bankruptcy filings, increasing rates of mortgage delinquency, and residential foreclosures are all indicators of this combination of debt. Personal bankruptcy filings in 2010 were more than double the 1990 number [1]. During the same 1990–2010 time period, the mortgage delinquency rate doubled from 4.7% to 9.3% and foreclosure rates on conventional mortgages increased more than fivefold, from .9% to 4.6% [44].

The recent Great Recession was a period of sharp economic decline during the late 2000s. While all groups have been impacted by the economic downturn, Hispanic households have

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been particularly hard hit [40]. The wealth of Hispanic households has suffered a dramatic decline, with inflation-adjusted median wealth falling by 66% during the years 2005 to 2009, compared to a 53% decline among black households and just a 16% decline among white households [29]. At the same time, Hispanic households incurred additional debt for major expenditures typical of upward mobility such as home mortgages, cars, and education [40]. While these expenditures may be viewed as beneficial long-term investments, the accompanying loans have created problems beyond the difficulties of normal debt payment as Hispanic households often are steered toward riskier, sometimes predatory, loan options [13]. The problem of paying off debt is compounded when making even the minimum payment is difficult due to high interest rates and additional fees [40]. The results include foreclosure, bankruptcy, and other life-altering troubles.

It is not a recent phenomenon that minority groups have greater problems related to credit and debt payments. Studies over the years have described higher rates of debt payment problems by minority groups [21]. An understanding of these racial/ethnic differences in credit and debt is hindered, however, by the propensity of many studies to pool all racial/ethnic minorities together and compare them to white households. Presumably authors have assumed that these groups are homogeneous [27], and combined them rather than analyzing them separately. In criticizing this practice, Lindamood et al. [33] pointed out that some studies of racial/ethnic differences in financial behavior either have not identified the composition of the groups being studied or have not justified the particular combination of racial/ethnic groups. For instance, in an analysis of credit problems, Getter [18] did not justify his grouping of black and Hispanic households together and did not even describe the composition of the group to which these black/Hispanic households were being compared.

The impact of the Great Recession was observed worldwide not just in the U.S. Therefore, it is worthwhile to examine the issue in further detail to analyze the impact of Great Recession on household finances. The empirical findings of

Hispanic population in the U.S. can allow us to learn about what happened to immigrants living in the U.S. since the economic downturn. Especially, Asians and Hispanics are in common in that they are the large source of immigrants to the U.S. Therefore, the current study can provide useful insight into some of the issues that can arise.

A further complication in understanding changes in household credit and debt is the focus of earlier research on mortgage credit [4, 35]. Although mortgage debt can be a major problem, especially in a time of falling real estate values, other types of debt also are problematic for many households, especially those who are lower income or upwardly mobile. Mortgage debt is held only by those who are homeowners, signifying that at one time they qualified for a mortgage loan, indicating some level of financial capability. Car payments, credit card debt, and other obligations burden renters and homeowners alike, and in addition to immediate financial problems, these other types of debt make it difficult in the long run for renters to become owners.

To understand changes in debt behavior of different types of households, there is a need for research (1) to separately analyze debt problems of Hispanic, African American, and white households and not just combine African American and Hispanic households into one “minority households” category and (2) to analyze changes in all types of household debt, not just mortgage debt.

The only prior study to analyze debt delinquency for all types of credit and to also analyze Hispanic households separately from other racial/ethnic groups was Lee and Hanna [32], who analyzed a combined sample of households drawn from six Survey of Consumer Finances (SCF) datasets, 1992–2007. They overcame the limitations of previous studies on debt payment performance by (1) delineating and analyzing four distinct racial/ethnic groups—Hispanic, white, African American, and Asian/other, and (2) including in the analysis all types of debt payments—mortgage loans, home equity loans, installment credit, credit cards, and other outstanding loans, thus capturing a comprehensive picture of the overall debt obligations and debt payment difficulties

of American households. One limitation of the Lee and Hanna's study was that it did not include surveys after 2007 and therefore missed the impact of the 2007 recession. A second limitation of their research was the limited method by which Hispanic respondents were identified—a forced choice question in which the respondent had to choose Hispanic versus white, African American, Asian and other. This method may result in under-identifying Hispanic respondents. It is possible that some people would consider themselves to be both Hispanic and one of the other categories but choose one of the other three categories and not Hispanic. When this happens with the single, forced choice option, Hispanic respondents are not identified.

The present study overcomes limitations of prior research as well as the limitations of the Lee and Hanna's study by (1) separating Hispanic households from other minority groups for analysis, and (2) employing a broader definition of Hispanic that uses a two-stage question under which a person first identifies whether they are Hispanic or non-Hispanic and then identifies whether they are white, and African American. Incorporating this more inclusive, two-step measure of Hispanic identity and conducting analysis that provides separate information on Hispanic households provides new insights into the debt payment problems of the major racial/ethnic groups in the United States. Also, this study (3) incorporates the latest SCF, surveyed after the Great Recession, in order to examine the different racial/ethnic groups have been impacted by the recent Great Recession in terms of the debt payment problems.

Theoretical Background

This research incorporates two theoretical foundations to examine household debt payment performance: (1) elements of economic theories that describe household financial behavior and (2) concepts from social and behavioral theories. Lee and Hanna [32] discussed some relevant economic models related to household debt payment problems and argued that basic life cycle savings models

have an implicit assumption that households borrow and make debt payment as planned with no uncertainty. Their review of previous studies revealed that unexpected changes in the borrower's circumstances, such as health problems, unexpectedly low income, and involuntary unemployment, could trigger debt payment problems. Lawrence [30] noted that most models of consumption ignore loan defaults despite the potential importance of the default option to households. Modern precautionary savings models propose that income volatility has a critical effect on household consumption and saving decisions [45].

1. Economic Theories

1) The cash flow theory

An extensive body of literature examines debt payment problems among American households, focusing on patterns and reasons that households do not meet payment obligations. The most commonly cited reasons for having debt payment problems are financial problems that create an inability to pay.

The Cash Flow theory assumes that borrowers make a timely debt payment, if their income flow remains sufficient to make the periodic debt payment without undue financial hardship [47]. The ability to pay will be an issue only for those who are liquidity constrained. If liquidity constraints are not binding, the household could borrow further to maintain their income flow and reduce any mortgage payment problems. In other words, households are expected to refrain from late debt payment for as long as their income is sufficient to meet periodic interest and principal payments on debt [47].

These financial difficulties often stem from financially negative life events that often lead to income volatility and occur after a debt is incurred. Getter [18] called these unexpected adverse changes, such as job loss and health problems, as trigger events. Getter found that a household's risk of delinquency was significantly correlated with such events. While it is possible that failure to make debt payments is due to a pattern of inattention to finances,

the observation that payment problems are caused by trigger events and not inattention is confirmed by the findings of Avery et al. [2]. These researchers found that temporary adverse events created a pattern in which all payment delinquencies occur at a single time, in contrast to the more dispersed pattern expected of an individual with habitual financial problems.

Of course, it is not inevitable that trigger events will cause problems if the household has held financial cushion to absorb unexpected losses. Reeder [41] suggested that households can reduce the probability of insolvency by having diverse types of wealth and that household savings can attenuate the negative impact of adverse events. Insurance, for example, is one type of investment that households can choose. Although households are not able to expect the possibilities of health problems accurately, they should realize that they might occur and that a wide range of health problems may lead to debt problems. The extent to which health problems impact household finances depends on the level of insurance coverage the household has as well as other financial resources [24].

2) The Equity theory

The Equity theory posits that borrowers make their debt payment decisions based on their rational comparison of the financial costs and benefits involved in continuing or discontinuing the debt repayments [26]. Borrowers intend to seek maximize financial gain and minimize financial loss. In other words, this theory assumes that borrowers do not make late debt payments to preserve sufficiently positive housing equity [47]. Under the theory, the equity position of the borrowers is considered important in accounting for borrowers' debt payment. This theory implies a rigid optimizing behavior of borrowers when they decide to make their debt payment. For debt payment problems, this theory would suggest that borrowers would consider their relative financial position. The relative financial position can be measured by loan-to-value ratios of new mortgages or the level of undrawn equity. Consequently, it is expected that negative equity increase the possibility of debt payment

problems [39].

2. Social and Behavioral Theories

1) The degree of connection to American culture

Cultural norms for appropriate behavior are a major determinant of what a person or group considers acceptable behavior. Cultural norms are learned behavior, enforced by group approval of conforming behaviors and sanctions for behavior that deviate from normative behavior. Sanctions can be formal or informal, ranging from feelings of guilt to being ostracized to legal proceedings for behavior that deviates to such a degree that it is judged to be a crime. Different cultures are defined by the norms to which they adhere. The degree of connection to American culture can affect a person's attitudes toward and use of credit. Chatterjee and Zahirovic-Herbert [8] examined the differences in financial asset ownership and market participation of immigrants and native-born residents. They found that immigrants have lower amounts of financial assets because they often are unfamiliar with U.S. financial markets or lack trust in the system. In the context of the U.S. credit system, the limited assimilation of Hispanics could have been a possible explanation for the Lee and Hanna [32] findings that in the 1992 to 2007 period, Hispanic households with debt were less likely to be seriously delinquent on debt payments than otherwise similar white households.

The present study overcomes shortcomings of prior research by applying the above theoretical concepts to examine debt payment performance of different racial/ethnic groups after the Great Recession. The analysis is based on three separate racial ethnic groups, Hispanic, African American, and white, and follows the methods used by Lee and Hanna [32] in their analyses of 1992 to 2007 SCF data.

2) Household debt payment and non-pecuniary factors

Even though attitudes may be changing, many people still consider neglecting a payment unethical or irresponsible and therefore something to avoid if possible [23]. Persons who had gone through bankruptcy were traditionally

stigmatized because it was considered a conduct contrary to honor or thrift [43]. By the 1960s, American attitudes towards debt had changed, as thriftiness gave way to spending and borrowing, and more people began to consider debt or the ability to acquire debt as a status symbol rather than a stigma. Americans began to see debt problems as understandable with external causes due to factors such as market shifts, divorce, or high medical bills rather than attributing debt problems to intentional or preventable conduct [12]. Those who view poor payment performance as a source of social stigma or humiliation were less likely to neglect payments even if they have economic incentives to do so [42].

Although outside events beyond a person's control impact a household's ability to pay debt, how a household responds to debt depends on some factors within an individual's control. Individual preferences, such as time preferences for spending, affect financial behavior. Time preference is especially related to decisions that impact the distant future, such as taking on a home mortgage obligation and saving instead of present consumption [17]. People who tend to be more present-oriented may distrust promised future rewards and therefore be reluctant to take actions that would delay immediate gratification [36]. Such persons are more likely to prefer to spend sooner rather than later [16]. People who are more future-orientated are more likely to defer gratification, preferring to save and thus provide a buffer for unexpected life events. Future orientation enables a person to not only avoid debt in the present, but when unexpected events occur, to continue paying previously incurred debt and cover living expenses, thus avoiding acquisition of future debt [17].

3. Racial/Ethnic Disparities in Debt Payment Problems

Previous studies regarding the relationship between race/ethnicity and debt payment has arisen out of a spectrum of motivations but the majority of studies concluded that racial/ethnic minority borrowers are more likely to miss debt payments or default than otherwise equivalent white borrowers [13]. The majority of previous studies combined African-American and Hispanic households [6, 10, 37].

Canner et al. [5] found that debt payment problems was more likely for African-Americans and Hispanics than for whites. Getter [18] showed that a combined group of African-American and Hispanic households was more likely to miss a loan payment than were white households. On the contrary, Lee and Hanna [31] found that conditional upon having debt, African-American households had much higher predicted debt payment delinquency rates than white households, while Hispanic households had lower predicted delinquency rates than white households.

There is evidence that Hispanics are different from each of the other major racial/ethnic groups that are identified in the SCF [31]. Lee and Hanna [32] used a combination of six SCF datasets from 1992 to 2007 to examine whether factors affecting credit delinquency differ by the racial/ethnic identity of households. Based on multivariate analyses, among households that held debt, Hispanic households were less likely than both white and African American households to be delinquent, even after controlling for other household characteristics.

Methods

1. Data and Sample

This study uses data from the 2010 and 2013 SCF, a triennial interview survey of U.S. households sponsored by the Board of Governors of the Federal Reserve System with the cooperation of the U.S. Department of the Treasury [3]. The SCF provides researchers with the most detailed balance sheet components of American households, their credit use, and other financial outcomes [3]. The SCF uses a dual sampling technique that includes a probability sample collected in specified group such as higher wealth groups [28]. Weights are provided by the Federal Reserve Board to obtain representative estimates of the U.S. population [33].

The race and racial identity is central to the analysis in this research, the measurement of racial and ethnic identity in the dataset is of crucial importance. The 2010

SCF provides two methods of determining whether a person identifies as Hispanic and we incorporate both methods in this research. The first method was used exclusively in the 1989 through 2001 administrations of the SCF survey. In those years, the SCF did not directly ask a respondent his or her racial/ethnic group but asked when showing a card with the options ‘which of these categories do you feel best describe you: white, black or African–American, Hispanic or Latino, Asian, American Indian or Alaska Native, Hawaiian Native or other Pacific Islander, or another race?’ The public dataset combined Asian, American Indian, Alaska Native, Hawaiian Native, other Pacific Islander, and another race into a single category, “other.” We followed the sample selection criteria used by Lee and Hanna [32], excluding the other racial and ethnic group and households for which the racial/ethnic status of the respondent was imputed, leaving an analytic sample of 11,852 households.

2. Empirical Model and Analysis

The empirical research models are developed based upon the three theories and empirical findings from the previous studies mentioned above. In particular, based upon the cash flow theory, debt burden measured by debt to income ratio is included in the research model. Trigger events such as the health status of the household head and the income drop of household are incorporated in the research model. Based upon the equity theory, this study assumes intertemporal optimizing behavior by the respondents of the survey. Whether all in household was covered by health insurance is used as a proxy for financial buffers. Based upon the social and behavioral theories, the degree of connection to U.S. culture can affect a person’s use of credit. Also, race and ethnicity are considered proxy for the degree of connection to U.S. culture (e.g., housing market and lending industry).

To analyze factors related to debt delinquency among households holding debt and at the same time to avoid problems of bias due to a respondent’s selection, our analysis used a modified version of Heckman’s two–step estimation procedure, a procedure designed to produce estimates that reduce the biases related to selection effects.

The models are:

- (1) Probit model: households having debt=f (X)
- (2) Logit model: households delinquent on debt payments=f (Z, C, inverse Mills ratio)

Where:

X represents a vector of regressors that include the household demographic characteristics of race/ethnicity, age, education attainment, and income and Z represents a vector of regressors included in X and homeownership, which literature shows impact household debt [9, 11]; and C represents a vector of regressors that include financially adverse events, financial buffers, and debt burden. The inverse Mills ratio is computed from the output of the probit analysis. The inverse Mills ratio is computed from the output of the probit analysis. Correction for the selection bias of the sample in the second equation occurs through the transformation or residuals from the first step equation into an additional variable to adjust for the correlation of the errors between two equations [20].

3. Measurement

1) Dependent variables

Because this analysis is conducted in two steps, two dependent variables are used. The dependent variable for the first stage of the analysis is a dummy variable, coded 1 if a respondent had debt balances of any type during the past year and 0 if there were no debt balances.

$$y_{1i} = \begin{cases} 1 & \text{if the respondent incurred household debt } (y_{1i}^* \geq 0) \\ 0 & \text{if the respondent did not incur household debt } (y_{1i}^* < 0) \end{cases}$$

A number of previous studies provide taxonomies illustrating debt repayment problems. Especially, if borrowers are more than 60 days overdue on a payment of a credit obligation or contract, the credit provider may decide to lodge a default notice. Previous studies on household debt [7, 18, 19, 34] used questions, “now thinking of all the various loan or mortgage payments you made during the last year, were all the payments made the way they were scheduled, or were payments on any of the loans sometimes made later

or missed?” and “were you ever behind in your payments by 2 months or more?” from the SCF. The question allowed researchers to distinguish between those who experienced serious debt payment delinquency and those who only missed a payment infrequently due to temporary financial troubles. Previous studies assumed that missing payment at least 2 months could signal possible default risk. In a similar vein, this study used this question for measuring debt payment delinquency. The variable has a value of 1 if the respondent reported being 2 months or more behind on any debt payment and 0 if not 2 months or more behind on any payments.

$$y_{2i} = \begin{cases} 1 & \text{if the respondent was 2 months or more behind in} \\ & \text{payment of household debt } (y_{2i}^* \geq 0) \\ 0 & \text{if the respondent was not 2 months or more behind} \\ & \text{in payment of household debt } (y_{2i}^* < 0) \end{cases}$$

The methods suggested by Lindamood et al. [33] in analyzing SCF datasets were used, including the repeated imputation inference method.

2) Independent variables

Independent variables were selected on the basis of their relationship to the supply of and demand for household debt. In order to examine the impact of the recent Great Recession on the debt repayment of U.S. households, the year of survey is used as a proxy variable. The year of survey is a dummy variable, coded 1 if the year of survey is 2013 when the Great Recession was in full force and 0 if the year of survey is 2010. We include age, education attainment, employment status, family type, expected future real income growth, current income, homeownership, and net worth. In analyzing the respondent’s debt payment delinquency, this study controls for observable differences in income volatility, financial resources available to households, level of indebtedness, health status, and other controls. This study uses the classification system of racial and ethnic categories used in as the public SCF data. Each respondent is asked, “which of these categories do you feel best describe you?” when shown a card listing racial and ethnic groups.

This study delineates three racial and ethnic groups: white, African-American, and Hispanic. In the multivariate analyses, Hispanics are regarded as a reference group.

Income volatility is indicated by two variables: transitory changes in income and health problems. Transitory changes in income is measured by the SCF question that asked whether the household’s income during the year prior to the survey was unusually high or low compared to a ‘normal’ year. Whether health problems affected the household is measured by the question that asked whether the respondent’s health was excellent, good, fair, or poor. To indicate which financial resources were available to pay health costs or to defer debt, our research model controls for net worth and health insurance coverage. The log of net worth is used to allow for a nonlinear relationship between debt delinquency and net worth. Health insurance coverage is based on the question that asked whether members in the households are covered by private health insurance and/or government health insurance programs. In order to assess the impact that the magnitude of debt has on a household’s payment delinquency, we measure the proportion of income that a household would need to serve its debt obligations, including the interest and principal on those debts [21].

This study also controls for the effects of wealth and life cycle on debt delinquency. We include educational attainment, family composition, employment status, and household income as independent variables. We include age and age squared to allow for nonlinear effects of age on debt payment. The log of income also is included as an independent variable.

Results

1. Descriptive Results

Table 1 shows the proportion of each racial/ethnic group that had debt, and also the proportion that was delinquent on debt payments. A means test shows which differences between Hispanics and each of the three other groups were statistically significant. A means test shows that Hispanics

Table 1. Proportion of Having Debt and Being Delinquent on Debt Repayment

Variable	Category	Having debt		Delinquent on debt, of those with debt	
		Yes	Means test	Yes	Means test
Race/ethnicity	Hispanic	69.51	-	13.95	-
	White	74.93	<.0001	7.22	<.0001
	African American	71.92	<.0001	17.82	<.0001

Table created by authors, using weighted repeated imputation inference analyses for all five implicates of the 2010 and 2013 of Survey of Consumer Finances (SCF). Households with imputed values of racial/ethnic status excluded as well as those with racial/ethnic status of other excluded. Unweighted number of households=11,852, unweighted number of households with debt=8,720. Significance test is for the mean difference of non-Hispanic groups from Hispanic. Weights provided by the SCF are used to adjust for sampling rates and sample design.

were less likely than the two other groups to have household debt. Hispanics are less likely than the two other groups to have household debt, with 69.5% having debt while 74.9% of non-Hispanic whites, 71.9% of non-Hispanic than African Americans. Among those who have household debt, Hispanic households, at 14.0%, have a significantly higher rate of being delinquent on than non-Hispanic whites (7.22%) and non-Hispanic Asian/others (7.2%) but a lower rate of being delinquent than non-Hispanic African Americans (17.82%), although that difference is not statistically significant (not shown in Table 1).

2. Multivariate Results

Table 2 shows the results of two multivariate analyses designed to show factors related to a household (1) a probit analysis of having debt and (2) a logistic regression of being delinquent on debt payments. The analyses enable the comparison of the likelihood of a Hispanic household having debt and being delinquent in debt payments to the likelihood of debt among three non-Hispanic racial/ethnic groups, controlling for independent variables.

1) Having debt

As in the descriptive results, Hispanic households were less likely to have debt than white households, controlling for demographic and economic variables. When controlling for variables related to creditworthiness, however, Hispanic households were not significantly different than white households in debt payment delinquency.

The probit analysis shows that whites and African Americans were more likely to have debt than otherwise

similar Hispanics. Married couples with children were more likely to have debt than other types of households. On the basis of the combined effect of age and age squared, the likelihood of having debt increased with age until age 21.5 years, then decreased. Households with high school degree or more were more likely to have debt than those with less than a high school degree. As household income and net worth increased, the likelihood of having debt decreased. Households in 2010 had the lowers likelihood of having debt than that of households in 2013. Households with heads employed were more likely to have debt than those retired or not working heads.

2) Debt payment delinquency

The results of the logistic regressions for the likelihood of being delinquent on debt are presented in Table 2. First, Hispanic households were less likely to hold debt, those with debt are just as likely as white households and African American households to be delinquent in payments even after controlling for all other factors.

The effects of financial buffers such as log of net worth and having all household members covered by health insurance being covered by health insurance were significant. As net worth increased, the probability of being delinquent on debt decreased. Having all household members covered by health insurance decreased the probability of debt service default. The probability of being delinquent on debt was higher for households with children than couple with a child or single with a child. As household income increased, the probability of being delinquent on debt decreased. The combined effect of age and age squared implies that

Table 2. Probit of Likelihood of Having Debt and Logistic Regression on Likelihood of Being Delinquent on Debt According to the 2010 and 2013 Survey of Consumer Finances

Parameter	Having debt		Delinquent on debt	
	Estimate	SE	Estimate	SE
Intercept	.111	.154	-2.735	.541
Racial/ethnic identity of respondent (Hispanic)				
African American	.141	.057 ^{a)}	.206	.141
White	.147	.048 ^{a)}	-.128	.125
Age squared	.043	.005 ^{a)}	.107	.020 ^{a)}
Age	-.001	.000 ^{a)}	-.001	.000 ^{a)}
Education of head (less than high school degree)				
High school degree	.245	.044 ^{a)}	.354	.129 ^{a)}
Some college	.479	.043 ^{a)}	.412	.122 ^{a)}
Bachelor degree or higher	.405	.043 ^{a)}	-.351	.124 ^{a)}
Family type (couple with a child)				
Couple without a child	-.290	.042 ^{a)}	-.839	.150 ^{a)}
Single with a child	-.244	.049 ^{a)}	-.292	.120 ^{a)}
Single without a child	-.331	.042 ^{a)}	.014	.118
log [income]	-.016	.007 ^{a)}	-.075	.018 ^{a)}
log [net worth]	-.061	.003 ^{a)}	-.091	.007 ^{a)}
Employment (employee)				
Self-employed	.063	.038	-.116	.124
Not working, age <65 yr	-.366	.074 ^{a)}	-.182	.178
Retired	-.419	.052 ^{a)}	-.092	.188
Expected real income growth (sure decrease)				
Sure will grow	.039	.051	-.422	.167 ^{a)}
Sure will stay same	.033	.038	-.395	.125 ^{a)}
Unsure	-.059	.039	.154	.113
2013 Survey (2010)	.012	.027	-.137	.081
Homeowner (renter)	1.035	.039 ^{a)}	-	-
All households covered by health insurance	-	-	-.358	.108 ^{a)}
Debt repayments to income ratio	-	-	-.006	.027
Head of the household has poor health (fair, good, or excellent)	-	-	.608	.159 ^{a)}
Current income lower than normal (same or higher)	-	-	.581	.088 ^{a)}
Mills ratio	-	-	.474	.235 ^{a)}
Concordance (%)	78.1	-	80.5	-

Reference categories for sets of categorical variables are in parentheses.

^{a)}Coefficients significantly different from 0 at $p < .05$ (two-tailed test).

the likelihood of being delinquent on debt increased with age until age 53.5 years and then decreased. Those who expect their income would surely grow are less likely to be delinquent on their payments than those who expect sure decrease of their future income.

The effects of financially adverse events were also

significant. Poor health status increased the probability of being delinquent on debt. Having negative transitory income (having current income lower than normal) increased the probability of being delinquent on debt. The debt payment to income ratio did not have a significant effect on default.

The effect of the Mills ratio was significant, which means

that controlling for sample selection bias is critical to arriving at unbiased estimates in the debt default model.

Conclusions

It is not surprising that households would have greater problems making timely debt payments during and following a recent Great Recession. One would expect that payments of Hispanics relative to whites would not change. The better payment record of Hispanics compared to other groups in the past has often been attributed to cultural norms and attitudes toward debt. It is possible that the shift to greater propensity to debt payment delinquency is due to a change in norms. However, that should not be assumed without much greater information and a longer time frame as a characteristic of cultural norms is that they generally are slow to change. The salient finding of this research, however, is the change from the finding [32] that Hispanic households with debt were less likely than white households to be delinquent on that debt during the 1992 to 2007 period.

Our findings based on the 2010 and 2013 SCF datasets show that after the Great Recession, Hispanic households with debt were not significantly different from white households in being delinquent in debt payments. During that time, Hispanic households had increased assimilation into the U.S. financial system, including increased home buying at the same time as a housing boom preceding the financial meltdown of 2007.

Our calculations, based on 2010 Census data [12] and Fannie Mae [14] data, show that 41.3% of the U.S. Hispanic population lived in the four states that had the greatest drop in home prices between the peak of home prices and March 2011 (Nevada, 59% drop; Florida, 51% drop; Arizona, 51% drop; and California, 45% drop). The drop in home prices reflects the greater impact of the recession in those areas, an impact that was made even worse for Hispanic households because they were more likely to be recent homebuyers, making it more likely to have bought near the peak and thus suffered the greatest drops. The SCF does not provide

the geographic location of households in its public dataset, but because the SCF can be weighted to be a representative sample, the economic conditions affecting Hispanic households in the sample would reflect those impacting Hispanic households in the population as a whole.

Another analysis of U.S. census data by Fannie Mae [15] showed that Hispanic households accounted for 35% of the growth in owner occupied homes between 2000 and 2010, but had accounted for only 15% of the growth in owner occupied homes between 1990 and 2010. Thus, Hispanic households were more likely to have bought near the peak of prices in states that suffered the greatest drop in prices and thus suffered the greatest drops. The unfortunate timing in terms of this assimilation contributed to them becoming similar to white households with respect to serious debt payment delinquency.

Although we conclude that economic factors in the geographic areas of high Hispanic population were the major causes of our findings of an increasing debt delinquency rate in 2013 for Hispanics comparing with the rate in 2010, some attention needs to be paid to types of education that would help mitigate the consequences of future economic downturns. First, building sufficient household wealth needs to be prioritized since it helps cushion the hardships related to income volatility. This should not only help in making debt payments in a timely fashion, but could improve credit histories over time, resulting in lower cost sources of credit. Those individuals who have risky attitudes toward borrowing should become special target groups for counseling and education. Even though Hispanics are less likely to have debt than other racial/ethnic groups, current or future borrowers should have the necessary knowledge and information to make responsible decisions with regard to borrowing money as they will become more likely to incur debt as they are more assimilated into the U.S. culture of debt.

The implications for the educators are as follows. Perhaps most important is the need to design educational programs in light of the fact that groups differ in the problems they encounter and differ in terms of their attitudes towards money and debt. Clearly, racial/ethnic minorities should

not be treated as homogeneous groups, as was assumed in many previous studies of household debt. Even people born in the U.S. may have grown up with limited familiarity with U.S. financial systems because of low income or lack of participation in banking, saving, and dealing with financial institutions. Being disconnected from mainstream financial institutions in the U.S. and lack of financial literacy, however, do not mean a lack of demand for credit services. Education that focuses on dealing with financial institutions to be aware of and to reduce the cost of credit is necessary for any household. Especially, as Hispanics have been late exposed to the U.S. real estate market, they might lack prior credit history and may thus be regarded as risky borrowers who are given only high-cost, subprime mortgages. Also, the large portion of Hispanics might be unfamiliar with latest U.S. housing market and lending industry news. As a result, while the Great Recession had a great impact on all U.S. households, it is evidenced that Hispanic households were at the greatest risk. Therefore, Hispanic households who have a lack of prior credit history need to be educated specifically about the cost of credit and the consequences of the high interest rates. In the future, assuming that the extreme downturn in housing prices observed during the Great Recession is not repeated, targeted educational programs might help Hispanic households reduce the rate of debt problems and might equip them to better deal with economic uncertainties and the impact of the greater economy on their ability to adhere to responsible financial behaviors that are more typical of their culture.

The implications for the future researchers are as follows. The U.S. is a multicultural country where the population of racial or ethnic minorities is becoming more visible [46]. Previous studies on household debt have long suggested that there are racial and ethnic differences in debt payment of household. The majority of previous studies regarding financial behaviors of consumers, however, have focused on whites. They have been limited, with most previous studies comparing whites to an aggregated group of all other racial and ethnic groups. Especially, studies on financial behaviors

of Asian borrowers living in the U.S. are lacking. Therefore, future research related to racial and ethnic differences in personal finances should not assume homogenous effects of various factors (such as geographical factor or the price of real estate) on debt payment for all racial/ethnic groups. Due to the data limitation, this study cannot analyze the Asian population in the U.S. The finding of this study, however, allows some insights for the future researchers. Asians and Hispanics are in common in that Asians and Hispanics are the large source of immigrants to the U.S. [22]. Even though Asians are the third largest minority group in the U.S. [25], there are few studies as to Asians' connection to American culture. However, it is plausible that Hispanics and Asians are less tied in to U.S. culture. Osili and Paulson [38] discussed the lower integration of immigrants into U.S. financial institutions compared to native born consumers. It is possible that this applies to use of credit, as consumers socialized in another culture and who live in largely immigrant areas may not be subject to the same influences by either lender marketing or dominant social norms of American Consumer Culture. Therefore, future researchers need to explore the financial behaviors of Asians in the U.S. with data available with Asian immigrants. Also, the current analysis, due to a data limitation, examined a payment of all the various loan or mortgage payments. Therefore, this study assumed that each respondent understood the combined questions to refer to all payments on installment, credit cards, mortgage, home equity, and any other outstanding debt. This study cannot recognize the effect of the forms of debt or amount of debt of particular forms. In order to have a better understanding of the impact of crisis in the real estate market on the household finances, the future research surrounding this topic should include various form of debt such as a mortgage, car loan, and/or credit cards.

Declaration of Conflicting Interests

The author declared that she had no conflicts of interest with respect to her authorship or the publication of this article.

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