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HOUSEHOLD DEBT DURING THE FINANCIAL CRISIS: MICRO-EVIDENCE FROM CHILE

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Household Debt during the Financial Crisis: Micro-Evidence from Chile*

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Abstract

We examine evidence from a 2006 to 2009 data panel to explore how Chilean households were affected by the negative income shock observed during the recent financial crisis. Our results show that there is a negative and significant relationship between income shocks and changes in consumption debt. This suggests that increasing debt allowed households to smooth consumption during the financial crisis and provides new empirical evidence of the importance of financial constraints in a developing economy. We find evidence of heterogeneous effects by type of consumption debt and across households. Our results show that income loss increased indebtedness with banking institutions, but not with non-banking creditors. Across households, these results are driven mainly by those with financial assets and low levels of indebtedness before the crisis.

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1. Introduction

During the economic downturn of 2008-2009 associated with the international financial crisis, Chilean households faced a higher unemployment rate, a wealth contraction, and, based on survey data, higher financial constraints. The magnitude of these shocks was not minor with unemployment reaching 10% in 2009, from the previous 6%. Household wealth decreased 7.5% between 2008 and 2009 and has only recently recovered its pre-crisis level (Central Bank of Chile, 2012a). During the last quarter of 2008, the Survey of Credit Conditions showed that more than 60% of the banks strengthened their credit policies for consumption loans (Central Bank of Chile, 2012b).

In the standard consumption model, a transitory and unexpected reduction in income should lead to higher level of debt to smooth consumption. However, in presence of credit constraints, some households may not have the ability to increase their debt. This is one of the reasons why consumption seems to be excessively affected by changes in current income (Zeldes, 1989; Japelli, et al., 1998). There is abundant literature looking at how consumption, saving, and borrowing respond to predictable or known changes in income (Attanasio, 1999; Browning and Lusardi, 1996). However, little is known about how households use credit markets in response to income shocks (Sullivan, 2008).

This paper contributes to the literature by analyzing whether the negative income shock experienced by Chilean households during the financial crisis had an effect on consumption debt. However, the casual identification of this effect is not an easy task. First, it is difficult to distinguish between transitory and permanent income shocks. Second, income shocks are not exogenous. They depend on labor supply decisions that are endogenous to household borrowing decisions. We tackle this question and deal with endogeneity issues by using panel data from the Social Protection Survey (EPS) conducted by the Universidad de Chile. The data has information on borrowing and household characteristics for 2006 and 2009, and includes information for around 15.000

households. With this information and using an identification strategy aimed to identify exogenous and transitory changes in labor earnings, we estimate the quantitative effect of income shocks on consumption debt.

This paper is part of a growing literature covering the impact of the recent international financial crisis on households, addressing topics such as consumption, debt, portfolio allocation, retirement decision, and default risk, (Chakrabarti et al., 2011; Philippon and Midrigan, 2011; Hurd and Rohwedder, 2010; Mian and Sufi, 2010).[1] In particular, Chakrabarti et al. (2011) show that the financial crisis reduced households' average spending and increased savings in the United States. Mian and Sufi (2010), in contrast, look at how pre-crisis household leverage can explain differences in the impact of the crisis across counties in the US. We more closely follow the empirical analysis by Sullivan (2008), who exploit microeconomic data to analyze whether unsecured borrowing plays a role in the ability of disadvantaged households to compensate for unemployment-induced earnings losses in the US. Most previous works, due to limitations on microeconomic data for debt holding, have focused on developed economies. Therefore, this paper provides a broader picture of this issue, especially given that we provide evidence in the case of one emerging economy, using household level data[2].

Our results show that there is a negative and significant relationship between income shocks and changes in consumption debt. This suggests that unsecure debt generally allowed households to smooth consumption during the financial crisis. However, our findings show heterogeneous effects across individuals and types of debt. We find that a reduction in labor income increased consumption banking debt, but it had not a significant effect on non-banking debt. Across households, we find some evidence that credit constrains were important during the crisis. In fact,

[1] For Japan there is evidence of the effects of the financial crisis of 1997 on households' consumption and welfare (Sawada, et al., 2011).
[2] For a review on the effects of financial crises using mostly aggregate data, see Fallon and Lucas (2002)

our results suggest increasing debt was only possible for individuals with financial assets and for those with low levels of pre-crisis debt.

The rest of the paper is structured as follows. The second section describes the main trends in Chilean household debt during the last years. The third section provides a description of the household level data used in the paper. The fourth section shows the estimation methodology. The fifth section presents the results. The sixth section concludes.

2. Household Debt in Chile

Household indebtedness in Chile has grown significantly during the last decade. In aggregate terms, the average annual growth rate of total household debt was 12.2% from 2000–2011.[3] There are not major differences in the growth rate of the two main components of the household debt: consumer and mortgage debt recorded average annual real growth rates of 13.9 and 11.1%, respectively, during this period. This growth is considerably higher than the growth of the economy (around 4.0% on average), causing the debt ratio to increase from 22.5% to 36.5% of GDP. In terms of disposable income, the household debt increased from 35.4% to 61.6% during the same period. However, at it is clear as shown in Figure 1, this debt indicator has been stable after the crisis. A similar picture emerges from observing household payment capacity, measured as the ratio of debt to income (Figure 1). While concentrating our empirical analysis on consumption borrowing, we also show the evolution of households' consumption debt over disposable income during this period. This evidence is quite similar to total debt (Figure 2).

The evolution of household debt, previous to the crisis, has been similar to that of other advanced and emerging economies. According to the IMF (2006), the average annual real growth rate of household credit was 21% between 2000 and 2005 for 30 countries, while the average GDP

[3] This figure includes bank and nonbank debt (retailers, family compensation funds, and other debt) and is expressed in real terms.

growth of these economies was 4.1%. At regional level, growth was strongest in emerging Europe, with annual rates of 48%, while average growth in Latin America and more developed nations fluctuated around 9% annually. According to the same study, this phenomenon is consistent with the presence of common global elements in the development of financial markets, such as the reduction of inflation and interest rates, financial liberalization, and lower competition for financial resources among households and firms, explained by improved access to credit in the business sector (IMF, 2006).

The increase in household debt can have both positive and negative aspects. On one hand, higher debt suggests that the financial system is accomplishing one of its fundamental roles, namely acting as an intermediary of financial resources and facilitating households' access to credit. Facilitating financial access has positive affects on welfare because it allows smoothing consumption both over the life cycle and during business cycles. On the other hand, debt growth and the resulting increase in debt service can be a source of concern with regard to household payment capacity, especially in the face of income shocks. Some of the literature on these issues suggests that higher debt levels are associated with an increase in the sensitivity of household arrears and insolvencies to macroeconomic shocks (Japelli, et al. 2010). Nevertheless, even though there was a period before the crisis of sustained increase in households' debt, international comparison suggests that Chile's debt level and financial burden are not exceptionally high given its income level (Figures 3 and 4).

In terms of market structure, an important aspect related to the Chilean credit markets is the diversity of financial institutions. Although the main lenders to households are banking institutions, which finance about 60% of total consumption debt in 2011, large retailers are highly active in the consumer loans segment, accounting for approximately 16% of household consumption debt (Table 1). Additionally, institutions providing social credit have increased their incidence during the last years, but access is still low. The diversity of agents in this market implies a wider use of credit by households across different income segments. Notably, large retailers are the main credit

institutions for low-income households, while banks tend to focus on higher income households. Thus, the analysis of Chilean households during the crisis requires disentangling the effect on debt across different types of households and access to banking and non-banking credit.

3. Data Description

We use two versions of the Social Protection Survey (EPS, for *Encuesta de Protección Social*), which includes a financial module since 2004. This survey was designed to assess the well being of workers and non-workers and their households and is carried out by Microdata Center of the University of Chile. The first survey in 2002 was only representative for those with pension access at the national and regional level. Since 2004, a sample of non—affiliated workers was incorporated to make the study more representative. In 2006 and 2009 the sample was maintained, providing information for about 20,000 people across Chile.

The EPS contains information on employment history and pension affiliation, education, health, social security, labor training, patrimony and assets, and household demographics. Although the EPS is not a financial survey, the financial module makes the dataset similar to fiscal studies for other countries. A common feature with other international surveys around the world is the availability of demographic and labor information, household composition, income, and the stock of debts and assets (Cox, et al. 2006).

There are some shortcomings with this dataset. First, all the data on debt, income and assets are self-reported and subject to measurement error. Second, there is not any information on mortgage debt. Nevertheless, the survey provides detailed information on other debts, including bank credit cards and lines, credit from department stores, bank and finance institution consumer loans, vehicle loans, social institution loans, loans for education, and (non-formal).loans from other loaners

We exploit the panel dimension of the data to look at the situation before (2006) and during the financial crisis (2009). In the Chilean case, the economy contracted 1.7% and unemployment

increased slightly in 2008, and then rapidly increased in 2009 reaching 10%. As we mentioned in the introduction, during the crisis, financial wealth was reduced significantly and financial institutions reported higher credit restrictions for households.

The EPS allows us to characterize household indebtedness to complement the aggregate evidence discussed in the previous section. Data show an increase in the median of consumption debt to income ratio (CDIR), increasing from 5.8% in 2006 to 7.9% in 2009. This is found across all income groups, but there is a larger increase for lower income households (Table 2). In the poorer segment –first quintile- the median household increased its CDIR from 10.9% to 17.7% between 2006 and 2009. In contrast, the median in fifth quintile grew from 5.1% to 6.0% in the same time period. In this sense, the role of debt during shock income periods varies across households, suggesting a minor role for consumption smoothing in low-income households as suggested by standard models.

In terms of debt incidence, there are not significant changes in the percentage of households having debt. At the aggregate, approximately 47% of households report consumption debt during the period. The information by type of debt shows a similar situation. In the case of retailers' credit cards, the percentage of debt holders stayed about 40%. In contrast, there is some evidence that social credit increased from 1.9% to 3.5%, but its incidence is low across households to start with (Table 3).

The analysis by income quintiles does show some differences. First, the incidence of debt increases between 3-4%in the first two quintiles, while declining in richer households by more than 2% (Table 4). This is mostly explained by an increase in the percentage of households accessing retailer credit. In the case of the first quintile, it grew from 24.8% to 27.2%, and in the second quintile from 33.1% to 34.5%.

4. Methodology

We are interested in looking at how changes in income affect borrowing at the household level. The standard literature suggests that the response of borrowing to income changes depends on whether these changes are permanent or transitory. Nonetheless, the literature also shows that the relationship between debt and income also depends on the degree of financial frictions, moreover the relationship between debt and income shocks could end up being positive under some settings (Kocherlakota, 1996; Cochrane, 1991, Atkenson, 1991). These frictions could take different forms – asymmetric information, transaction costs, etc.- and could be present at different degrees depending on household characteristics. For instance, low income households could have fewer assets than high income households, which could be used either as collateral or as a good signal of credit quality. Therefore, the empirical relationship between debt and income is an open question.

Following Sullivan (2008), changes in labor income for the head of household *i*, ΔY_i, can be decomposed into a transitory (ΔY_i^{τ}) and a permanent ($\Delta \mu_i$) component. As we are interested in transitory income shocks, the estimated equation is:

$$\Delta D_i = \beta_0 + \beta_1 \Delta Y_i^{\tau} + \beta_2 \Delta \mu_i + X_i \beta_3 + \varepsilon_i \qquad (1)$$

In this paper, ΔD is defined as the change in consumption debt[4] for household *i* between 2006 and 2009. X_i is a vector of household variables associated with permanent income and preferences.

The estimation of this equation, however, generates several econometric problems. First, it is hard to distinguish permanent and transitory income changes from the data. Second, transitory income changes are not completely exogenous. In fact, income changes associated with labor supply decisions are endogenous to borrowing (Sullivan, 2008). Third, given that all variables are self-reported, there is some unknown amount of measurement error. These concerns on endogeneity

[4] We focus on consumption debt due to two main reasons. First, there are data limitations. The EPS does not have information on mortgage debt. Second, we want to focus on whether unsecured debt is used for smoothing consumption when households face negative income shocks.

and measurement error in income changes indicate that OLS estimation of equation (1) would generate biased results. For this reason, we estimate the following two-stage model:

$$\Delta Y_i=\alpha_0 + \alpha_1 \Delta Z_i + X_i \alpha_2 + \mu_{it} \quad (2)$$

$$\Delta D_i=\delta_0 + \delta_1 \Delta Y_i + X_i \delta_2 + \nu_{it} \quad (3)$$

Where ΔY is the change in labor earnings of household head and ΔZ is an instrumental variable for transitory income shocks. Our main parameter of interest is δ_1, which measures how changes in income affect borrowing. In the case that households want to smooth consumption when facing a negative income shock, we should expect an increase in debt. In such a case, δ_1 would be negative.

The identification assumption is that there are exogenous changes in unemployment that are correlated with income, but not correlated with borrowing. For constructing this instrument, we follow the strategy developed by Bartik (1991) and applied, by Autor and Duggan (2003), among others, and recently by Aizer (2010) for capturing the impact of labor demand shocks across individuals.

In this paper, this measure is constructed to reflect exogenous demand shocks according to the household head's labor sector, region, and gender. This strategy takes advantage of the financial crisis more negatively affecting some industries, and that the exposure to these shocks is different across individuals depending on their gender and geographical location. For example, a negative labor demand shock for construction industries is expected to reduce wages (or increase unemployment) for mainly male workers and those located in regions where there was more demand for construction. Then, for each individual of gender *s*, located in region *r* with a previous job in industry *j*, we compute the following labor demand shock:

$$Z_{grj} = \sum_k s_{kgr} \Delta l_{kg-j} \quad (4)$$

Where Δl_{kg-j} is the employment change in industry *k* for gender *g* in all regions - except *j* - and s_{kgr} is the employment share of industry *k* for gender *g* in region *r*. We define industries at 2-digit ISIC classification.

The vector X includes household characteristics that influence borrowing decisions and other variables associated with permanent income, preferences, or consumption needs. Specifically, we use educational attainment, marital status, and family size. To look at the impact of other potential shocks, we include variables associated with changes in family size, marital status, and health status between 2006 and 2009.

As we are also interested in the potential heterogeneous effect of labor earning shocks, we also analyze how the types of household debt change, distinguishing between banking and non-banking debt. In the case of Chile there is evidence that banking institutions are less likely to give credit to low-income or more risky individuals, and that households mainly obtain loans from non-banking intuitions, especially from retailers (Montero and Tarziján, 2010). Thus, the effect of income shocks may differ for these two types of debt. We expect that since banking institutions are more selective in targeting, creditors are more likely to give loans to their customers facing transitory negative shocks. In contrast, non-banking debt may be less responsive to changes in income.

We also explore differences across types of households based on two main characteristics: (i) existence of financial assets and (ii) indebtedness. In the first case, we could expect less increase of debt for households with sizable asset holdings because they can deplete these assets rather than increasing debt during periods of negative income shocks (Sullivan, 2008). Alternatively we could expect a higher impact because of these households could use assets to provide collateral and thus have access to more credit. To explore this issue, we split the sample between households with and without financial assets. For this, we look at differences between those households with previous (2006) high and low debt levels. We expect that households with lower level of debt were more

likely to obtain new loans to smooth consumption during the crisis. We divide the sample between those households with unsecured debt to income ratio above and below the median in 2006.

Both indicators would also give some information on potential borrowing constraints across households.[5] More indebted individuals may be excluded from credit markets because they are considered riskier by financial institutions. Given their high debt level, their ability for paying debt back might be reduced during the crisis. There is some evidence for this using a similar indicator, the debt-payment-to-income ratio (DSR). Johnson and Li (2010), using data from the Survey of Consumer Finances in the US, find that households with high DSR are more likely to be turned down for credit. Regarding financial assets, they can be used as collateral, and households with such assets would have more access to credit during the financial crisis.

5. Econometric Results

The basic results are shown in Table 5. In the first column we show the OLS result for illustrating the bias associated with this estimation and the differences with several specifications using our instrument (columns 2 through 4). In the last row of Table 5 we present the first stage regression – showing that there is a positive and significant relationship between labor earning changes and our labor demand shocks variable – and show statistical tests for documenting the strength of the instrument. In general, the F-test of the first stage is relatively high and the Kleibergen-Papp statistics suggest that we do not have a weak instrument.

The IV results in columns (2) - not including addition controls – show that the effect of income shocks on changes in debt is negative and statistically significant at 5%. This is an expected result under a standard setting where households have access to unsecure debt to smooth consumption if they face a negative income shock. As we can see, given that the parameter is lower than 1, the increase in current income is lower than the increase in consumption debt. Including additional

[5] For evidence on borrowing constraints for Chilean households, see Ruiz-Tagle and Vella (2010),

control variables, columns (3) and (4), does not change this finding, and it seems to be robust to alternative specifications. The magnitude of the coefficient increases from 0.25 to 0.35, but lowers its statistical significance. However, in both specifications the parameter is still statistically significant at 10%.

In Table 6 and 7 we show the same results for banking and non-banking consumption debt. The results for banking debt are very similar to the previous ones. In fact, a reduction in income causes an increase in unsecured bank debt, and the effect is lower than 1. As we can see in columns (3) and (4), the inclusion of additional covariates increases the parameter and reduces statistical significance at 10%. In contrast, results for non-banking consumption debt show a non-significant relationship between income variations and debt changes. It seems that non-banking debt, in contrast to banking debt, did not help households to smooth consumption during the financial crisis. As was mentioned before, non-banking lenders are more focused on low income households and some of their characteristics, such as lack of collateral, credit history, and income vulnerability, can explain why financial constraints are more prevalent for non-banking debt.

An interesting aspect is whether the ability to smooth consumption during a negative income differs across individuals. As mentioned before, we look at heterogeneous effects according to financial asset holdings and debt levels[6] In Table 8, 9, and 10, we present the results for total consumption, banking and non-banking debt, respectively, dividing the sample between individuals reporting financial assets holdings (FA>0) and those without financial assets (FA=0) previous to the crisis. In general, the results consistently show that households with financial assets increase debt when current income falls (Table 8). In general, additional control variables are not statically significant and reduce the significance of income shocks, but the income effect still is significant at 10%. As in the previous results, banking debt mainly drives these findings (Table 9). In this case,

[6] We also tried to analyze differences across income quintiles, but splitting the sample according to quartiles revealed that in most of the regressions we had problem of weak instruments.

income negative shocks do not affect debt levels of households without financial assets. In contrast, for non-banking debt, the income change parameters are always not statically significant for either asset group.

In Tables 11, 12, and 13, we show similar estimations, dividing the sample between households with high and low levels pre-crisis debt. To do so, we use the median of the debt-to-income ratio (DIR) to divide the sample. The results reveal a negative and significant effect of income changes on consumption debt holdings, but only for households with DIR<0.2 (Table 11). These findings are consistent with the idea that households with relatively low indebtedness (debt-to-income ratio lower than the median) have more access to unsecured debt during the financial crisis. Similarly to previous results, result is only valid for banking debt (Table 12), but not non-banking debt (Table 13).

In sum, our results suggest that negative income shocks are generally associated with an increase in unsecured debt, consistent with the idea that access to financial markets helped to smooth consumption during the recent financial crisis. We find also evidence of relevant heterogeneities across types of debt and households. This suggests that banking institutions are less reluctant to reduce credit during hard times than non-financial institutions. We also find that households with financial asset holdings and low indebtedness had greater access to banking credit during the crisis.

6. Conclusions

We focus on how household borrowing responds to shocks in labor earnings, by exploiting panel information for Chilean households before and during the recent financial crisis. This is especially interesting in the case of Chile because household debt showed a steady growth pattern until 2008, but a stable level of indebtedness at an aggregated level since then. However, these relatively stable debt levels hide an important degree of heterogeneity across households about how they faced income shock. Comparing low and high income households, the data show that the negative income

shocks during the crisis was especially severe for lower income households and, as a consequence, debt levels increased as a proportion of their income. In contrast, high income households did not show significant changes of their indebtedness.

We examine how households respond to the income shock observed during the subprime crisis using an identification strategy based on exogenous changes in labor income by exploiting differences in labor demand shocks across industries, regions, and worker gender. We also analyze how this response varies across types of debt, distinguishing between banking debt and non-banking debt, and across households based on pre-crisis debt and asset levels.

Our results show that, in general, there is negative income shock effect on consumption debt. This is consistent with the idea that a reduction in current income is accompanied by an increase of debt, allowing households to smooth consumption during a business cycle. This implies that severe financial constraints did not affect credit access for households, even during the recent crisis.

The evidence in this paper also suggests that this effect is heterogonous not only across households but also by type of debt. We find that reduction in labor income only increases consumption (non-mortgage) banking debt, but we do not find any significant impact on non-banking debt. This is consistent with consumer differences across financial institutions. In the case of non-banking institutions, mostly trade retailers, they did seem to be more reluctant to extend credit during the financial crisis. This could be simply because they lend to potentially riskier households. We find also that households with financial assets and low debt previous to the crisis had greater access to bank debt during the financial crisis. These results confirm that financial constraints are heterogeneously distributed across the population. In this case, households with low debt levels and financial assets, which can be used as collateral, have fewer problems accessing bank credit.

These findings help us understand how households in developing countries are able to smooth consumption over the business cycle, as well as the relevance of financial constraints across households. However, that not all individuals increased their debt during the crisis may be consistent with the existence of severe financial constraints, but also with alternative explanations. One of them is that precautionary reasons reduce the demand for borrowing in some households, specifically those that would have credit access. However, with the data at hand, we cannot address this possibility, opening the research to looking for alternate explanations for these results. Moreover, we look forward to including more recent data when available to look at how financial restrictions may have relaxed during the economic recovery.

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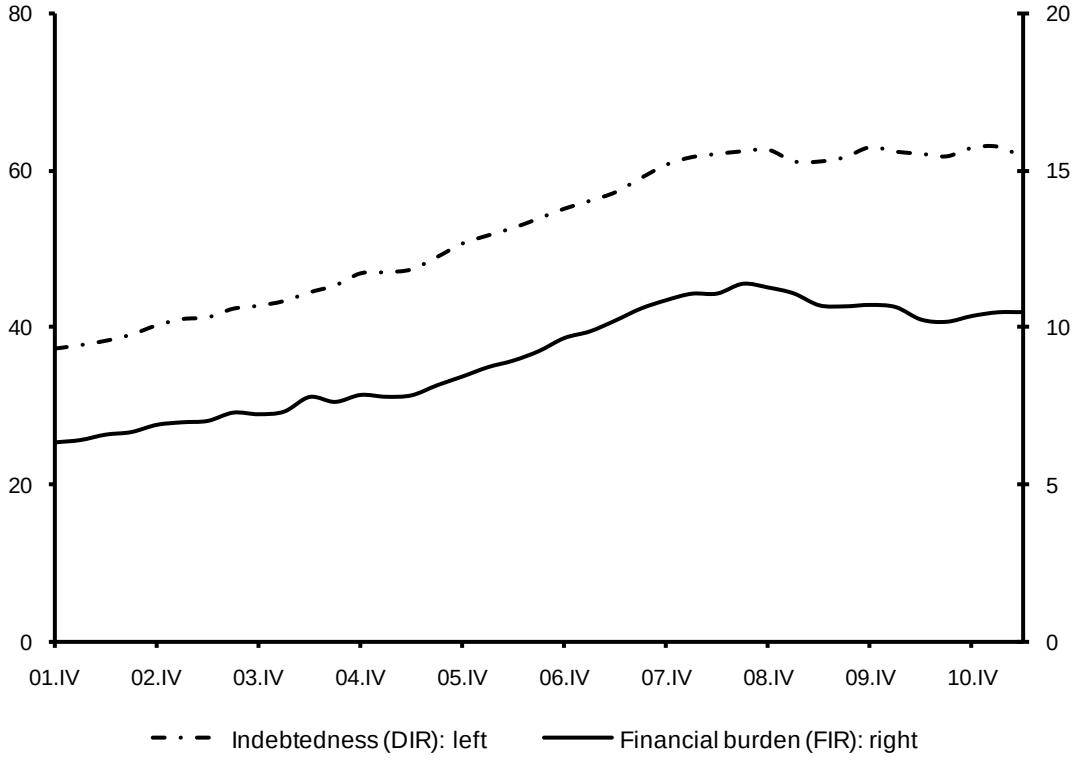
Figure 1

Indebtedness and Financial Burden

(Percentage of disposable income)

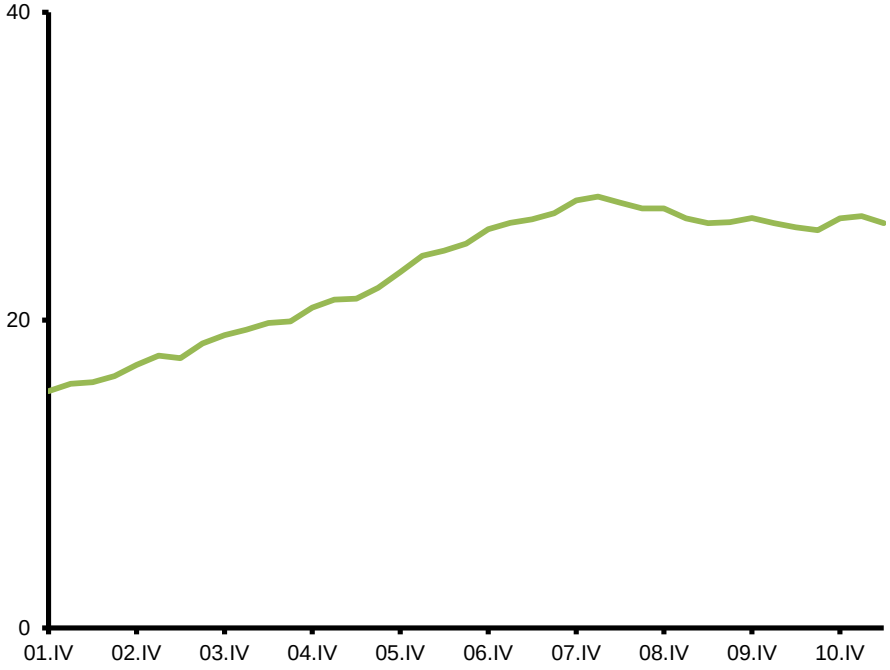


Sources: Central Bank of Chile, SBIF, SuSeSo and SVS.

Figure 2

Consumption Indebtedness

(Percentage of disposable income)

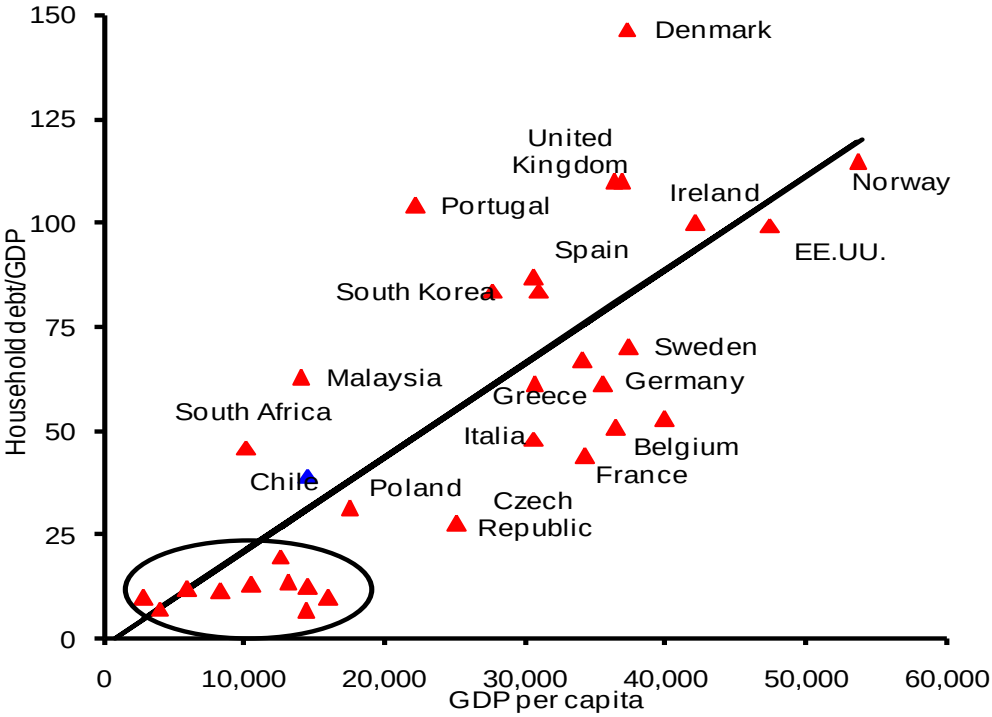


Sources: Central Bank of Chile, SBIF, SuSeSo and SVS.

Figure 3

Household debt: International Comparison, 2008

(Percent, U.S. dollars)

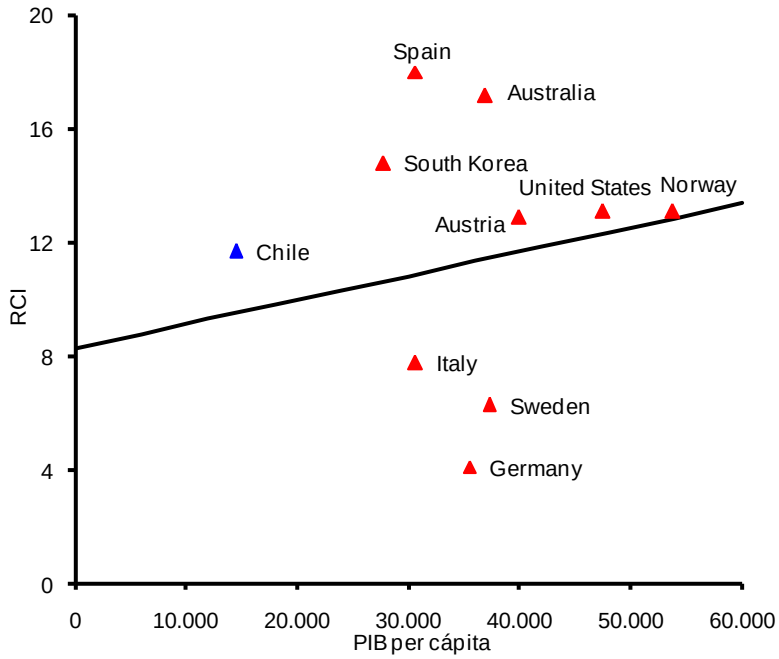


Countries inside the circle: India, Indonesia, Colombia, China, Brazil, Romania, Turkey, México, Argentina y Russia. Sources: McKinsey & Company, IMF and Central Banks of Colombia, South Africa, Turkey, Argentina, Malaysia and Czech Republic.

Figure 4

Household Financial Burden: International Comparison, 2008

(Percent of disposable income, U.S. dollars)



Sources: McKinsey & Company and IMF

Table 1

Household Debt

(Percentage)

		2004	2005	2006	2007	2008	2009	2010	2011
Total debt									
	Bank	71.8	72.6	72.3	71.6	71.5	74.0	75.2	76.6
	Nonbank	28.2	27.4	27.7	28.4	28.5	26.0	24.8	23.4
Consumption									
	Bank	57.4	57.7	58.0	55.9	55.2	56.9	57.7	59.3
	Nonbank	42.6	42.4	42.0	44.1	44.8	43.1	42.3	40.7
	Retailers (1)	15.0	15.6	14.7	16.1	15.9	16.8	17.0	16.3
	FCF (2)	8.5	7.6	8.9	9.0	9.3	9.8	9.5	9.3
	Cooperatives	4.7	5.2	5.3	5.7	5.7	6.2	5.9	5.6
	Other (3)	14.4	14.0	13.2	13.3	13.8	10.3	9.9	9.5
Mortgage									
	Bank	83.7	85.7	85.7	85.6	85.5	86.5	88.0	89.5
	Nonbank (1)	16.3	14.3	14.3	14.4	14.5	13.5	12.0	10.5

(1) Includes securitized debt. (2) FCF: Family compensation funds. (3) Includes car financing, student loans, and insurance companies. Sources: Central Bank of Chile, SBIF, SuSeSo and SVS.

Table 2

CDIR by Income Quintiles

Quintiles	2006	2009	Difference
1	10.9%	17.7%	6.8%
2	5.7%	9.7%	4.0%
3	5.4%	6.7%	1.3%
4	4.6%	6.4%	1.8%
5	5.1%	6.0%	0.9%
Total	5.8%	7.9%	2.1%

Source: EPS, 2006 and 2009.

Table 3

Incidence of Debt

(Percentage of households)

	2006	2009	Difference
Bank line of credit	5.3	5.2	-0.1
Bank credit cards	8.6	8.0	-0.6
Retailer credit card	39.3	38.5	-0.9
Bank consumption loans	6.1	7.1	1.0
Consumption loans in non-bank financial institutions	3.2	2.5	-0.8
Loan cars	0.5	0.5	0.0
Social credit	1.9	3.5	1.6
Educational debt	3.1	4.2	1.1
Loans from relatives or friends	1.1	1.0	-0.1
Loans from other lenders	0.2	0.1	-0.1
Other debt	2.2	1.1	-1.1
TOTAL	46.7	47.3	0.6
Observations	14512	13463	

Source: EPS, 2006 and 2009.

Table 4

Incidence of Debt by Income Quintiles

(Percentage of households)

	2006					2009				
Income quantile	**I**	**II**	**III**	**IV**	**V**	**I**	**II**	**III**	**IV**	**V**
Bank line of credit	1.2	1.3	2.8	5.4	15.6	2.2	2.2	2.2	4.9	14.5
Bank credit cards	2.8	3.5	5.9	9.8	20.9	4.5	4.1	5.3	7.4	18.7
Retailer credit card	24.8	33.1	39.9	44.2	54.7	27.2	34.5	37.6	41.7	51.2
Bank consumption loans	2.5	2.7	5.2	6.8	13.4	3.8	4.2	5.5	8.6	13.4
Non-bank financial institutions	1.8	2.2	3.1	4.5	4.5	0.9	1.9	2.6	3.5	3.4
Loans for the purchase of cars	0.1	0.2	0.3	0.6	1.3	0.1	0.1	0.3	0.5	1.2
Social credit	1.1	1.5	1.9	2.2	3.0	1.7	2.7	4.0	4.2	4.8
Educational debt	1.6	1.8	2.4	3.4	6.3	2.3	2.8	3.2	4.7	7.9
Loans from relatives or friends	0.9	0.9	1.0	1.2	1.6	0.9	1.1	1.1	1.1	1.0
Loans from other lenders	0.1	0.2	0.2	0.2	0.3	0.1	0.1	0.3	0.0	0.1
Other debt	2.0	1.9	2.5	2.6	2.3	1.3	1.1	1.2	1.0	1.2
TOTAL	30.3	38.6	47.1	52.0	65.4	33.3	42.3	46.9	51.0	63.2
Observations	2902	2903	2902	2903	2902	2692	2693	2693	2693	2692

Source: EPS, 2006 and 2009.

Table 5

Consumption Debt and Income Changes

VARIABLES	(1) OLS	(2) IV	(3) IV	(4) IV
Income change	0.00834	-0.251**	-0.343***	-0.347***
	(0.0151)	(0.125)	(0.200)	(0.205)
Secondary education			-102,766	-102,484
			(81,787)	(82,940)
Tertiary education			-231,064	-232,503
			(211,349)	(215,085)
Marital status			-99,331	-101,645
			(75,176)	(79,543)
Familiy size			12,824***	13,664**
			(6,868)	(6,861)
Marriage Break				-10,717
				(97,794)
Change in family size				34,798
				(22,133)
Change in health status				-29,242
				(25,457)
Constant	82,641*	-108,186	-96,959***	-106,136***
	(17,482)	(90,582)	(54,530)	(57,035)
Observations	6,386	6,386	6,383	6,380
First-stage regression				
Labor demand shock		5038948	3546266	3478823
		(628668)***	(676126)***	(681346)***
F-test		64.24	63.52	43.23
Kleibergen-Paap		64.24	27.51	26.07

Robust standard errors in parentheses

* p<0.01, ** p<0.05, *** p<0.1

Table 6

Banking Consumption Debt and Income Changes

VARIABLES	(1) OLS	(2) IV	(3) IV	(4) IV
Income change	0.0125	-0.174**	-0.244***	-0.243***
	(0.0140)	(0.0831)	(0.135)	(0.138)
Secondary education			-117,429**	-116,164**
			(56,945)	(57,720)
Tertiary education			-117,556	-116,952
			(140,489)	(142,471)
Marital status			-64,816	-64,652
			(52,071)	(55,170)
Familiy size			5,298	5,572
			(4,796)	(4,765)
Marriage Break				-11,407
				(70,401)
Change in family size				7,726
				(16,268)
Change in health status				-13,268
				(16,363)
Constant	35,998*	-99,634***	-62,835***	-64,955***
	(12,323)	(59,299)	(35,781)	(37,140)
Observations	6,368	6,368	6,365	6,362
First-stage regression				
Labor demand shock		4975061	3452895	3388181
		(625083)***	(673453)***	(688700)***
F-test		63.35	62.77	42.74
Kleibergen-Paap		63.35	26.29	24.92

Robust standard errors in parentheses

* p<0.01, ** p<0.05, *** p<0.1

Table 7

Non-Banking Consumption Debt and Income Changes

	(1)	(2)	(3)	(4)
VARIABLES	OLS	IV	IV	IV
Income change	0.00350	-0.0177	-0.0247	-0.0342
	(0.00895)	(0.0776)	(0.115)	(0.118)
Secondary education			21,491	18,276
			(47,548)	(48,164)
Tertiary education			-83,254	-90,132
			(123,668)	(125,788)
Marital status			-22,018	-30,267
			(42,611)	(45,119)
Familiy size			8,001***	8,554***
			(4,732)	(4,756)
Marriage Break				48,386
				(51,933)
Change in family size				28,564**
				(11,853)
Change in health status				-11,374
				(15,980)
Constant	34,512*	18,950	-12,439	-21,103
	(11,385)	(56,461)	(35,488)	(37,141)
Observations	6,386	6,386	6,383	6,380
First-stage regression				
Labor demand shock		5038948	3546266	3478823
		(628668)***	(676126)***	(681346)***
F-test		64.24	63.52	43.23
Kleibergen-Paap		64.24	27.51	26.07

Robust standard errors in parentheses

* p<0.01, ** p<0.05, *** p<0.1

Table 8

Total Consumption Debt and Income Changes: Financial Assets

	(1)	(2)	(3)	(4)
VARIABLES	FA>0	FA>0	FA=0	FA=0
Income change	-0.840	-0.372	-0.247	-0.222
	(0.707)	(0.284)	(0.218)	(0.142)
Secondary education	-427,747		-27,768	
	(286,963)		(83,077)	
Tertiary education	-976,228		-20,352	
	(828,708)		(211,061)	
Marital status	-476,128		-40,488	
	(369,595)		(77,038)	
Familiy size	4,105		11,223	
	(32,762)		(7,042)	
Marriage Break	-148,172		69,301	
	(505,310)		(89,767)	
Change in family size	114,869		23,824	
	(106,595)		(20,868)	
Change in health status	-139,524		-8,683	
	(94,706)		(26,650)	
Constant	-226,362	-412,765	-85,236	-48,691
	(248,262)	(322,577)	(57,605)	(88,669)
Observations	1,251	1,252	5,129	5,134
First-stage regression				
Labor demand shock	3191045	5257832	3514284	4951460
	(1914160)*	(1793430)***	(702292)***	(639037)***
F-test	12.00	8.59	30.14	60.04
Kleibergen-Paap	2.78	8.59	25.04	60.04

Robust standard errors in parentheses

* p<0.01, ** p<0.05, *** p<0.1

Table 9

Banking Consumption Debt and Income Changes: Financial Assets

	(1)	(2)	(3)	(4)
VARIABLES	FA>0	FA>0	FA=0	FA=0
Income change	-1.020	-0.476***	-0.0730	-0.0963
	(0.738)	(0.258)	(0.139)	(0.0907)
Secondary education	-402,434		-52,591	
	(294,677)		(55,169)	
Tertiary education	-1.148e+06		96,763	
	(868,419)		(135,114)	
Marital status	-531,146		12,274	
	(379,296)		(51,208)	
Familiy size	-18,196		5,604	
	(33,796)		(4,607)	
Marriage Break	220,756		-5,860	
	(509,475)		(66,520)	
Change in family size	89,195		1,936	
	(107,735)		(14,203)	
Change in health status	-103,705		4,196	
	(89,292)		(16,673)	
Constant	-300,483	-536,123***	-29,867	-28,031
	(267,201)	(291,307)	(34,209)	(55,397)
Observations	1,248	1,249	5,114	5,119
First-stage regression				
Labor demand shock	3062369	5110262	3439270	4908207
	(1911636)	(1789004)***	(698540)***	(634389)***
F-test	11.86	8.16	29.91	59.86
Kleibergen-Paap	2.57	8.16	24.24	59.86

Robust standard errors in parentheses

* p<0.01, ** p<0.05, *** p<0.1

Table 10

Non-Banking Consumption Debt and Income Changes: Financial Assets

	(1)	(2)	(3)	(4)
VARIABLES	FA>0	FA>0	FA=0	FA=0
Income change	0.168	0.130	-0.0841	-0.0574
	(0.274)	(0.163)	(0.135)	(0.0895)
Secondary education	9,814		21,116	
	(112,698)		(51,947)	
Tertiary education	158,594		-128,762	
	(333,647)		(123,471)	
Marital status	17,971		-35,167	
	(139,846)		(46,989)	
Familiy size	25,456***		5,886	
	(13,716)		(5,326)	
Marriage Break	-127,282		79,122	
	(139,361)		(58,940)	
Change in family size	12,818		28,463**	
	(40,326)		(12,183)	
Change in health status	-6,991		-12,237	
	(37,838)		(18,046)	
Constant	52,430	168,303	-31,910	-1,635
	(100,502)	(182,392)	(40,564)	(56,486)
Observations	1,251	1,252	5,129	5,134
First-stage regression				
Labor demand shock	3191045	5257832	3514284	4951460
	(1914160)	(1793430)***	(702292)***	(639037)***
F-test	12.00	8.59	30.14	60.04
Kleibergen-Paap	2.78	8.59	25.04	60.04

Robust standard errors in parentheses

* p<0.01, ** p<0.05, *** p<0.1

Table 11

Total Consumption Debt and Income Changes: Indebtedness

VARIABLES	(1) DIR>=0.2	(2) DIR>=0.2	(3) DIR<0.2	(4) DIR<0.2
Income change	0.413	0.661	-0.322**	-0.291*
	(1.367)	(0.745)	(0.162)	(0.100)
Secondary education	-388,100		31,657	
	(465,187)		(67,168)	
Tertiary education	11,165		49,359	
	(1.085e+06)		(187,858)	
Marital status	-209,731		-42,358	
	(387,031)		(66,267)	
Familiy size	-10,637		11,072***	
	(39,867)		(6,038)	
Marriage Break	630,600		-45,152	
	(693,777)		(76,815)	
Change in family size	-142,269		44,594**	
	(228,319)		(17,326)	
Change in health status	97,758		-34,082***	
	(250,909)		(19,828)	
Constant	-327,635***	-605,751	-63,739	13,062
	(167,699)	(432,594)	(51,506)	(73,817)
Observations	822	824	5,558	5,562
First-stage regression				
Labor demand shock	2340887	4070413	3540108	5125378
	(3064507)	(2757404)	(666158.8)***	(616989)***
F-test	6.86	2.18	40.86	69.01
Kleibergen-Paap	0.58	2.18	28.24	69.01

Robust standard errors in parentheses

* p<0.01, ** p<0.05, *** p<0.1

Table 12

Banking Consumption Debt and Income Changes: Indebtedness

	(1)	(2)	(3)	(4)
VARIABLES	DIR>=0.2	DIR>=0.2	DIR<0.2	DIR<0.2
Income change	-0.0879	0.0868	-0.216**	-0.180*
	(1.047)	(0.545)	(0.106)	(0.0638)
Secondary education	-488,916		-31,791	
	(387,080)		(43,421)	
Tertiary education	-128,534		21,705	
	(804,147)		(115,310)	
Marital status	-166,608		-31,391	
	(315,802)		(43,105)	
Familiy size	18,937		1,837	
	(36,605)		(3,364)	
Marriage Break	93,098		-15,116	
	(539,200)		(48,787)	
Change in family size	-57,288		11,426	
	(183,183)		(12,522)	
Change in health status	13,790		-14,607	
	(191,772)		(11,377)	
Constant	-81,815	-358,767	-48,842	-43,543
	(147,433)	(313,063)	(31,817)	(45,994)
Observations	819	821	5,543	5,547
First-stage regression				
Labor demand shock	2526396	4352037	3418109	5018507
	(3054631)	(2747677)	(662194.2)***	(611727)***
F-test	6.95	2.51	40.02	67.30
Kleibergen-Paap	0.68	2.51	26.64	67.30

Robust standard errors in parentheses

* p<0.01, ** p<0.05, *** p<0.1

Table 13

Non-Banking Consumption Debt and Income Changes: Indebtedness

VARIABLES	(1) DIR>=0.2	(2) DIR>=0.2	(3) DIR<0.2	(4) DIR<0.2
Income change	0.652	0.678	-0.0533	-0.0644
	(0.998)	(0.580)	(0.0947)	(0.0623)
Secondary education	185,677		48,829	
	(339,872)		(38,994)	
Tertiary education	364,398		-21,964	
	(802,000)		(108,993)	
Marital status	-23,081		-7,779	
	(294,465)		(36,412)	
Familiy size	-24,980		10,100**	
	(36,574)		(4,026)	
Marriage Break	709,898		492.1	
	(484,477)		(41,965)	
Change in family size	-32,088		28,175*	
	(166,964)		(8,771)	
Change in health status	66,877		-10,247	
	(198,246)		(11,555)	
Constant	-201,986	-69,970	-5,406	55,802
	(150,764)	(334,451)	(33,678)	(46,247)
Observations	822	824	5,558	5,562
First-stage regression				
Labor demand shock	2340887	4070413	3540108	5125378
	(3064507)	(2757404)	(666158)***	(616989)***
F-test	6.86	2.18	40.86	69.01
Kleibergen-Paap	0.58	2.18	28.24	69.01

* p<0.01, ** p<0.05, *** p<0.1