



Superintendencia
de Bancos de Panamá

Household debt

April 2021



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A. Introduction

The credit granted by banks in Panama, both for Panamanians and foreigners residing in our country, amounts to USD 54.30 billion. Fifty-three point two percent (53.2%) of this amount is allocated to retail banking, 43% to financing productive sectors and 4% is used to financing public sector civil works and financial operations (loans to banks, finance companies, cooperatives, etc.)

The main objective of this paper is to measure the level of debt of the Panamanian people with the National Banking System (NBS) banks. At present, the NBS allocates approximately USD 30 billion of credit to households, which shows a high degree of financing of the people in a regulated market.

Household credit is made up of residential mortgages, personal loans, auto loans and credit cards.

The role played by consumption is important in the economic development of a country, since this variable is one of the main growth factors in a free market economy. However, there must be a balance with other variables, such as the production of goods and services, which in turn contribute to maintaining adequate employment levels and their inherent capacity to generate wealth, which contributes to increasing the people's savings level.

For many years, the commercial portfolio was greater than loans intended to individuals, which is considered normal, since this indicates that the country is making more progress in the productive sector than in consumption. However, in a country like Panama, whose economic system is oriented to services, with a strong re-exports and imports component, the easiness for buying a house have favored the increase of these types of loans.

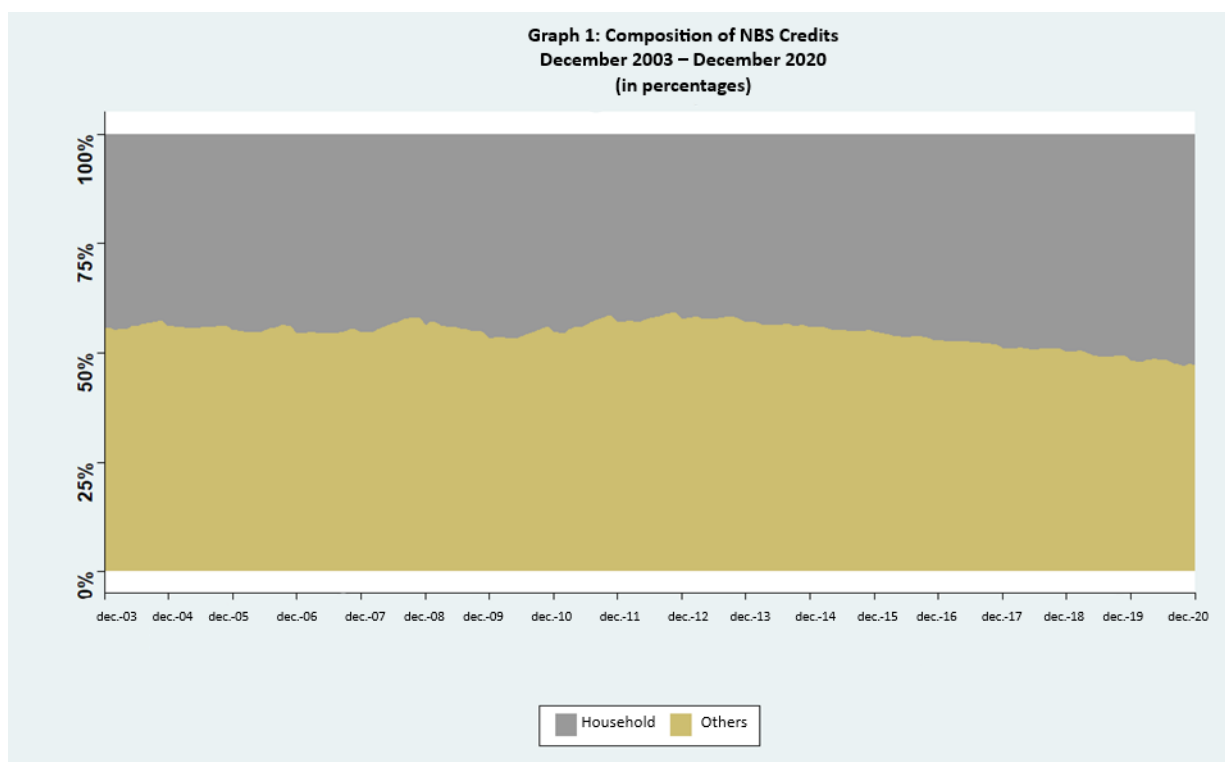
One aspect that produced a noticeable drop in the commercial sector was the performance of the Colon Free Trade Zone's exposure, which contributed significantly to the decrease in corporate activity in Panama.

The economic performance between 2007 and 2017 was an important cause for the domestic credit to take-off, which had a positive impact on the credit granted to the consumer sector. This economic performance brought, as a result, significant increases, even double digits for several years. This juncture, along with a competitive credit offer, stood out among the factors that significantly boosted consumer credit.

Another relevant element is the share of mortgages in credit, where more than USD 16 billion were granted for the purchase of homes, which can be called a good debt, since it is for buying a home where a family will live in for many years and tends to be appreciated over the years, so it can also be considered as an investment.

B. Household Credit Balances

Household credit in Panama represents an important share of the bank's loan portfolio. As of December 2020, loans for housing and consumption reached 53.2% of loans granted by NBS banks, with a relatively stable trend over time (**Graph 1**), which have been growing in the recent past. Evidence from developed countries shows that household credit represents around 63% of loans¹.



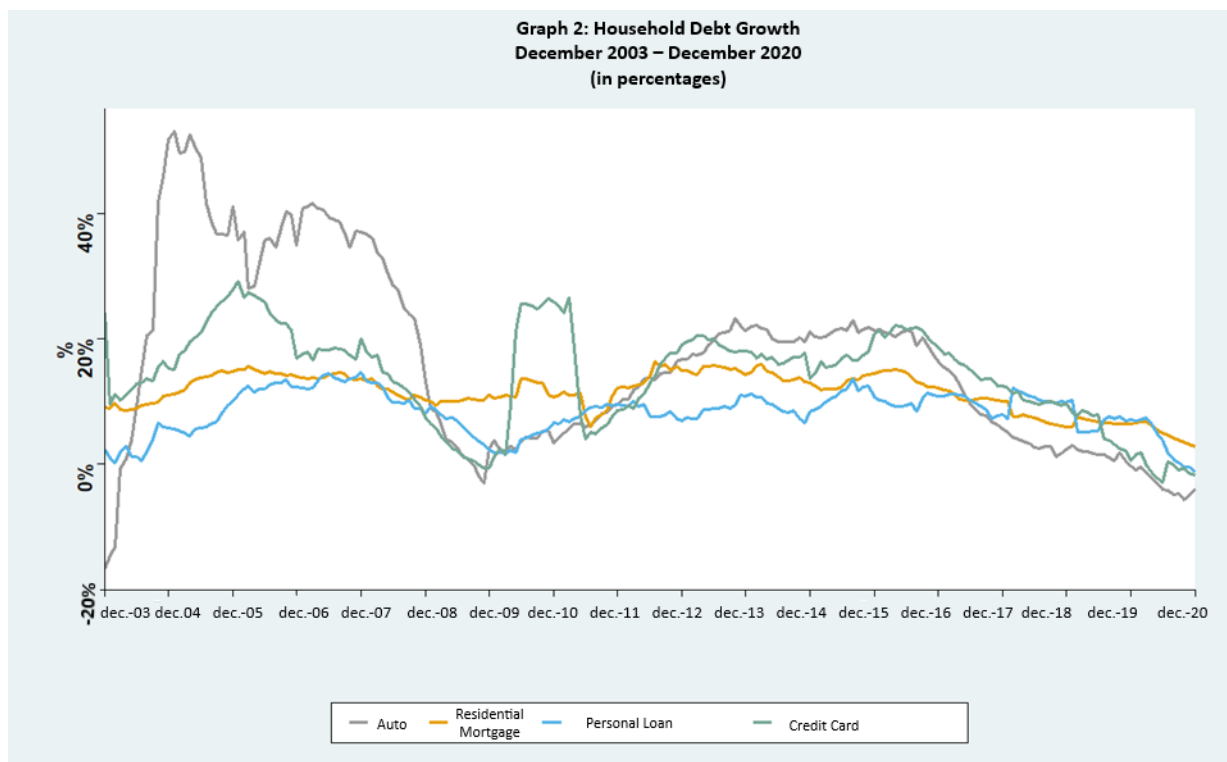
Source: SBP with General License Banks data.

1. Description of Panamanian household debt

Household debt (defined as the total of mortgages and consumer loans granted by banks) amounted to USD 28.80 billion as of December 2020 and is made up of 43.1% of consumer loans and the remaining 56.9% of residential mortgages. In the current context of slowdown in economic activity, as a result of the pandemic, a slower growth rate in household credit has materialized, considered healthy as self-adjustment to potential impairment events in said portfolio (*see Graph 2*).

¹ The foregoing responds to the fact that to the extent that there are more developed financial systems, companies tend to finance themselves through issuances.

However, given the current nature of the economic cycle (which responds to the unfolding of the pandemic), the increase in delinquent loans should be observed with caution.

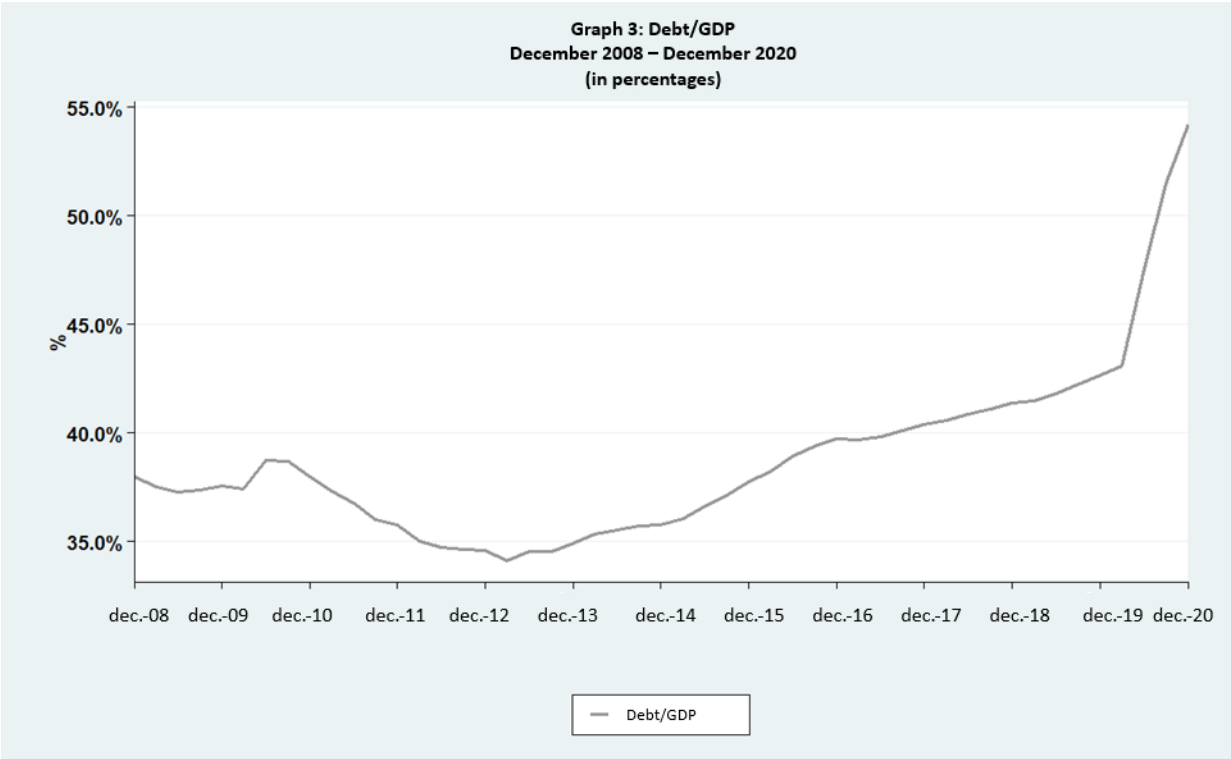


Source: SBP with General License Banks data.

The annual growth of household debt stood at 0.3% in December 2020, a figure lower than that of 2019 (5.7%), which indicates a sharp slowdown. This performance, although positive, is due to the behavior of housing loans, which went from growing at a rate of 6.5% in December 2019 to 2.8% in December 2020. Among the factors that have influenced the growth of the balance of this portfolio has not registered a greater deterioration due to the contraction of economic activity, there is stability in interest rates (both preferential and non-preferential) and lower growth in house prices, factors that have contributed to increasing the relative attractiveness of housing compared to other types of assets. On the other hand, consumer loans are in negative figures.

The foregoing sheds light on the composition of household debt, which is clearly unbalanced, with an evident predominance of debt related to housing. Mortgages represent the bulk of debt, a proportion that has been increasing.

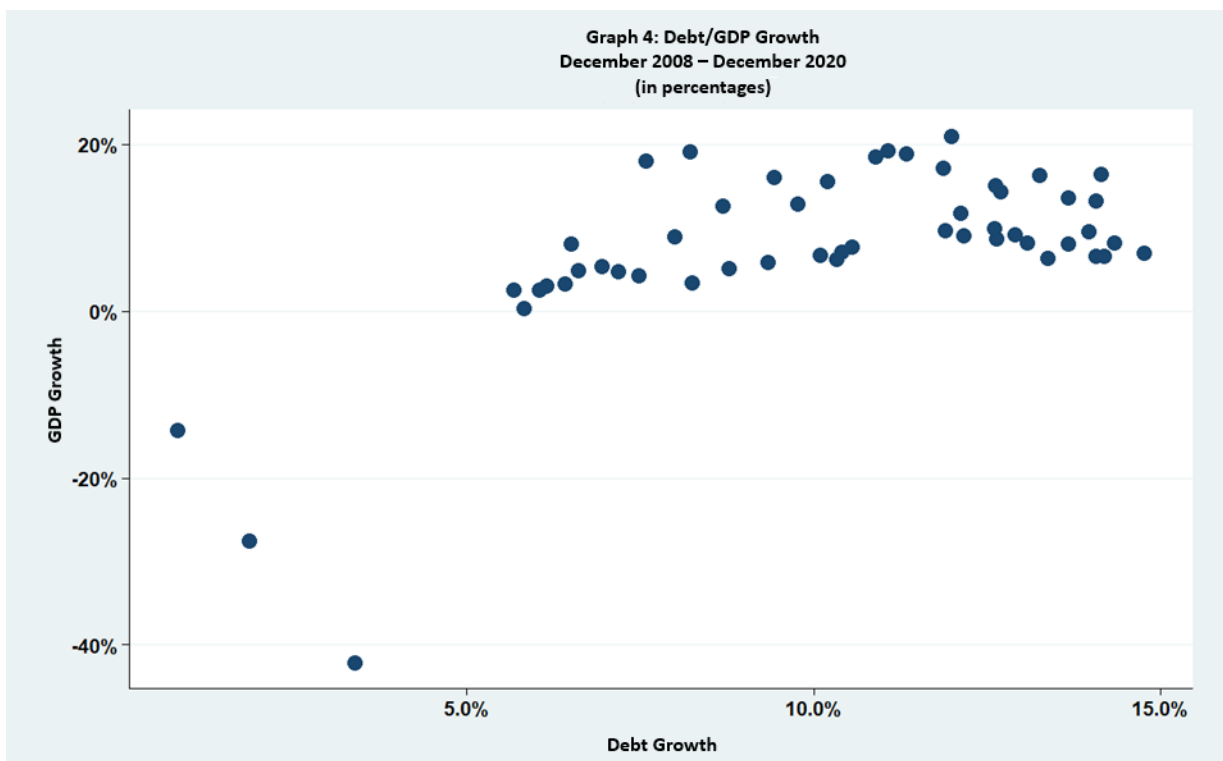
Financial debt, household segment, measured as the Credit/GDP ratio, reached an average of 54.2% in December 2020². We observe that this indicator has been rising, consistently, but given the COVID-19 pandemic, a deleveraging of households is foreseeable in the coming months.



Source: SBP with General License Banks and NISC data.

It should be noted that an important empirical regularity, widely documented in books, establishes the direct relationship between economic activity and credit aggregates. When economic conditions are favorable (unfavorable) and the value of collateral increases (decreases), it is easier (difficult) for firms and households to obtain financing, which further reinforces the expansionary (recessive) cycle of economy. This regularity is known in texts as the “financial accelerator” theory.

² This result should be viewed with caution since it compares a flow (GDP) with a stock (household debt). The fall of the denominator could provide a biased result, however, it gives an idea of the magnitude of the debt maintained by them.



Source: SBP with General License Banks and CGR data.

Given the current situation, as consumption and output contract in aggregate terms, the likelihood of systemic stress in the banking sector may increase, since financial entities have direct and indirect exposures to credit risk, versus the household sector.

It is foreseeable that the intense negative impact of the COVID-19 crisis on economic activity will trigger a deterioration in the quality of the loan portfolio of financial entities, with substantial variances between the different economic sectors. Given the foregoing, the expected evolution of the default rate as a whole will also depend on the distribution of the loan portfolio by economic sectors and agents.

At the sectorial level, several activities present to date, as part of their domestic portfolio, considerable delinquency levels. We also emphasize that the historic series on the evolution of default on household debt reveals that, for those who resort to different loan products, defaults tend to occur, firstly, in the consumer segment (specifically in uncollateralized loans). Considering these historic patterns, it is expected that this segment will suffer a relatively high and early impact on its credit quality as a result of the COVID-19 crisis, once the financial relief measures are over.

C. Indebtedness versus Over-indebtedness:

The debts acquired by individuals, if they are approached in a reasonable manner, are tools that benefit people to acquire goods or services through the resources the bank grants them,

charging a reasonable interest rate that will allow the debtors to continue with their normal life without detracting their daily living expenses. That is why international standards recommend that people do not to allocate more than 50% of their monthly salary to meet credit obligations. This indicator is called Debt-to-Income ratio.

However, each country has different realities and diverse payment cultures. Individuals in the course of their professional lives take on new obligations, as they acquire responsibilities. But, this behavior occurs when economic activity is performed in normal conditions, since at times like the ones the world is currently experiencing, in the framework of global recession, and from which Panama does not escape from, the credit obtained through a credit card could be considered as a survival tool.

The most important product within retail banking is mortgage credit, which represents 56.9% of the total granted. However, in terms of the number of credit facilities, the most substantial sub-item is personal loan, which rises to 687,000 personal loans granted and represents 38.8% of total loans granted that totaled 1,771,232.

**Table 1: Portfolio granted to retail banking by the NBS
(December 2020)**

Type of credit	Banking System (millions of USD)	Banking System (Quantity)	Average Debt
Residential mortgage	15,304	254,240	60,195
Second home mortgage	1,036	10,042	103,198
Auto	1,707	154,906	11,017
Personal loan	8,221	687,694	11,955
Credit card	2,441	664,350	3,674
Household debt	28,709	1,771,232	16,209

Source: SBP

A product that gained a place in recent years is the credit obtained via credit cards, which is used by people, according to their needs or as electronic money. At the end of the 90s, the requirements for obtaining a credit card were relaxed, which contributed to the issuance of a large number of cards. Ten years ago, some 350,000 cards had been issued, today there are about 664,000 cards, which shows that as the population grows, more people acquire a facility or other people have more than one credit card.

The development of empirical tests demonstrate a direct relationship between economic growth and positive credit performance. The disbursement of loans helps people to be able to satisfy their needs, committing in the medium or long term the income they will obtain in the future. On the other hand, the economic writings indicate that access to credit represents a tool to try to reduce poverty and cushion, in some way, the imbalance between income and expenses of the ordinary citizen.

In Panama, macroeconomic aggregates show that the positive correlation between economic development and credit growth intensified between 2006 and 2016, in which a rise in the per

capita income was observed. During this period, by increasing their income, the people had better access to credit and, therefore, there is a greater level of financial deepening. From the data indicated, it can be inferred that in recent decades, consumers, especially from the bottom quintiles, have had greater access to credit and thus have increased their well-being, in exchange, however, for greater indebtedness, as explained below.

1. The pros and cons of access to credit

We can say that the cons of greater access to credit by population is the over-indebtedness. According to a survey by the International Monetary Fund conducted in the last decade, the real average annual growth of household credit worldwide reached 21% and, on the other hand, GDP growth was 4.1%. This proportion could indicate that economic growth in certain countries leverages strongly the growth of household debt. In our country, at a time when the GDP was growing above double digits, credit grew by an average of 18%, which indicates a trend similar to what the IMF survey states.

We think that it is possible to go from having a balanced level of indebtedness to a negative level of credit commitment when the financial burden becomes unmanageable. This phenomenon is called over-indebtedness. Assuming different possible causes, we could divide them into justified and unjustified grounds. Among the unjustified grounds we could mention excess credits, mismanagement, leisure expenses and excess charges, and as for the justified grounds we can mention layoffs, separation or divorce, illnesses, accidents, income reduction, among others. At present, we could add to this list the impact of the pandemic, which directly affects unemployment or income reduction. Empirical tests indicate that over-indebtedness may be due to a mixture of factors, elements such as unemployment and illness have an important share within over-indebtedness. In summary, we could conclude that a greater share over-indebtedness occurs due to the phenomena that are far from the debtor's control and that trigger an individual impact, however, there are also grounds resulting from credit mismanagement.

There are different metrics that help to analyze over-indebtedness performance, of which we can mention variables such as the cost of living (CPI), minimum wage, unemployment, etc.

In texts, there is no consensus about which should be the criteria to determine what over-indebtedness is. Because of this, the idiosyncratic elements of the different countries must be taken into account, although in Latin America there are countries with very similar customs. Countries like Panama are closer to the purchasing behavior of the Dominican Republic than that of Central American countries.

In our survey, by using in-house data analysis tools, we consider that the level of indebtedness in Panama occurs when an individual allocates more than 50% of his monthly income to pay

credit obligations. Within this metric, it must also be considered if the individual is part of a household where there are several people working or if he still lives with his parents.

The data used in our analysis resulted in an increase in over-indebtedness in Panama and that this behavior affects strongly the households with lower income. Nevertheless, it is also observed, according to data from telephone surveys conducted to complement this paper, that there is an average of 2 or more people working in a household and that they contribute to alleviating household expenses.

2. Over-indebtedness definitions and indicators

According to the life-cycle hypothesis, households turn to credit markets because they want stable living conditions over the course of a lifetime. Since income generally increases at the beginning of a person's life and decrease after retirement, debt is the means that allows households to level their expenses throughout their lives; young families expect their future income to grow and spend more than they earn, thus accumulating debts that they will pay off when they are more mature.

In the above framework, there are many reasons why a household can accumulate more debt than it can pay³. The first factor of over-indebtedness is financial recklessness (Disney, Bridges and Gathergood, 2008; Anderloni and Vandone, 2010), i.e., poor financial decisions caused by an inadequate understanding of the real cost of loan repayment. This factor may be related both to the issue of transparency of the lenders' terms and conditions (Department of Trade and Industry, 2001) and to the borrowers' financial knowledge and ability to manage their finance correctly (plan expenses and income) (Lusardi and Tufano, 2009).⁴

Recklessness can also stem from psychological biases and mental shortcuts that affect consumer decisions and predictions about loans, such as overconfidence bias, i.e. the tendency to underestimate the probability of suffering a negative event (Kilborn, 2005).

However, over-indebtedness can also arise when unexpected events modify the original conditions in which the contract between creditor and debtor was entered into (Keese, 2009)⁵. An unexpected reduction in household income (e.g. layoff), an unforeseen expense (e.g. expensive health care), and an increase in debt cost (e.g. a rise in interest rate) are all events

³ See Betti et al (2007) for an analysis of the nature of over-indebtedness within the framework of economic theory and its measures.

⁴ See Willis (2008) for a recent critique of public financial education programs.

⁵ Of course, insurance can limit the effects of negative events. When events are reasonably foreseeable, the lack of insurance may be seen as a way of recklessness

that can lead to over-indebtedness. Unexpected changes in the family structure can also affect debt payment ability (e.g. a divorce or the birth or death of a family member).

In some cases, over-indebtedness stems from poverty, which pushes people unable to meet their expenses to apply for a loan that has little chance of being repaid. This mainly occurs when creditors are unable to choose suitable debtors. It is also important to point out the specific situation in which the need for a loan is determined by the over-indebtedness condition itself, which produces a potentially disturbing vicious circle for families and dangerous for financial brokers.

But, what do we really mean by over-indebtedness and how can we measure it? A recent survey conducted by the European Commission to develop a common definition across EU has identified a set of criteria that should be applied (European Commission, 2010):

- The measurement unit should be the household because the income of individuals is generally grouped within the same household;
- The indicators should cover all aspects of households' financial commitments; mortgages; consumer credit; to pay utility bills; to cover rent and mortgage payments, and so on;
- Over-indebtedness implies the inability to meet recurring expenses and, therefore, it should be seen as a structural rather than a temporary state;
- The problem cannot be solved by simply borrowing more money;
- For a household to meet its obligations, it must substantially reduce its expenses or find other ways to increase its income.

According to these criteria, a household is over-indebted when its existing and future resources are insufficient to meet its financial obligations without lowering its living conditions, which could mean reducing it below what is considered the minimum acceptable in the country in question, which in turn, could have both social and political implications.

This definition of over-indebtedness could be widely accepted, in principle, but in practice it is very difficult to identify households in such a situation. Consequently, empirical tests have tended to use more practical definitions.

Recent studies that have addressed over-indebtedness have tended to converge on a common set of indicators, but point out that there is no universal agreement on what indicator best captures true over-indebtedness (BIS, 2010; Keese, 2009). The indicators broadly show four aspects of over-indebtedness: making high repayments versus income; being in arrears; making intensive use of credit; and considering debt a burden (see Table 2).

Table 2: Common Over-indebtedness Indicators

Debt service cost	Households spending more than 30% (or 50%) of their gross monthly income on total (secured and unsecured) loan repayments.
	Households spending more than 25% of their gross monthly income on unsecured loans.
	Households whose payments place them below the poverty line.
Arrears	Households with more than 2 months in arrears of a credit obligation or utility bill.
Number of credit	Households with 4 or more credit obligations.
Subjective perception of burden	Households declaring that their loan payments are a “heavy burden.”

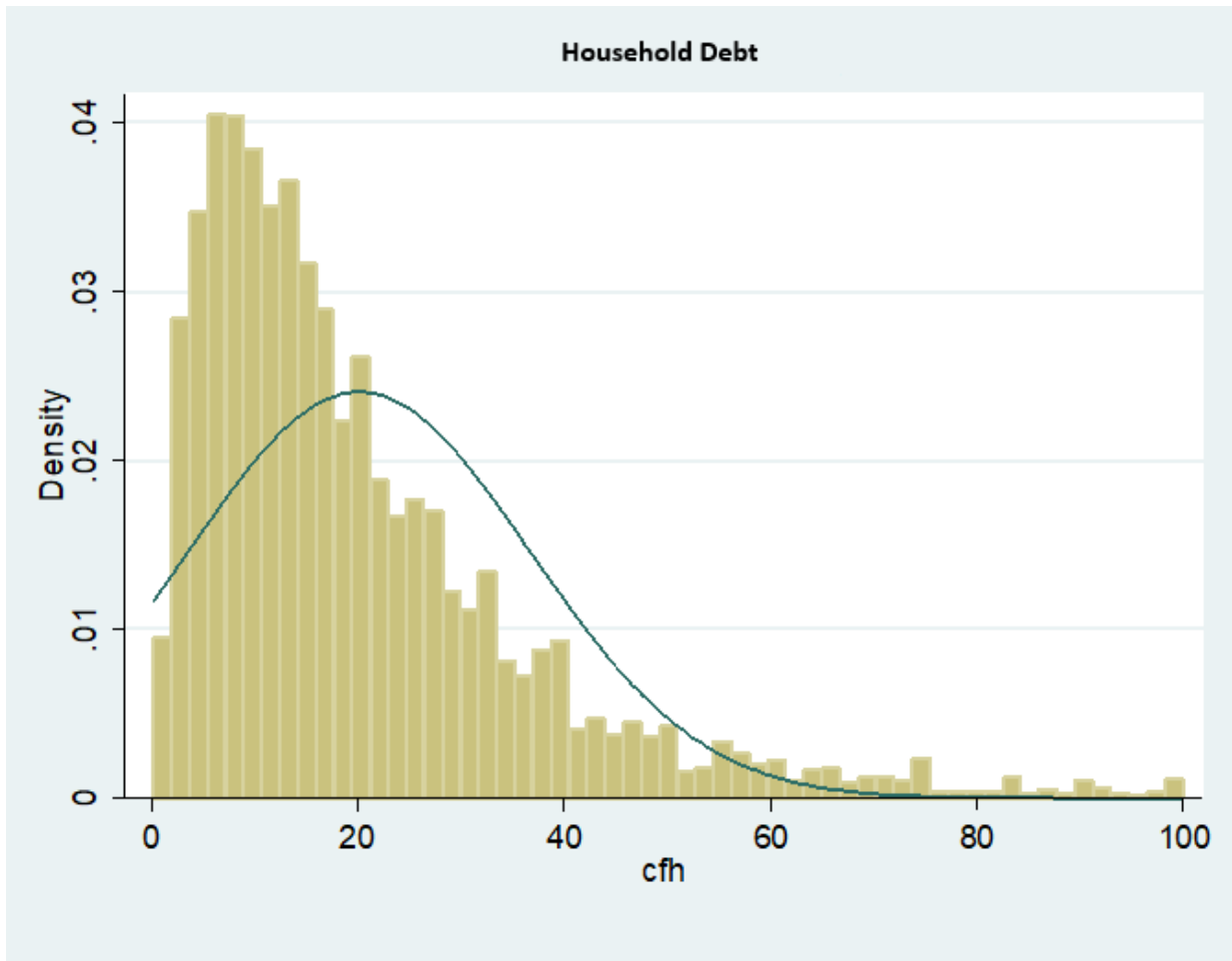
Source: BIS

3. Microeconomic description of Panamanian household debt

For the purposes of the evaluation of this report, we manage a database with information on about 22,000 people, which allow us to make a representation of households based on some demographic and economic variables of interest for the purpose of this document. It should be noted that for debt purposes, we only have information on bank loans. Although banks are an important part of the financial system⁶, information from other financial operators and data on informal loans are not included.

A relevant indicator, based on those provided in the previous section, is the estimate of financial burden associated with debt, which is understood as the ratio of monthly payment flows versus labor income of the people subject to credit. The results for the sample as of December 2020 suggest that households allocate an average of 27.1% of their gross income to pay debts, a figure that changes across different income brackets.

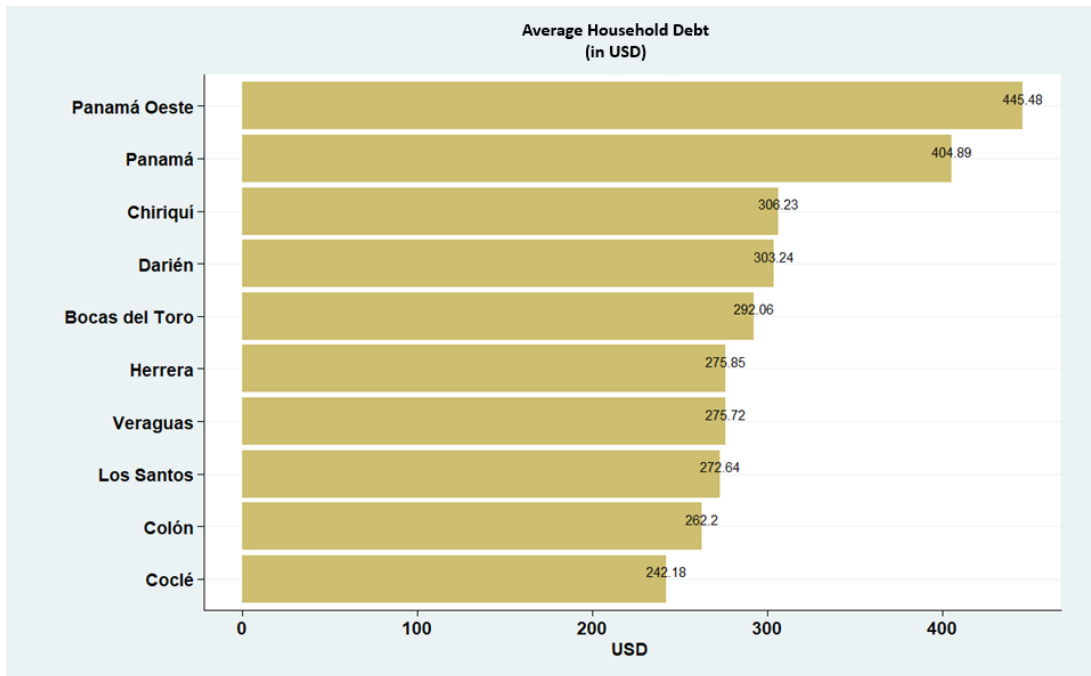
⁶ Banks represent more than 90% of credit management establishments.



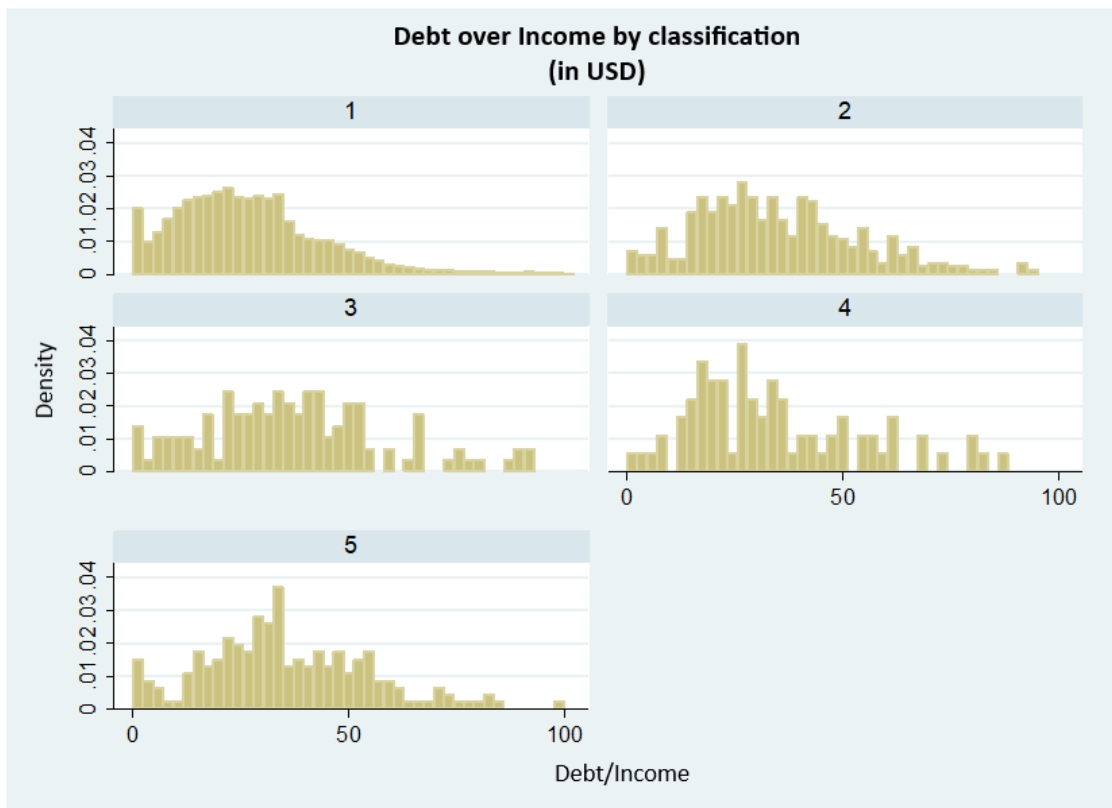
Source: Financial Studies Division of the SBP

As of December 2020, the representative debt⁷ of bank clients amounted to USD 230.4. According to observations, overall, household debt in Panama is not misaligned to the level observed in countries with similar per capita income (considering purchasing power parity, graph 6).

⁷ We refer to the median of distribution.

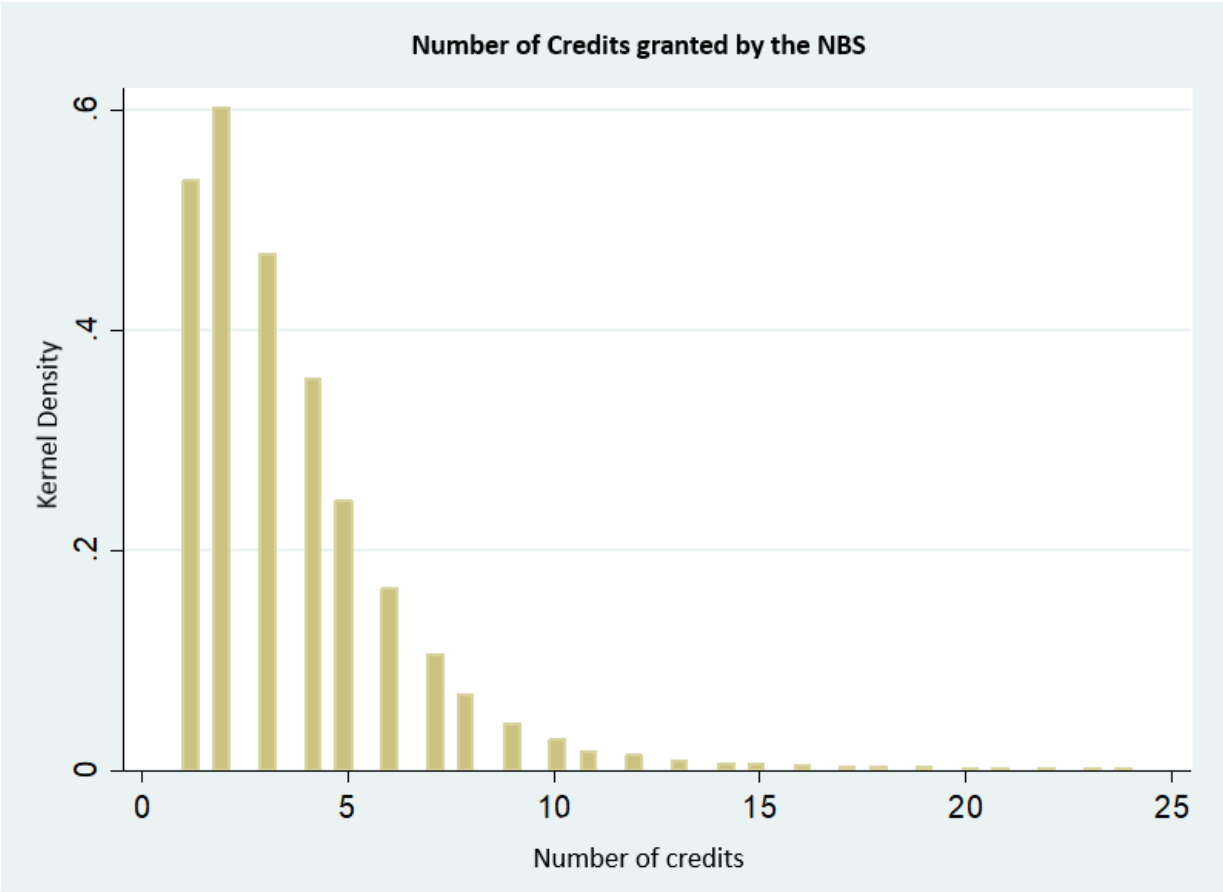


Considering the distribution in terms of the classification of individuals with debt (population considered for the survey), there is an increasing trend according to the level of financial burden of individuals, i.e., people with a heavier financial burden tend to show a greater deterioration within the classification.



Following Fuenzalida & Ruiz-Tagle (2009), the analysis of household over-indebtedness starts from the definition of a dependent variable that is constructed from the estimate of financial burden. In this way, it is established that a household is in a state of over-indebtedness when the total CFI indicator takes a value greater than 50% of its income⁸. The information suggests that 9.7% of people could have a debt level above 50%.

Taking into consideration another alternate indicator, the number of loans, the sample suggests⁹ that 6.9% of debtors could have an over-indebtedness problem. This data is consistent with the portfolio quality structure, prior to the pandemic, which indicates that around 95% of the portfolio is in pass category.



Source: SBP

⁸ This is because article 161 of the Labor Code does not allow discounts to exceed the thresholds defined in the first set of indicators. Specifically, the rule provides that total of deductions or withholdings will not exceed 50% of the salary in money, except in the case of alimony (child support), and may allow this limit to be raised to 25%.

⁹ It is worth noting that the data corresponds to banking information only. The foregoing excludes information on informal loans, which could represent an important figure within household balances.

D. A model to determine household over-indebtedness

1. Model particularities

Taking into account the results indicated by textbooks, this section presents the particularities of the models used to estimate the probability of over-indebtedness.

Following Fuenzalida & Ruiz-Tagle (2009), the analysis of household over-indebtedness starts from the definition of a dependent variable that is constructed from the estimate of financial burden. In this way, it is established that a household is in a state of over-indebtedness when the total CFI indicator takes a value greater than 50% of its income. The model is estimated by expressing said indicator based on socioeconomic variables similar to those referred to for the case of the probability of default:

$$\Pr(\text{Over-indebtedness} = 1 | \Theta) = f(\text{income, debt, gender, employment, employment* income})$$

where $\Pr(\text{Over-indebtedness} = 1 | \Theta)$ is the probability of being over-indebted given the information set Θ that includes information about the debtor.

2. Estimation methodology

The probability that a household has of being in a state of over-indebtedness (PS) is calculated using a Logit model, which is estimated based on the already described socioeconomic characteristics of the households. The main reason why we chose to use this model, instead of a Probit, refers to the fact that the logistic function has heavier tails than normal distribution.

The dependent variable of the model is constructed based on a latent variable, which is defined as follows:

$$y_i = \begin{cases} 1, & \text{if } y_i^* > 0 \\ 0, & \text{in another case} \end{cases}$$

where y_i is the dependent variable in the Logit model; y_i^* is the latent variable. The latter is defined as follows:

$$y_i^* = \beta_1 x_{1,i} + \beta_2 x_{2,i} + \dots + \beta_K x_{K,i} + \eta_i \quad \forall i = 1, \dots, n$$
$$y_i^* = x_i' \beta + \eta_i \quad \eta_i \sim iid(0, \sigma^2)$$

where x_i is a vector made up of K socioeconomic variables, β is a vector of K unknown parameters and $\{\eta_i^*\}$ is a succession of independent and identically distributed (*iid*) stochastic disturbances.

The existing relation between the dependent variable of the model and the latent is defined as follows¹⁰:

$$\Pr(y_i = 1) = F(\eta_i \leq x_i' \beta)$$

$$\Pr(y_i = 1) = F(x_i' \beta)$$

Replacing $F(.)$ in the above equation by the logistic distribution function, $\Lambda = \frac{e^{x_i' \beta}}{1 + e^{x_i' \beta}}$ we obtain:

$$\Pr(y_i = 1) = \frac{e^{x_i' \beta}}{1 + e^{x_i' \beta}}$$

This equation indicates the probability that a household has of being in a state of over-indebtedness.

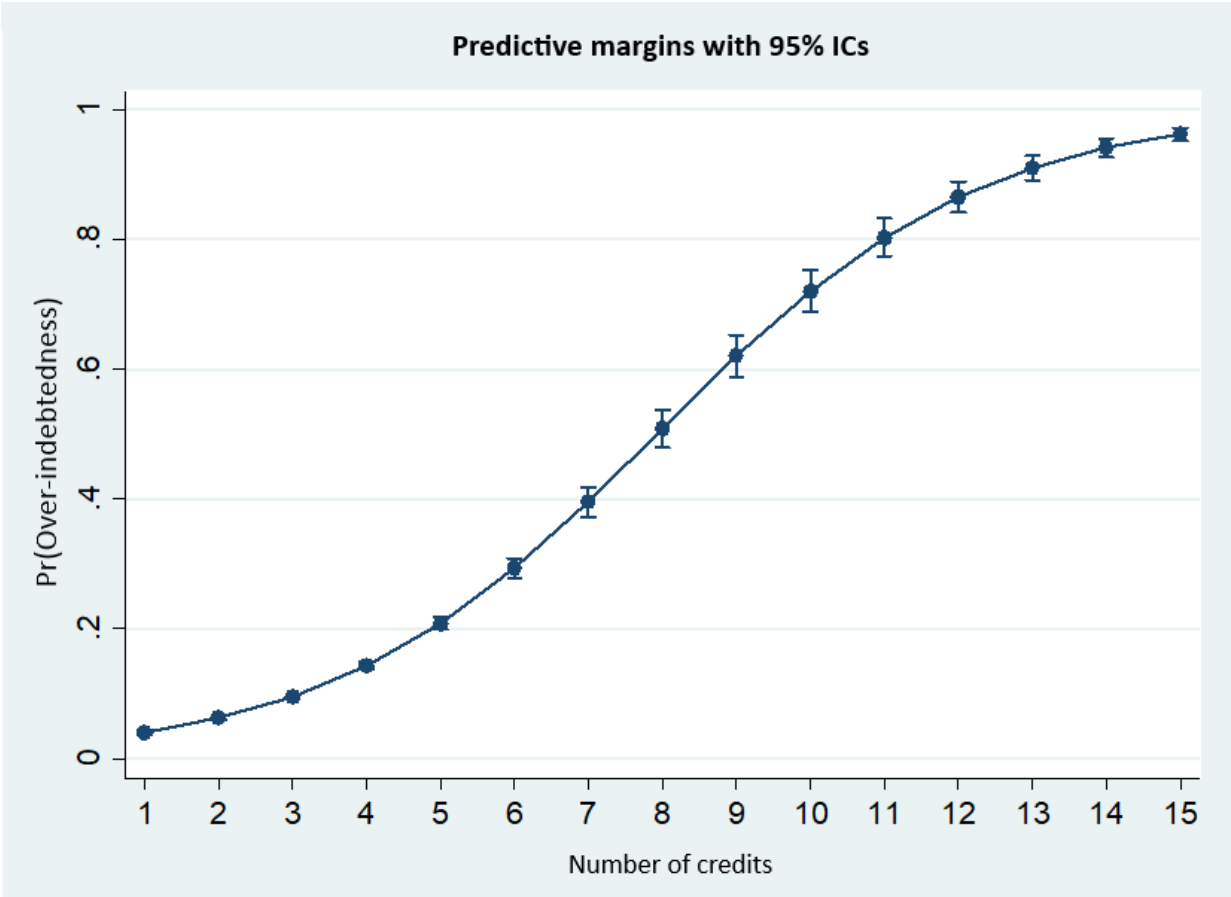
Box 2: Common Over-indebtedness Indicators

Variables	-1	-2	-3	-4	-5
	Model 1	Model 2	Model 3	Model 4	Model 5
Gender (male)		0.223***	0.222***	0.146***	0.0822*
		-0.0461	-0.0463	-0.0492	-0.0498
Special mention:			0.834***	0.264*	0.191
			-0.134	-0.15	-0.153
Substandard			1.084***	0.780***	0.738***
			-0.214	-0.228	-0.233
Doubtful			0.942***	0.642**	0.673**
			-0.282	-0.302	-0.31
Loss			0.960***	0.722***	0.638***
			-0.176	-0.187	-0.187
Number of credits				0.458***	0.548***
				-0.012	-0.136
Income					-0.04
					-2.59E-05
Constant	-2.228***	-2.347***	-2.391***	-3.731***	-3.266***
	-0.0225	-0.0359	-0.0364	-0.056	-0.0614
Remarks	22,456	22,218	22,218	22,218	22,218

¹⁰ A latent variable is one that is not directly observable, but is inferred from one that is observable and measurable.

To evaluate the incidence of the over-indebtedness indicators, we evaluate the marginal effect of the number of credits on the probability of having a financial burden above 50%.

We found that a person with only one credit has a 4% probability of having a financial burden above 50%, while a person with similar characteristics, but with more than 10 credits, has an 80%↑ probability. This is relevant since people with many credits could be especially susceptible to default events.



E. Conclusions

In this paper, information from a novel database, obtained through big data methods, was used to analyze the indebtedness of this sector. We found that, even though household income could be an element that affects their debt, it is possible that other elements on the organization could have greater weight in the fact of being over-indebted.

The availability of microeconomic data for each household made it possible to overcome some of the limitations present in approximations that have been made previously in regards to the issue of the probability of high financial burden on households. As the survey is extended, both in coverage and time, it will be possible to advance extension to the proposed models.



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