Tropeçar não é cair

(Stumbling Is Not Falling)

Addressing the Vulnerabilities of the Middle Class in Brazil

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The findings, interpretations, and conclusions expressed in this report are those of the authors and should not be attributed in any manner to Harvard Kennedy School or any other institution or person cited. All errors remain our own.

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Executive Summary

In 2003-2013 Brazil witnessed an unprecedented social transformation that brought almost 45 million people into the middle class, as measured by income per capita (Neri, 2014). However, the favorable internal and external conditions that fostered economic growth and social mobility through the labor market have halted, as Brazil is now facing an economic contraction that has been accompanied with an increasing fiscal deficit and high inflation rates. What is worrisome is that even under the most optimistic forecasts, there are no tangible signs of a potential recovery in the short-to-medium run. In this context, this policy paper analyzes panels and pseudo-panels of National Household Surveys, and Expenditures Surveys, with the objectives of identifying and examining the factors that make the Brazilian middle class vulnerable to economic downturns, and proposing policy options that are technically sound, administratively feasible and politically supportable, for the government to (i) prevent a downward shift in income of the vulnerable segments of the population, and (ii) strengthen the mechanisms that help build and consolidate the middle class.

Our first finding is that the median loss in household income per capita of the vulnerable middle class in the 2014-2015+ crisis is R$500, or 0.6 minimum wages. Moreover, vulnerable household heads are usually young, female, have low levels of education, and are informal or unemployed. These households exhibit high dependency ratios, and are located in metropolitan areas, particularly in the Northern and Northeastern regions.

To address short term falls and attend current social demands, we propose to implement a transitory Emergency Program, with the aim of alleviating the burden of expenditures of the vulnerable segments of the population, by directly compensating them for VAT expenditures originated in consumption of basic basket goods. This program would be financed with a Tax on Financial Transactions Abroad, and its duration would be conditioned on achieving at least two consecutive quarters of economic growth. Moreover, in order to smooth the impact of the recession on the labor market, we propose to increase the reach of the Job Protection Program (PPE), which increases labor market flexibility, to Small and Micro businesses, using a targeted strategy. The duration of this program would also be linked to economic performance, and would generate savings by reducing the pressure of the Unemployment Insurance Program on the budget.

Finally, we have identified two spaces of policy action to help consolidate the middle class in a post-crisis environment. The first one is to keep supporting the vulnerable build skills by fostering apprenticeship programs and internships. The second one is related to extending access to affordable housing by opening up the market to the private sector.

"Our objective is to consolidate the expansion of the middle class. We want Brazil to be a middle class country." [1]

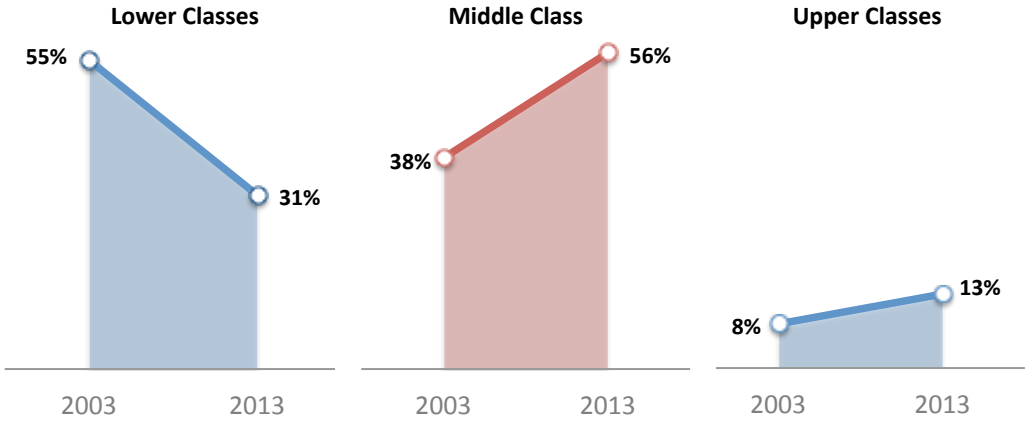
Dilma Rousseff

Section I: Motivation

In 2003-2013 Brazil witnessed an unprecedented social transformation that brought almost 45 million people into the middle class, as measured by income per capita (Figure I.1). Different researchers have attempted to quantify the underlying drivers behind the shift in income and the emergence of this "new middle class (NMC)" (Neri, 2014).[2] As a result, a wide literature shows that the emergence of the NMC in Brazil was mostly driven by a favorable macroeconomic context and its effect on the labor market. Most studies calculate that labor income has accounted for the largest part of this shift: estimates range from 45% by Azevedo et al (2013), to 65% by Neri (2010, 2014), to even 70% by World Bank (2013). Accordingly, income from transfers and from pensions had a lower impact, estimated to have ranged between 30% and 45%.

Figure I.1. In 2003-2013, 45 million people entered the Middle Class in Brazil[3]

% of Brazilian population by Class



Source: Built by the authors, based on estimates by Neri (2014).

[1] Translation by the authors, from the original: *"Nosso objetivo é consolidar a expansão da classe média. Queremos que o Brasil seja um país de classe média."* (PT, 2015).

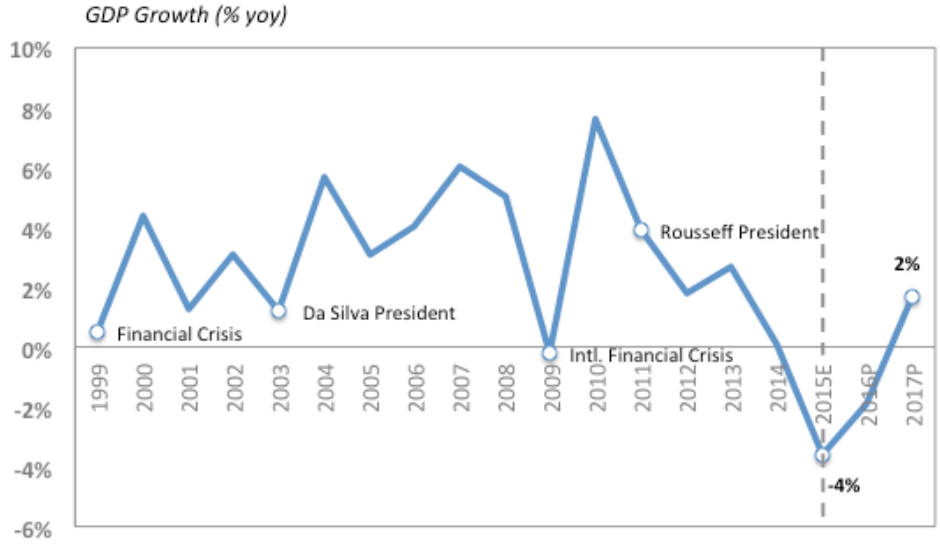
[2] According to UNDP (2014), the "new middle class" is the common name given to the Brazilian economic class C, since Fundação Getúlio Vargas started monitoring the evolution of Brazilian economic classes (A, B, C, D and E), where A is the richest, and E the poorest.

[3] In this chart, the middle class is defined as the population between the 53rd and 88th average household per capita income percentiles of 2003, following Neri (2014).

However, the favorable internal and external conditions that fostered economic growth and social mobility through the labor market in 2003-2013 have now halted. The Brazilian economy has been contracting at an increasing rate since the second quarter of 2014, amidst a context of a large fiscal deficit, and high unemployment and inflation rates, which have brought rising social demands and disapproval of the current administration (Economist, 2016).

What is worrisome is that even under the most optimistic forecasts, there are no tangible signs of a potential recovery in the short-to-medium run (Figure I.2). If this situation persists, the middle class, and particularly the most vulnerable segments within it, will face an increasing risk of falling into poverty. In fact, using conservative assumptions, Adriano Pitoli, partner at *Tendencias Consultora*, estimates that a big part of the social mobility achieved in 2003-2013 will be annulled by 2017 only as a result of rising unemployment and inflation (*Estadão* News, 2015). Moreover, following Neri's methodology, Ana Maria Barufi, Sr. Economist at Bradesco, computed that only in Jan-Nov 2015 the share of the middle class in Brazil fell by 3.7 million people, from 56.6% to 54.6% of the population (*Fazenda*, 2016).

Figure I.2. After growing at 3.7% per year in 2003-2013, the Brazilian economy is contracting



Source: Built by the authors, based on *Banco Central do Brasil*'s data and projections.

The challenge Brazil is facing will play a key role in the future economic development of the country and of the region. Moreover, this issue is also relevant for other emerging economies that experienced recent growth in their middle classes and are currently facing

prospects of weaker economic growth, including many Latin American countries, as well as China and India.

In this context, this paper aims at identifying and analyzing the factors that make the Brazilian middle class vulnerable to economic downturns, and at proposing policy options that are technically sound, administratively feasible and politically supportable, for the government to (i) prevent a downward shift in income of these segments of the population, and (ii) strengthen the mechanisms that help consolidate them as middle class. Our analysis is structured as follows: section II explores several definitions of the middle class and the vulnerable middle class, and reflects on its role on economic development; section III explains our methodology and the data we use; section IV presents our key results and diagnostics; section V discusses a set of policy recommendations aimed at reducing the vulnerabilities of the middle class, and specific implementation strategies; and section VI presents our final remarks.

Section II: The New Middle Class & the *Vulnerable* New Middle Class

The Middle Class

When it comes to defining the middle class in developing countries, economists have typically explored a wide array of possibilities. The differences in definitions run along two lines: (1) which indicator is used to rank households or individuals, and (2) how the cutoff or threshold points are set. Studies use combinations of different indicators and cutoff points, in line with each study's purpose and available information. The different alternatives are summarized below and shown in Figure II.1.

Sociologic literature, on the other hand, provides alternative definitions that place a focus on the type of occupation individuals have and the types of assets they control. This is based on the notion that these factors determine long-term economic wellbeing (Torche & Lopez-Calva, 2013). In the *Communist Manifesto*, Marx (1848) separates classes according to the ownership of the means of production. On the other hand, Weber (1922) redefines classes based on a criterion that includes (i) wealth, as defined by ownership of assets, (ii) prestige, which is directly related to social status, and (iii) power, which has to do with the ability of people to lead groups to achieve their goals. According to Slomcztnski & Kjerluf (2010) different variations of this have been proposed by

Erikson et. al (1979), Wright (1985) and Esping Anderson (1993, which can be summarized in differences in: property and profit from capital, the control over labor power, the individual's level of skill, the type of work and sector of the economy, and life chances. While we acknowledge the value of these definitions of the middle class, our analysis focuses on economic definitions, for which data is most commonly available.

(1) Alternative Indicators Used to Rank Households

Income

This measure is widely used as a proxy for wellbeing. For example, Barro (1999), Easterly (2001), Birdsall et al (2000) and López-Calva & Ortiz-Juarez (2014) use income as a basis to identify the middle class in their research. While it has the advantage of being an indicator that allows to draw cross-country comparisons, and is easy to communicate, it has some drawbacks. First of all, it is more volatile than consumption (Deaton & Grosh, 2000), leading it to reflect welfare poorly when income is measured only at a specific moment in time. Secondly, while data on income is commonly available it is often subject to measurement error due to issues of recall, reliability, refusal and rejection (Hauser & Warren, 1997).

Consumption

Consumption has traditionally been argued to be the ideal measure of wellbeing, as it is a closer proxy to individual's permanent income. Banerjee & Duflo (2008) take this approach by measuring per capita daily expenditure across countries, adjusted for purchasing power parity. However, the key issues with consumption measures are that they require reliable data on total expenditure, which is not usually available, and they fail to capture access to public goods and services, such as free healthcare.

Multidimensional Measures: Consumption (Expenditure), Assets, and Access to Goods and Services

These measures combine several variables to produce one continuous indicator (this requires data reduction techniques such as a Principal Components Analysis) that can act as a better proxy for wellbeing, avoiding the traditional problems associated with using just income. These indicators may combine household's expenditure, income, consumption data, access to goods and services and assets owned. Torche & Lopez-Calva (2013) and Dorna & Schijman (2012), for example, create an index of economic wellbeing using a Principal Components Analysis that combines measures of

income with living conditions (e.g. access to drinking water). Filmer & Pritchett (2001) also use Principal Components Analysis combining measures of household asset ownership.

(2) Alternative Locations Within the Ranking of Households

Absolute Measures

A way to define a cutoff point within the distribution that is commonly used in the literature and by governments, is by defining absolute lines. These are particularly common for measuring poverty, as most countries and international aid agencies define a specific income threshold under which individuals are considered poor. By being an absolute definition, it has the advantage that it is easy to communicate, but defining the threshold can be arbitrary. Banerjee & Duflo (2008) follow this approach and define the middle class in developing countries as people living on between $2 and $10 per day. Ravallion (2010) on the other hand defines the "world middle class" in developing countries as those above the median poverty line of developing countries but below the median developing country poverty line. Birdshall (2010) on the other hand, defines the bottom threshold for the middle class at $10 a day, and the top threshold at the 95th percentile of the income distribution (therefore combining a relative and an absolute measure). Finally, López-Calva & Ortiz-Juarez (2014) and Ferreira et al (2013), based on the concept of economic security, calculate the income related to a 10% probability of households falling into poverty over a 5-year period. They find this income to be equivalent to $10 per day, and set this as the bottom cutoff point for the middle class (the upper threshold is set at $50 dollars per day).

Relative Measures: Quantiles

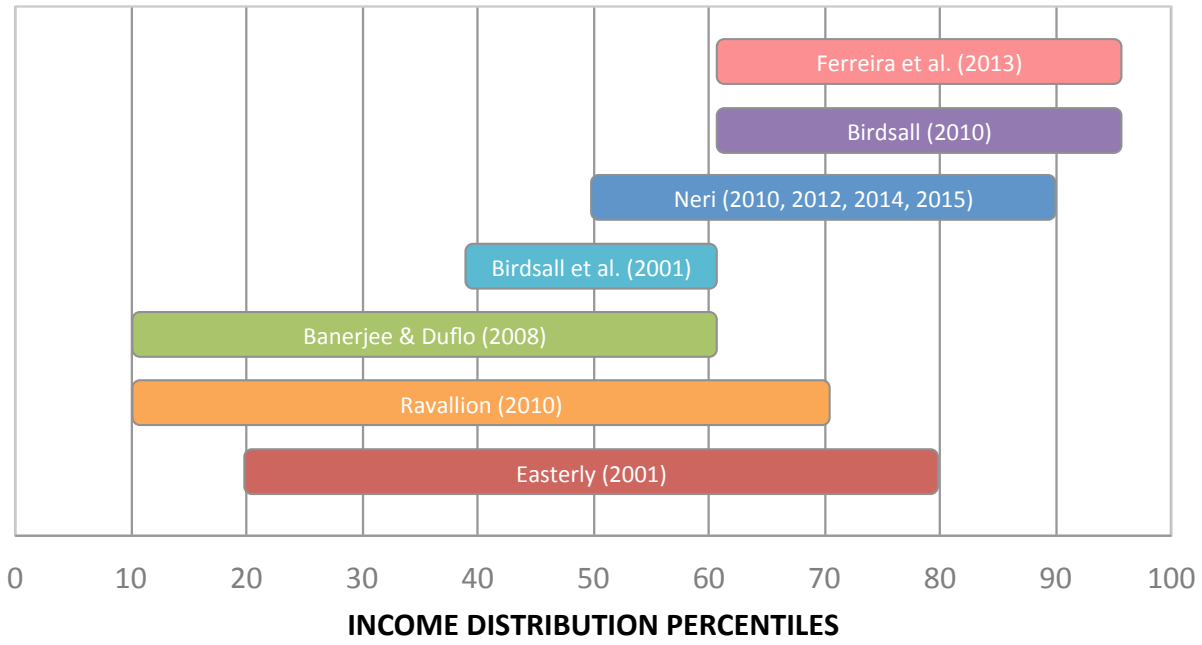
Quantile definitions of the middle class define this group as those in specific locations within the income distribution. So, for example, Barro (1999) and Easterly (2001) consider the middle class to be all the individuals located in the middle three quintiles of the income distribution, Alesina & Roberto (1996) consider only the third and fourth quintiles, Partridge (1997) only the third quintile, and Solimano (2008) the third to ninth deciles. Similarly, Torche & Lopez-Calva (2013) define the middle class as the middle three quintiles of the distribution of their index of economic wellbeing. Dorna & Schijman (2012) also use this definition, conditioning it on individuals being above the official poverty line (therefore combining a relative measure with an absolute one). These types of cutoff points to define the middle class are particularly useful to characterize the population at the center of the distribution and analyze patterns of mobility and inequality. However, they do not capture absolute changes in the levels of the indicators and they do not allow for changes in the sizes

of the groups. Conceptually, being part of the middle class will not be related to absolute measures reflecting wellbeing, but these same measures relative to others within the country.

Relative Measures: Central Tendency Measures

This method defines the middle class relative to the median of the distribution. Birdsall et. al. (2000) for example define the middle class as those within 75% and 125% of the median per capita income, while Davis & Huston (1992) use a wider threshold of 50% and 150%. This method has the benefit of providing an analysis that is sensitive to income distribution, so, for example, greater inequality may be reflected in a smaller middle class. However, while a change in the size of each group is allowed, this definition is still insensitive to absolute changes in the level of indicators. Finally, it is inadequate as a tool measure mobility, as households may fall into different groups, even if their absolute and relative levels have not changed.

Figure II.1. Selected Definitions of the Middle Class, Normalized to Percentiles for Brazil



Source: Built by the Authors, based on literature review and UNDP (2014).

Why the Middle Matters

Brazil has historically been one of the most unequal countries of the world, with a practically inexistent middle class. The consolidation of the middle class and the emergence of the new middle

class since 2003 have taken Brazil from the level of inequality of Haiti to the one of Hong Kong (World Bank Data, 2016).

There are a variety of reasons why a large and strong middle class is desirable. Firstly, economic research suggests the middle class plays a key role in economic growth and development. Despite the fact that there is inconclusiveness on the direction of causalities, extensive literature (Persson & Tabellini, 1993; Alesina & Rodrik, 1994; Alesina & Perotti, 1994; Easterly & Rebelo, 1993) uses disposable income to explain growth rates over a period of time, and shows that even income distributions are positively associated with good economic performances. Furthermore, Heckman (2013) argues that social mobility and economic growth exhibit a positive relation. According to Neri (2014), the Brazilian middle class has a big potential to push growth, as it concentrates half of the purchasing power of the country; and particularly, the new middle class has a key role in creating a greater market, including durable goods and quality services such as health and education (*Estadão* News, 2015).

Secondly, the literature on political economy suggests that electoral outcomes are determined by the median voter. Milanovic (2000) shows empirically that in societies where income distribution is unequal, the distance between the median voter and the mean voter is large, which leads to higher political instability driven by demands for redistribution. In this sense, a large middle class may have a key role as contributor to fiscal revenues, and hence, in providing resources to the State to address social demands. In fact, Fukuyama (2011) argues that as this gap is reduced, i.e. as the median voter converges to the mean voter, democratic institutions are more likely to exist and be stable.

The Vulnerable Middle Class

The concept of *vulnerability* of the middle class has been consistently related to the risk of downward mobility or of losing income or socioeconomic status. In general terms, Birdsall et al. (2010) highlight that being a "vulnerable" member of the middle class is particularly connected to lacking a certain level of economic security. More specifically, Glewwe & Hall (1998), identify vulnerable households as those who experience a decline of more than a given threshold in their socioeconomic status. Dorna & Schijman (2012) follow this idea and define as vulnerable households all those suffering a drop of more than 78% in their index of economic wellbeing during a period of 1.5 years. Finally López-Calva & Ortiz-Juárez (2014) and Torche & López-Calva (2013) define vulnerability in terms of the likelihood of falling into poverty.

In the context of the economic stagnation that began in 2014 in Brazil, a wide debate has emerged around the factors of vulnerability of the middle class. FGV Professor Mauro Rochlin, argues that the main factors that could explain the vulnerability of middle class families are (i) unemployment driven by a drop in labor demand, (ii) stagnation of real wages, and (iii) a more expensive and restricted credit supply (*Estadão,* 2015). Additionally, Professor Myrian Lund, underlines that the loss of purchasing power of the middle class affects both the employed as well as the unemployed (*Estadão,* 2015). The former are heavily indebted due to cheap and easy credits, and the latter are particularly suffering from higher inflation rates. Moreover, Maurício de Almeida Prado, Managing Director of CDE Consulting, highlights that the vulnerability of the lower middle class lies in (i) high labor informality rates, (ii) low education, (iii) limited networks to obtain employment, and (iv) low saving capacity (*Estadão,* 2015).

Section III: Research methodology

Empirical Strategy

Our empirical analysis aims at identifying and characterizing (1) the middle class, and (2) the *vulnerable* middle class. The main focus of our analysis is the 2014-2015+ recession, but we also analyze the 2008-2009 crisis to check robustness and consistency of our results.

Data

Our core analysis uses data from the National Survey by Household Sampling (PNAD), a standard survey on general demographic and labor characteristics designed, implemented, processed and published by the Brazilian Institute for Geography and Statistics (IBGE) since 1967. IBGE has done an impressive job in constantly improving the PNAD in the past decades (See Annex 1, Figure 1). For the purposes of our analysis we use these data to analyze the 2008-2009 period. A key limitation of the PNAD throughout the whole period, however, is that it does not include questions for the sources of non-labor income.

Ideally, we would be able to build a panel for the whole period in order to follow households' and individuals' socioeconomic dynamics across time, but, unfortunately, the PNAD is not a panel. However, samples are built using repeated census tracks. So, even though the households and individuals interviewed are not the same every year, we can build pseudo-panels to follow households and individuals with certain characteristics.

Starting in 2012, when the quarterly PNAD *Continua* (PNAD-C) was implemented, this difficulty is resolved, and we are able to follow households and individuals for five consecutive quarters. This is particularly helpful for us to analyze the short-term effects of the 2014-2015+ recession. However, PNAD-C key limitation is that it only provides information on labor income.

For the debate on alternative policies, we complement our analysis with other sources:

- Additional surveys, including the Household Expenditures Surveys by IBGE (2008-2009).
- Regional inflation indicators and poverty lines (IPEA), to adjust purchasing power geographically and over time.
- Macroeconomic data from multiple Government sources.

Variables of Interest

Building on Neri (2014) we define the Middle class as those households falling within the 50th and 90th percentiles[4] of total household per capita income distribution.[5] However, given the previous analysis of the advantages and disadvantages of different definitions of the middle class, we also explore alternative definitions to check the robustness of our results. First, in terms of the indicators to rank households, we use information on assets and income in the PNAD to construct an index of economic wellbeing.[6] Following Torche & López-Calva (2013), we use a Principal Components Analysis to form a linear combination of household indicators that capture as much of the variability of the data as possible. The variables included are: income per capita, access to water, electricity, sewage and garbage removal, dwelling tenure, number of people per room, the quality of the roof and walls, tenure over land, existence of a personal bathroom, and ownership of assets such as telephones, cellphones, televisions, computers, ovens, washing machines and cars. This approach provides the benefit of producing a more stable measure of wellbeing. Second, in terms of alternative locations within the ranking of households, we follow Barro (1999) and Easterly (2001), and define the middle class as those within the three middle quintiles of the distribution.

In terms of the *vulnerable* middle class, we consider these to be all those at risk from falling from the middle class (Torche & Lopez-Calva, 2013; López-Calva & Ortiz-Juarez, 2014).

[4] Neri (2014) defines the middle class as those between the 53rd and 88th percentile. He reaches these cut-off points after minimizing internal differences among three income groups (AB, C and DE groups). We approximate our cut-off points to the 50th and 90th percentile for simplicity.

[5] Non-members of the household (approximately 0.03% of individuals), such as domestic workers, are not considered as household members and are therefore excluded. Observations with no income information are also excluded (2.8% of households).

[6] Unfortunately, we are not able to replicate this with PNAD *Continua* because it does not provide information on household assets.

Specifically, this is the risk of either income or economic wellbeing falling below the threshold that defines the middle class during the initial period. An alternative definition of vulnerability is also used in order to make sure that results are not driven by small variations around the threshold. Following Glewwe & Hall (1997), who define vulnerability as suffering income falls greater than a given percentage, we define our alternative measure of vulnerability as the risk of middle class individuals seeing a fall of more than 25% in their income, conditional on falling from the middle class.

For the analysis of 2008-2009 crisis, we also use alternative ways to construct household income per capita (as an alternative to total income divided into the number of household members). Firstly, instead of considering total household income, we use only labor income. Secondly, we follow the methodology constructed by IPEA that corrects income measures to account for possible underreported income.

Finally, for the analysis of both crises we adjust income for inflation and interregional differences using IPEA's regional poverty lines. For each crisis, income is adjusted to represent prices in the urban areas of the Northeast corresponding to 2008 and the first quarter of 2014, respectively.

Empirical Strategy

2008-2009 Crisis

For the analysis of this crisis we use PNADs to build a pseudo-panel (Deaton, 1985). We construct cohorts for each year based on the state in which the household is found, whether it is in an urban or rural area, and the household head's date of birth, education and race.[7] Each of the cohorts' characteristics correspond to the weighted average of the group for the corresponding variable in each year. To identify the variables correlated with vulnerability, we estimate Probit regressions for all cohorts with average incomes above the median in 2008. The dependent variable is an indicator that takes the value of 1 when in 2009 the average total income per capita of the cohort falls below the 2008 median of the population, and 0 otherwise. Covariates include demographic and labor market characteristics in 2008 for the household head, the household head's spouse and the entire household. We also estimate OLS regressions and Logit regressions to check for robustness of the results to the specified model.

[7] The assumption behind the use of these variables is that they do not vary significantly from one year to the next. The use of PNAD *Continua* panel data allows us not to rely fully on the validity of this assumption for our analysis.

2014-2015+ Crisis

The 2014-2015+ crisis is analyzed using PNAD *Continuas* (PNAD-C). We keep observations of households interviewed in both 2014 and up to the third quarter of 2015. For each household we keep the first and last observation, which leaves two observations per household for each year during the same quarter (to prevent capturing seasonal variations). We estimate Probit regressions for all households with total income per capita over the median of the population in their corresponding quarter of 2014. The dependent variable takes the value of 1 if the household fell below the corresponding 2014 median in 2015. Independent variables included in the model consist of demographic and labor market characteristics in 2014 for the household head, the household head's spouse, and the entire household (publicly available information, however, is more limited than for the PNAD). Finally, we estimate OLS regressions and Logit regressions to test the robustness of our results to the model specified.

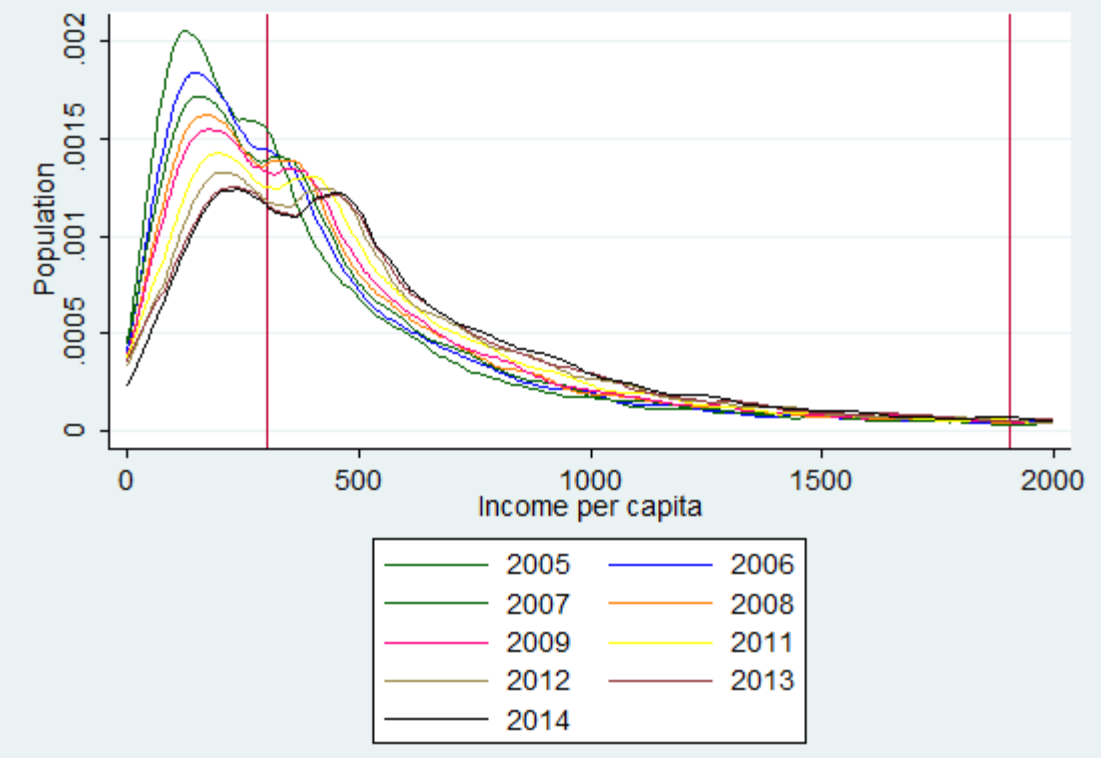
Section IV: Main Findings & Diagnostics

Evolution of the Middle Class Over Time

Following Neri (2014), we set income thresholds based on the 50th and 90th income per capita percentiles in 2005 and analyze how households within this income group change over time. Figure IV.1 plots these thresholds along with the distribution of income each year, illustrating the large increase in the population within this group.

Annex 1, Figure 2, presents descriptive statistics for the middle class in each year using the thresholds defined in 2005. Additionally, the last column presents descriptive statistics for the middle class using 2014 thresholds. From these tables we can characterize the middle class in 2014 as having household heads that are on average 48 years old, 2/3 of which are men, and that have on average 8 years of education. Also, 46% of these household heads have formal employment, and are dispersed across economic sectors. Household head spouses tend to have almost a year less of education, and only 28% of them have formal jobs. In terms of location, 37% of these households are located in metropolitan areas, 91% in urban areas and 50% in the Southeast region. 73% of middle class households own the place they live in. Regarding race, middle class households tend to be white followed by mixed race ("*pardos*"). Regarding the evolution over time, we can observe that the percentage of male household heads has fallen significantly since 2005, and so has the number of children and the household size.

Figure IV.1. Non-Parametric Household Income Distribution (per capita), 2005-2014



Note: Vertical lines indicate the 50th and 90th income percentile in 2005. Income is adjusted to reflect prices in 2005 for the Northeast urban areas (baseline).

Source: Built by the Authors, based on PNAD 2005-2014.

Dynamics in 2008-2009 Crisis

The results of our empirical analysis for this period are presented in Annex 1, Figure 3. Across different specifications, the most consistent findings are that vulnerability within the middle class is positively correlated with: younger household heads, fewer levels of completion of primary and secondary education, being non-white, living in rural areas and living in the North and Northeast. Results are only weaker when we specify the middle class as those between the 20th and 80th percentile; however, this is likely to be reflecting differences in the characteristics of the population that falls below that lower threshold.

Column (7) presents the results by restricting the analysis to labor market income, which is equivalent to the information available in the PNAD *Continua*. Results are also consistent with this model specification, except for the fact that formal employment appears to be significantly correlated with vulnerability (which is to be expected given that it is labor income) and only the

Northeast region is significantly correlated with vulnerability. This consistency in results suggests that the information in the PNAD *Continua* may produce similar results to what might have been achieved if information on total income were available.

What Data Tells Us About the 2014-2015+ Crisis: Characteristics of the *Vulnerable* Middle Class

Figure 3 in Annex 1 presents the results of our analysis using the PNAD *Continua*. Again, the consistency of results suggests that during the current crisis vulnerability within the middle class is positively associated with: a younger household head, female household heads, low levels of household educational attainment (in terms of completion of primary, secondary and tertiary education), having either the household head or household head's spouse being employed in the agricultural or construction sector (contrary to the government sector), unemployed or informally employed before the crisis, dependency ratios, number of children and adolescents within the household, living in metropolitan areas, and living in the North and Northeast. While most results are consistent across specifications, they vary when defining the middle class as those between the 20th and 80th percentile, however, as in the previous case, this may be reflecting different characteristics of the population that fall below that lower threshold.

Figure IV.2 illustrates how vulnerability can significantly vary across the population. The predicted probability of two fictitious individuals, Celia and Carlos, is calculated using our results (leaving all unspecified variables at their average values). A person like Célia has a predicted probability 2.7 times higher of falling from the middle class during the 2014-2015+ than a person like Carlos, due to differences in their characteristics.

Figure IV.2. Example of Difference in Vulnerability Across the Population

Household head	Characteristics	Predicted probability of falling from the Middle Class
Célia	• 28-year-old woman • Lives in the Northeast • Completed only primary education • Had an informal job in 2014	*43%*
Carlos	• 48-year-old man • Lives in the South • Completed primary and secondary education • Had a formal job in 2014	*16%*

Source: Built by the Authors, based on own model results.

Section V: Policy alternatives

Status Quo

1. Room for Fiscal Policy

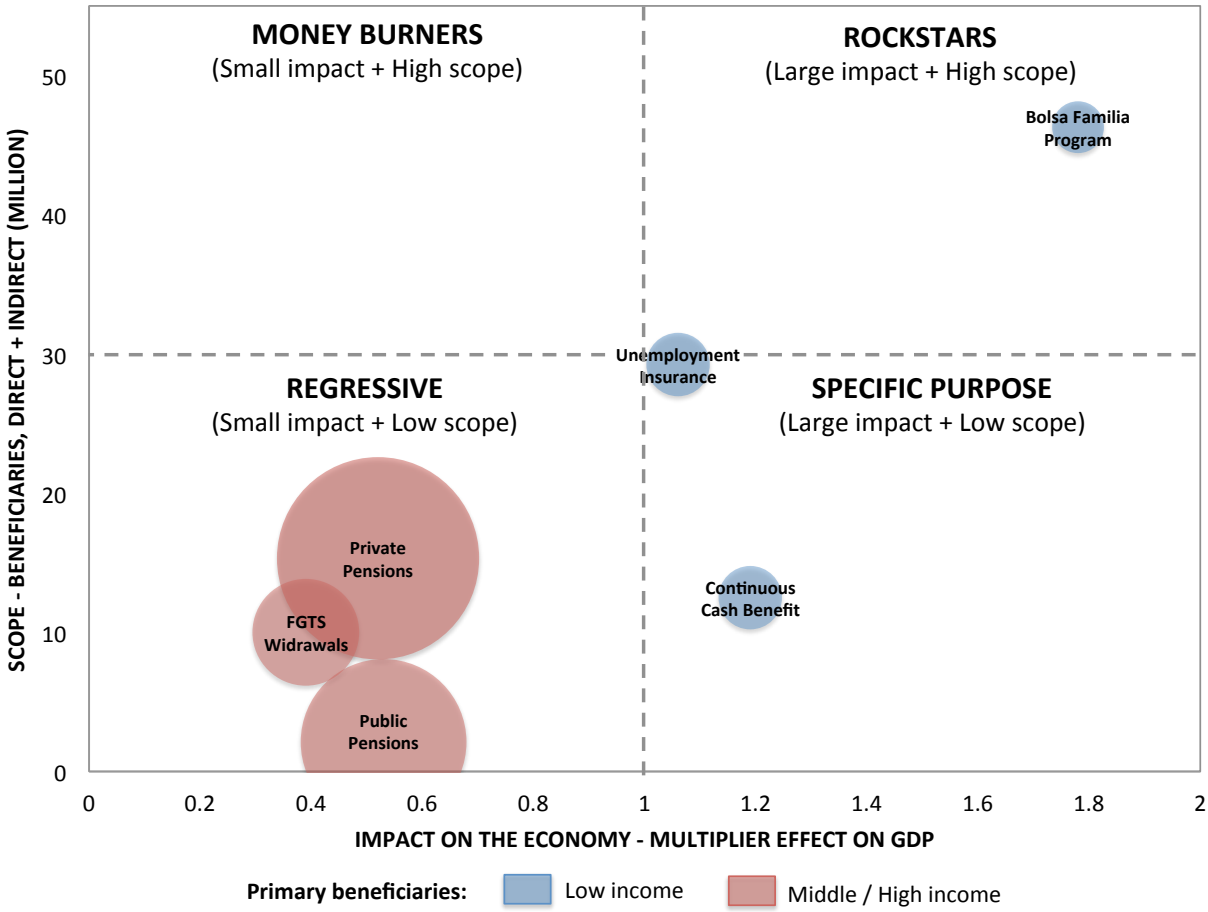
As a result of longstanding efforts to eradicate poverty, Brazil has developed and enacted a wide variety of social welfare and social protection programs.

From an expenditures perspective, official data show that the Central Government of Brazil[8] manages an annual non-financial budget of about 20% of GDP, out of which three quarters goes to social expenditures, namely, social assistance, social security, work, health services, and education. Almost 25% of these social outlays are concentrated in 7 programs: *Bolsa Família*, Continuous Cash Transfers, Unemployment Insurance, Wage Bonuses, FGTS Withdrawals, Private Pensions, and Public Pensions. With exception of *Bolsa Família*, all these expenses are linked to the minimum wage and, as the minimum wage is tied to inflation and real GDP growth, the higher inflation and/or real GDP growth, the higher these expenditures. However, the distribution of these programs is regressive by design: Figure V.1. shows that, not only the largest programs benefit the wealthiest segments of the population, but they also reach a small pool of beneficiaries while having a low impact on the economy. In fact, in 2015 Brazil spent 0.5% of GDP on *Bolsa Família* for almost 25% of the Brazilian population, and more than 6% of GDP on Private Pensions benefiting less than 10% of the population (Author's calculations). On top of that, according to Campello & Neri's (2014) estimates, for every extra R$1 spent on *Bolsa Família*, beneficiaries spend R$1.78, whereas for every extra R$1 spent on Private Pensions, beneficiaries spend R$0.52 on the economy.

In this context, the government is running a large fiscal deficit that needs to be dramatically reduced in the upcoming years (Annex 2, Figure 1), but this is not easy or inexpensive to achieve: the overall deficit is estimated to have remained at 7% of GDP in 2015 and inflation remains above target (Annex 2, Figure 2), even after having shut down eight Federal Ministries in October 2015 (*Folha*, 2015). Moreover, corruption scandals have weakened President Dilma's and the PT's position in the political arena, leaving a narrow margin for action, and even opening room for discussions on a potential impeachment (The Economist, 2016).

[8] The Central Government includes the Treasury, the Social Security System and the Central Bank. This figure was computed as the ratio between the total effective executed expenditures and GDP data for 2014 (*Secretaria de Orçamento Federal*).

Figure V.1. Efficiency Map of Selected Social Programs and their Primary Beneficiaries[9]



Source: Built by the authors, based on estimates by Campello & Neri (2014), Senado do Brasil, Caixa do Brasil, FGTS, Previdencia Statistics, IPEA Data, and Governo Nacional do Brasil.

From a revenues standpoint, Consolidated Government budget data show that the 2015 fiscal burden reached 34% of GDP.[10] Out of this amount 68% is collected at the Federal level, 25% at the State level, and the rest are municipal taxes (Annex 2, Figure 3). Most literature on the topic suggests that the tax system is highly regressive on income in Brazil (IPEA (2009)). Pintos-Payeras (2010, 2015) analyzes the incidence of the Brazilian tax system across the income distribution using 2002-2003 expenditures data from POF and tax legislation, and later on 2008-2009 POF for the Northeastern region. Following his methodology, we replicate part of his work using POF 2008-

[9] The size of the bubble indicates the size of the program (% of GDP), *Bolsa Família* being the smallest (0.4% of GDP), and the Private Sector Pensions being the largest (6.1% of GDP). The number of beneficiaries includes direct recipients of the benefit, plus indirect recipients (family members). The interpretation of the multiplier is the following: For an additional expenditure of 1 point of GDP on a certain program, GDP increases by the size of the multiplier.

[10] Consolidated Government refers to the sum of the Federal Government, the States Governments and the Municipal Governments (*Fazenda*, 2016).

2009 for the entire country, and we reach the same conclusion: the Brazilian tax system is regressive on income. This is due to the fact that, even when direct taxes on income are progressive, indirect taxes –and in particular VAT— more than offset this effect. We find that, on average, the vulnerable middle class spends about 1% of their total expenditures to cover VAT of basic basket goods,[11] three times what the highest income decile spends (See Annex 2, Figure 4).

Overall, the current structure of government expenditures and revenues seems insufficient to protect the vulnerable middle class from falling back into poverty amidst an economic crisis.

2. Room for Labor Market Policies

Social mobility accounting by Azevedo et al (2013), Neri (2010, 2014), and the World Bank (2013), show that between 45% and 70% of the poverty reduction in 2003-2013 was due to the impact of economic growth on the labor market and the increase of real wages. However, since the beginning of the crisis, unemployment increased by 46%, reaching almost 13.9% in December 2015, up from 9.6% in January 2014 (Figure V.2). According to data from the Ministry of Employment, only in 2015, net unemployment increased by 1.6 million people, and, in line with our analysis, it has primarily hurt young workers, women, and people from the Northern and Northeastern states. Moreover, besides the fact that employment is highly pro-cyclical, the increase in unemployment is likely to be helped by the rigidities of minimum nominal wages set by Brazilian legislation.

Research suggests that spells of unemployment during crises can have long-term effects on the income path and employment of individuals: According to the OECD (2010b), current employment is the best predictor of future unemployment. Moreover, Greg & Tominey (2005) show that unemployment, particularly youth unemployment, creates a "wage scar" on individuals, that is deeper the longer the period of unemployment, leading to significant wage gaps.

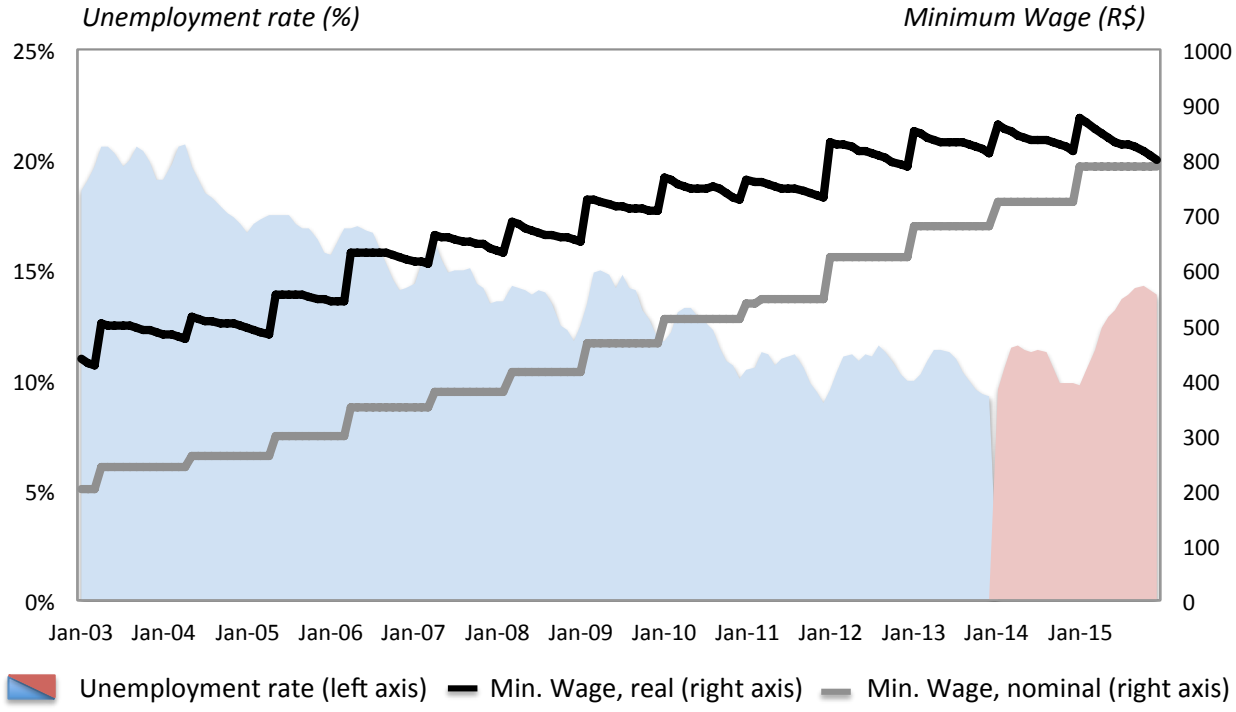
Aware of these consequences, many countries have applied temporary measures to allow for wage flexibility, aimed at decelerating the growth of unemployment. Examples of this include 23 European countries, the U.S., and Canada during the 2008-2009 crisis. It is estimated that the German government, for instance, prevented the loss of 1.5 million jobs during the crisis, by allowing companies to reduce wages and hours, and compensating workers for approximately two

[11] Following IBGE, the basic basket includes milk, beans, rice, flour, potato, tomato, bread, coffee, sugar, meat, cooking oil, and fruits. We impute the shares of these items on total expenditures of larger groups of food, using POF 2008-2009 micro-data and POF 2008-2009 report (IPEA, 2010).

thirds of their loss in income (DIEESE, 2015). These measures are supported by ILO's Global Jobs Pact (2009).

In this line, in 2015 the Brazilian government enacted a Job Protection Program, aimed at increasing the flexibility of the labor market by allowing firms in financial distress to reduce working hours and wages temporarily. However, given the seriousness of the crisis, it is likely that there is room for a more aggressive policy.

Figure V.2. Unemployment Rates and Minimum Wages, 2003-2015



Source: Built by the Authors, based on data by IPEA Data.

Policy Recommendations

Any policy aimed at reducing the risks of the middle class of falling back into poverty needs to (i) target the vulnerable systematically, (ii) smooth welfare losses in the short term, and (iii) reduce the sources of risk in the long term. Additionally, we consider the criteria developed in Figure V.3, in order to evaluate and rank different options.

Figure V.3. Criteria to Evaluate and Rank Policy Options

Criteria	Specification
Technical Correctness	(1) Addresses the risk factors of the vulnerable middle class: • Reduces the probability of falling into poverty in the short run, and/or • Reduces the probability of falling into poverty in the long run. (2) Fits the context of Brazil: • Helps boost economic growth (i.e. has a high potential multiplier), • Respects the budget constraint, and • Is non-inflationary. (3) Targets the vulnerable: • Reaches high coverage of the vulnerable, and • Minimizes leakage on the non-vulnerable.
Administrative Feasibility	Uses existing capabilities, or requires capabilities that can be built in order to (i) target the population at risk, and (ii) implement the policies: • Available human capital, and • Existing infrastructure, including processes, IT and front end services.
Political Supportability	(1) The key stakeholders are on board or can be brought on board: • Federal government / Ministry of Social Development, • State governments, and • Congress. (2) There are no major opponents with high influence. (3) The proposed policies address social demands, i.e. are likely to be supported by the constituency. • Targeting can have a large leakage on the vulnerable non-middle class population.

Source: Built by the Authors.

Policy Recommendation No. 1: Emergency Program

Our analysis shows that since the beginning of the crisis, the median fall in labor income of the vulnerable has been approximately $R 500 per capita. In order to smooth the effect of this shock, and prevent long-term consequences from a temporary crisis, **we propose to provide an indirect temporary VAT exemption on basic basket goods, by reimbursing a monthly average of R$ 18 per family per month, for vulnerable households. This can be financed with a 5% tax on financial transactions abroad.**

1. Design

Benchmark

We first analyze the nature and the composition of expenditures of the Brazilian population by income deciles and region. We find that across Brazil, about three quarters of the total

expenditure burden of the vulnerable middle class is explained by three components: food and beverages, housing, and transportation (See Annex 2, Figures 5 & 6). Moreover, (i) out of total expenditures on food and beverages, about a third is spent on basic basket goods, leading VAT cost on expenditures for basic basket goods to reach 1.3% of total expenditure; (ii) among transportation items, urban public transportation represents almost 4% of total expenditures for the vulnerable middle class, while the upper classes spend a higher share of their income on fuels, including gas, oil and alcohol; (iii) besides expenditures on rent, the most important single component of housing expenditures is the electricity bill, which represents more than 3% of total expenditures.

In line with this, according to the think tank *Instituto Braudel* (2015), the most salient cause of social unrest is inflation, especially when linked to food items and public transportation. One of the central demands of 2015 massive riots had its origin in the widespread and persistent increase of public transportation costs, mostly caused by the reduction of subsidies to fuels (BBC, 2016). Additionally, surveys run by *Plano CDE,*[12] indicate that the most acute fears of the vulnerable middle class amidst the current crisis are (i) not being able to pay taxes and utilities (44% of respondents), and (ii) losing their jobs (33% of respondents).

Figure V.4. Selected Components of the Vulnerable Households' Budget

Expenditure	Share on expenditures	Risks of targeting this expenditure	Programs in place
VAT on the Basic Basket	1.3%	• Difficult implementation (collected at the State level) • Room for distortions and arbitrage	No Federal Taxes
Cost of Electricity	3.2%	• Difficult implementation • Distorts consumption decisions	• *Tarifa Social de Energia Elétrica* • Reduction of subsidies
Cost of Public Transportation	3.9%	Difficult implementation • Very expensive (at least R$ 15 billion per year) • Can lead to underinvestment in infrastructure.	• *Tarifa Zero* in 12 cities • Reduction of subsidies to fuels

Source: Built by the Authors, based on data from POF 2008-2009 and Presidency of Brazil.

[12] Rioters, coordinated in an organization called *Movimento Passe Livre*, advocate for free public transportation ("*tarifa zero*") across Brazil, a benefit that is currently a reality in twelve Brazilian cities (*Estadão*, 2015)

Figure V.4. shows that a policy to reduce the burden of VAT costs for basic basket goods on households, can be the most feasible and effective emergency response to the crisis. This item represents about 1.3% of total expenditures, or around R$ 18 per household per month in 2015 values. In an ideal world, we would exempt the target population from VAT on basic basket goods. However, such proposal might encounter some difficulties. Technically, it would be hard to screen the vulnerable population for exemptions, and it would open room for arbitrage and evasion. Administratively, VAT is collected at the State level, which makes the policy harder because (i) at least half of the States have large deficits (*Folha*, 2014), and (ii) compensations by the Federal Government would require a strong coordination between each one of the twenty-six Brazilian states and the Federal Government, and may lead to delays or accounting conflicts. However, politically, it is likely to be supported by the Congress, since there are precedents of positive discussions on the topic (*Portal Brasil*, 2013; *Globo*, 2016). In this sense, VAT expenditures on the basic basket of goods can work as a good benchmark for a direct transfer.

Targeting the Vulnerable

According to our estimates, out of the almost 6.6 million vulnerable middle class households who suffered a negative income shock during the 2014-2015+ crisis, 97% are eligible for *Cadastro Único*, and 35% for *Bolsa Família.*[13] This is particularly important because the infrastructure and capabilities of these systems can be leveraged to target the vulnerable.

Created in 2001 (Decree 9,352/2001), and replaced in 2007 (Decree 6,135/2007), *Cadastro Único* is a database managed by the Ministry of Social Development, which centralizes information on recipients of all social programs, including all recipients of *Bolsa Família.*[14] *Cadastro Único* collects information on (i) dwelling characteristics (number of rooms, type of construction, access to water, sewage and garbage collection), (ii) family characteristics (number of members, pregnant women, elderly, nursing mothers and disabled persons), and ID of all family members, (iii) professional

[13] Note that these are conservative estimates. Due to insufficient data in PNAD-C, we are only accounting for labor income, while usual poverty lines and *Cadastro Único* cutoffs include other sources of income. If anything, throughout this exercise we would be overestimating the impact of the shock, and over-budgeting accordingly.

[14] Other programs include *Tarifa Social de Energia Elétrica, Programa Minha Casa Minha Vida, Carteira do Idoso, Aposentadoria para, Pessoas de Baixa Renda, Telefone Popular, Isenção de Pagamento de Taxa de Inscrição em Concursos Públicos, Programas Cisternas, Água para Todos, Bolsa Verde (Programa de Apoio à Conservação Ambiental), Bolsa Estiagem, Programa de Fomento às Atividades Produtivas Rurais/ Assistência Técnica e Extensão Rural, Programa Nacional de Reforma Agrária, Programa Nacional de Crédito Fundiário, Crédito Instalação , Carta Social , Serviços Assistenciais, Programa Brasil Alfabetizado, Programa de Erradicação do Trabalho Infantil (Peti). Cadastro Único* does not include Social Security Programs. Decree No. 6,135/2007.

qualification and status in the labor market, (iii) income, and (iv) expenditures (rent, transportation, food, and others).

Logistically, eligible applicants can actively register in *Cadastro Único* by filling in the required forms and presenting the corresponding documents at any municipal CRAS (*Centro de Referência em Assistência Social*). The validation of an application includes paperwork verification, interviews and information collection, registration of data in the system, and regular updating of the data.

In December 2015, *Cadastro Único* had over 29 million households registered, reaching almost half of the Brazilian population. Eligibility for *Cadastro Único* requires households to have a monthly per capita income lower than half a minimum wage (R$ 394 in December 2015), or a monthly total income lower than three minimum wages (R$ 2,364 in December 2015), while eligibility for *Bolsa Família* requires a monthly per capita income lower than R$ 154 (Decree No. 8,232/2014).

We propose to target the Emergency Program based on the following criteria:

- All households eligible for *Bolsa Família* would be eligible, and
- All households eligible for *Cadastro Único,* who have a monthly income per capita of up to R$ 370 or a total income of up to R$ 1,110, and have at least one dependent (i.e. person of up to 14 years old or older than 65 years old),[15] would also be eligible.

These criteria have a set of advantages that make it very attractive as a platform to provide the emergency program. Firstly, it avoids the political and moral risks of targeting the vulnerable middle class without helping Brazil's poorest population, as for every vulnerable middle class targeted, four households below the middle class also receive the program. Secondly, almost 70% of the effective recipients will be *Bolsa Família* eligible, which has many other advantages: (i) *Bolsa Família* is known as one of the best-targeted programs in the world, minimizing under-coverage and leakage of the program on the beneficiary base (Soares et al., 2010); (ii) *Bolsa Família* has an effective infrastructure already in place (Azevedo et al., 2014); and (iii) *Bolsa Família* is the social program with the largest positive effects on the economy, as it is estimated to have a multiplier of on GDP of 1.6 (Campello & Neri, 2014). The results of our simulated theoretical targeting exercise are displayed in Figure V.5. Moreover, Figure 7 in Annex 2 presents mean differences tests for selected variables between targeted and excluded households.

[15] This criterion is the result of running sensitivity analysis for different thresholds, with the objective of maximizing coverage and minimizing leakage.

Figure V.5. Targeting of the Vulnerable Population[16]

Million Households	Vulnerable Middle Class	Rest of the PNAD-C	Ratio
Total	**6.6**	**58.2**	**1:9**
Eligible (restricted) *Cadastro Único*, but not *Bolsa Família* (Income per capita between R$ 155 and R$ 370 or a total income of up to R$ 1,110, and at least one dependent)	1.8	3.8	1:2
Eligible for *Bolsa Família* (Income per capita up to R$ 154)	2.3	14.1	1:6
Total beneficiaries	**4.1**	**17.9**	**1:4**
% Covered (Total beneficiaries/Total)	63%	31%	

Source: Built by the Authors, based on PNAD-C 2014-2015.

Given that this program is designed to smooth the impact of the crisis on income, we propose to link its duration to GDP performance, so that the program is automatically suspended after two consecutive quarters of positive economic growth.[17]

Figure V.6. Emergency Program, Summary[18]

Item	Description
Amount	R$18 per month per household
Duration	Tied to GDP growth: Program in place until there are two consecutive quarters of observed positive economic growth.
Eligibility criteria	• Eligible for *Bolsa Família* • Eligible for *Cadastro Único*, earning up to R$ 370 per capita or R$ 1110 per household, and having at least one dependent
Estimated number of eligible households	22 million
Estimated annual cost	R$ 5 Billion

Source: Built by the Authors, based on data from the Brazilian Presidency, *Ministério do Desenvolvimento Social e Combate à Fome*, POF 2008-2009, PNAD-C 2014-2015.

[16] Exercise performed using theoretical income cutoffs.
[17] This criterion has been established mirroring the popular definition of a recession being two consecutive quarters of absence of economic growth.
[18] All figures are rounded.

2. Implementation

Funding

The Brazilian Government is facing a very constrained fiscal stance, which has worsened with the current economic contraction, leaving no room for funding this program from the current budget as it is. In this context, we propose to add a 5% tax on financial transactions abroad (use of ATMs, payments with credit cards, and foreign exchange acquisition), with the exemption of expenditures aimed at education or health services, which would be eligible for reimbursements. The main advantages of this tax are that (i) it has been done before and it has been changed easily, (ii) it can be altered by decree, without Congress approval, and (iii) it is clearly progressive on income. However, a potential disadvantage is that Brazilian law does not allow proceeds from *impostos* to be earmarked for specific expenditures, which means that additional revenues from this tax will create fiscal space for the Emergency Program, but in the end it will technically be financed by the budget. Figure V.7 summarizes the uses and sources of the Emergency Program.

Figure V.7. Estimated Funding Uses and Sources for the Emergency Program, Annual[19]

Category	Value
Uses	
Emergency Program for 22 million households	R$ 5 billion
Sources	
5% Tax on Financial Transactions Abroad (indirectly, from Budget allocations)	R$ 5 billion
Gap	-

Source: Built by the Authors, based on POF, PNAD-C and the Balance of Payments.

Political Supportability

Plan A: Provisional Act

According to the Brazilian Constitutional Law, whenever urgent and relevant, the President has the power to issue a Provisional Act (*Medida Provisória*), that has immediate effect as a law, and can be posteriorly reviewed by the Legislative Power. Given that the popularity of President Rousseff is at a record low (Annex 2, Figure 8), that the PT has little influence in Congress (Annex 2, Figure 9), and that social unrest is increasing due to the persistence of the crisis (Economist,

[19] Based on historical Balance of Payments data, we assume a conservative R$ 100 billion tax base for the Tax on Financial Transactions Abroad and Purchase of Foreign Currency (*Banco Central do Brasil*, 2016).

2016), we propose that the Emergency Program is enacted through this channel. Moreover, given that the program will be neutral on the budget, and it addresses social demands of the most vulnerable population, it is unlikely to be easily revoked by Congress.

Plan B: Targeting the Most Vulnerable of the Vulnerable

In the scenario in which Congress revokes the Provisional Act, the President can modify the amount of the Basic *Bolsa Família* program in Decree No. 8,232/2014 without Congressional Approval.[20] The main advantage of this approach is that it is a way for the Government to smooth the shock on all the recipients of *Bolsa Família*, and on the 1.3 million households that belong to the vulnerable middle class. However, the main disadvantages are that (i) it alters the spirit of the *Bolsa Família* program by distorting it with a short-term measure, (ii) it will be very hard to eliminate at the end of the recession, and (iii) it does not reach two thirds of the vulnerable middle class.

Policy Recommendation No. 2: PPE Plus (Temporary Labor Flexibility Program)

Economic theory suggests that minimum wages, when binding, can generate a higher level of unemployment than the one that would be observed in the absence of this restriction. In practice, this can become a big problem, especially during economic crises.

Following international experiences during the 2008-2009 crisis, in 2015 the Brazilian government put in place a Job Protection Program (PPE for *Programa de Proteção do Emprego*, Law No. 13,189/2015), which allows firms in financial distress to reduce wages up to 30% temporarily, half of which is to be compensated by the Brazilian government. The key advantages of this law are that (i) it decelerates the rise in the unemployment rate,[21] (ii) it keeps employees in payroll for direct wages and social security contributions, and (iii) it reduces the burden of unemployment on the budget, since for each worker covered, the government ends up paying less than what it would have to pay through unemployment insurance schemes. In fact, the Ministry of Planning estimates that the Employment Protection Program represents between 50% and 60% of the total cost of unemployment insurance, for the same number of workers (*Ministério de Planejamento*, 2015). See Figure V.8 for numeric examples.

[20] We propose to modify the amount, and not create a new category of *Bolsa Família*, because the former can be done by decree and does require Congress approval, while the latter would have to be done through a modification of Law No. 10,836/2004.

[21] It is estimated that since launched in June 2015 until March 2016, the program enrolled almost 54,539 workers (*Portal Brasil*, 2016).

Figure V.8. PPE and Unemployment Insurance Examples, Values for January 2016

	(1) R$ 1,500*		(2) R$ 2,500		(3) R$ 5,000		(4) R$ 8,000	
Monthly values per capita	No PPE	PPE	No PPE	PPE	No PPE	PPE	No PPE	PPE
Salary								
Salary paid by the employer [A]	1,500	1,050	2,500	1,750	5,000	3,500	8,000	5,600
Government subsidy [B]	0	225	0	375	0	750	0	901
Total salary	1,500	1,275	2,500	2,125	5,000	4,250	8,000	6,501
% Of original situation		85%		85%		85%		81%
Contributions								
Employee (8% of [A])	120	84	200	140	400	280	640	448
Employer (20% of [A])	300	210	500	350	1,000	700	1,600	1,120
Employers' additional - Social security (20% of [B])	0	45	0	75	0	150	0	180
FGTS (8% of [A])	120	84	200	140	400	280	640	448
Employers' additional - FGTS (8% of [B])	0	18	0	30	0	60	0	72
Total contributions	540	441	900	735	1,800	1,470	2,880	2,268
Government expenditures								
PPE		225		375		750		901
Unemployment Insurance		1,158		1,542		1,542		1,542
Estimated Savings		**933**		**1167**		**792**		**641**

* Mean monthly salary of a Household Head in the vulnerable middle class in 2014, before the income shock.
Source: Built by the Authors, based on PNAD-C and *Ministério do Trabalho e Emprego*.

Given the positive results of the PPE on the labor market and on the government's budget, we propose to extend it to a wider spectrum of potential beneficiaries.

1. Design

Law 13,189/2015 describes the requirements and characteristics of the program. First of all, as for eligibility, firms from every sector can join the PPE as long as they meet a number of conditions, including verifiable financial and economic distress, and links with a Labor Union, so that the Union and the firm or sector can reach a Collective Agreement.

Secondly, regarding the characteristics of the program, firms can join the PPE until December 31st, 2016 (extended from the original deadline of December 31st, 2015); and the program ends on December 2017 for every beneficiary. The essence of PPE is to allow temporary reductions

of working hours and salary for up to 30%, conditional on a specific collective agreement between one or more firms and their respective Labor Union. To balance the effect on workers, the Workers Support Fund (*Fundo do Amparo ao Trabalhador, FAT*) compensates for 50% of the salary reduction. The compensation is limited to 65% of the largest possible Unemployment Insurance (R$ 1,542 x 65% = R$ 1,002 in March 2016). Moreover, to guarantee the positive net effect of PPE on the labor market, adhering firms cannot have unjustified layoffs during the term of the program.

Given the positive short term and long term effects that the PPE has, and that, in annualized terms, the PPE to new unemployment ratio is only 1:20, we propose to upgrade the PPE into the PPE Plus, by undertaking in the following changes:

1. Increase information and accessibility to Micro and Small firms so that they can also enroll.[22] According to *Serviço Brasileiro de Apoio às Micro e Pequenas Empresas* (SEBRAE), these firms represent 99% of the total number of Brazilian firms, and provide 52% of total formal private employment.
2. Extend eligibility to firms that are not associated with Unions on a case-to-case basis, which is likely the case for many Micro and Small firms.
3. Link the application deadline and the duration of the program to GDP growth (in lieu of to a discretionary extendable deadline). Firms should be able to apply to PPE Plus as long as the economy has not grown for more than two consecutive quarters, and stay in the program for at least 12 months, to help the economy recover.

The estimated financial impact of PPE Plus is not straightforward, since PNAD-C does not provide information on the size of the firm in which the individuals work. However, assuming average annual per capita savings of about R$ 3,000,[23] any increase in the number of beneficiaries from the March 2016 55,000 level, will increase savings proportionally.

2. Implementation

A key strength of PPE is that it has already shown measurable results, both in terms of preventing an even higher unemployment rate, and of generating savings for the Government. This precedent is likely to make PPE Plus a well-received measure at Congress.

[22] Micro businesses employ up to 19 workers in Industry and Construction, and up to 9 workers in Trade and Services. Small businesses employ 20-99 workers in Industry and Construction, and 10-29 workers in Trade and Services. Source: SEBRAE.

[23] This amount was calculated for the vulnerable middle class, as the difference between 5 months (the maximum time) of unemployment insurance (R$ 1,158 * 5 months = R$ 5,791), and a full year of PPE (R$ 225 * 12 months = R$ 2,700). The result is R$ 5,791- R$ 2,700 = R$ 3,091.

In this process, two possible challenges might arise. The first one has to do with the politics of the policy, and the role of the Unions in the implementation of PPE. If Collective Agreements and Union involvement ceases to be a pre-requisite to adhere to PPE Plus, it is possible that Unions will present some opposition. In this sense, it is key to keep open feedback channels, to negotiate with them and make sure they still feel ownership and leadership of the project.

As for the administrative part of the implementation, the communication campaign to Micro and Small businesses, and the case-by-case review of applications can be aided by SEBRAE, since this organization already has resources and infrastructure to analyze and understand the situation of these firms. Moreover, this opens room to other positive externalities of centralizing information on businesses, such as access to trainings, programs, advice, and other network effects.

Policy Recommendations in a Nutshell

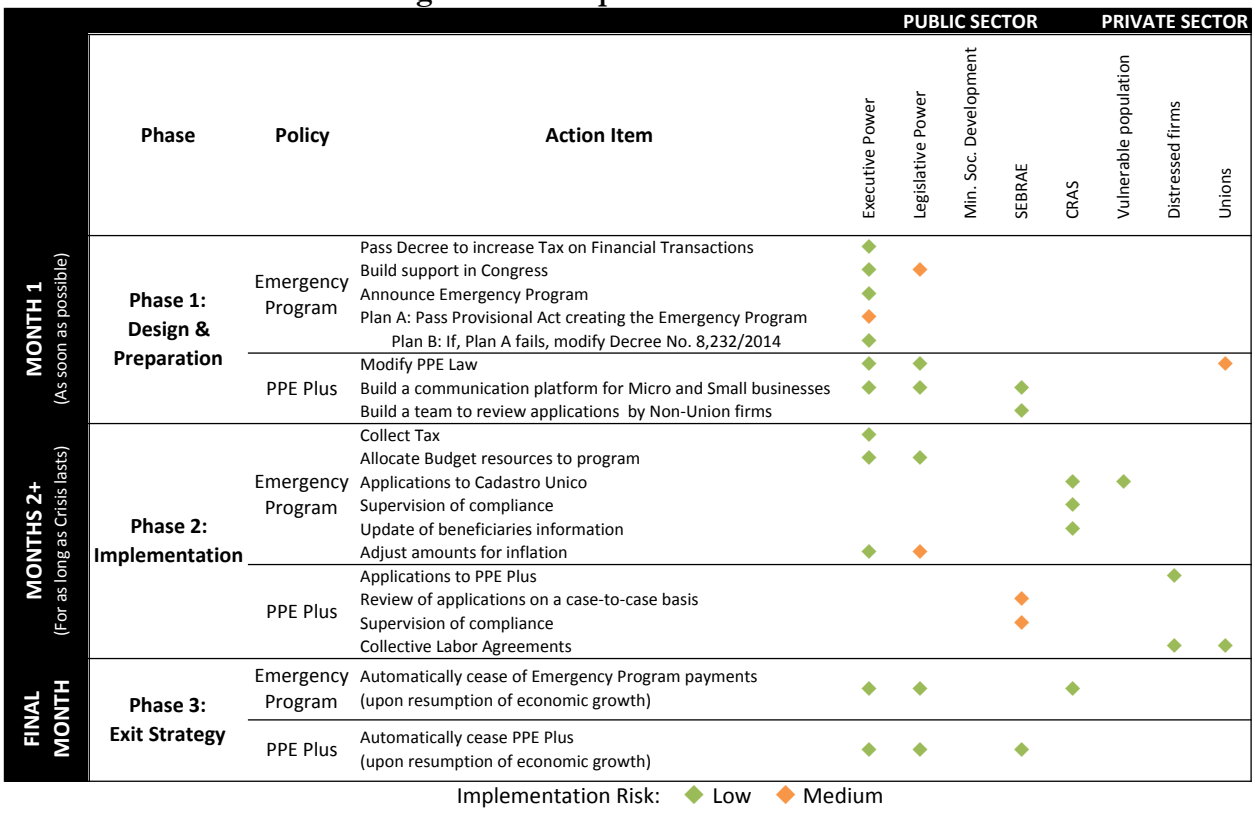
Figure V.9. synthetizes the proposed policy options, and their evaluation based on the criteria defined in Figure V.1.

Figure V.9. Policy Analysis Summary Table

	Technically Correctness	Administrative Feasibility	Politically Supportability
Status Quo	**Low.** **(–)** The current tax and transfers system is regressive on income and age. **(–)** There are few policies in place to support the vulnerable middle class.	**High.** **(+)** The Government manages one of the largest administrations in the world, but not necessarily efficiently.	**Low.** **(–)** The PT and Dilma face increasing social demands and social unrest.
Policy Option No. 1 Emergency Program	**High.** **(+)** Targets the vulnerable middle-class and poor. **(+)** Budget neutral. **(+)** Positive effect on the economy (positive multiplier of *Bolsa Família*).	**High.** **(+)** Capabilities and infrastructure in place to target *Bolsa Família* recipients. **(+)** Does not present major coordination challenges.	**High.** **(+)** Addresses social demands. **(+)** Tax affects mainly the wealthiest. **(+)** Can be passed as a Provisional Act.
Policy Option No. 2 PPE Plus (Temporary Labor Flexibility Program)	**High.** **(+)** Targets the vulnerable in general, reducing the probability of unemployment and increasing resilience to future shocks. **(+)** Budget savings.	**High.** **(+)** Program successfully implemented. **(+)** Fast visible results. **(+)** Positive network effects of coordinating campaign and application reviews with SEBRAE.	**High.** **(+)** Congress support recently proved. **(+)** Support from ILO and successful international experiences. **(–)** Potential absence of support from Unions.

Source: Built by the Authors.

Figure V.10. Implementation Board



Source: Built by the Authors.

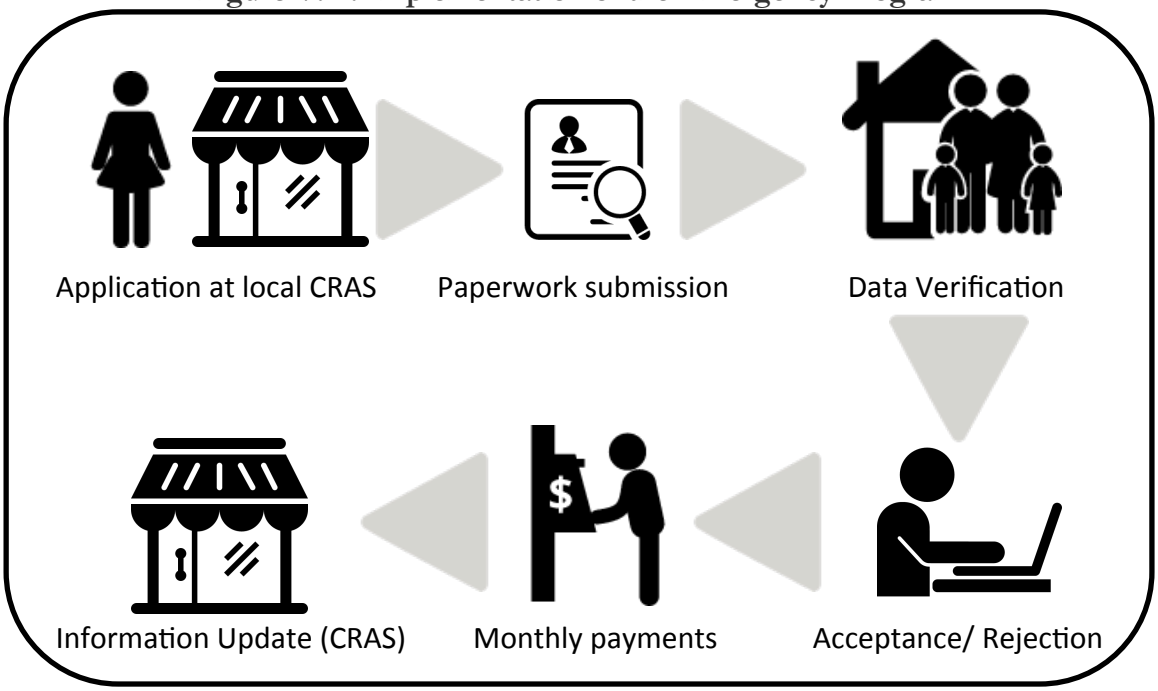
The key phases, timing, and stakeholders involved are summarized in Figure V.10. Given the complexity of the Brazilian political and economic context, the success of both policies depends on at least three elements. First, the roadmap and the allocation of action items needs to be clear to all stakeholders. Figures V.11 and V.12 show simplified schemes of the implementation at the execution level. Implementation risk can be minimized with a clear definition of tasks and timelines.

Second, as Figure V.13 suggests, most stakeholders are aligned, but some opposition might arise from parties that have high influence in the policy process. In this line, even though "Plan B" exists to proceed with the Emergency Program in the absence of political support in Congress, it is important to build consensuses to make sure that the Program will be included in the Budget process. Ongoing monitoring of the results of these policies can add high value to the negotiation process with the different parties. For example, a positive outcome in Congress is much more likely to happen if figures of budget savings due to PPE are presented.

Finally, as the names and nature of both policies state, these are temporary measures that have the specific purpose of smoothing the impact of the crisis on the vulnerable, therefore, it is important that they are implemented in a way that will make it hard for politicians to push to

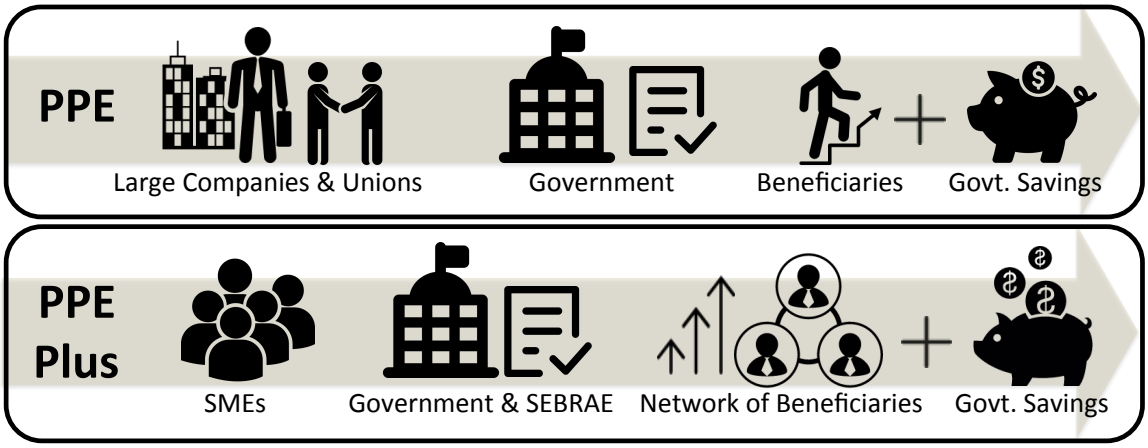
extended them beyond the recession, especially if such decision is motivated by the political cycle. In this sense, the automatic expiration after two consecutive quarters of economic growth, can work as a checks and balances restriction.

Figure V.11. Implementation of the Emergency Program



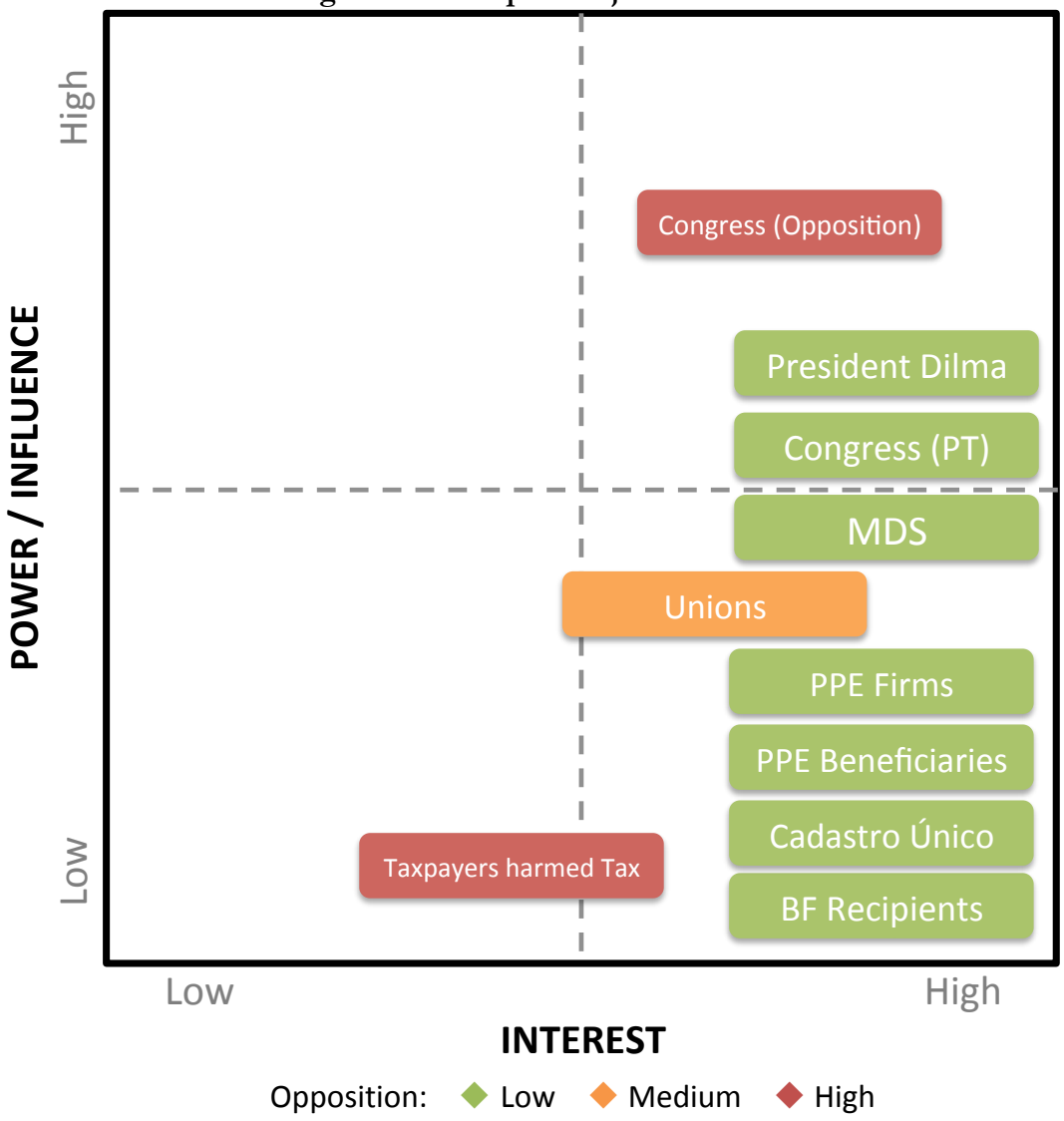
Source: Built by the Authors.

Figure V.12. Key Differences in Design and Implementation between PPE and PPE Plus



Source: Built by the Authors.

Figure V.13. Map of Major Stakeholders



Source: Built by the Authors.

Post-Crisis Policy Considerations

Besides emergency programs, our model results provides evidence that other long-term measures could be undertaken to help consolidate the middle class.

1. Education

Our analysis shows that households in the vulnerable middle class (i) are young (Annex 2, Figure 10), (ii) are unlikely to have secondary or tertiary education, and (iii) live in metropolitan areas. In fact, 10% of the vulnerable middle class fits this profile. A way of protecting this

population and increasing their resilience to future shocks is by pursuing active labor market policies that help the vulnerable work in the formal sector and study at the same time. Brazil has a number of programs –either in place or about to be launched– that combine classroom training and apprenticeship, targeting the most vulnerable segments of the population. The most salient ones are *Lei do Aprendiz* (launched in 2005), *PRONATEC* (launched in 2011), and *PRONATEC Jovem Aprendiz* (to be launched in 2016). In this regard, Quintana & Sobral (2015) propose to implement apprenticeships in Micro and Small firms to help *Bolsa Família* beneficiaries develop skills that are demanded in the labor market.

There is space to consider the expansion of these of initiatives to the vulnerable middle class, for example, by trying pilot internship programs with higher salary limits, so that self-selection of individuals to these jobs reaches the targeted population.

2. Asset Formation

Research suggests that ownership of durable assets, in particular dwelling tenure, can provide economic resilience to the middle class, and improve other indicators of wellbeing (Galiani & Schargrodsky, 2010). Moreover, programs that finance housing edifications usually have a positive effect on the economy, since they fuel activity in construction and the associated sectors.

Minha Casa, Minha Vida (MCMV) is the largest government-sponsored housing program. Launched in 2009, it has more than R$ 200 billion in subsidized funding from *Caixa Econômica Federal* and *Banco Central do Brasil,* and has contributed significantly to the construction of more than 4 million housing units (*Caixa do Brasil*, Statistics). However, according to private estimates, the housing gap is still large, in a context in which there is payment capacity at the household level. In fact, our analysis of POF 2008-2009 shows that housing rent reaches on average 20% of total expenditures of the vulnerable middle class (See Annex 2, Figure 8), which suggests that there is room to afford these types of programs, as long as they replace rent costs. A final consideration is that MCMV has been associated with corruption scandals, which has undermined its future growth (*Folha*, 2015).

In line with this, it is likely that after the crisis there will be space to extend housing programs, both in terms of demand and supply of funds. As for the latter, there might be room for a smarter design of financial instruments (for example, with partial government guarantees), that will allow institutional investors with long-term profiles to enter this market. An additional potential benefit of this strategy is increased discipline and lower chances of irregular allocation of funds.

Section VI: Final Remarks

Building, supporting and maintaining a resilient middle class is probably one of the hardest challenges for developing countries. Brazil has successfully given a first big step in the 'building', but its capacity to support and maintain it is being challenged by the current economic crisis.

This policy paper aims at bringing into the policy agenda two sets of policies that are fundamental to this process. The first one, the Emergency Program, aims at preventing persistent downward social mobility amidst the transitory shocks on income originated in the current economic crisis. The second one, the Job Protection Program, PPE Plus, has the objective of increasing access to labor flexibility programs and decelerating the growth of unemployment. Both programs are temporary, conditional on economic growth, and meet high standards of technical correctness, administrative feasibility and political supportability, amidst a very complex context.

Finally, given the importance of skill building for resiliency to shocks, we have identified additional space for post-crisis policy action in the labor market for vulnerable workers. Moreover, there is room to improve and extend affordable housing policies by involving the private sector in its structuring and financing.

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Annex 1

Figure 1. National Surveys in Brazil: General Characteristics, 1995-2014

Period	Survey	Frequency	Coverage	Longitudinal analysis	Sample size
1995-2014	PNAD	Yearly	7,818 sectors 851 municipalities	Pseudo-panels feasible	~100,000 households per survey
2000	Census	Every 10 years	National 5,507 municipalities		54.3 million housing units
2008-2009	POF	Approx. every 6 years	4,696 sectors		55,970 households per survey
2010	Census	Every 10 years	National 5,565 municipalities		67.6 million housing units
2012-2014	PNAD *Continua*	Quarterly	12,800 sectors 3,328 municipalities	Moving Panel: Each household captured quarterly over 5 consecutive quarters.	~179,000 households per survey

Source: Built by the Authors, based on IBGE and World Bank.

Figure 2. Characteristics of the Middle Class 2005-2014

VARIABLES	(1) 2005	(2) 2006	(3) 2007	(4) 2008	(5) 2009	(6) 2011	(7) 2012	(8) 2013	(9) 2014	*(10) 2014 50/90*
Income per capita	560.7	580.8	610.9	659.9	690.8	792.1	851.1	905.7	967.6	*1,296*
	(219.4)	(225.6)	(236.3)	(253.9)	(262.9)	(297.7)	(317.0)	(332.6)	(356.6)	*(428.6)*
Age (HH)	46.95	47.17	46.93	47.07	47.49	47.32	47.58	47.79	47.89	*48.15*
	(19.31)	(14.31)	(14.26)	(14.35)	(14.42)	(14.62)	(14.60)	(14.71)	(14.65)	*(14.46)*
Male (HH)	0.728	0.720	0.703	0.679	0.681	0.656	0.647	0.638	0.629	*0.644*
	(0.445)	(0.449)	(0.457)	(0.467)	(0.466)	(0.475)	(0.478)	(0.481)	(0.483)	*(0.479)*
Years of education (HH)	7.455	7.340	7.382	7.457	7.469	7.498	7.578	7.571	7.603	*8.448*
	(4.311)	(4.294)	(4.296)	(4.335)	(4.355)	(4.436)	(4.348)	(4.407)	(4.393)	*(4.406)*
Formal work (HH)	0.410	0.407	0.417	0.420	0.418	0.425	0.423	0.420	0.414	*0.436*
	(0.492)	(0.491)	(0.493)	(0.494)	(0.493)	(0.494)	(0.494)	(0.494)	(0.493)	*(0.496)*
Government (HH)	0.0579	0.0553	0.0532	0.0512	0.0507	0.0471	0.0454	0.0435	0.0401	*0.0509*
	(0.234)	(0.229)	(0.224)	(0.220)	(0.219)	(0.212)	(0.208)	(0.204)	(0.196)	*(0.220)*
Agriculture (HH)	0.0775	0.0841	0.0818	0.0844	0.0874	0.0800	0.0787	0.0815	0.0827	*0.0705*
	(0.267)	(0.277)	(0.274)	(0.278)	(0.282)	(0.271)	(0.269)	(0.274)	(0.275)	*(0.256)*
Commerce (HH)	0.0644	0.0615	0.0639	0.0614	0.0570	0.0624	0.0616	0.0607	0.0597	*0.0643*
	(0.246)	(0.240)	(0.245)	(0.240)	(0.232)	(0.242)	(0.240)	(0.239)	(0.237)	*(0.245)*
Construction (HH)	0.0660	0.0664	0.0679	0.0743	0.0757	0.0838	0.0863	0.0894	0.0887	*0.0857*
	(0.248)	(0.249)	(0.252)	(0.262)	(0.265)	(0.277)	(0.281)	(0.285)	(0.284)	*(0.280)*
Industry (HH)	0.149	0.143	0.146	0.143	0.136	0.122	0.122	0.117	0.113	*0.119*
	(0.356)	(0.350)	(0.353)	(0.350)	(0.343)	(0.327)	(0.327)	(0.321)	(0.317)	*(0.324)*
Retail (HH)	0.158	0.151	0.147	0.141	0.140	0.137	0.132	0.133	0.135	*0.139*
	(0.365)	(0.358)	(0.354)	(0.348)	(0.347)	(0.344)	(0.338)	(0.339)	(0.341)	*(0.346)*
Union (HH)	0.197	0.192	0.177	0.179	0.171	0.157	0.148	0.140	0.142	*0.159*
	(0.397)	(0.394)	(0.382)	(0.383)	(0.376)	(0.364)	(0.355)	(0.347)	(0.349)	*(0.366)*
Formal work (SP)	0.224	0.222	0.235	0.242	0.245	0.259	0.263	0.263	0.261	*0.280*
	(0.417)	(0.416)	(0.424)	(0.428)	(0.430)	(0.438)	(0.440)	(0.440)	(0.439)	*(0.449)*
Years of education (SP)	6.679	6.624	6.627	6.691	6.730	6.739	6.757	6.804	6.801	*7.258*
	(3.859)	(3.864)	(3.869)	(3.900)	(3.944)	(4.007)	(3.947)	(3.980)	(3.983)	*(4.155)*
Government (SP)	0.0197	0.0190	0.0206	0.0187	0.0206	0.0221	0.0211	0.0207	0.0191	*0.0229*
	(0.139)	(0.137)	(0.142)	(0.136)	(0.142)	(0.147)	(0.144)	(0.142)	(0.137)	*(0.150)*
Agriculture (SP)	0.0345	0.0382	0.0371	0.0365	0.0374	0.0366	0.0346	0.0358	0.0393	*0.0314*
	(0.182)	(0.192)	(0.189)	(0.188)	(0.190)	(0.188)	(0.183)	(0.186)	(0.194)	*(0.174)*
Commerce (SP)	0.0117	0.0105	0.0129	0.0166	0.0153	0.0181	0.0184	0.0191	0.0190	*0.0205*
	(0.108)	(0.102)	(0.113)	(0.128)	(0.123)	(0.133)	(0.134)	(0.137)	(0.137)	*(0.142)*
Construction (SP)	0.00773	0.00783	0.0102	0.0146	0.0139	0.0196	0.0229	0.0250	0.0270	*0.0235*
	(0.0876)	(0.0881)	(0.101)	(0.120)	(0.117)	(0.139)	(0.149)	(0.156)	(0.162)	*(0.152)*

Industry (SP)	0.0686	0.0674	0.0699	0.0748	0.0736	0.0654	0.0681	0.0644	0.0635	*0.0655*
	(0.253)	(0.251)	(0.255)	(0.263)	(0.261)	(0.247)	(0.252)	(0.245)	(0.244)	*(0.247)*
Retail (SP)	0.0816	0.0802	0.0845	0.0793	0.0849	0.0845	0.0828	0.0805	0.0832	*0.0867*
	(0.274)	(0.272)	(0.278)	(0.270)	(0.279)	(0.278)	(0.276)	(0.272)	(0.276)	*(0.281)*
Union (SP)	0.0852	0.0860	0.0829	0.0827	0.0824	0.0778	0.0738	0.0698	0.0753	*0.0831*
	(0.279)	(0.280)	(0.276)	(0.275)	(0.275)	(0.268)	(0.261)	(0.255)	(0.264)	*(0.276)*
Metropolitan area	0.373	0.391	0.400	0.411	0.419	0.386	0.398	0.402	0.404	*0.369*
	(0.484)	(0.488)	(0.490)	(0.492)	(0.493)	(0.487)	(0.490)	(0.490)	(0.491)	*(0.483)*
Dwelling tenure	0.733	0.736	0.737	0.742	0.736	0.738	0.742	0.737	0.726	*0.732*
	(0.443)	(0.441)	(0.440)	(0.438)	(0.441)	(0.440)	(0.438)	(0.440)	(0.446)	*(0.443)*
Dependency ratio	0.381	0.391	0.383	0.382	0.382	0.383	0.396	0.398	0.388	*0.330*
	(0.501)	(0.509)	(0.506)	(0.504)	(0.504)	(0.506)	(0.516)	(0.512)	(0.513)	*(0.484)*
Proportion white	0.613	0.597	0.586	0.563	0.559	0.540	0.516	0.500	0.485	*0.532*
	(0.430)	(0.432)	(0.424)	(0.424)	(0.426)	(0.429)	(0.427)	(0.427)	(0.425)	*(0.429)*
Num. over 64	0.187	0.199	0.191	0.195	0.203	0.204	0.208	0.211	0.211	*0.204*
	(0.463)	(0.475)	(0.468)	(0.470)	(0.483)	(0.481)	(0.490)	(0.487)	(0.490)	*(0.479)*
Num. children	0.599	0.593	0.589	0.573	0.568	0.559	0.576	0.572	0.552	*0.418*
	(0.816)	(0.812)	(0.804)	(0.792)	(0.786)	(0.782)	(0.793)	(0.787)	(0.779)	*(0.683)*
Num. adolescents	0.0914	0.0877	0.0854	0.0864	0.0846	0.0789	0.0801	0.0819	0.0814	*0.0641*
	(0.299)	(0.294)	(0.292)	(0.292)	(0.289)	(0.279)	(0.281)	(0.283)	(0.282)	*(0.251)*
Household size	3.140	3.117	3.103	3.062	3.084	3.024	3.040	3.024	2.992	*2.800*
	(1.379)	(1.377)	(1.364)	(1.349)	(1.342)	(1.328)	(1.326)	(1.322)	(1.317)	*(1.246)*
Urban	0.918	0.911	0.906	0.903	0.896	0.908	0.903	0.895	0.893	*0.912*
	(0.275)	(0.285)	(0.292)	(0.296)	(0.305)	(0.290)	(0.296)	(0.306)	(0.309)	*(0.283)*
Contributes to pension fund (HH)	0.521	0.515	0.518	0.517	0.516	0.531	0.529	0.528	0.533	*0.577*
	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.499)	(0.499)	(0.499)	(0.499)	*(0.494)*
Child private school	0.229	0.227	0.218	0.205	0.210	0.184	0.184	0.185	0.184	*0.216*
	(0.420)	(0.419)	(0.413)	(0.404)	(0.407)	(0.388)	(0.388)	(0.388)	(0.388)	*(0.412)*
Max. num. years of educ.	10.07	9.959	10.03	10.06	10.14	10.13	10.14	10.19	10.21	*10.85*
	(3.611)	(3.658)	(3.627)	(3.627)	(3.637)	(3.676)	(3.588)	(3.621)	(3.638)	*(3.632)*
Proportion black	0.0594	0.0661	0.0710	0.0691	0.0677	0.0802	0.0798	0.0826	0.0892	*0.0818*
	(0.208)	(0.219)	(0.220)	(0.216)	(0.213)	(0.229)	(0.228)	(0.231)	(0.239)	*(0.233)*
Proportion mixed-race	0.319	0.329	0.335	0.359	0.367	0.371	0.397	0.410	0.419	*0.378*
	(0.403)	(0.406)	(0.396)	(0.399)	(0.403)	(0.406)	(0.408)	(0.409)	(0.409)	*(0.408)*
Num. per room	1.678	1.675	1.665	1.651	1.663	1.643	1.650	1.653	1.645	*1.558*
	(0.617)	(0.612)	(0.614)	(0.607)	(0.607)	(0.615)	(0.616)	(0.624)	(0.617)	*(0.545)*
Num. bathrooms	1.375	1.357	1.339	1.336	1.325	1.312	1.306	1.307	1.313	*1.411*
	(0.671)	(0.648)	(0.635)	(0.624)	(0.618)	(0.597)	(0.589)	(0.588)	(0.597)	*(0.684)*
Land tenure	0.698	0.704	0.704	0.711	0.702	0.702	0.710	0.706	0.697	*0.703*
	(0.459)	(0.457)	(0.457)	(0.453)	(0.457)	(0.458)	(0.454)	(0.456)	(0.459)	*(0.457)*
Garbage removal	0.941	0.938	0.940	0.940	0.939	0.938	0.936	0.933	0.933	*0.949*
	(0.235)	(0.241)	(0.238)	(0.238)	(0.240)	(0.241)	(0.245)	(0.249)	(0.249)	*(0.221)*
Sewage	0.822	0.810	0.828	0.814	0.798	0.833	0.832	0.810	0.807	*0.836*
	(0.383)	(0.392)	(0.377)	(0.389)	(0.401)	(0.373)	(0.374)	(0.393)	(0.395)	*(0.371)*
Washing machine	0.503	0.492	0.501	0.511	0.539	0.592	0.626	0.646	0.651	*0.722*
	(0.500)	(0.500)	(0.500)	(0.500)	(0.499)	(0.492)	(0.484)	(0.478)	(0.477)	*(0.448)*
Computer	0.275	0.298	0.357	0.402	0.444	0.520	0.547	0.569	0.557	*0.631*
	(0.446)	(0.458)	(0.479)	(0.490)	(0.497)	(0.500)	(0.498)	(0.495)	(0.497)	*(0.483)*
Telephone	0.656	0.610	0.572	0.542	0.514	0.456	0.434	0.411	0.387	*0.456*
	(0.475)	(0.488)	(0.495)	(0.498)	(0.500)	(0.498)	(0.496)	(0.492)	(0.487)	*(0.498)*
North	0.0503	0.0519	0.0518	0.0565	0.0572	0.0542	0.0588	0.0603	0.0613	*0.0510*
	(0.219)	(0.222)	(0.222)	(0.231)	(0.232)	(0.226)	(0.235)	(0.238)	(0.240)	*(0.220)*
Northeast	0.126	0.144	0.151	0.158	0.166	0.172	0.183	0.192	0.201	*0.148*
	(0.331)	(0.351)	(0.358)	(0.365)	(0.372)	(0.377)	(0.386)	(0.394)	(0.401)	*(0.355)*
Southeast	0.548	0.529	0.521	0.515	0.506	0.499	0.488	0.481	0.471	*0.503*
	(0.498)	(0.499)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.499)	*(0.500)*
South	0.192	0.189	0.190	0.185	0.184	0.181	0.183	0.179	0.177	*0.193*
	(0.394)	(0.392)	(0.392)	(0.389)	(0.388)	(0.385)	(0.387)	(0.384)	(0.382)	*(0.395)*
Center-West	0.0844	0.0860	0.0863	0.0847	0.0868	0.0942	0.0876	0.0865	0.0899	*0.105*
	(0.278)	(0.280)	(0.281)	(0.278)	(0.281)	(0.292)	(0.283)	(0.281)	(0.286)	*(0.306)*
% Middle class	0.400	0.438	0.458	0.478	0.488	0.519	0.537	0.541	0.556	*0.400*
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	*(0)*
Upper threshold percentile	90	89	89	89	88	88	86	85	85	*90*
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	*(0)*
Lower threshold percentile	50	46	43	41	39	36	33	31	29	*50*
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	*(0)*
Observations	38,978	43,475	44,648	46,656	49,099	47,414	51,131	51,682	55,400	*39,777*

Note: The middle class for each year in columns (1) - (9) is defined as those households with income per capita between the 50th and 90th percentile of the income per capita distribution of 2005. Column (10) presents the descriptive statistics by defining the middle class as those falling between the

50th and 90th percentile of the income per capita distribution of 2014. "HH" stands for household head and "SP" for the household head's spouse. Income is adjusted to reflect differences in price variation over time and between regions. Prices are adjusted to those of Northeast urban areas and thresholds are adjusted for inflation.

Source: Built by the Authors, using PNAD 2005-2014 (IBGE).

Figure 3. Probability of Falling Out of the Middle Class, Crisis 2008-2009

VARIABLES	(1) Probit	(2) OLS	(3) Logit	(4) Probit IEW	(5) Probit 20/80	(6) Probit 25%	(7) Probit labor	(8) Probit imputed
Age (HH)	-0.00967***	-0.0176***	-0.0146***	-0.0107***	-0.000457	-0.00753***	-0.00658***	-0.00871***
	(0.00221)	(0.00390)	(0.00335)	(0.00295)	(0.000629)	(0.00181)	(0.00146)	(0.00217)
Age squared (HH)	6.61e-05***	0.000131***	0.000104***	7.74e-05**	-2.25e-07	5.44e-05***	7.17e-05***	6.33e-05***
	(2.33e-05)	(4.07e-05)	(3.57e-05)	(3.19e-05)	(7.55e-06)	(1.97e-05)	(1.65e-05)	(2.35e-05)
Male (HH)	0.0585*	0.102***	0.0817*	-0.00454	0.00329	0.0436*	-0.0207	0.0423
	(0.0301)	(0.0393)	(0.0449)	(0.0268)	(0.00474)	(0.0247)	(0.0173)	(0.0289)
Primary Ed. (HH)	-0.0410***	-0.0368	-0.0607***	-0.0582***	-0.00283	-0.0178	-0.0266***	-0.0428***
	(0.0139)	(0.0269)	(0.0202)	(0.0199)	(0.00232)	(0.0118)	(0.00920)	(0.0137)
Secondary Ed. (HH)	-0.107***	-0.139***	-0.162***	-0.0716***	-0.00940**	-0.0696***	-0.0171	-0.0958***
	(0.0169)	(0.0238)	(0.0258)	(0.0177)	(0.00421)	(0.0132)	(0.0117)	(0.0159)
University Ed. (HH)	-0.0325	0.0147	-0.0509	-0.0760***	-0.00495	-0.0166	0.0247*	-0.0245
	(0.0230)	(0.0204)	(0.0401)	(0.0192)	(0.00614)	(0.0179)	(0.0136)	(0.0220)
Formal work (HH)	0.00720	-0.0602	0.0178	-0.135***	-0.00742	0.0196	-0.0730***	-0.00584
	(0.0346)	(0.0648)	(0.0528)	(0.0443)	(0.00613)	(0.0272)	(0.0226)	(0.0334)
Employed (HH)	-0.0299	-0.0563	-0.0260	0.0421	0.00939	-0.0417	-0.0160	-0.0193
	(0.0455)	(0.0671)	(0.0711)	(0.0493)	(0.00742)	(0.0377)	(0.0316)	(0.0441)
Government (HH)	-0.0249	-0.0515	-0.0381	0.0215	-0.0225	-0.0100	0.0268	-0.0182
	(0.0736)	(0.0912)	(0.111)	(0.0736)	(0.0138)	(0.0591)	(0.0452)	(0.0728)
Agriculture (HH)	-0.0376	-0.0589	-0.0706	-0.0746	-0.00925	-0.00107	-0.00734	-0.0310
	(0.0457)	(0.0754)	(0.0695)	(0.0644)	(0.00662)	(0.0365)	(0.0304)	(0.0448)
Commerce (HH)	-0.0544	-0.0300	-0.0892	-0.0701	-0.0247	0.000178	0.0335	-0.0471
	(0.0778)	(0.157)	(0.116)	(0.0702)	(0.0151)	(0.0628)	(0.0516)	(0.0754)
Construction (HH)	0.0510	0.121	0.0812	0.0439	0.000860	0.0581	0.0504	0.0441
	(0.0744)	(0.125)	(0.119)	(0.0743)	(0.00832)	(0.0533)	(0.0391)	(0.0736)
Industry (HH)	0.0207	0.0273	0.0142	-0.00163	-0.00493	0.0184	0.00295	0.0308
	(0.0593)	(0.104)	(0.0962)	(0.0737)	(0.00975)	(0.0481)	(0.0437)	(0.0555)
Retail (HH)	0.0317	0.0667	0.0482	0.00799	-0.0106	0.0527	0.0424	0.0357
	(0.0535)	(0.0957)	(0.0830)	(0.0564)	(0.00895)	(0.0427)	(0.0402)	(0.0517)
Union (HH)	-0.0647*	-0.0891	-0.0991*	0.0413	-0.0125	-0.0389	0.00292	-0.0605*
	(0.0360)	(0.0576)	(0.0543)	(0.0429)	(0.00801)	(0.0280)	(0.0206)	(0.0352)
Formal work (SP)	-0.0317	-0.0808	-0.0500	0.0291	0.00289	-0.0253	0.0278	-0.0335
	(0.0506)	(0.0881)	(0.0735)	(0.0584)	(0.00762)	(0.0398)	(0.0316)	(0.0474)
Employed (SP)	0.0139	0.0280	0.0278	-0.0986*	-0.00719	0.0179	-0.0134	0.0208
	(0.0433)	(0.0850)	(0.0692)	(0.0534)	(0.00692)	(0.0342)	(0.0331)	(0.0409)
Government (SP)	-0.166	-0.124	-0.323	0.101	-0.00344	-0.0870	-0.0308	-0.154
	(0.151)	(0.0964)	(0.291)	(0.0816)	(0.0150)	(0.103)	(0.0506)	(0.142)
Agriculture (SP)	0.0453	0.0761	0.0767	0.209***	0.00814	0.00490	0.0304	0.0316
	(0.0499)	(0.107)	(0.0753)	(0.0801)	(0.00771)	(0.0395)	(0.0371)	(0.0480)
Commerce (SP)	0.133	0.246	0.206	-0.0548	-0.0547	0.124	-0.214	0.109
	(0.139)	(0.400)	(0.188)	(0.248)	(0.0590)	(0.0975)	(0.205)	(0.135)
Construction (SP)	0.0432	0.111	0.0588	0.349*	0.0110	-0.0256	0.0121	0.0790
	(0.106)	(0.269)	(0.137)	(0.188)	(0.0168)	(0.103)	(0.0665)	(0.0889)
Industry (SP)	0.0248	0.0720	0.0471	0.130*	-0.00352	0.0186	-0.0400	0.0160
	(0.0617)	(0.132)	(0.0925)	(0.0753)	(0.0157)	(0.0487)	(0.0525)	(0.0588)
Retail (SP)	-0.0514	-0.117	-0.0668	0.0200	0.0107	-0.0210	-0.0325	-0.0523
	(0.0711)	(0.115)	(0.112)	(0.0617)	(0.00941)	(0.0547)	(0.0433)	(0.0687)
Union (SP)	0.0115	0.0430	0.0115	-0.118	-0.0111	0.0109	-0.0338	0.0193
	(0.0475)	(0.0863)	(0.0716)	(0.0722)	(0.00979)	(0.0367)	(0.0290)	(0.0467)
Metropolitan area	0.0149	0.0222	0.0157	0.0896***	0.00945**	0.0169	0.00471	0.0105
	(0.0229)	(0.0344)	(0.0348)	(0.0251)	(0.00417)	(0.0191)	(0.0144)	(0.0226)
Dwelling tenure	0.0364	0.0358	0.0488		0.00574	0.0397	-0.00355	0.0165
	(0.0342)	(0.0528)	(0.0505)		(0.00459)	(0.0276)	(0.0187)	(0.0331)
Dependency ratio	0.00427	0.00554	0.00537	-0.00718	0.00313**	0.000398	-0.00206	0.00181
	(0.00551)	(0.00736)	(0.00786)	(0.00592)	(0.00132)	(0.00455)	(0.00386)	(0.00527)
Proportion white	-0.0533***	-0.0732***	-0.0779***	-0.0429**	0.00105	-0.0220*	-0.0145	-0.0481***
	(0.0150)	(0.0219)	(0.0216)	(0.0191)	(0.00265)	(0.0125)	(0.00988)	(0.0150)
Num. over 64	-0.0434*	-0.0673**	-0.0616*	0.0187	-0.0104	-0.0243	0.0298**	-0.0399*
	(0.0239)	(0.0334)	(0.0345)	(0.0231)	(0.00788)	(0.0203)	(0.0151)	(0.0236)

Num. children	-0.00981	-0.0190	-0.0109	-0.0418***	-0.00178	-0.0145	0.00172	0.000682
	(0.0126)	(0.0211)	(0.0178)	(0.0142)	(0.00203)	(0.0106)	(0.00601)	(0.0119)
Num. adolescents	0.0447	0.140**	0.0677	0.0566	0.00832	0.0401	-0.0117	0.0580*
	(0.0357)	(0.0655)	(0.0535)	(0.0453)	(0.00582)	(0.0266)	(0.0246)	(0.0326)
Urban	-0.109***	-0.138***	-0.112***	-0.426***	-0.0110**	-0.102***	-0.0736***	-0.120***
	(0.0294)	(0.0303)	(0.0249)	(0.0780)	(0.00558)	(0.0264)	(0.0175)	(0.0301)
Northeast	0.0256	0.00519	0.0411**	-0.0223	0.00459	-0.00326	0.0431***	0.0213
	(0.0165)	(0.0257)	(0.0197)	(0.0160)	(0.00284)	(0.0112)	(0.0130)	(0.0159)
Southeast	-0.0622***	-0.144***	-0.127***	-0.0767***	-0.00535**	-0.0469***	-0.0149*	-0.0615***
	(0.0103)	(0.0261)	(0.0253)	(0.0127)	(0.00231)	(0.00846)	(0.00880)	(0.00997)
South	-0.0462***	-0.114***	-0.0844***	-0.0633***	-0.00570**	-0.0369***	-0.00406	-0.0435***
	(0.00989)	(0.0290)	(0.0251)	(0.0110)	(0.00229)	(0.00783)	(0.0113)	(0.00970)
Center-West	-0.0597***	-0.135***	-0.122***	-0.0465***	-0.00770***	-0.0448***	-0.00848	-0.0628***
	(0.00985)	(0.0258)	(0.0234)	(0.0119)	(0.00298)	(0.00810)	(0.00972)	(0.00955)
Constant		0.942***						
		(0.108)						
Observations	1,708	1,708	1,708	1,007	2,702	1,708	2,410	1,699
R-squared		0.196						

Robust standard errors in parentheses

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

Note: Marginal effects reported for Probit and Logit estimations. "HH" stands for household head and "SP" for the spouse. All independent variables are averages by cohort for the year 2008. The omitted state is the North. The dependent variable for columns (1), (2) and (3) is the probability that a cohort with average household total income per capita higher than the median in 2008 falls below this threshold in 2009. The dependent variable for column (4) is the probability that a cohort with an average household index of economic wellbeing higher than the median in 2008 falls below this threshold in 2009. The dwelling tenure of a household is not considered for this case as it is used to determine the index. The dependent variable for column (5) is the probability that a cohort with average household total income per capita above the 20th percentile in 2008, falls below this threshold in 2009. The dependent variable for column (6) is the probability that a cohort with average household total income per capita higher than the median in 2008, falls below this threshold in 2009, conditional on income per capita falling at least 25%. The dependent variable for column (7) is the probability that a cohort with average household labor income per capita higher than the median in 2008 falls below this threshold in 2009. Column (8) follows the same specification as column 1, with the difference that income data is corrected following the method developed by IPEA. In all cases income is adjusted to reflect 2008 Northeast urban area prices to account for differences in prices variation over time and between regions.

Source: Built by the Authors, using PNAD 2008-2009 (IBGE).

Figure 4. Probability of Falling Out of the Middle Class, 2014-2015

VARIABLES	(1) Probit	(2) OLS	(3) Logit	(4) Probit 20/80	(5) Probit 25%
Age (HH)	-0.00709***	-0.00815***	-0.00666***	-0.00124***	-0.00712***
	(0.000872)	(0.000980)	(0.000833)	(0.000301)	(0.000837)
Age squared (HH)	6.11e-05***	7.37e-05***	5.62e-05***	1.44e-05***	6.41e-05***
	(9.55e-06)	(1.09e-05)	(9.11e-06)	(3.05e-06)	(9.16e-06)
Male (HH)	-0.0264***	-0.0244***	-0.0257***	-0.0155***	-0.0208***
	(0.00493)	(0.00465)	(0.00471)	(0.00200)	(0.00475)
Primary Ed. (HH)	-0.0362***	-0.0406***	-0.0343***	-0.00282	-0.0311***
	(0.00590)	(0.00629)	(0.00546)	(0.00237)	(0.00570)
Secondary Ed. (HH)	-0.0501***	-0.0519***	-0.0493***	-0.00578**	-0.0435***
	(0.00576)	(0.00593)	(0.00558)	(0.00259)	(0.00558)
University Ed. (HH)	-0.108***	-0.0897***	-0.130***	-0.0113***	-0.0936***
	(0.00496)	(0.00468)	(0.00705)	(0.00295)	(0.00486)
Formal work (HH)	-0.0164***	-0.0175***	-0.0169***	-0.0169***	-0.0209***
	(0.00442)	(0.00427)	(0.00433)	(0.00192)	(0.00426)
Employed (HH)	-0.0721***	-0.0686***	-0.0631***	-0.00341	-0.0557***
	(0.00856)	(0.00802)	(0.00727)	(0.00276)	(0.00815)
Agriculture (HH)	0.0420***	0.0401***	0.0394***	0.0282***	0.0341***
	(0.00842)	(0.00820)	(0.00740)	(0.00373)	(0.00809)
Industry (HH)	0.00969	0.0102	0.00957	0.00922**	0.00966
	(0.00702)	(0.00646)	(0.00679)	(0.00373)	(0.00682)
Construction (HH)	0.0524***	0.0510***	0.0474***	0.0249***	0.0511***
	(0.00877)	(0.00841)	(0.00751)	(0.00456)	(0.00855)
Retail (HH)	-0.0130**	-0.0124**	-0.0134**	0.000570	-0.0113*
	(0.00622)	(0.00600)	(0.00632)	(0.00314)	(0.00602)
Commerce (HH)	-0.0138	-0.0141	-0.0149	0.00936*	-0.00822
	(0.00916)	(0.00882)	(0.00945)	(0.00529)	(0.00896)
Government (HH)	-0.0366***	-0.0279***	-0.0396***	-0.00282	-0.0352***
	(0.00767)	(0.00644)	(0.00873)	(0.00431)	(0.00740)

Formal work (SP)	-0.0419***	-0.0370***	-0.0434***	-0.0139***	-0.0373***
	(0.00550)	(0.00536)	(0.00579)	(0.00272)	(0.00533)
Employed (SP)	-0.0571***	-0.0528***	-0.0546***	-0.0212***	-0.0517***
	(0.00615)	(0.00584)	(0.00609)	(0.00283)	(0.00597)
Agriculture (SP)	0.0759***	0.0673***	0.0665***	0.0163***	0.0764***
	(0.0128)	(0.0120)	(0.0103)	(0.00496)	(0.0126)
Industry (SP)	0.0278***	0.0218***	0.0270***	0.00845	0.0306***
	(0.00943)	(0.00801)	(0.00875)	(0.00514)	(0.00926)
Construction (SP)	0.0891***	0.0871***	0.0756***	0.0334***	0.0945***
	(0.0155)	(0.0146)	(0.0120)	(0.00784)	(0.0153)
Retail (SP)	0.0136*	0.0106	0.0128*	-0.00219	0.0170**
	(0.00801)	(0.00699)	(0.00770)	(0.00419)	(0.00785)
Commerce (SP)	-0.00321	-0.00667	-0.00551	0.00475	0.00596
	(0.0163)	(0.0147)	(0.0163)	(0.00886)	(0.0161)
Government (SP)	-0.0433***	-0.0299***	-0.0492***	-0.0121**	-0.0384***
	(0.0100)	(0.00793)	(0.0120)	(0.00558)	(0.00978)
Metropolitan area	0.0346***	0.0330***	0.0330***	-0.00122	0.0316***
	(0.00429)	(0.00408)	(0.00409)	(0.00177)	(0.00415)
Dependency ratio	0.0164***	0.0181***	0.0158***	-0.00322***	0.0161***
	(0.00200)	(0.00253)	(0.00187)	(0.000476)	(0.00191)
Num. over 64	0.00923	0.00694	0.00917	0.0169***	0.00238
	(0.00689)	(0.00742)	(0.00670)	(0.00204)	(0.00665)
Num. children	0.0430***	0.0424***	0.0421***	0.000915	0.0283***
	(0.00260)	(0.00283)	(0.00248)	(0.000769)	(0.00252)
Num. adolescents	0.0330**	0.0364**	0.0313**	0.00853*	0.0203
	(0.0136)	(0.0151)	(0.0130)	(0.00436)	(0.0133)
Northeast	0.0347***	0.0376***	0.0321***	0.0165***	0.0291***
	(0.00738)	(0.00800)	(0.00658)	(0.00269)	(0.00709)
Southeast	-0.0883***	-0.0950***	-0.0904***	-0.00660**	-0.0821***
	(0.00592)	(0.00703)	(0.00623)	(0.00257)	(0.00570)
South	-0.0943***	-0.103***	-0.101***	-0.00932***	-0.0854***
	(0.00575)	(0.00731)	(0.00672)	(0.00269)	(0.00555)
Center-West	-0.0889***	-0.101***	-0.0983***	-0.00522*	-0.0799***
	(0.00589)	(0.00779)	(0.00732)	(0.00313)	(0.00571)
Constant		0.625***			
		(0.0229)			
Observations	46,689	46,689	46,689	88,303	46,689
R-squared		0.079			

Robust standard errors in parentheses

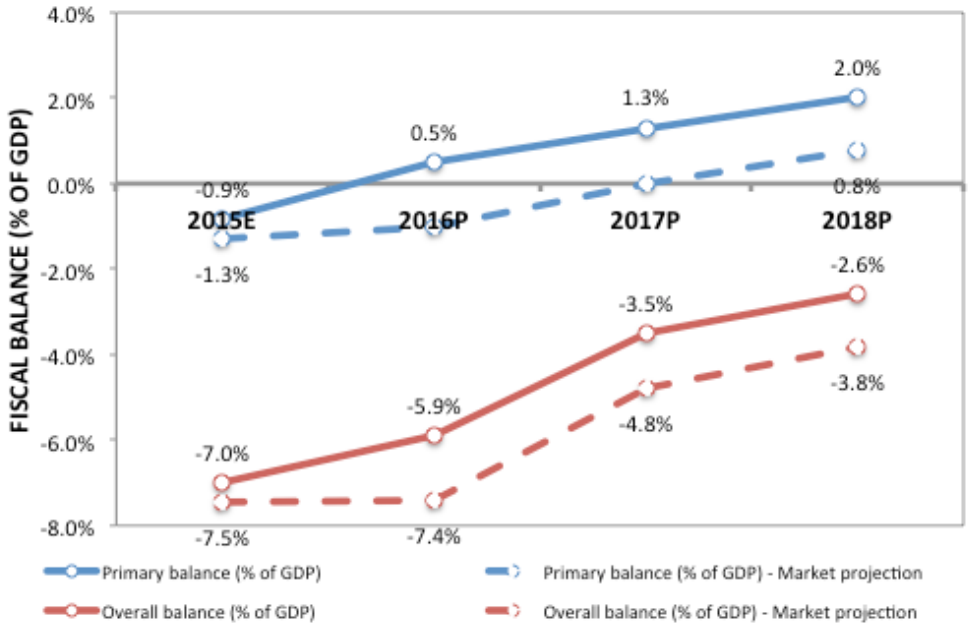
*** p<0.01, ** p<0.05, * p<0.1

Note: Marginal effects reported for Probit and Logit estimations. "HH" stands for household head and "SP" for the household head's spouse. All independent variables correspond to the year 2014. The omitted state is the North. The dependent variable for columns (1), (2) and (3) is the probability that a household with average labor income per capita higher than the median in 2014 falls below this threshold in 2015. The dependent variable for column (4) is the probability that a household with average labor income per capita above the 20th percentile in 2014 falls below this threshold in 2015. The dependent variable for column (5) is the probability that a household with average labor income per capita higher than the median in 2014 falls below this threshold in 2015 conditional on income per capita falling at least 25%. In all cases income is adjusted to reflect first quarter 2014 Northeast urban area prices, to account for differences in prices variation over time and between regions.

Source: Built by the Authors, using PNAD-C Q1 2014 - Q3 2015 (IBGE).

Annex 2

Figure 1. Projected Fiscal Balance, 2015E-2018P



Source: Built by the Authors, based on *Tesouro e Fazenda* (Projections by January 2016).

Figure 2. Inflation and Projected Inflation, 2012-2017P

Source: Built by the Authors, based on *Tesouro e Fazenda* (Projections by January 2016).

Figure 3. Tax Burden in Brazil, 2009 and 2014

	2009	2014
Total	**33.6%**	**33.5%**
` Federal Government	**23.5%**	**22.9%**
Personal Income Tax (IRRF)	3.2%	3.4%
Unemployment Insurance Fund (FGTS)	1.5%	2.0%
Tax on Industrial Products (IPI)	0.9%	0.9%
Tax on International trade	0.5%	0.7%
Corporate Income Tax (IRPJ and CSLL)	3.9%	3.1%
Social Security (PIS/PASEP & Cofins)	4.7%	4.5%
Others	8.8%	9.1%
State Governments	**8.6%**	**8.5%**
Value Added Tax (ICMS)	7.1%	7.0%
Others	1.5%	1.5%
Municipal Governments	**1.5%**	**2.1%**
Tax on Services (ISS)	0.7%	1.0%
Others	0.8%	1.1%

Source: Built by the Authors, based on *Fazenda*.

Figure 4. Expenditure Structure by Income Decile

Expenditures *(% of total)*		Income deciles									
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
North	Food and Beverages	32.9%	33.1%	31.9%	30.7%	29.8%	27.5%	28.4%	26.0%	23.8%	18.4%
	Housing	35.3%	33.6%	34.0%	35.1%	34.4%	34.8%	34.9%	34.3%	34.0%	32.5%
	Clothing	7.1%	7.0%	6.7%	6.8%	7.0%	6.5%	6.6%	6.7%	6.5%	5.8%
	Transportation	8.6%	8.9%	9.1%	9.9%	9.3%	10.2%	10.5%	11.3%	12.2%	16.0%
	Higiene	3.8%	3.6%	3.7%	3.5%	3.4%	3.5%	3.4%	3.2%	2.9%	2.6%
	Health	3.9%	4.1%	4.2%	3.8%	4.7%	4.7%	4.3%	4.1%	4.4%	4.5%
	Education	0.7%	0.9%	1.1%	0.9%	1.3%	1.4%	1.2%	1.5%	2.2%	2.3%
	Leisure	1.2%	1.2%	1.6%	1.4%	1.6%	1.7%	1.6%	1.7%	1.9%	1.6%
	Cigarettes	0.9%	0.7%	0.7%	0.7%	0.5%	0.5%	0.5%	0.3%	0.2%	0.3%
	Direct taxes	0.8%	1.5%	1.3%	1.3%	1.6%	1.8%	2.0%	2.0%	2.4%	3.3%
	Others	4.7%	5.4%	5.7%	5.8%	6.2%	7.5%	6.6%	9.0%	9.5%	12.6%
Northeast	Food and Beverages	30.8%	32.4%	31.0%	30.4%	29.6%	28.1%	26.6%	26.0%	24.0%	17.1%
	Housing	39.7%	36.5%	37.6%	35.4%	35.1%	35.7%	35.1%	33.1%	31.1%	32.0%
	Clothing	6.0%	6.2%	5.9%	6.4%	6.3%	6.5%	6.2%	6.5%	6.1%	5.2%
	Transportation	7.8%	7.5%	7.6%	8.4%	9.1%	9.5%	10.1%	11.0%	13.2%	16.5%
	Higiene	3.3%	3.4%	3.2%	3.3%	3.4%	3.2%	3.2%	3.1%	2.9%	2.2%
	Health	4.1%	5.0%	5.3%	5.7%	5.8%	5.5%	6.2%	6.1%	7.2%	6.7%
	Education	0.9%	1.0%	1.0%	0.9%	1.2%	1.4%	1.6%	1.7%	2.2%	3.0%
	Leisure	1.0%	1.0%	1.1%	1.3%	1.5%	1.5%	1.5%	1.7%	1.7%	1.7%
	Cigarettes	1.3%	1.0%	0.8%	0.7%	0.7%	0.7%	0.6%	0.5%	0.4%	0.2%
	Direct taxes	1.2%	1.4%	1.4%	1.9%	1.6%	1.7%	1.9%	2.4%	2.7%	3.7%
	Others	3.9%	4.6%	5.0%	5.7%	5.7%	6.2%	7.0%	7.9%	8.4%	11.7%
Southeast	Food and Beverages	22.3%	20.8%	22.5%	21.2%	20.9%	20.3%	19.3%	19.3%	18.1%	13.8%
	Housing	44.2%	43.0%	41.0%	41.1%	40.6%	39.8%	39.7%	36.0%	34.7%	32.8%
	Clothing	4.9%	5.1%	5.2%	5.3%	4.9%	4.9%	4.9%	5.0%	4.7%	3.8%
	Transportation	10.7%	11.2%	10.7%	11.1%	11.4%	12.4%	12.7%	13.4%	15.1%	18.0%
	Higiene	2.4%	2.3%	2.1%	2.3%	2.3%	2.3%	2.1%	2.2%	1.9%	1.5%
	Health	5.1%	6.4%	6.3%	6.6%	6.7%	6.6%	6.9%	8.1%	7.1%	7.2%
	Education	0.8%	1.2%	1.1%	1.0%	1.6%	1.3%	2.0%	2.1%	3.1%	3.2%
	Leisure	1.2%	1.2%	1.3%	1.5%	1.4%	1.6%	1.5%	1.8%	2.0%	2.0%
	Cigarettes	1.4%	1.0%	1.0%	1.0%	0.9%	0.9%	0.6%	0.8%	0.6%	0.3%
	Direct taxes	2.9%	3.1%	3.2%	3.0%	3.2%	3.2%	3.5%	3.8%	4.2%	5.2%
	Others	4.1%	4.6%	5.7%	5.6%	6.1%	6.7%	6.8%	7.5%	8.6%	12.3%
South	Food and Beverages	22.7%	22.0%	21.2%	19.7%	20.0%	18.8%	18.4%	19.2%	17.2%	13.4%
	Housing	42.6%	41.3%	40.5%	41.1%	38.6%	37.9%	37.1%	34.7%	32.5%	28.7%
	Clothing	5.6%	5.6%	6.1%	5.2%	5.6%	5.6%	5.8%	5.4%	5.0%	4.7%
	Transportation	10.7%	11.0%	11.6%	12.7%	12.6%	14.2%	14.9%	15.4%	19.0%	20.6%
	Higiene	2.1%	2.0%	2.1%	2.1%	2.2%	2.0%	2.1%	2.1%	1.9%	1.5%
	Health	4.9%	5.8%	6.5%	6.8%	6.6%	7.6%	7.3%	6.6%	6.8%	7.0%
	Education	0.9%	0.9%	1.0%	1.2%	1.1%	1.3%	1.5%	2.1%	2.4%	2.3%
	Leisure	1.5%	1.6%	1.5%	1.4%	1.6%	1.4%	1.8%	1.8%	1.8%	1.7%
	Cigarettes	1.4%	1.4%	1.2%	0.9%	1.1%	0.7%	0.7%	0.5%	0.4%	0.2%
	Direct taxes	3.4%	2.9%	2.5%	3.3%	3.0%	3.2%	2.9%	3.4%	3.6%	4.5%
	Others	4.2%	5.6%	5.8%	5.8%	7.5%	7.2%	7.6%	8.7%	9.2%	15.3%
Center-West	Food and Beverages	21.2%	20.7%	20.2%	18.9%	18.7%	17.9%	18.2%	16.4%	15.8%	13.7%
	Housing	45.5%	43.3%	43.5%	44.0%	42.8%	43.0%	41.0%	39.2%	37.0%	33.7%
	Clothing	5.2%	5.6%	5.8%	5.1%	4.9%	5.3%	4.8%	5.1%	4.6%	4.2%
	Transportation	9.5%	10.2%	10.1%	11.1%	11.7%	13.5%	14.7%	15.8%	16.7%	19.1%
	Higiene	2.7%	2.8%	2.8%	2.4%	2.4%	2.6%	2.4%	2.3%	2.2%	1.8%
	Health	5.3%	5.7%	6.2%	6.7%	6.3%	5.4%	5.5%	5.8%	6.6%	5.5%
	Education	1.1%	1.2%	1.1%	1.4%	1.2%	1.2%	1.6%	1.9%	2.6%	2.5%
	Leisure	1.4%	1.2%	1.2%	1.2%	1.2%	1.2%	1.3%	1.3%	1.7%	1.6%
	Cigarettes	0.9%	1.1%	0.9%	0.9%	0.8%	0.6%	0.6%	0.5%	0.3%	0.2%
	Direct taxes	2.6%	2.7%	2.7%	2.9%	3.2%	3.1%	3.3%	3.2%	3.4%	4.4%
	Others	4.5%	5.3%	5.5%	5.5%	6.8%	6.2%	6.5%	8.4%	9.0%	13.2%

Source: Built by the Authors, using 2008-2009 POF micro-data (IBGE).

Figure 5. Heat Map of VAT Regressiveness by Region, 2009

Expenditures on Basic Basket VAT		Income deciles									
		1	2	3	4	5	6	7	8	9	10
Brazil	*% of expenditures*	1.5%	1.5%	1.4%	1.3%	1.2%	1.1%	0.9%	0.8%	0.7%	0.4%
	% of income	1.6%	0.8%	0.6%	0.5%	0.4%	0.3%	0.3%	0.2%	0.2%	0.1%
North	*% of expenditures*	1.9%	2.0%	1.8%	1.7%	1.6%	1.4%	1.4%	1.2%	1.0%	0.7%
	% of income	2.0%	1.1%	0.8%	0.6%	0.5%	0.4%	0.4%	0.3%	0.2%	0.1%
Northeast	*% of expenditures*	1.9%	2.0%	1.9%	1.8%	1.6%	1.4%	1.3%	1.2%	1.0%	0.6%
	% of income	1.8%	1.1%	0.8%	0.7%	0.6%	0.5%	0.4%	0.3%	0.3%	0.1%
Southeast	*% of expenditures*	1.3%	1.1%	1.2%	1.1%	0.9%	0.9%	0.8%	0.7%	0.5%	0.3%
	% of income	1.4%	0.6%	0.5%	0.4%	0.4%	0.3%	0.2%	0.2%	0.2%	0.1%
South	*% of expenditures*	1.2%	1.1%	1.1%	0.9%	0.9%	0.8%	0.7%	0.7%	0.6%	0.4%
	% of income	1.4%	0.6%	0.5%	0.4%	0.3%	0.3%	0.2%	0.2%	0.2%	0.1%
Center-West	*% of expenditures*	1.2%	1.2%	1.1%	1.0%	1.0%	0.9%	0.8%	0.7%	0.6%	0.4%
	% of income	1.6%	0.7%	0.5%	0.5%	0.4%	0.3%	0.3%	0.2%	0.2%	0.1%

Source: Built by the Authors, using 2008-2009 POF micro-data.

Figure 6. Heat Map of Selected Expenditures (% of Total Expenditure) for Brazil, 2009

Expenditures *(% of total)*	Income deciles									
	1	2	3	4	5	6	7	8	9	10
Food and Beverages	**25.4%**	**25.3%**	**25.3%**	**24.0%**	**23.6%**	**22.5%**	**21.6%**	**21.2%**	**19.5%**	**14.7%**
Basic Basket of Goods	8.4%	8.4%	8.0%	7.4%	6.7%	6.0%	5.4%	4.8%	3.9%	2.4%
Housing	**42.1%**	**40.1%**	**39.6%**	**39.3%**	**38.5%**	**38.3%**	**37.9%**	**35.2%**	**33.7%**	**32.1%**
Rent	19.3%	19.0%	19.2%	19.8%	19.6%	20.1%	19.3%	18.1%	16.6%	15.7%
Services	11.0%	10.5%	10.5%	10.6%	10.2%	9.9%	9.9%	8.9%	8.3%	6.8%
Electricity	4.2%	3.8%	3.6%	3.5%	3.2%	3.1%	2.9%	2.5%	2.3%	1.8%
Transportation	**9.6%**	**9.9%**	**9.8%**	**10.5%**	**10.9%**	**11.8%**	**12.4%**	**13.1%**	**15.1%**	**18.0%**
Urban public transportation	4.7%	4.2%	4.0%	4.0%	4.1%	4.0%	3.5%	3.0%	2.6%	1.3%
Fuels (excl. alcohol)	1.3%	1.6%	1.7%	1.8%	1.8%	2.2%	2.5%	2.6%	3.0%	2.9%
Games and gambling	0.4%	0.3%	0.3%	0.3%	0.3%	0.2%	0.3%	0.2%	0.3%	0.2%
Cigarettes	1.3%	1.1%	1.0%	0.9%	0.8%	0.8%	0.6%	0.6%	0.5%	0.3%

Source: Built by the Authors, using 2008-2009 POF micro-data (IBGE).

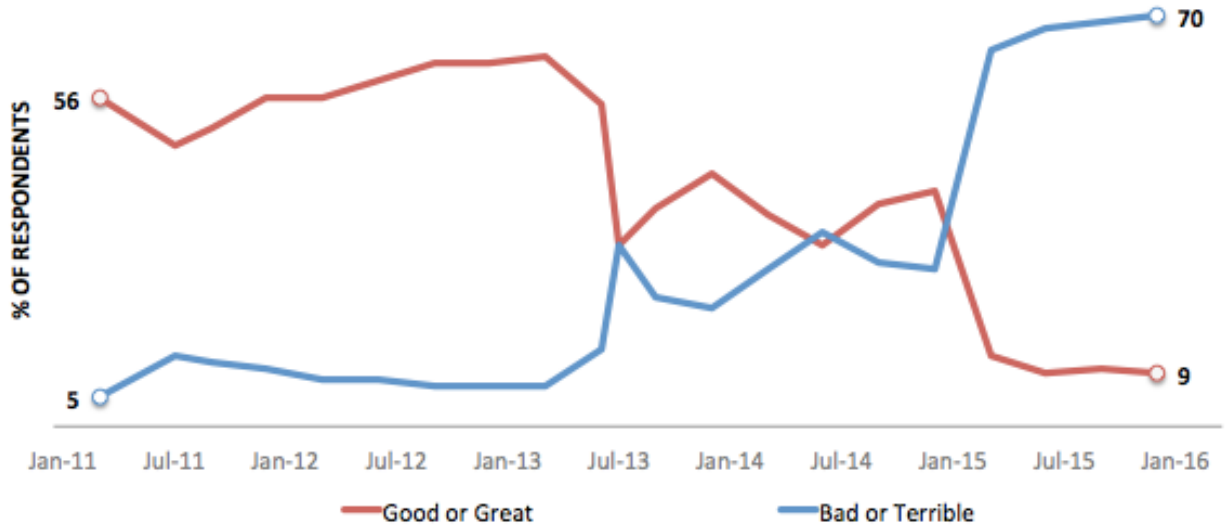
Figure 7. Mean Differences Tests Between Targeted and Excluded Households

Variables	Excluded	Targeted	Difference
Num. adolescents	0.019	0.027	-0.009***
Num. adults	2.154	2.472	-0.318***
Metropolitan area	0.344	0.305	0.039***
Num. children	0.4	1.415	-1.016***
Age (SP)	42.216	40.683	1.532***
Employer (SP)	0.003	0.001	0.002***
Agriculture (SP)	0.048	0.055	-0.007***
Communications (SP)	0.01	0.007	0.003***
Construction (SP)	0.018	0.022	-0.004***
Government (SP)	0.015	0.01	0.004***
Industry (SP)	0.041	0.028	0.013***
Maid (SP	0.047	0.039	0.008***
Professional (SP)	0.022	0.013	0.008***
Retail (SP)	0.061	0.05	0.012***
Social Services (SP)	0.04	0.022	0.018***
Male (SP)	0.098	0.116	-0.018***
Employed (SP)	0.337	0.277	0.061***
Agriculture Qualified (SP)	0.027	0.029	-0.003
Construction Qualified (SP)	0.04	0.036	0.004**
Services (SP)	0.087	0.066	0.020***
Primary school (SP)	0.335	0.316	0.019***
Secondary school (SP)	0.221	0.175	0.046***
Self-Employed (SP)	0.078	0.083	-0.005*
University (SP)	0.029	0.014	0.015***
Age (HH)	46.174	47.184	-1.010***
Employer (HH)	0.02	0.01	0.010***
Agriculture (HH)	0.158	0.172	-0.014***
Communications (HH)	0.041	0.032	0.009***
Construction (HH)	0.092	0.084	0.008***
Government (HH)	0.039	0.029	0.010***
Industry (HH)	0.102	0.084	0.018***
Maid (HH	0.059	0.055	0.004*
Professional (HH)	0.066	0.045	0.021***
Retail (HH)	0.144	0.113	0.031***
Social Services (HH)	0.054	0.04	0.015***
Male (HH)	0.674	0.631	0.043***
Employed (HH)	0.822	0.711	0.111***
Agriculture Qualified (HH)	0.097	0.104	-0.008**
Construction Qualified (HH)	0.15	0.117	0.032***
Services (HH)	0.159	0.137	0.022***
Primary school (HH)	0.507	0.398	0.109***
Secondary school (HH)	0.333	0.228	0.104***
Self-Employed (HH)	0.276	0.256	0.019***
University (HH)	0.051	0.022	0.029***
Household size	2.572	3.915	-1.342***
Household income	1426.476	1026.632	399.844***
Num. over 65	0.106	0.342	-0.236***
Num. dependents	0.457	1.682	-1.225***
North	0.12	0.155	-0.035***
Northeast	0.287	0.392	-0.106***
Southeast	0.307	0.247	0.060***
South	0.174	0.121	0.053***
Center-West	0.113	0.084	0.028***

Obs: 64.8 million *** p<0.01, ** p<0.05, * p<0.1

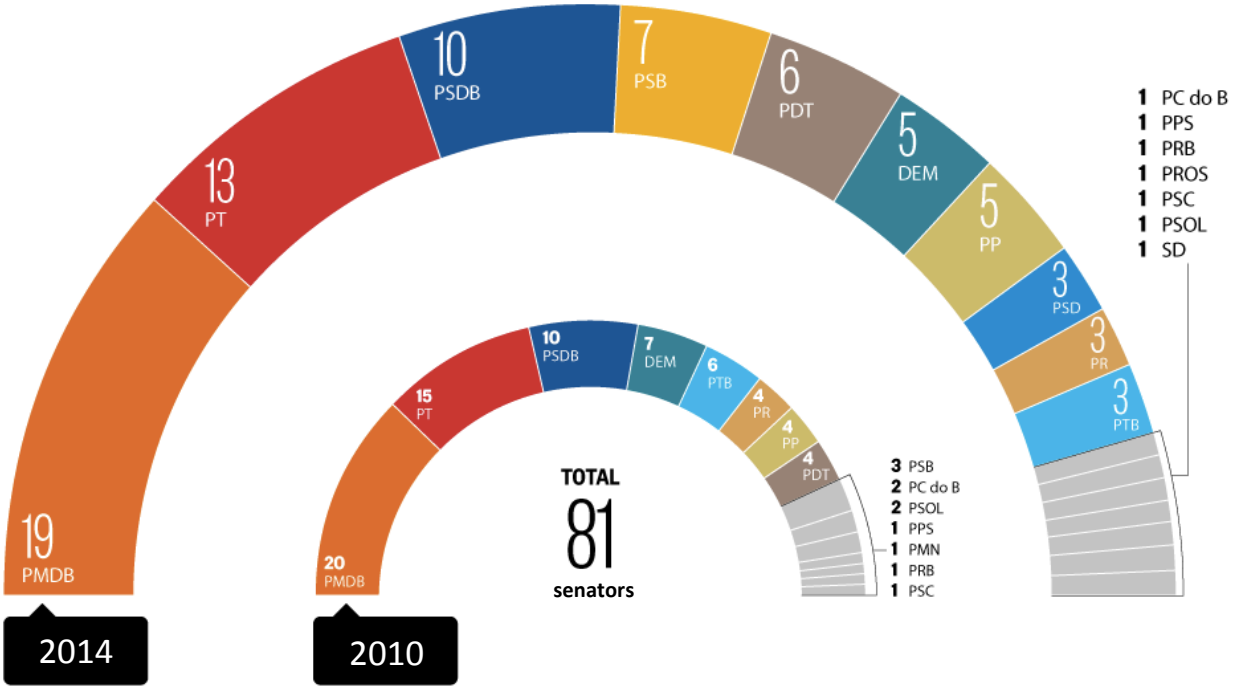
Source: Built by the Authors, using PNAD-C 2014-2015 (IBGE).

Figure 8. Government Approval Rates, 2011-2015



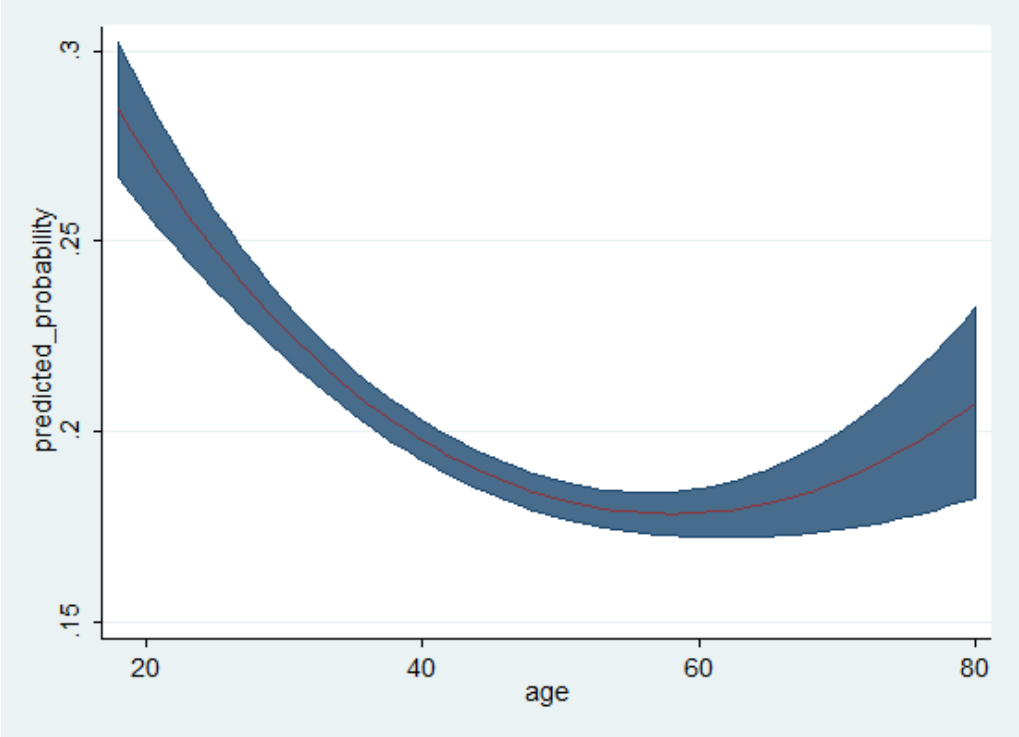
Source: Built by the Authors, based on IBOPE.

Figure 9. Composition of the Senate, 2010 and 2014



Source: *O Globo* News.

Figure 10. Probability of the Middle Class Of Falling Into Poverty in 2015, by Age



Source: Built by the Authors, based on PNAD-C 2015.