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## **Reformulation of income transfers in Brazil: simulations and challenges**

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# SUMMARY

- 1 Introduction..... 5**
- 2 Challenges in the design of non-contributory transfers..... 8**
  - 2.1 Challenges for non-contributory transfers .....8
  - 2.2 Simulations of non-contributory transfer models .....9
  - 2.3 Summary ..... 12
- 3 Methodology ..... 13**
  - 3.1 Data preparation ..... 13
  - 3.2 Formal earnings and transfer eligibility ..... 13
- 4 Results ..... 15**
  - 4.1 Coverage and average benefits ..... 15
  - 4.2 Effects on poverty and inequality ..... 17
  - 4.3 Summary of simulated impacts on poverty and inequality ..... 28
- 5 Implementation challenges.....29**
  - 5.1 Identification and registration of potential beneficiaries ..... 30
  - 5.2 Payment process ..... 35
- 6 Budget issues..... 35**
  - 6.1 Fiscally neutral unification of existing benefits ..... 36
  - 6.2 Unification of benefits plus funding from the GST ..... 39
  - 6.3 Unification of benefits plus funding from the GST and increased progressive taxation of income and wealth ..... 41
- 7 Conclusion..... 50**
- References..... 53**

## LIST OF FIGURES

<b>Figure 1.</b> Incidence and concentration coefficients in the reference scenarios and in simulated models with a budget of BRL58 billion per year—Brazil, 2019 .....	19
<b>Figure 2.</b> Gini coefficient in the reference scenarios and in simulated models with a budget of BRL58 billion per year—Brazil, 2019 .....	19
<b>Figure 3.</b> Poverty rates in the reference scenarios and in simulated models with a budget of BRL58 billion per year for the three poverty lines (as a percentage)—Brazil, 2019 .....	20
<b>Figure 4.</b> Incidence and concentration coefficients in the reference scenarios and in simulated models with a budget of BRL120 billion per year—Brazil, 2019 .....	23
<b>Figure 5.</b> Gini coefficient in the reference scenarios and in simulated models with a budget of BRL120 billion per year—Brazil, 2019 .....	23
<b>Figure 6.</b> Poverty rates in the reference scenarios and in simulated models with a budget of BRL120 billion per year for the three poverty lines (as a percentage)—Brazil, 2019 .....	24
<b>Figure 7.</b> Incidence and concentration coefficients in the reference scenarios and in simulated models with a budget of BRL120 billion per year—Brazil, 2019 .....	25
<b>Figure 8.</b> Gini coefficient in the reference scenarios and in simulated models with a budget of BRL180 billion per year—Brazil, 2019 .....	26
<b>Figure 9.</b> Poverty rates in the reference scenarios and in simulated models with a budget of BRL180 billion per year for the three poverty lines (as a percentage)—Brazil, 2019 .....	27
<b>Figure 10.</b> Variation in poverty rates for the PPP USD3.20 per day line (in percentage points) versus variation in the Gini coefficient (as a percentage), in comparison with the current <i>Bolsa Família</i> —Brazil, 2019 .....	28
<b>Figure 11.</b> Average PIT tax rates across the income distribution under the current structure and in two simulated models—Brazil, 2017 .....	46

## LIST OF TABLES

<b>Table 1.</b> Simulated benefit structure for each model in the three budget scenarios .....	12
<b>Table 2.</b> Definition of formal incomes used to assess transfer eligibility .....	14
<b>Table 3.</b> Population affected and average monthly benefit of the targeted, hybrid and universal models, by budget scenario (*) .....	16
<b>Table 4.</b> Financing for the BRL58 billion per year scenario via a fiscally neutral unification of benefits (in BRL millions) .....	37
<b>Table 5.</b> Financing through the unification of benefits and GST revenues .....	40
<b>Table 6.</b> Revenue estimates for PIT reforms—Brazil, 2017 .....	47
<b>Table 7.</b> Revenue estimates for wealth tax—Brazil, 2017 .....	48
<b>Table 8.</b> Possible funding for non-contributory transfers of BRL120 billion through the unification of benefits, GST revenues and progressive taxation of income and wealth (as a percentage of GDP) .....	48
<b>Table 9.</b> Possible funding for non-contributory transfers of BRL180 billion through the unification of benefits, GST revenues and progressive taxation of income and wealth (as a percentage of GDP) .....	49

# REFORMULATION OF INCOME TRANSFERS IN BRAZIL: SIMULATIONS AND CHALLENGES

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## 1 INTRODUCTION

The debate around the reformulation of the Brazilian federal government's cash transfers precedes the COVID-19 pandemic (see, for example, Portella et al. 2016; Soares, Bartholo and Osorio 2019), but it has grown significantly in the wake of the health crisis and the creation of the Emergency Grant (*Auxílio Emergencial*) by Law No. 13.982/2020. To contribute to this discussion, the goal of this Working Paper is to present simulations for the future of non-contributory transfers in Brazil, discuss the dilemmas of various designs, and estimate costs and possible impacts on poverty and inequality. We also analyse a series of operational and budget-related challenges to its implementation.

Our simulations involve three different transfer models: *a*) targeted—that is, focusing on the poorest; *b*) universal—paid to the entire Brazilian population; and *c*) hybrid—combining a universal component for children and adolescents and a targeted component for the poor adults. Each model was calculated under three distinct budget scenarios: the lowest one is of BRL58 billion per year, which would be fiscally neutral—that is, it could be implemented by reallocating funds from existing programmes. The most generous one is of BRL180 billion per year, which would increase Brazilian expenditures on this type of programme to levels that can be observed in countries of the Organization for Economic Cooperation and Development (OECD). The midrange scenario is of BRL120 billion, a compromise between the two extreme ones.

Our analysis is based on important lessons provided by the recent experience with the COVID-19 pandemic. The first concerns inequality. The pandemic tends to be worse in more unequal societies and, crucially, the economic fallout of the pandemic is likely to magnify pre-existing inequalities (see Blundell et al. 2020; Furceri et al. 2020; Hill and Narayan 2020; Nassif-Pires et al. 2020).

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The second is that the magnitude of the shock has put great pressure on social protection systems, especially in developing countries. In Brazil, although the *Bolsa Família* programme covers around 40 million people, existing coverage has proven insufficient during the pandemic, and the Emergency Grant—covering three times as many people and with a level of benefits 5.5 times higher—had to be implemented under very short notice.

The third lesson is that emergency cash transfers were a quick, effective response to the crisis in most of the over 100 countries that implemented them (Gentilini et al. 2020). Brazil in particular has proven the viability of repurposing the apparatus of targeted cash transfers to ensure regular incomes to a large share of the population. Even during a critical situation such as the COVID-19 pandemic, the Emergency Grant was implemented in only a few weeks, largely thanks to the experience with *Bolsa Família* and the federal government's Single Registry for Social Programmes, which is integrated into public agencies such as the Ministry of Citizenship, Caixa Econômica Federal (a State-owned bank) and the Social Security Technology and Information Company (*Empresa de Tecnologia e Informações da Previdência Social*—Dataprev).

Although temporary, the Emergency Grant is a landmark for non-contributory social transfers in Brazil, having reached nearly 67 million beneficiaries across over 40 million households, comprising almost 130 million people.<sup>5</sup> In other words, over 60 per cent of Brazilians benefited from the scheme, either directly or indirectly. Further, the Emergency Grant is remarkable not only for its coverage, but also for its benefit levels. Unlike the *Bolsa Família*, and in line with other social security and assistance benefits, the concession of the Grant to eligible beneficiaries was not subjected to budget restrictions. Outlays matched the existing demand, given that eligibility automatically implied the receipt of the benefit. Therefore, there was no 'waiting queue', as occurs with *Bolsa Família* when demands exceed the budget allocated to the programme.

This is something entirely new in terms of non-contributory social protection for households with working-age members in Brazil, and a demonstration that, in adverse circumstances, extreme measures—which would not be considered in normal times—become a feasible option and expand the horizon of what is possible in political terms.

If the merit of the Emergency Grant was to highlight the importance of more generous non-contributory transfers, with broader coverage and budget guarantees, its main drawback is related to its cost, which reached BRL45 billion per month.<sup>6</sup> This monthly value equals 1.3 times the entire budget reserved for the *Bolsa Família* in the Annual Budget Bill (*Projeto de Lei Orçamentária Anual*—PLOA) for 2021, and would correspond to an annual expenditure of BRL540 billion, over 7 per cent of gross domestic product (GDP). Regardless of the effectiveness of the Grant in the short term in keeping millions of households from falling into poverty and the economy as a whole from collapsing, the adoption of a permanent non-contributory model with costs of this magnitude is not viable.

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5. Number of benefits relative to the first two instalments, as disclosed by the Secretariat for the Evaluation and Management of Information (Secretaria de Avaliação e Gestão da Informação—SAGI), of the Ministry of Citizenship. Additional information available at: <<http://aplicacoes.mds.gov.br/sagi/vis/data3/index.php?g=2>>. The number of affected households and individuals were calculated based on the 2019 Continuous National Household Sample Survey (PNADC), using an updated version of the methodology proposed by Souza et al. (2020).

6. More information available at: <<http://aplicacoes.mds.gov.br/sagi/vis/data3/index.php?g=2>>.

In a post-pandemic scenario, marked by slow economic recovery, the role of non-contributory cash transfers tends to grow. Given its prohibitive costs, the Emergency Grant was an option only for the very short term. Therefore, the challenge for the near future is to design a non-contributory social transfer model that has greater coverage, is able to ensure a minimum level of income that is higher of what is granted today by *Bolsa Família* and protects the population that has no access to contributory benefits from negative shocks.

There are several important aspects related to this challenge. The first is the scope of social protection. To date, Brazilian non-contributory transfers have targeted the poorest. This is true not only for *Bolsa Família*, but also for the Continuous Cash Benefit programme (*Benefício de Prestação Continuada*—BPC). However, the scope and generosity of the Emergency Grant, as well as the obvious realisation that a large share of the population suffers from significant vulnerability to poverty, have rekindled the debate over basic income, hinting at a second way to deliver non-contributory protection: universal provision. Universal policies have classically been defined as those based on ‘trigger criteria’. Generally, these include residency or citizenship, occasionally combined with some demographic criteria, with no regard to level of income or effective need (Pratt 1998). Transfers can also be carried out by hybrid schemes, with both universal and targeted components. Different types of non-contributory transfers entail different consequences in terms of costs, coverage, and effectiveness, as well as different implications for economic policy.

A second aspect is the implementation of the new programme. Operational issues are routinely neglected in design proposals for public policies but are nonetheless decisive for their success. Large-scale cash transfer programmes require complex operation procedures, ranging from the enrolment of beneficiaries to the payment of benefits. As the Emergency Grant made use of technology that had already been developed for the Single Registry and for *Bolsa Família*, a broader and more generous programme can also benefit from some of the breakthroughs developed specifically for the Emergency Grant, especially regarding payment operations. In any case, implementing a permanent cash transfer programme that is broader and more generous than *Bolsa Família* will also require permanent operational solutions.

Finally, any cash transfer programme with greater coverage and larger benefits than *Bolsa Família* will hinge on careful budget balancing. Even a fiscally ‘neutral’ expansion will require the reduction of other budget expenses, which is politically difficult, and dealing with other relevant issues, such as the public spending ceiling and earmarked revenues. Therefore, financing more generous non-contributory social protection arrangements is a very challenging matter.

This paper is structured as follows: Section 2 assesses some of the difficulties that characterise the design and modes of delivery of non-contributory transfers, as well as the budget models and scenarios that we will simulate. Section 3 discusses aspects of the microsimulation methodology. Section 4 presents results (in terms of coverage, average benefits and impacts on poverty and inequality). Section 5 discusses operational issues that must be addressed for the expansion of non-contributory transfers. Section 6 provides a comprehensive analysis of the challenges to be faced from a budget standpoint. Finally, in Section 7 we present the main takeaways of the entire paper.

It is worth clarifying to the reader that the different options for benefit design adopted in this paper are not prescriptive. Our main purpose is to simulate distinct models for non-contributory social transfers, evaluating their advantages and shortcomings, such as operational and budget challenges. The aspects analysed here can serve as inputs to examine proposals to increase

welfare transfers. In this sense, models presented here with targeted components are not intended in opposition to *Bolsa Família*, but rather as tools to analyse its expansion.

## 2 CHALLENGES IN THE DESIGN OF NON-CONTRIBUTORY TRANSFERS

### 2.1 CHALLENGES FOR NON-CONTRIBUTORY TRANSFERS

Any proposal to expand non-contributory social transfers will face dilemmas between the level of coverage, the value of benefits and total programme cost. The main issue is quite intuitive:

- 1) Programmes with broad coverage and generous benefits have prohibitive total costs.

This is the issue that precludes the extension of the Emergency Grant over a longer period of time. There is no easy solution to prohibitive costs. The first alternative is to:

- 2) Maintain broad coverage and lower the benefit levels.

However, this reduces the effectiveness of the programme by not ensuring an adequate income level to the poorest population.

The combination of **1)** and **2)** has blocked the enactment of universal basic income programmes, even in high-income countries. The second alternative, therefore, is to:

- 3) Maintain higher benefit values while narrowing programme coverage.

However, there are still negative consequences to this option:

**3.1)** The more restrictive the targeting, the greater the exclusion errors, and, therefore, the greater the degree of unaddressed social risks.

**3.2)** More generous benefits attract a greater proportion of the population, potentially undermining the programme's targeting by incentivising undesirable behaviour.

Regarding 3.1, before the COVID-19 pandemic, it was not unusual to advocate narrower targeting for cash transfers (for example, targeting only the 5 per cent poorest people) as a way to make it possible to increase benefit values while minimising budget impacts. However, narrow targeting implies a static view of poverty, as if the 5 per cent poorest were always the same people. In the real world, there is great volatility of income and instability of employment for large swathes of the population (Soares 2009; Leichsenring 2010). Many households constantly fluctuate just above and just below the poverty line. It is no coincidence that the socioeconomic characteristics of the poorest people tend to be very similar to people slightly above them in the distribution of income.

Therefore, limiting the coverage of income transfers has the potential to lead to inequities between poor people (as it is not possible to pinpoint precisely who are those most in need) and—more dramatically—to leave completely unprotected a large number of vulnerable

households whose incomes fluctuate abruptly and unpredictably over time. This strategy would go against the Brazilian experience with *Bolsa Família*.

Moreover, the option of combining narrower targeting with higher benefits is self-contradictory. After all, the good targeting results of many income transfer programmes, such as those of *Bolsa Família* itself (Paiva, Sousa and Nunes 2020), are due to some extent to the self-selection of beneficiaries: the modest benefits of these programmes do not attract the better-off households, and this in turn helps targeting. If, instead of paying BRL190 per household, on average, *Bolsa Família* were to transfer much higher benefits, it would end up attracting a much higher number of households and it would be impossible to ‘constrain’ its audience to the poorest 20 per cent due to a wide variety of negative incentives, whether regarding the reduction of labour supply (especially in formal labour positions, whose income is detectable), or regarding the misreporting by citizens themselves.

The use of proxy means tests—such as ‘poverty indexes’, ‘income predictors’ or multidimensional indicators—does not solve the issue. Experience shows that these predictors are quite often wrong (Kidd and Wylde 2011; Kidd, Gelders and Bailey-Athias 2017; SAGI 2018), do not capture income shocks (Mostafa and Santos 2016) and, in addition, are also manipulable (Camacho and Conover 2011). In other words, proponents of these ‘poverty indexes’ promise a perfect world that they cannot possibly deliver.

For all these reasons, a programme will only succeed in being very narrowly targeted if, among other strategies, it pays modest benefits, which will result in a low total budget. Evidently, in this case its effects on poverty and inequality will be small, even if disproportionately efficient and effective considering its total budget. This is precisely the case of *Bolsa Família*, which is well-targeted and whose impacts on poverty and inequality indicators, although celebrated in terms of efficiency, end up being modest (Souza et al. 2019).

## 2.2 SIMULATIONS OF NON-CONTRIBUTORY TRANSFER MODELS

There is no perfect solution for the set of dilemmas presented in the previous subsection. Any choice will imply necessary compromises: opting for an excessively targeted benefit will have to deal with high levels of exclusion errors, low impacts on poverty and, in case of generous benefit values, adverse incentives to the formalisation of labour or to the accurate disclosure of income. Choosing a universal benefit might incur prohibitive costs, yield practically no effects on poverty given the low value of benefits, and even feed the perception that the State is giving money to those who do not need or deserve it. Finally, the choice of a hybrid model (with both targeted and universal components) might suffer from the disadvantages of both pure models, depending on its design and budget availability. However, as we will argue further, a hybrid model is also capable of reducing the dilemmas present in the ‘pure’ targeted and universal models.

In this paper, we simulate three types of non-contributory benefits, corresponding to the models above: *a*) targeted transfers, similar to the current *Bolsa Família* model, though more generous and with a broader audience; *b*) universal transfers in the same vein as a basic income; and *c*) hybrid transfers, combining a universal component for children and adolescents and a targeted component.

Each model is assessed according to three budget scenarios, comprising annual expenditures of BRL58, BRL120, and BRL180 billion, whose viability is discussed in Section 6. The lowest figure corresponds to a little less than 0.80 per cent of Brazil’s GDP in 2019, and

represents a fiscally neutral scenario—in other words, any programme with this budget could be financed by the reallocation of existing social expenditures (see Section 6.1). The highest value corresponds to the average value in OECD countries, given that BRL180 billion was around 2.5 per cent of the Brazilian GDP in 2019.<sup>7</sup> The intermediary value of BRL120 billion—around 1.7 per cent of the Brazilian GDP in 2019—represents the median point between these two extremes.

In the targeted model, there are three types of non-cumulative benefits:

- I. basic per capita floor to all people living in households with per capita incomes equal to or under BRL260;
- II. per capita targeted benefit for children and adolescents (between 0 and 18 years old) in households with a per capita income above BRL260 and up to BRL520; and
- III. phase-out benefit paid per capita to people in households with per capita incomes above BRL260.

The non-cumulative nature of the benefits implies that each individual can only receive one of the three, even though different residents of a single household might receive distinct benefits. In cases where an individual is eligible for more than one benefit, we always attribute the highest value. For example, a child or youth up to 18 years old, whose per capita household lies between BRL260 and BRL520, could, in principle, receive either the targeted child benefit or the phase-out benefit, but it is always more advantageous to receive the first.

The eligibility threshold of BRL260 per month per capita is close to some important benchmarks, such as the historical peak of *Bolsa Família's* upper eligibility threshold (around BRL260 in current values, recorded in 2009); the fraction of 1/4 of the 2020 minimum wage, which serves as the BPC eligibility threshold (BRL261.25); and the intermediary poverty threshold used by the World Bank for international comparisons (PPP USD3.20 per day, or close to BRL255 per month).

In our simulations, the basic floor has the same value as the child benefit, which varies according to the budget scenario. To mitigate adverse incentives resulting from abrupt benefit cut-off points, the phase-out benefit paid to people with incomes above BRL260 is equivalent to the basic floor, with a marginal tax rate of 50 per cent on the per capita household income that exceeds the eligibility threshold. In other words, the phasing out implies a reduction of BRL0.50 in the value of the benefit for each BRL1 of the per capita household income above BRL260. The phase-out range varies according to the value of the basic floor, that is, provided a budget parameter, the algorithm determines the optimal values of the three benefits.

Our targeted model is close to the original *Bolsa Família* as proposed in 2003, which included a basic benefit paid to families below the extreme poverty line and another variable benefit paid to children of households with incomes below the poverty line. There are, however, three crucial differences regarding the design: *a*) the basic floor is paid by person, while in the original *Bolsa Família* extremely poor people received a basic benefit with a fixed value for the household, independently of its composition; *b*) our child benefit covers youth up to 18 years of age, with no limit per household, while originally *Bolsa Família's* variable benefit

7. OECD data obtained from <<http://stats.oecd.org>>. In 2015, in the 35 OECD countries for which data is available, social public expenditure in the family and other social policy areas was, on average, 2.5 per cent of GDP, ranging from 0.5 per cent (Turkey) and 4.9 per cent (Denmark).

was paid to children and adolescents up to 15 years of age, limited to three per household; and c) the model has a phase-out benefit for families directly above the first eligibility threshold.

The main difference does not lie in programme design, but rather in the eligibility thresholds: as the goal in all scenarios is to simulate a benefit with much broader coverage than *Bolsa Família's*, the eligibility thresholds chosen (BRL260 and BRL520) are around two times higher than the highest real value of the corresponding thresholds used by *Bolsa Família*. Finally, there is a minimum value for the benefit: no beneficiary household receives less than BRL20 per household.

In contrast to the targeted model, the universal model is simple and closely follows the concept of basic income: we simulate a fixed value benefit for the entire Brazilian population. The level of the benefit depends only on the allotted budget, according to the three aforementioned scenarios.

Finally, the hybrid model is also composed of three types of non-cumulative benefits, as defined below:

- I. basic floor per capita for all people in households with a per capita income equal to or less than BRL260;
- II. universal child grant to all children and youth (between 0 and 18 years old); and
- III. phase-out benefit for people in households with a per capita income above BRL260.

Therefore, families with per capita incomes below the eligibility threshold are entitled to the targeted component of the programme, which consists of a fixed-value benefit per person (basic floor, whose value depends on the programme's budget). As in the targeted model, there is a phase-out benefit with a marginal tax rate of 50 per cent on per capita household income above the eligibility threshold, so that the benefit does not get abruptly discontinued. The universal component refers to the universal child grant, paid to all citizens up to 18 years old, regardless of income, whose value is identical to programme's targeted component, in each of the budget scenarios. The targeted component is not cumulative with the universal component: in practice, all children receive a benefit of equal value. Finally, as in our targeted model, no beneficiary household receives benefits lower than BRL20, which in practice would affect only households without children at the end of the programme's phase-out range.

The motivation behind the hybrid model, which differs from the targeted model by extending the child benefit to everyone up to 18 years of age, is its potential to square the dilemmas discussed previously. First, the hybrid model combines a broader coverage with adequate benefit levels. Second, the overrepresentation of children and adolescents in the poorest strata—70 per cent of them are in the poorest half of the population (Soares, Bartholo and Osorio 2019)—means that the universal component is reasonably well-targeted. Third, as children and adolescents that are better off already receive State benefits (income tax deductions per dependent), the criticism that the State would be wasting resources by paying transfers to better-off families is unfounded. Fourth, the hybrid model recognises that household incomes fluctuate considerably, and that the cut-off lines separating the poor and non-poor in cross section surveys are arbitrary. In this case, the universal benefit buffers an eventual fall of households into poverty, until the targeted benefit starts being paid, providing ex-ante protection to a vulnerable group. Fifth, it seeks to reduce the negative incentives that characterise benefits with a 100 per cent marginal tax rate. Finally, this hybrid model

is based on a relevant political economy argument: broad-based social programmes tend to be resilient (Pierson 1996). The proposal, therefore, reinforces *Bolsa Família's* broad base, which has been considered crucial to maintain the programme's political strength (Paiva, Cotta and Barrientos 2019).

## 2.3 SUMMARY

Table 1 presents the simulated benefit structure for the three transfer models in each of the budget scenarios. In all cases, we have rounded up the benefit values. Therefore, the effective cost of each scenario does not correspond perfectly to the allocated budget, but deviations are very small.

**TABLE 1.** Simulated benefit structure for each model in the three budget scenarios

Structure and description of benefits	Simulated budgets (BRL per year)		
	58 billion	120 billion	180 billion
<b>Targeted model</b>			
Targeted basic floor (BRL)			
Uniform per capita benefit for households with per capita income up to BRL260	63	122	172
Targeted child benefit (BRL)			
Uniform benefit for all children and youth up to 18 years old	63	122	172
Phase-out benefit?			
Variable per capita benefit equal to	Yes	Yes	Yes
Floor -0.5 (Income-260) for households with a per capita income above BRL260			
Minimum total value per household (BRL)	20	20	20
Cumulative benefits?	No	No	No
<b>Hybrid model</b>			
Targeted basic floor (BRL)			
Uniform per capita benefit for households with a per capita income of up to BRL260	50	100	144
Targeted child benefit (BRL)			
Uniform benefit for all children and youth up to 18 years old	50	100	144
Phase-out benefit?			
Variable per capita benefit equal to	Yes	Yes	Yes
Floor -0.5 (Income-260) for households with a per capita income above BRL260			
Minimum total value per household (BRL)	20	20	20
Cumulative benefits?	No	No	No
<b>Universal model</b>			
Universal benefit (BRL)	23	47	70

Source: Authors' elaboration based on 2019 PNADC microdata.

In the targeted model, the basic floor and the targeted child benefit would equal BRL63, BRL122 and BRL172 in the budget scenarios of BRL58, 120 and 180 billion, respectively. Thus, given the marginal tax rate of 50 per cent, the phase-out benefit would reach families with per capita household incomes of up to BRL385, BRL503 and BRL603, respectively.

In the hybrid model with an annual budget of BRL58 billion, the targeted basic floor and the universal child benefit would be of BRL50 per capita. The phase-out benefit, given the 50 per cent marginal tax rate, would ensure decreasing benefits to households with per capita income of up to BRL359. With a budget of BRL120 billion, it would be possible to increase the

main values to BRL100 per capita and the phase-out benefit would offer decreasing protection up to BRL459 per capita. For the BRL180 billion budget, the targeted benefit and the universal child benefit would be of BRL144, with the phase-out benefit covering up to BRL547.

Finally, the simulations of uniform universal benefits show that it would be possible to transfer BRL23, BRL47 and BRL70 monthly to each Brazilian citizen for the annual budgets of BRL58, BRL120 and BRL180 billion, respectively.

### 3 METHODOLOGY

#### 3.1 DATA PREPARATION

Our simulations were based on 2019 annual microdata from the first visits of the Continuous National Household Sample Survey (PNADC), carried out by the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística*—IBGE). After applying the usual filters to exclude people that do not share household expenses, 442,000 individuals and 150,000 households remained in the sample.

Evidently, the 2019 PNADC does not capture the effects of the COVID-19 pandemic. Even so, it is the best source of data for our purposes for two reasons. First, at the moment, the only other option would be PNAD-COVID, which has a much smaller sample size and is conducted in an experimental character by the IBGE. As data collection is carried out by phone, the PNAD-COVID survey questionnaire is rather simplified, which would make it impossible to apply our methodology to isolate formal earnings (see Section 3.2). Second, our goal is to contribute to the debate around social transfers in a post-pandemic scenario, and, therefore, it would be inappropriate to use data collected during the apex of the pandemic, even though we must recognise that, in the short and medium term, the social situation might remain worse than the one observed in the 2019 PNADC.

As Brazil is undergoing an accelerated process of demographic transition, we have followed Souza, Vaz and Paiva (2018) and altered the 2019 PNADC sample weights to reflect the population's age structure in 2021. Our studies were calculated with new weights, but their substitution for the originals does not alter any substantial conclusions. Given the proximity between the survey year (2019) and the projected year (2021), the correlation between the original weight is of almost 0.99. The projected weight mainly serves to minimise the underestimation of costs due to populational growth since 2019.

Given the known underreporting of *Bolsa Família* in household surveys (see, for example, Souza et al. 2019), we have applied the same method as Souza, Osorio and Soares (2011) to harmonise microdata with administrative registries and return to the most accurate (pre-pandemic) scenario.

PNADC incomes were deflated for June 2019 according to IBGE's National Consumer Price Index (*Índice nacional de Preços ao Consumidor*—INPC), taking as reference each quarter's midpoint month, disregarding regional price differences.

#### 3.2 FORMAL EARNINGS AND TRANSFER ELIGIBILITY

PNADC income data have two main shortcomings for the purposes of carrying out realistic simulations of the total costs and incidence of welfare benefits. First, the updated database

of first visits contains only cross-sectional—that is, referencing a single point in time and completely ignoring the income volatility of a large share of Brazilian households. Second, not all earnings captured by PNADC are easily verifiable by public agents, while some—especially earnings resulting from informal labour—can be completely and easily omitted by households.

Therefore, naïve simulations based on per capita household earnings declared in PNADC presuppose both stable earnings and informational capacity which simply do not exist in the real world. In both cases, the worst consequence is the gross underestimation of the potential audience and of the estimated costs of income transfer programmes.

An intuitive solution to this problem is to consider only the subset of earnings captured in PNADC that might be independently verified by the federal government—that is, consider only the *formal earnings* of households to assess their eligibility to transfers.

Even though not all issues are solved in this way, simulations based only on formal earnings tend to be much more realistic. For example, Souza et al. (2020) followed this strategy to simulate a potential demand for the Emergency Grant and, even using outdated data from 2018 and without any additional corrections, they were close to the values reported later: their estimate of 59 million potential beneficiaries is much closer to the 67 million official beneficiaries than the 50 million estimated by the naïve approach, which uses all declared income as eligibility criteria.

In practice, this methodology has similar objectives as Souza, Osorio and Soares (2011), who propose ex-post procedures to harmonise the total *Bolsa Família* beneficiaries in PNAD with the total from the programme's administrative registries. In both cases, the issue is incorporating the most likely inclusion errors, instead of assuming perfect targeting as in the naïve simulations.<sup>8</sup>

**TABLE 2.** Definition of formal incomes used to assess transfer eligibility

Components of formal earnings	Values considered (*)
<b>Labour income (**)</b>	
Registered formal workers, military personnel and statutory civil servants	Value reported in vd4019
Employers with five or more employees and who have a CNPJ or contribute to public social security	
Informal wage workers who contribute to public social security	1MW, if the income reported in vd4019 is less than or equal to the INSS ceiling; or
Employers with less than five employees and who have a CNPJ or contribute to public social security	
Self-employed workers who have a CNPJ and contribute to public social security	INSS ceiling, if the income reported in vd4019 is greater than the INSS ceiling
<b>Other incomes</b>	
Rents	Value reported in v5007a2
Retirement and pensions	Value reported in v5004a2
BPC	Value reported in v5001a2
Scholarships, financial investments and other sources of income	Value reported in v5008a2
Unemployment insurance	Value reported in v5005a2

Notes: (\*) '1MW' is equal to one minimum wage, or BRL998 in 2019. The INSS benefit ceiling was of BRL5,839,45 in 2019. The subdivision of formal and informal earnings was carried out before deflation.

(\*\*) Information relative to the main occupation of individuals.

Source: Authors' elaboration.

8. The authors would like to thank Fábio Veras Soares for suggesting this point.

In this text, we refine the procedure of Souza et al. (2020), defining formal revenues according to Table 2. New elements include the treatment of employers, self-employed workers and informal wage workers. Souza et al (ibid.) included in formal earnings all earnings of employers and self-employed workers who had a corporate taxpayer registration number (*Cadastro Nacional de Pessoas Jurídicas*—CNPJ) or contributed to a public social security institution and discarded all earnings from informal workers and from other employers and self-employed workers. In this paper we fully consider the earnings only of employers with five or more employees with a CNPJ or those who contributed to public social security. Small, registered employers were grouped together with registered self-employed workers who contribute to social security and with informal wage workers who also pay monthly social security contributions. For these three groups, formal earnings encompassed only two values: in case the revenue informed in PNADC was less than or equal to the statutory earnings ceiling for the Brazilian Social Security Institute (*Instituto Brasileiro de Seguridade Social*—INSS) in 2019 (BRL5,839.45), formal earning corresponded to a minimum wage (BRL998); in case the declared revenue was higher than this threshold, we attributed a formal earning equal to the INSS ceiling.

These adjustments relative to Souza et al (ibid.) seek to represent with greater precision the capacity of the federal government to assess earnings. The median ‘formal’ income, calculated with the projected weight for 2021, is of BRL1,092, which represents 77 per cent of the average income reported in the PNADC.

Our definition more realistically reflects the information currently available to the federal government to assess self-declared earnings. Applying the same algorithm used by Souza et al. (ibid.) to our data, we obtain a potential audience of 66.7 million beneficiaries for the Emergency Grant, which is almost identical to official figures.

The eligibility to each of the models described in Section 2 was computed based on formal per capita incomes, as explained above. Simulated results for the Emergency Grant were also obtained through this methodology. The distributive effects of each simulated scenario were calculated considering all declared per capita incomes. After all, the concept of formal earnings serves only to reflect the impossibility of monitoring all incomes, while the distributive effects that interest us regard total income.

In the next section, we report the results of the simulated models for the future and of two reference scenarios: the current *Bolsa Família* (harmonised with administrative registries) and the simulated Emergency Grant. For this last case, results must be interpreted as only illustrative, given that the simulation presupposes the existence of the Emergency Grant in 2019, when the labour market was obviously not affected by the pandemic.

## 4 RESULTS

### 4.1 COVERAGE AND AVERAGE BENEFITS

Table 3 presents, for each budget scenario, the size of the population covered directly or indirectly (households and individuals) and the average benefit levels for each model simulated for the future. By definition, the universalist model maximises coverage, extending over the entire Brazilian population, but, on the other hand, it offers very modest benefits, reaching the per capita

value of BRL70 only in the more generous budget scenario of BRL180 billion. With the neutral budget scenario, the benefits would not exceed BRL23 per capita. Although a universal basic income might seem like a ‘simple and powerful’ idea, the low benefit value, which is necessary for the programme to be financeable, compromises the well-being of the poorest population.

In the other extreme, the targeted model functions as a sort of expanded *Bolsa Família*, given that the eligibility threshold of BRL260 per capita is much higher than the programme’s current extreme poverty (BRL89) or poverty (BRL178) thresholds. In the case of the neutral scenario (BRL58 per year), the effect would take place mainly through coverage: over 26 million households would benefit from the scheme, almost doubling the current *Bolsa Família* coverage. The average value of the household benefit would be of BRL184, close to the current value of BRL190. For the budget scenarios of BRL120 billion and BRL180 billion per year, not only would the audience continue to increase as a result of the phase-out benefit (covering a little over 31 million families in the broadest scenario), but the average household benefit would also increase substantially (BRL372 and BRL485, respectively). However, even in the BRL180 billion budget scenario, the targeted model would have significantly inferior coverage compared with the Emergency Grant, which, according to our simulations, benefits over 40 million households directly or indirectly, and almost 130 million people.

**TABLE 3.** Population affected and average monthly benefit of the targeted, hybrid and universal models, by budget scenario (\*)

Simulated budget (BRL per year)	Transfer model	Population affected directly or indirectly(**)		Average monthly benefit (BRL)	
		Households	Individuals	Per household	Per individual
58 billion	Targeted	26.4	92.4	184	53
	Hybrid	41.1	146.5	117	33
	Universal	73.1	213.3	67	23
120 billion	Targeted	26.9	93.8	372	107
	Hybrid	41.5	147.6	243	68
	Universal	73.1	213.3	137	47
180 billion	Targeted	31.1	105.0	485	144
	Hybrid	44.6	154.7	339	98
	Universal	73.1	213.3	204	70

Notes: (\*) Eligibility for the three simulated models was determined according to the concept of formal income described in subsection 3.2. In the targeted and hybrid models, the eligibility threshold is of BRL260 per capita.

(\*\*) Although the eligibility threshold is fixed, in the targeted and hybrid models the population varies between budget scenarios due to the exit ramp angle.

Source: Authors’ elaboration based on 2019 PNADC microdata.

The hybrid model allows for a compromise between the ‘pure’ ones, covering between 146 and 155 million people, which is more than even the Emergency Grant, thanks to the universal child benefit component. By definition, coverage is not universal because there are households without children whose per capita income is above the eligibility criteria. Naturally, there is no magic trick involved, and average benefits are lower than in the targeted model. The average monthly benefit per household in this model would be of BRL117 for the BRL58 billion budget scenario, BRL243 for the BRL120 billion scenario and BRL339 for the BRL180 billion scenario. Even so, these per capita values are 40 per cent higher than in the current universalist model, regardless of budget scenario.

## 4.2 EFFECTS ON POVERTY AND INEQUALITY

To compare the nine combinations between models and budgets, as well as benchmark scenarios (current *Bolsa Família* and simulation of the Emergency Grant), we focus on the most commonly-used distributional indicators, avoiding the unnecessary multiplication of results.

To assess inequality, we estimated the coefficients of incidence and concentration of transfers and the Gini coefficient of per capita household income. The two first are similar, based on the decomposition of the Lorenz curve in concentration curves from various sources.<sup>9</sup> Both vary between -1 and +1, reaching the lowest value when transfers are perfectly directed at the poorest among the poor, and, conversely, reaching the highest value when they are appropriated exclusively by the richest among the rich. If the coefficient is equal to zero, then, in general terms, the benefit is distributed uniformly among the population.

The difference between the two lies in the variable for ordering income distribution. The incidence coefficient is calculated based on per capita household income net of each benefit transfers. In other words, the distribution of the benefit is assessed in comparison with the income distribution before it existed. Therefore, the incidence coefficient can be interpreted as a targeting measure for a given benefit, denoting the progressivity of the 'first monetary unit' of each transfer, if we presuppose the inexistence of behavioural changes induced by the transfer itself.

As previously stated, lower coefficients imply transfers are more targeted at the poor. However, incidence coefficients also depend on the coverage of transfer programmes. As programmes expand their coverage, they tend to include 'less poor' groups and, thus, present coefficients that are not as progressive. A programme that includes the entire poorest half of the income distribution has, by definition, a higher—and, therefore, less progressive—coefficient than a programme that perfectly targets the 1 per cent poorest population.

As the current discussion seeks to expand non-contributory transfers beyond the current coverage of *Bolsa Família*, it is only natural that the programmes simulated in this paper present incidence coefficients that are higher than estimated for *Bolsa Família* in its current form.

The concentration coefficient, in turn, is computed based on total per capita household income, including earnings from the transfers themselves. It thus considers not only targeting and coverage, but also the values of the transfers. In this sense, it is an indicator of the progressivity of the 'last monetary unit' of each transfer: the lower the concentration coefficient, the higher the effect on total inequality of marginal benefit readjustments.

All transfers whose concentration coefficients are less than the Gini of total income are redistributive. In this paper, we consider that concentration coefficients lower than zero imply 'strongly progressive' programmes, as they disproportionately benefit poor people. On the other hand, concentration coefficients equal to or higher than zero, but lower than the Gini of total per capita household income, correspond to 'weakly progressive' transfers.

A way to illustrate the difference between both coefficients is to imagine a transfer only to the poorest citizen of a country, but of such magnitude that it would make him the richest citizen. The incidence coefficient of such a transfer would be -1, because prior to the transfer

9. For formal definitions of concentration curves, see Kakwani (1980) or Hoffmann (1998). Hoffmann (2007) and Soares et al. (2007), among others, estimate incidence and concentration curves and coefficients for Brazil.

the citizen was the poorest; the concentration coefficient would be +1, because after the transfer he would be the richest. In other words, the difference between the two coefficients is the reordering of the income distribution caused by the benefit itself.

In non-universal programmes, the differences between incidence and concentration coefficients are positively associated with the magnitude of transfers. Modest benefits tend to present a concentration coefficient that is slightly higher than the incidence coefficient, while the more generous benefits tend to present a greater difference between coefficients, as they cause a more significant reordering along the income distribution. By definition, in uniform universal transfers, both coefficients will be zero.

Finally, in this paper, the Gini coefficient measures the distribution of per capita household income and varies between 0 and 1. The higher the Gini coefficient, the more inequitable the income distribution; the closer to zero it is, the more equitable the income distribution.

For the assessment of poverty, we have opted for the FGT(0) indicator—the percentage of poor people in the population. As the results for the FGT(1) and FGT(2) indicators are qualitatively similar in almost all cases, we omit them, prioritising the most intuitive measure from Forster, Greer and Thorbecke (1984). FGT(0) was calculated for the World Bank's three international poverty thresholds, of PPP USD1.90, PPP USD3.20 and PPP USD5.50 per day, estimated as BRL150, BRL253 and BRL434 per month (in 2019 Reais). The PPP USD1.90 per day line threshold is based on the poverty line of some of the world's poorest countries.<sup>10</sup> The PPP USD3.20 and PPP USD5.50 are indicated for middle-income or middle-high-income countries, such as Brazil.

#### 4.2.1 BRL58 billion budget scenario

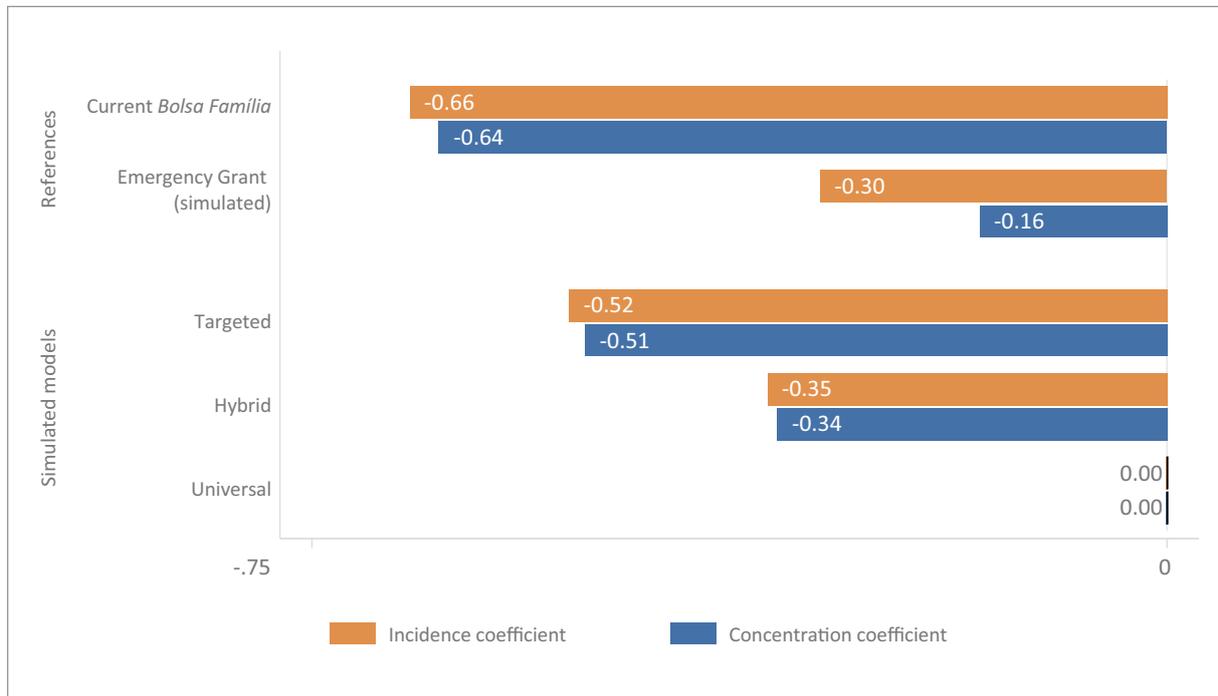
As stated previously, the BRL58 billion scenario simulates a neutral fiscal situation, under which it would be possible to create a non-contributory transfer that is broader than *Bolsa Família* without increasing the tax burden (see Section 6.1).

Figure 1 presents the incidence and concentration coefficients of the models examined here (targeted, hybrid and universal), compared to two benchmark scenarios: *Bolsa Família*, with coverage and budget adjusted in the PNADC according to administrative records, and our simulation of the Emergency Grant. The simulated budget of BRL58 billion applies only to the simulated models, and not to the benchmark scenarios.

*Bolsa Família* has narrower coverage, is well-targeted—even compared with similar programmes in other countries (Soares et al. 2009; Paiva, Sousa and Nunes 2020)—and pays very modest benefits. It is not a coincidence that its incidence and concentration coefficients are the lowest and their values close. The simulated Emergency Grant has a broader and less well-targeted coverage, but even so it disproportionately benefits the poorest (its incidence coefficient is -0.30). The high value of the benefit raises its concentration coefficient, though it is still negative (-0.16). In other words, it is a strongly progressive transfer that, by paying high benefits, provokes a significant reordering in income distribution, leveraging the relative position of beneficiaries. Something similar occurs with social security and welfare benefits that are indexed to the minimum wage.

10. Chad, Ethiopia, Gambia, Ghana, Guinea-Bissau, Malawi, Mali, Mozambique, Nepal, Niger, Rwanda, Sierra Leone, Tanzania, Tajikistan, and Uganda (Ravaillon, Chen and Sangraula 2009).

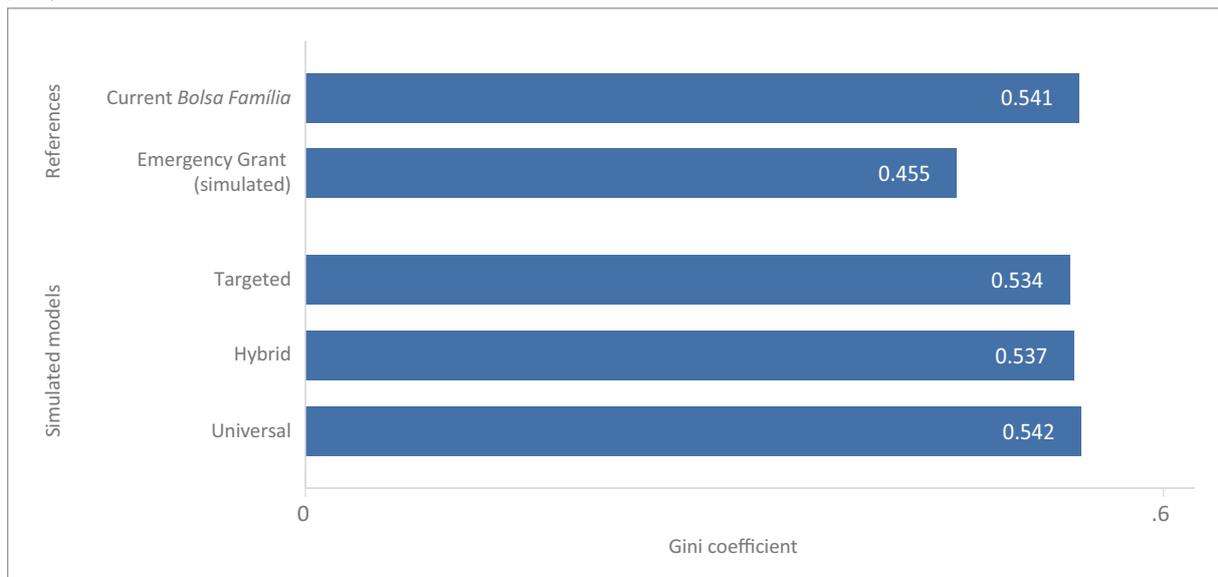
**FIGURE 1.** Incidence and concentration coefficients in the reference scenarios and in simulated models with a budget of BRL58 billion per year—Brazil, 2019



Note: In the “Current *Bolsa Familia*” scenario, the total of *Bolsa Familia* beneficiary households in the PNADC was harmonised with the total reported in administrative records using an updated version of the method in Souza, Osorio and Soares (2011). The simulation of the Emergency Grant follows Souza et al. (2020), considering the concept of formal revenue described in subsection 3.2.

Source: Authors’ elaboration based on data from the 2019 PNADC.

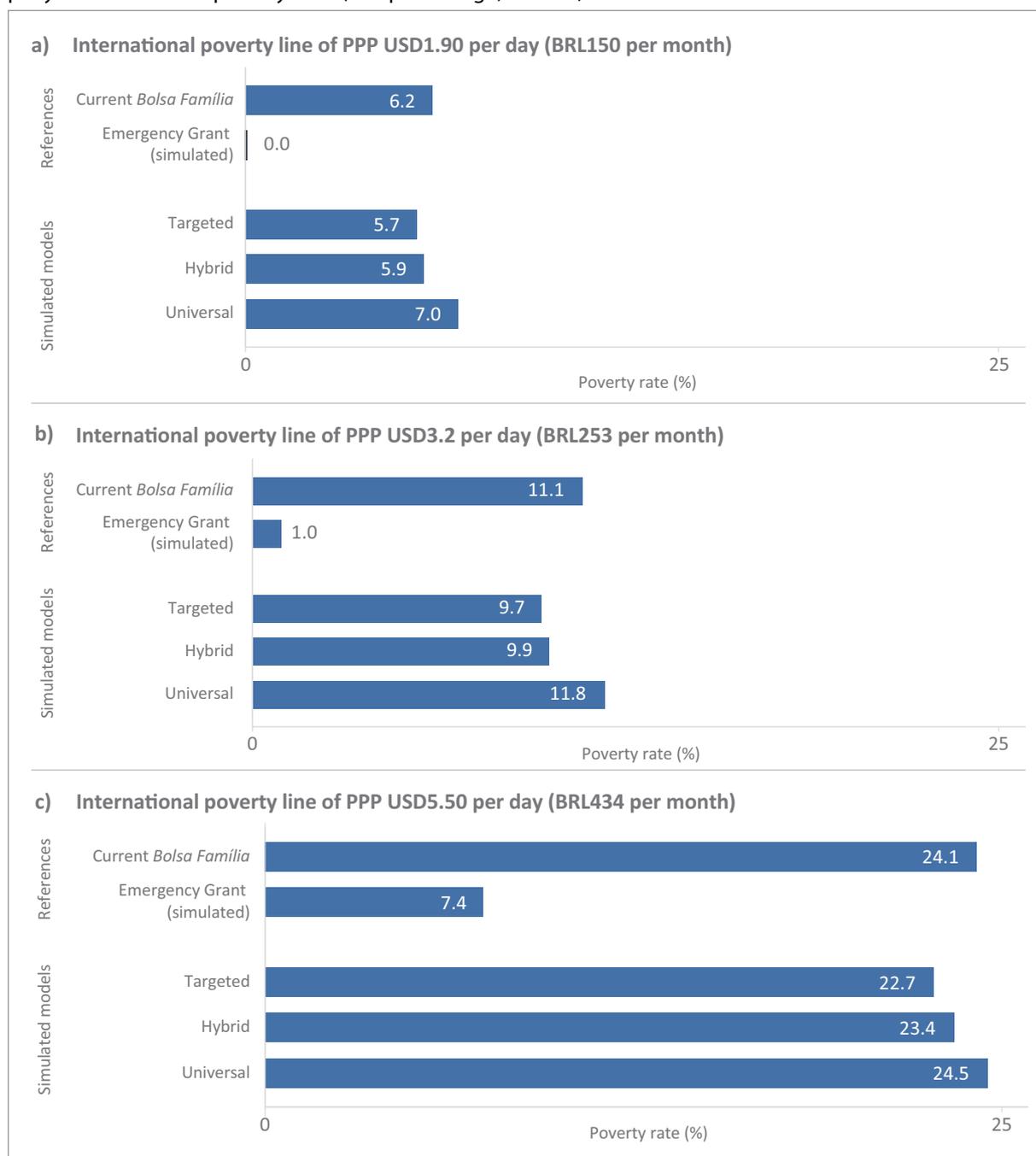
**FIGURE 2.** Gini coefficient in the reference scenarios and in simulated models with a budget of BRL58 billion per year—Brazil, 2019



Note: In the “Current *Bolsa Familia*” scenario, the total of *Bolsa Familia* beneficiary households in the PNADC was harmonised with the total reported in administrative records using an updated version of the method in Souza, Osorio and Soares (2011). The simulation of the Emergency Grant follows Souza et al. (2020), considering the concept of formal revenue described in subsection 3.2.

Source: Authors’ elaboration based on data from the 2019 PNADC.

**FIGURE 3.** Poverty rates in the reference scenarios and in simulated models with a budget of BRL58 billion per year for the three poverty lines (as a percentage)—Brazil, 2019



Note: In the “Current *Bolsa Família*” scenario, the total of *Bolsa Família* beneficiary households in the PNADC was harmonised with the total reported in administrative records using an updated version of the method in Souza, Osorio and Soares (2011). The simulation of the Emergency Grant follows Souza et al. (2020), considering the concept of formal revenue described in subsection 3.2.

Source: Authors’ elaboration based on data from the 2019 PNADC.

In the simulations for the future, the targeted and hybrid models lie halfway between the current *Bolsa Família* and the Emergency Grant. As expected, the targeted model is the more progressive of the two. In both cases, the incidence and concentration coefficients are very

similar because benefit values are modest, which means its redistributive effects would grow in lockstep with the total transfer budget.

To put it another way, both the targeted and the hybrid models disproportionately reach those who, before receiving transfers, are in the poorer deciles of the income distribution. Moreover, the values of the benefits are modest enough to maintain their strongly progressive character—more progressive than the Emergency Grant. The results are also satisfactory compared to the current *Bolsa Família*, if we consider that even in the targeted model, coverage is much higher than the current one (26 million households against 14 million) and the loss in progressivity is limited (incidence coefficient of -0.52 against *Bolsa Família's* -0.66).

The universal benefit is a special case. By definition, uniform transfers to the full population yield incidence and concentration coefficients equal to zero. Therefore, this model is always weakly progressive, as defined previously: although it is not appropriated disproportionately by the poorest, its distribution remains more equitable than the Gini coefficient, helping to reduce total inequality.

Figure 2 displays the Gini coefficients in the reference scenarios and in the simulated models. In the first case, replacing *Bolsa Família* with the simulated Emergency Grant has a significant effect: the Gini falls almost 16 per cent, from 0.541 to 0.455. In other words, the Emergency Grant promotes more income redistribution than *Bolsa Família* despite being less well-targeted due to its broader coverage and more generous benefits.

As budgets are limited to slightly over 10 per cent of the Emergency Grant's monthly disbursement, none of the three simulated models reach such remarkable results. In none of the cases are there any significant changes compared with the current *Bolsa Família*—there are, at most, marginal decreases. There is no way to compensate for such budget differences relative to the Emergency Grant with improvements in targeting or in benefit design.

The differences between models are modest. The adoption of the targeted model would lead to a decrease of slightly over 1 per cent in the Gini coefficient, from 0.541 to 0.534, while the universal model would cause a slight worsening in inequality, with a Gini increase to 0.542 (0.2 per cent). The hybrid model is close to the midpoint between both, if a little closer to the targeted model.

Finally, the three panels in Figure 3 depict the poverty rates for the World Bank's three poverty lines. The contrast between the two reference scenarios is clear: the simulation of the Emergency Grant points to the eradication of poverty for the two lower lines, something that is not achieved by *Bolsa Família* due to both its coverage and benefit value.<sup>11</sup> For the highest line—recommended by the World Bank for countries with a similar development level to Brazil—the Emergency Grant does not eradicate poverty, but the decrease relative to the current *Bolsa Família* is evident (7.4 per cent vs 24.1 per cent).

Once again, the simulated models for the future do not even come close to these figures due to their budget constraints. Compared with the current *Bolsa Família*, the adoption of the targeted and hybrid models would lead to poverty reduction across all three lines. The percentage of poor people would fall from 6.2 per cent in the PPP USD1.90 per day line to 5.7 per cent and 5.9 per cent, respectively. The most pronounced difference between scenarios,

11. To evaluate the Sustainable Development Goals (SDGs), the World Bank considers poverty to be technically eradicated when FGT(0) falls below 3 per cent. See: <<http://www.worldbank.org/en/topic/poverty/overview>>.

however, lies in the poverty rate for the intermediary line of PPP USD3.20/day, whose value is closer to the eligibility thresholds chosen for the simulations; in this case, the targeted and hybrid models present nearly identical results, reducing poverty relative to the current *Bolsa Família* by something between 1.2 and 1.4 percentage points (p.p.). For the highest line, as for the lowest, the targeted model fares better than the hybrid model.

The universal benefit is the only simulation with worse results than the current *Bolsa Família* programme. Poverty would increase from 6.2 per cent to 7.0 per cent under the PPP USD1.90 per day line, a pattern that is maintained as the poverty line increases. This would be the cost of replacing a modest, well-targeted transfer, such as *Bolsa Família* with a universal one, albeit with a lower benefit value.

In sum, the simulations with the BRL58 billion scenario suggest that the adoption of a non-contributory transfer model with broader coverage, but neutral from a budget standpoint, would positively impact inequality and poverty reduction, as long as it maintained a considerable degree of targeting, as in the targeted and hybrid models. This would represent some progress, as we could gradually expand the limits of social spending and achieve, with existing resources, better results than current ones.<sup>12</sup> However, these gains would probably be modest. On the other hand, the universal model would not lead to gains, but rather to losses. For limited budgets, reducing the value of benefits to preserve the principle of universality results in transfers that are not able to offer an adequate level of social protection.

#### 4.2.2 BRL120 billion budget scenario

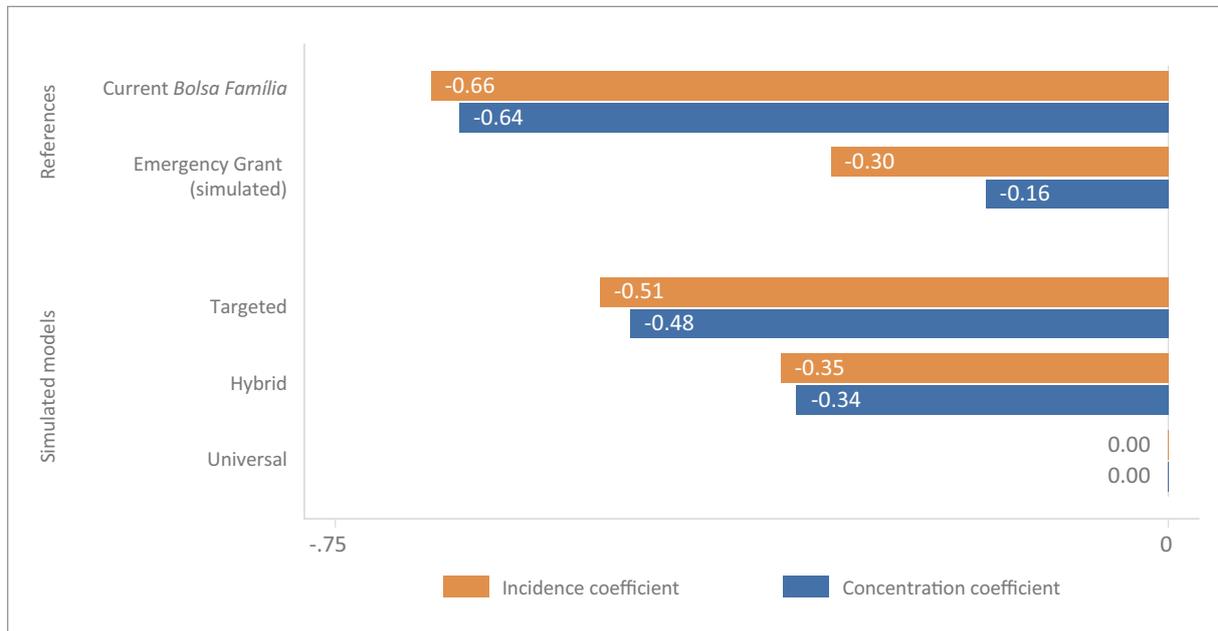
Figure 4 presents the incidence and concentration coefficients in the reference scenarios and in the simulated models, this time considering the BRL120 billion per year scenario. The results are almost unchanged from the BRL58 billion budget (see Figure 1), whether for incidence coefficients (which is expected, as they do not take into consideration the values transferred, only changes in coverage), whether for the concentration coefficients of the targeted and hybrid models. As said before, both are, by definition, equal to zero for the universal model.<sup>13</sup>

Stated differently, even spending much more, we still observe simulated transfers that are highly progressive, which reinforces the notion that greater budget generosity has the potential to significantly amplify the redistributive effects of benefits. Figure 5 demonstrates this idea: contrary to what we observe in Figure 2, with a BR120 budget per year all three models produce Gini coefficients that are lower than the one estimated under the current *Bolsa Família*, although they still fall short of the redistribution promoted by the Emergency Grant, which, by the way, has an annual cost that is almost five times higher than the other models simulated in this subsection.

12. We consider only the social benefits captured by PNADC. As we will discuss further, in subsection 6.1, the financing of the BRL58 billion scenario would involve the termination of other programmes (such, as for example, the *Abono Salarial* and the *Salário Família*) and tax deductions per dependent in personal income tax declarations, whose distributive effects were not simulated by us.

13. As the reference scenarios are not affected by increasing the annual budget, we will refrain from further commenting on them to avoid repetition.

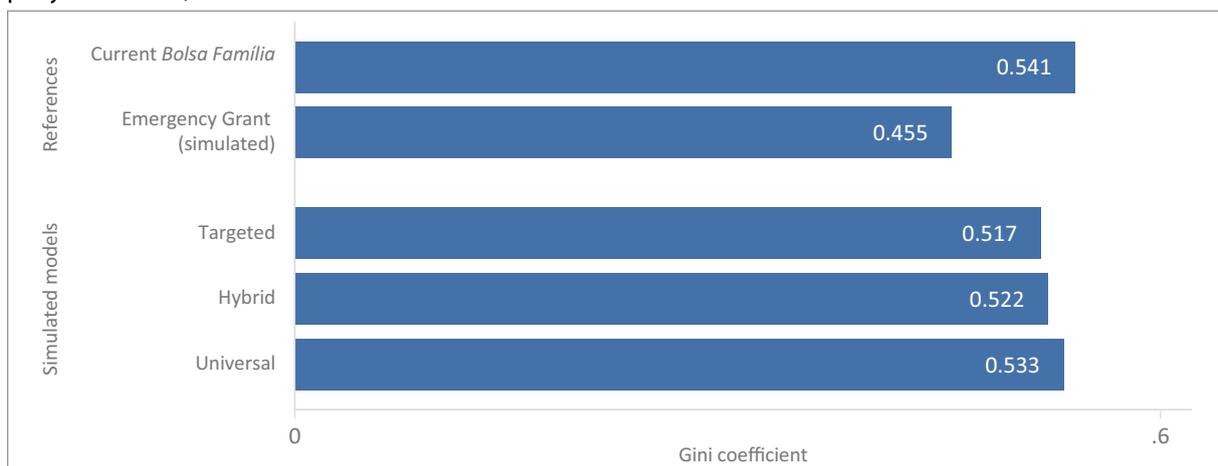
**FIGURE 4.** Incidence and concentration coefficients in the reference scenarios and in simulated models with a budget of BRL120 billion per year—Brazil, 2019



Note: In the “Current *Bolsa Família*” scenario, the total of *Bolsa Família* beneficiary households in the PNADC was harmonised with the total reported in administrative records using an updated version of the method in Souza, Osorio and Soares (2011). The simulation of the Emergency Grant follows Souza et al. (2020), considering the concept of formal revenue described in subsection 3.2.

Source: Authors’ elaboration based on data from the 2019 PNADC.

**FIGURE 5.** Gini coefficient in the reference scenarios and in simulated models with a budget of BRL120 billion per year—Brazil, 2019



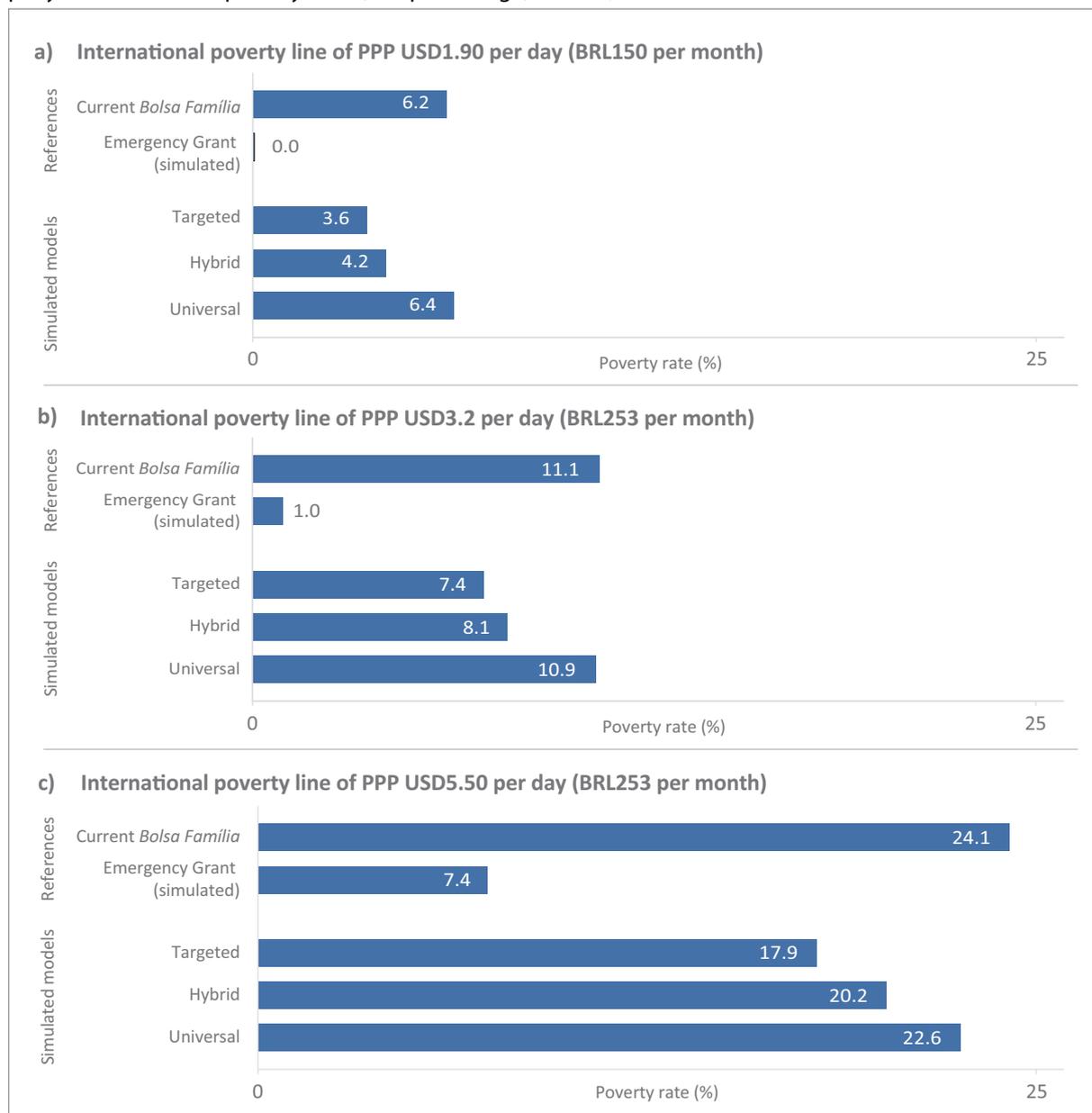
Note: In the “Current *Bolsa Família*” scenario, the total of *Bolsa Família* beneficiary households in the PNADC was harmonised with the total reported in administrative records using an updated version of the method in Souza, Osorio and Soares (2011). The simulation of the Emergency Grant follows Souza et al. (2020), considering the concept of formal revenue described in subsection 3.2.

Source: Authors’ elaboration based on data from the 2019 PNADC.

The magnitude of redistribution follows the same ordering as before. The targeted model sets itself apart by reducing inequality by almost 5 per cent, a much greater impact than the previous 1 per cent decrease. The hybrid model is not far behind, causing a reduction of 3.5 per

cent in the Gini index; this percentage falls to 1.5 per cent in the universal model. Therefore, it would be necessary to spend BRL120 billion with a universal benefit to reach the same redistributive effect obtained by the targeted benefit with less than half of the budget.

**FIGURE 6.** Poverty rates in the reference scenarios and in simulated models with a budget of BRL120 billion per year for the three poverty lines (as a percentage)—Brazil, 2019



Note: In the “Current *Bolsa Família*” scenario, the total of *Bolsa Família* beneficiary households in the PNADC was harmonised with the total reported in administrative records using an updated version of the method in Souza, Osorio and Soares (2011). The simulation of the Emergency Grant follows Souza et al. (2020), considering the concept of formal revenue described in subsection 3.2.

Source: Authors’ elaboration based on data from the 2019 PNADC.

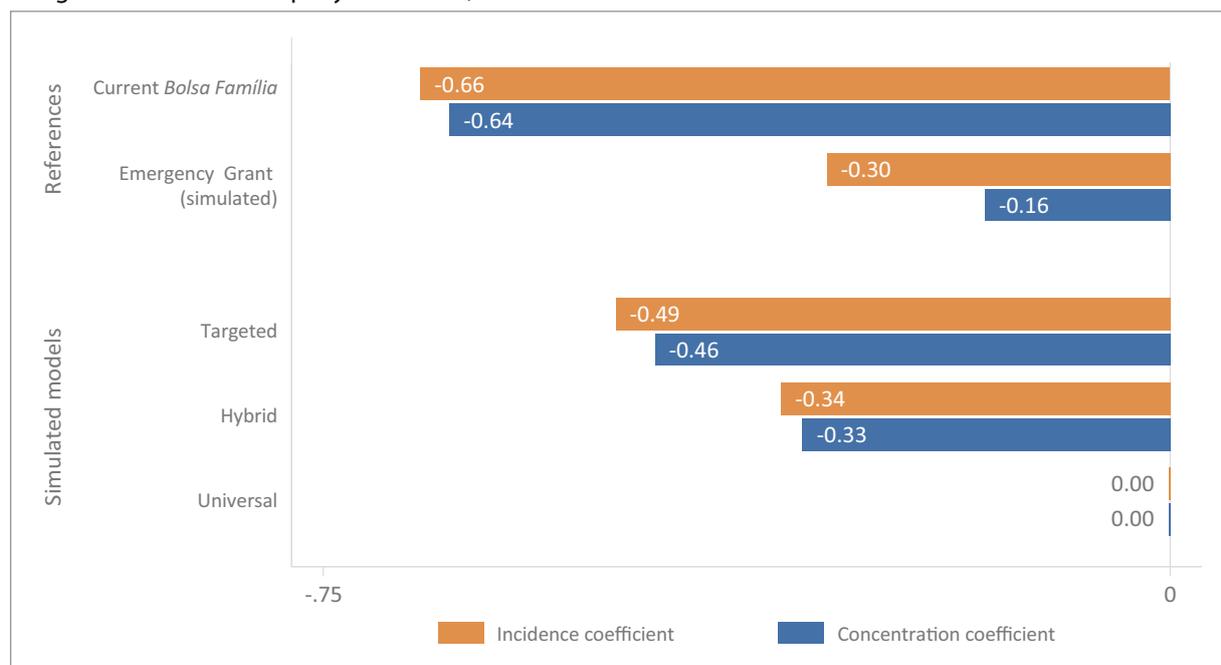
The three panels in Figure 6 display poverty figures. As above, the BRL120 billion budget allows for much stronger impacts than the BRL58 billion budget. The larger budget helps even the universal model to outperform the status quo, except for the lowest poverty line.

The targeted and hybrid models remain relatively similar, but the first comes out ahead by reducing poverty when compared with the current *Bolsa Família* by between 2.6 p.p. and 6.2 p.p., depending on the line. This is not a small reduction, especially if we consider that *Bolsa Família* itself reduces poverty by something around 1.5p.p. and that our simulations are geared towards increased coverage, and not towards more restrictive targeting.<sup>14</sup>

### 4.2.3 BRL180 billion budget scenario

Relaxing the budget constraint to BRL180 billion extends the coverage of the targeted and hybrid models by flattening the phase-out range and, more importantly, considerably boosts average monthly benefits. However, the incidence and concentration coefficients for the BRL180 billion budget scenario do not differ significantly from the others, as can be seen in Figure 7. Both models have very good targeting and, further, the concentration coefficients remain very low, indicating that the marginal progressivity of benefits remains high. In other words, not even a BRL180 billion budget saturates the redistributive capacity of these models.

**FIGURE 7.** Incidence and concentration coefficients in the reference scenarios and in simulated models with a budget of BRL120 billion per year—Brazil, 2019



Note: In the “Current *Bolsa Família*” scenario, the total of *Bolsa Família* beneficiary households in the PNADC was harmonised with the total reported in administrative records using an updated version of the method in Souza, Osorio and Soares (2011). The simulation of the Emergency Grant follows Souza et al. (2020), considering the concept of formal revenue described in subsection 3.2.

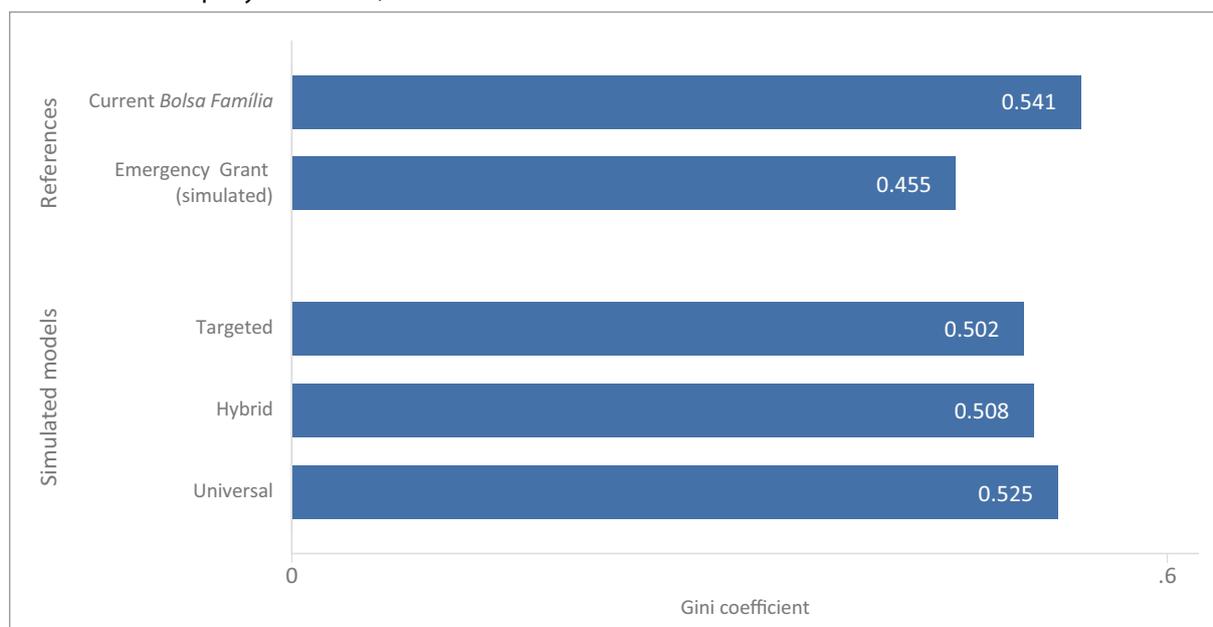
Source: Authors’ elaboration based on data from the 2019 PNADC.

As transfer progressivity remains mostly unchanged, the budget expansion translates into greater impacts on inequality, as shown in Figure 8. Compared to the current *Bolsa Família*, the targeted model would reduce the Gini index by over 7 per cent, and this percentage falls to 6

14. In the 2019 PNADC, the comparison between income with and without the current *Bolsa Família* indicates that the programme reduces poverty by 1.8 p.p., 1.7 p.p. and 1.3 p.p. for the PPP USD1.90 per day, PPP USD3.20 per day and PPP USD5.50 per day, respectively.

per cent in the hybrid model and 3 per cent in the universal model. These figures, at least in the first two simulations, would allow Brazil to fast forward a full decade in the fight against inequality: the decrease of 0.039 Gini points in the targeted model corresponds to 87 per cent of the fall in inequality recorded in the old PNAD between 2004 and 2013, the peak of Brazil’s ‘pro-poor’ growth.

**FIGURE 8.** Gini coefficient in the reference scenarios and in simulated models with a budget of BRL180 billion per year—Brazil, 2019



Note: In the “Current *Bolsa Família*” scenario, the total of *Bolsa Família* beneficiary households in the PNADC was harmonised with the total reported in administrative records using an updated version of the method in Souza, Osorio and Soares (2011). The simulation of the Emergency Grant follows Souza et al. (2020), considering the concept of formal revenue described in subsection 3.2.

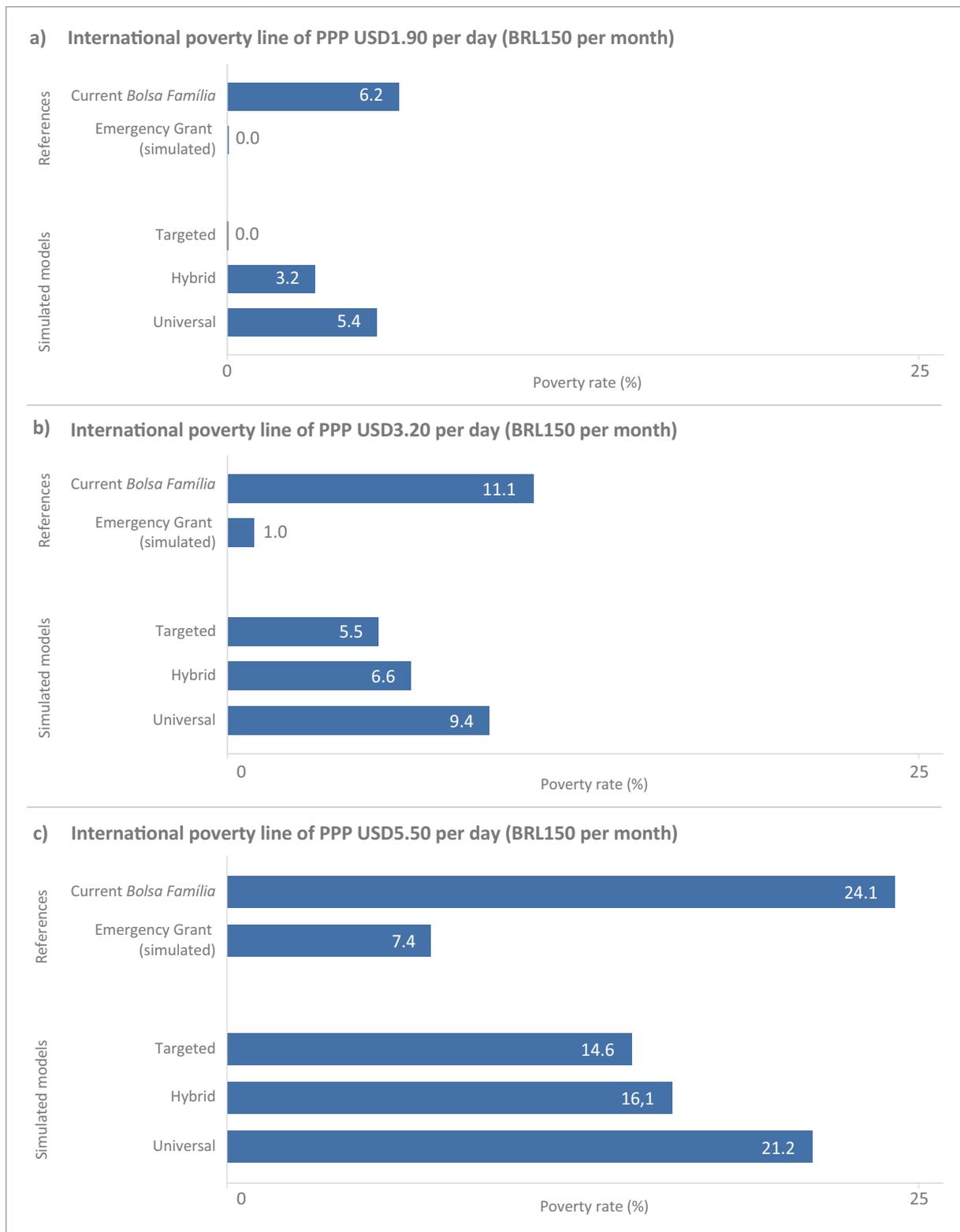
Source: Authors’ elaboration based on data from the 2019 PNADC.

Finally, Figure 9 assess the simulated effects on poverty rates. Under the BRL180 billion budget, the targeted model transfers BRL172 per capita to poor families (see Table 1). Consequently, poverty measured by the PPP USD 1.90 per day line (BRL150 per month) drops nearly to zero in the simulations. That is to say, the targeted model would achieve the same result—the eradication of extreme poverty—spending only 36 per cent of the total value disbursed by the Emergency Grant.<sup>15</sup> For the higher poverty lines, however, the simulated Emergency Grant still beats the other simulated models due to higher benefit values (almost BRL325 per capita). Compared with the current *Bolsa Família*, in addition to eradicating poverty for the lowest line, the targeted model chops the poverty rate in half for the PPP USD3.20 per day line and causes a decrease of almost 10 p.p. for the highest line, PPP USD5.50 per day.

The hybrid model, in turn, comes quite close to the ‘technical’ eradication of poverty—under 3 per cent (see footnote 9)—for the lowest line, although the value of the basic floor benefit remains lower than the lowest poverty line (BRL144 vs. BRL150 per capita). The reduction of poverty in this model is also considerable for the other two poverty lines.

15. In our simulation, the annual cost of the Emergency Grant would be of BRL498.6 billion.

**FIGURE 9.** Poverty rates in the reference scenarios and in simulated models with a budget of BRL180 billion per year for the three poverty lines (as a percentage)—Brazil, 2019



Note: In the “Current *Bolsa Família*” scenario, the total of *Bolsa Família* beneficiary households in the PNADC was harmonised with the total reported in administrative records using an updated version of the method in Souza, Osorio and Soares (2011). The simulation of the Emergency Grant follows Souza et al. (2020), considering the concept of formal revenue described in subsection 3.2.

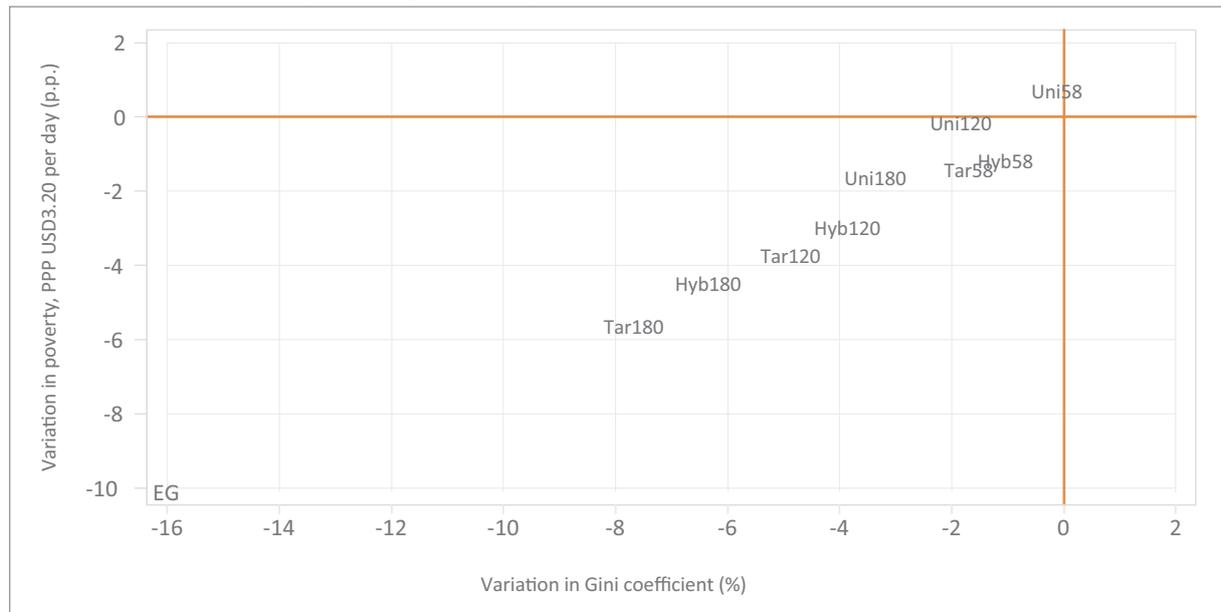
Source: Authors’ elaboration based on data from the 2019 PNADC.

Finally, under the BRL180 billion budget even the universal model is an improvement over the status quo, especially for higher poverty lines. Again, the decrease in poverty is comparable to results obtained by the targeted model under much tighter budget constraints.

#### 4.3 SUMMARY OF SIMULATED IMPACTS ON POVERTY AND INEQUALITY

Figure 11 summarises the findings of previous subsections. The vertical axis represents the variation of the poverty rate in percentage points, measured according to the PPP USD3.20 per day line (BRL253 per month), compared with the *Bolsa Família* programme, while the horizontal axis indicates the percentage variation in the Gini coefficient against the same reference scenario. The simulated Emergency Grant was included in the figure for illustrative purposes only, given that the estimated budget impact for the Grant (BRL498.5 billion per year) far surpasses even our most generous budget scenario (BRL180 billion per year)

**FIGURE 10.** Variation in poverty rates for the PPP USD3.20 per day line (in percentage points) versus variation in the Gini coefficient (as a percentage), in comparison with the current *Bolsa Família*—Brazil, 2019



Labels: 'EG' represents the simulated Emergency Grant, 'Tar', 'Hyb' and 'Uni' denote the targeted, hybrid and universal models, respectively; figures represent the chosen budget scenarios.

Note: In the 'current *Bolsa Família*' scenario, the total of households enrolled in *Bolsa Família* in the PNADC was harmonised with the total reported in administrative records, using an updated version of the model in Souza, Osorio and Soares (2011). The simulation of the Emergency Grant follows Souza et al. (2020), considering the concept of formal income described in subsection 3.2. The eligibility for future simulated models was determined according to the concept of formal income described in subsection 3.2.

Source: Authors' elaboration based on 2019 PNADC data.

The universal model with a BRL58 billion budget is the only one that presents worse results compared with the reference scenario. When the budget increases to BRL120 billion, the universal model becomes relatively neutral. All other combinations of models and budgets imply decreases in poverty and inequality, which as expected, are greater in the targeted and hybrid models. The effects are always slightly greater in the targeted model and the difference between both grows slightly as budget increases.

So far, the results obtained by our simulations allow us to draw some conclusions:

- I. The simulations illustrate the dilemmas faced by the various ways of delivering non-contributory transfers. The universal model provides a good example. Generous transfers would be prohibitively expensive. Lower benefits may be affordable, but raise issues of effectiveness. In the scenarios considered here, the universal benefit would be an improvement over the status quo only under the BRL180 billion per year budget scenario (over five times higher than the *Bolsa Família* budget). In the BRL58 billion and BRL120 billion per year scenarios, results are neutral or worse.
- II. It is appropriate to keep some degree of targeting, whether by keeping targeted transfers (even with higher coverage and higher-value benefits), or by the adoption of a hybrid model. Predictably, the targeted model is most effective in the reduction of inequality and of poverty, but the hybrid model's results are close, with a broader coverage than the Emergency Grant, even in the fiscally neutral scenario.
- III. As long as we have strongly progressive benefits (as in the targeted and hybrid models), the most crucial element is to secure as large a budget as possible to reduce poverty and inequality. The small advantage of the targeted model over the hybrid model, under the same budget, raises a political economy question: could a specific benefit design contribute to a greater budget? One possible hypothesis is that the hybrid benefit might better square off the political challenge of strongly increasing financing for non-contributory transfers, given that its universal component would reach all income brackets and lead to broader social support (Korpi and Palme 1998). If there is no political perspective for increasing the budget or using resources from programmes that currently reach the average and upper strata of the income distribution, it becomes more difficult to defend a model featuring a universal component.

There is at least one element that we were not able to capture: our simulations are static and do not take into consideration the enormous income volatility of a portion of the population. Therefore, it was not possible to adequately assess a possible effect of the universal component—the alleviation of eventual negative shocks, providing ex-ante protection. The universal child benefit, for example, would reach the age group that is most vulnerable to poverty and could cushion negative income shocks while newly poor families clear the administrative hurdles to access targeted benefits.

## 5 IMPLEMENTATION CHALLENGES

Even if there were a consensus around a new model for non-contributory cash transfers and if all legislative and budget challenges were cleared, implementation issues would remain, requiring careful examination and planning for the benefit to be paid securely. These oft-ignored issues have recently gained attention due to the necessity of quickly implementing the Emergency Grant. Two of these issues are quite relevant: the identification and registration of potential beneficiaries and the operationalisation of the payment of the benefit.

## 5.1 IDENTIFICATION AND REGISTRATION OF POTENTIAL BENEFICIARIES

The implementation of any of the scenarios simulated in this paper requires a registry with the individual identification of potential direct and indirect beneficiaries. The targeted model or the targeted component of the hybrid model also rely on additional information regarding the economic condition of households. The Single Registry is currently the only administrative record that can meet these requirements.

To strengthen the registry's unity, data integration and security, it would be wise to mainline a strategy for the biometric identification of the Brazilian population and the construction of a unique digital id, such as was carried out in India with the *Adhaar* experience (Patnaik 2013). It must be clarified that Brazil already has a project for the mainstreaming of a digital id—the National Civilian Identity (*Identidade Civil Nacional*—ICN), based on the Electoral Court's biometric database—according to the Brazilian Strategy for Digital Transformation, E-Digital (Decree No. 9.319/2018, amended by Decree No. 10.332/2020). For 2020, the strategy foresaw the issuance of over 40 million digital IDs, but technical forecasts indicate that, by 2022, around 150 million people will have had their biometric data collected, which corresponds to the number of voters.<sup>16</sup> If this goal is met, Brazil will have 90 per cent of its population aged 18 or older in possession of an ICN, and the remaining challenge will be to collect the biometric data of children and teenagers.

Biometric registration can considerably improve the interoperability of administrative records across all three spheres of government, allowing for better integration of public policies and, therefore, improving services and benefits to citizens. However, this improvement is a second step that depends on its correct use by public policies, and the ICN does not override the need to store specific information about citizens, according to the eligibility criteria of each social programme. Even after the ICN is fully implemented, the cash benefits discussed in this paper would require databases with information on household composition and income—even the universal model would require, to some extent, information on household composition, as the benefits for youth under 18 years old must be paid to their legal representatives. In the following subsections we present the current federal administrative records that would be useful to the targeted, hybrid and universal models.

### 5.1.1 Registry for targeted benefits

Household registration for identification of beneficiaries of targeted benefits does not require significant innovation. The Single Registry already exists and covers over 28 million Brazilian households, which corresponds to around 75 million people. As the targeted model estimated above could reach between 26 and 31 million households, a significant share of households that would be contemplated is probably already registered. However, there would be a need to expand the Single Registry to include the remaining families and update outdated records, as households with incomes above the current *Bolsa Família* profile tend to update their information less frequently than beneficiary households.

As of May 2020, 6 million of the 28.8 million families enrolled in the Single Registry had outdated information (that is, they had relayed their information over 24 months before that

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16. Information obtained in an interview carried out in 12/11/2020 with Luiz Carlos Myiadaira, Director of Digital Services in the Brazilian Ministry of the Economy.

date). In addition, around 36 million beneficiaries of the Emergency Grant were not enrolled in the Single Registry.<sup>17</sup> There are no available data that allow us to pinpoint precisely how many household groups correspond to these 36 million people. If they have the same average profile as Emergency Grant beneficiaries enrolled in the Single Registry, they live in almost 22 million households, part of which will be eligible for the new benefit and will need to register in the Single Registry, as the Emergency Grant's specific registry is extremely limited regarding socioeconomic information, and probably also regarding household composition.

Further expansion of the Single Registry may take as a baseline the process of recertification that occurred in 2005 and 2006. Back then, the Single Registry had almost 15 million families enrolled, but almost 70 per cent of those had incomplete data. Registration flaws were due not only to the Single Registry's system, which did not have at the time any mechanisms to assess double registration or the correct filling out of information, but also—and mainly—to the inflow of millions of households that had originally been registered in the school grant registry (*Cadastro do Bolsa Escola*—CadBES), which collected less socioeconomic information than the Single Registry and only partially recorded household composition (only the mother and three children between 7 and 15 years old were enrolled).

Between August 2005 and March 2006, the proportion of complete records in the Single Registry database jumped from 31.4 per cent to 70.4 per cent (Brazil 2006). Two landmark actions were taken: the Single Registry's system incorporated beneficiary information from *Bolsa Escola* and examined the existence of double counting, and, in cooperation with municipalities and the Federal District, some of these records were updated, capturing information that was missing. The remuneration paid out by the then Ministry of Social Development (MDS) to municipalities and the Federal District for this activity was the embryo for the Index of Decentralised Management (*Índice de Gestão Descentralizada*—IGD), enacted in April 2006 by MDS Ministerial Order n. 148.

The IGD has had a double role since then: to measure the quality of municipal management in the inclusion and updating of low-income household data in the Single Registry and to verify *Bolsa Família's* conditionalities, while providing resources to these federative bodies (weighted by the quality indicator). In October 2006, the information in the Single Registry was already complete for 92 per cent of families (Brazil 2006). In 2009, the IGD was enacted into law, with a provision for its transfers to be up to 3 per cent of the benefit budget—around BRL900 million per year. Currently, the transferred values are of BRL540 million. Neither the value of the IGD nor the estimate of the Registry's target coverage have been updated since 2011.

There is, therefore, not only precedent but also an institutional apparatus in place for incorporating information about part of the beneficiaries of the Emergency Grant that are eligible for the new targeted benefit into the Single Registry, as well as about their households. Even so, this task would require negotiation with municipalities and states, transfer of funds and agreement on a timeline.

This timeline will not necessarily be short. Although around 1.4 million households have their records included or updated monthly (this figure fell to 380,000 households in April 2020 and 460,000 households in May 2020, due to the effects of the pandemic), inclusions

17. Information obtained from the Ministry of Citizenship's CECAD 2.0: <<https://cecad.cidadania.gov.br/painel03.php>>.

represent approximately 25 per cent of this figure. Even with the migration of limited information from the Emergency Grant registry to the Single Registry, the procedure to collect the remaining beneficiary and household data will be more like a fresh registration, rather than a simple update.

One possible solution would be to invest in innovative registration methods, through which the provision of information could be carried out by digital platforms—similar to what was done with the Emergency Grant. However, although the digitalisation/computerisation of public policies is a pressing reality, we must consider real-world limitations so that this process makes the lives of citizens easier, not harder.

First, the most vulnerable families face access barriers to programmes based on digital applications, as has been documented in countries such as Greece, Australia and the UK (UN 2019). In Brazil, where over half of the population aged 25 or older do not have secondary education, this barrier is potentially even greater (Bartholo et al. 2020). In this sense, the Single Registry, based on municipal action through the decentralised network of the Unified Social Assistance System (*Sistema Único de Assistência Social*—SUAS), plays a decisive role in assuring that cash transfer programmes do not exclude vulnerable families with low levels of educational attainment and limited access to digital platforms.

Second, even household surveys such as the Demographic Census, carried out by trained enumerators and under close supervision, are liable to procedural errors—which tend to be more significant in less-developed states and with respondents of lower levels of economic and educational attainment (Duarte, Silva and Brito 2016). The Single Registry captures multi-dimensional information, such as schooling, access to public utilities, living conditions, work, and income, and it is entirely reasonable to suppose that the direct filling out of such information by families and individuals would lead to even more registration errors. In other words, the simple migration of the Single Registry to a digital platform could theoretically reduce the quality of the database's socioeconomic information.

Additionally, the direct filling out of information by applicants also entails data security issues. Emergency Grant benefits requested on behalf of public figures are an obvious example of something whose impact has not yet been measured directly: the improper use of third-party information to request social benefits, and how this could be mitigated by in-person interviews.<sup>18</sup>

Finally, registration is carried out through the SUAS, in the Social Assistance Reference Centres (*Centros de Referência de Assistência Social*—CRAS). There, vulnerable applicants are registered and referred to social workers, who inform them of their rights, refer them to other policies and programmes, and follow up according to their needs. SUAS also has protocols for the registration of more vulnerable groups, such as homeless people, *quilombolas* (descendants of Afro-Brazilian slaves who reside in rural communities) and child labourers. The Single Registry and cash transfer programmes are a significant reason these people reach out to CRAS. Alienating them from these centres weakens the link between the State and the poorest individuals and families.

However, these concerns do not imply that the Single Registry must be impervious to change, with information filled out only through in-person interviews and not incorporating new digital technologies. Though these limitations should be kept in mind, it is possible for part

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18. This issue was brought up in several media stories, such as <<https://bit.ly/3geoYaf>> and <<https://bit.ly/2XdcIVZ>>.

of the Single Registry to be filled out digitally by individuals and families. It would be possible to develop a system whereby the entire Single Registry can be filled out by the applicant, incorporating data validation and recertification stages based on the identification of possible data errors—such as in Chile's *Registro Social de Hogares* (Chile and World Bank 2018).

Filling out information digitally facilitates the process for those who wish to register or update information, as it does not require the person to schedule an appointment at a later date and/or physically travel to an office to merely report an address change, for example. At the same time, it allows for social workers to dedicate more time to other activities. If carried out properly, this strategy would allow gains for both citizens and for the public administration.

Still, several elements must converge for it to work: Registration forms must be reviewed to allow them to be filled out remotely through the Internet, robust data security mechanisms must be implemented (the ICN can greatly facilitate this process), investments must be made to expand the level of digital inclusion for low-income populations, and the population must be made aware of how to properly fill out information. Crucially, this strategy requires that filling out forms digitally be but one of several means of access and not the only one, so as not to impair a vulnerable portion of the population by precluding them access to the Single Registry or even the opportunity to come face-to-face with public authority.

In other words, given the characteristics of the low-income population in Brazil, online applications to the Single Registry must be considered as a complement, and not a substitute, to in-person registration methods. In this sense, Chile's experience in building their *Registro Social de Hogares*, featuring interoperability between administrative records and digital and in-person access by citizens, is a successful example from which Brazil could draw valuable lessons (CRVS 2020).

### 5.1.2 Registration for the universal benefit

What makes the Single Registry the main instrument used in Brazilian public policies is the fact that it is an administrative record that gathers a series of information on all vulnerabilities of the country's low-income households. However, universal benefits (including the child benefit component of the hybrid model) are paid out to everyone, regardless of socioeconomic condition. Therefore, for a large share of beneficiaries, this benefit may rely on simplified forms compared to the Single Registry. A solid identification database of individuals and household composition would be sufficient to carry out these transfers. Currently, only two administrative records possess reasonably consistent information on household composition: the Single Registry itself and the Federal Revenue Service's database. Even so, both would require improvements—the first due to the sub-registry of working-age-men and the second because members of a single household may file multiple tax returns.

In the case of the universal component of the hybrid model, there are around 56.4 million potential beneficiaries (children and adolescents up to 18 years old). Slightly over half (27.4 million) are enrolled in the Single Registry.<sup>19</sup> Based on data from the 2019 PNADC on the number of children living in households in the top 10 per cent, we estimate that a further 3 million are in the Federal Revenue Service's database. This would mean that around 26 million children would need to be registered. Some of these are children of parents who are employed

19. See <<https://aplicacoes.mds.gov.br/sagi/vis/data3/data-explorer.php>>.

in the formal labor market and thus are listed (or will soon be listed) in the eSocial—the System for the Digital Fiscal Registration of the Fiscal, Social Security and Labour Obligations of the Federal Government. Although eSocial is important leap in compiling information on formal workers, it does not capture the household composition of those enrolled and, therefore, it is not fit—at least thus far—as a source of data for the payment of a universal benefit.

Information on household composition could be collected as part of the birth registration procedures. Nevertheless, the same caveats mentioned above also apply to the National System of Civil Registration Data (*Sistema Nacional de Informações de Registro Civil*—SIRC): it contributes to the broader coverage and better quality of the civil registry (children born after 2019 are already assigned a CPF number); but it cannot be readily used as the main registry for universal benefits unless it is overhauled to collect additional data.

Therefore, for the payment of the universal component of the hybrid model, the most viable alternative is *i*) the operationalisation via the Single Registry, which would certify the targeted component of the hybrid model and would allow for the immediate payment of the child benefit for half of its beneficiaries; *ii*) for those who are eligible only for the universal component of the hybrid model, it could be operationalised by the Single Registry itself (through the development of a simplified version of the registration form) or migrated to the Single Registry based on data from the Federal Revenue Service, or even from eSocial or SIRC, provided they are altered to meet this purpose.

The references made to the alteration of administrative records, the migration of data or the integration of databases might suggest that these are simple tasks. They are not. In the best of cases, the Brazilian federal government has achieved only modest progress—over decades—in the integration of its administrative records and in data interchange among these databases. This is a key operational aspect, whose level of complexity will require commitment and significant efforts by the federal public administration.

The challenge would not be less significant if the choice is for the adoption of a strictly universal system. This would demand the construction of a national registry of information, which would gather data not only about the identification of individuals, but also about their minimum household composition, since people under 18 years old would have to receive the benefit through their legal representative. As there would not be a targeted component, socioeconomic information would no longer be necessary.

For this purpose, the most plausible alternative using current tools would be the construction of this administrative registry based on the National Registry of Social Information (*Cadastro Nacional de Informações Sociais*—CNIS), a joint venture by various entities of the federal government that gathers data from a broad set of federal administrative registries (including the Single Registry, SIRC and e-Social).

In this case, for a population of over 212 million, the collection and maintenance of updated data would need to be based on multiple administrative registries, with robust rules to harmonize discrepant information and discard duplicated records, ideally underpinned by the ICN. The use remote technologies—as is already the case in the application for some social security benefits—could be an option, as long as data security is assured. The fact that the CNIS is already (in practice) a compilation of various administrative registries and that it supports, given proper security layers, the automated and remote granting of social security benefits, makes it a likely starting point for the construction of a national information registry.

In any case, efforts towards the construction of a national information registry cannot be considered as a simple matter, reflecting a certain academic prejudice that operational issues are not as significant. It is by no means something trivial. Even excellent public policy ideas flounder due to poor implementation—and this is one area where a low-quality implementation absolutely must not happen.

## 5.2 PAYMENT PROCESS

Despite all the difficulties in implementing the digital payment of the monthly transfers of the Emergency Grant (Bartholo et al. 2020), this experience has demonstrated that the payment process for non-contributory cash transfers can greatly benefit from new technologies, even in the short term.

The payment of social benefits by Caixa had always been accomplished through a combination of deposits in simplified checking accounts and the use of a social card, through which the beneficiary can withdraw the full value of the benefit, but which does not grant access to a bank account. If the non-contributory transfers during the pandemic were extended only to those enrolled in the Single Registry, perhaps this traditional payment operation might have functioned properly—the logistics of producing and distributing social cards are well defined and Caixa's contracts could be expanded. As the Emergency Grant's coverage was unprecedented, Caixa opted to carry out payments through a digital savings account that was automatically opened in the name of beneficiaries.

We must keep in mind the potential hurdles of such a solution, especially when we consider the frequently low levels of schooling and low access to technology of beneficiaries, but we still might say that, with the course corrections implemented over the months of payment of the Emergency Grant, its adoption was successful. In the case of a targeted model that is broader than *Bolsa Família*, the operationalisation via the Single Registry and the management of the payroll by Caixa would allow for the payment to be carried out through the public bank, combining traditional payment mechanisms with payments via digital savings accounts. Therefore, it is worth returning to the consideration we raised in the previous section: the socioeconomic characteristics of the targeted benefit's audience indicate that the simultaneous adoption of traditional and digital payment methods is more appropriate than mere substitution of one for the other.

For the hybrid model, the number of households reached would always be over 40 million, a significant portion of which are 'non-poor' receiving the universal component. The universal model, in turn, would theoretically reach all 73 million Brazilian households. Therefore, it would be fitting to consider the possibility for the benefit to also be paid, when appropriate, directly to the beneficiaries' bank accounts, regardless of the financial agent.

## 6 BUDGET ISSUES

The first premise we adopted to build our budget scenarios was the observance of restrictions put in place by the country's fiscal and budget legislation. In the specific case of the creation of permanent expenses, the law requires its financial effects in the subsequent periods to be compensated by the permanent reduction of other expenditures or by the permanent increase in revenues, except for temporary, outstanding exceptions. The second premise was the preference for the revision of deductions, exemptions, special rates and other tax benefits

when considering measures to increase revenues. The third premise was to propose budget scenarios tied to the tax reform agenda currently under discussion in Congress, rather than a bucket list of loosely connected tax benefit revisions. A well-designed and well-implemented tax reform has a greater potential to generate efficiency gains for the economic system that are able to mitigate the occasional negative impact of a tax hike.

We believe there is a window of opportunity for convergence between both social benefits and tax system reforms. In 2020, the speakers of both houses of Congress defined tax reform as one of the priorities of the legislative agenda and, after a political arrangement, enacted a Mixed Committee for Tax Reform to formulate a common-ground proposal for tax reform, based on the Constitutional Amendment Bill 45/2019. The proposal foresees the enactment of a new value-added tax, the Goods and Services Tax (GST), aligned with international best practices, and of a cash transfer targeted at poor households to refund indirect taxes, replacing the inefficient distributive policy of tax benefits. A natural way forward is to alter this cash transfer and convert it into one of the pillars of a broader, non-contributory transfer programme.

The main text of the proposal centres around the taxation of goods and services, but nothing precludes its amendment to modernise the country's income tax model. In this context, the progressive taxation of income (and, eventually, wealth) can perform the dual role of *i*) being a complementary funding source for non-contributory transfers, stopping GST rates from being too high; and *ii*) rebalancing the tax burden, re-shifting it towards the top of the income distribution and away from the middle strata (who do not benefit from targeted transfers). Therefore, we will discuss alternative budget scenarios funded by a tax reform that would institute a more consistent and broad-based income tax model, by reassessing deductions, exemptions and tax planning loopholes.

The objective of this section is not to present a final financing structure proposal for a new model of non-contributory transfers in the country, but rather to qualify the public debate by discussing dilemmas and pointing out alternate pathways, which can range from a more modest version of a social programme, with the mere unification of pre-existing benefits, to expanded versions that would demand increased taxation, whether on goods and services, income, wealth, or a combination thereof.

## 6.1 FISCALLY NEUTRAL UNIFICATION OF EXISTING BENEFITS

The BRL58 billion per year scenario presupposes fiscal neutrality, as it would only have access to the reallocated resources resulting from the unification of current programmes. Table 4 details the set of measures to reallocate expenditures and revenues that is necessary to finance it. The expenditure reallocation measures include the budgets of *Bolsa Família*, *Abono Salarial* and the small instalment of *Salário Família* paid directly by the federal government. The revenue expansion measures, in turn, refer to the elimination of income tax deductions for dependents and to most of *Salário Família*, which is paid directly by private employers and later compensated, through a reduction in social security contributions.<sup>20</sup>

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20. Most of *Salário Família*'s benefits is credited directly to the payslips of formal employees in the private sector and grants a tax credit for the employer through reductions in its social security contribution. The elimination of this tax credit would increase social security revenue, in the same way that the elimination of tax deductions by dependent increases revenues from the PIT. A small portion of *Salário Família* is paid directly by the federal government to its employees (usually temporary or substitute employees that are eligible for the programme).

**TABLE 4.** Financing for the BRL58 billion per year scenario via a fiscally neutral unification of benefits (in BRL millions)

Budget sources		Minus earmarked revenues	Including earmarked revenues
	<i>Bolsa Família</i>	33,143.55	33,143.55
Expenditures	<i>Abono Salarial</i>	19,845.35	19,845.35
	<i>Salário Família</i>	34.05	34.05
Revenues	Personal income tax deductions by dependent	1,673.61	3,281.59
	<i>Salário Família</i>	2,001.09	2,001.09
<b>Total</b>		<b>56,697.65</b>	<b>58,305.63</b>

Note: The values for *Bolsa Família* and *Abono Salarial* are from the proposal for the 2021 budget law. Those for *Salário Família* are 2019 values and the income tax deduction by dependent are the authors' own estimations.

Source: Authors' elaboration.

At first glance, this budget scenario might appear simple, as it involves only pre-existing budget resources. However, in addition to the debate regarding the adequacy of unifying *Abono Salarial* from a redistributive perspective, and the government's own backtracking after proposing this unification, this scenario must overcome at least three hurdles.

The first hurdle results from the fact that some of the budget resources do not necessarily create fiscal space to accommodate equivalent expenditures. Such is the case of the termination of the deduction per dependent from the personal income tax (PIT), which would result in an estimated increased revenue of around BRL3.3 billion. According to the current budget legislation, almost half of this revenue must be destined to state and local governments, as well as well regional development funds. After deducting these funds, the federal share that would be able to be allocated to the new unified programme would be limited to BRL1.7 billion.

One way to get around this hurdle would be to exempt from earmarking around 1 per cent of revenues from the PIT. There is precedent for this type of operation by state governments, which instituted the Special Funds to Fight Against Poverty. In practice, these funds decouple a share of revenues from the state tax levied on goods and services, which is no longer shared with local governments to be fully allocated to poverty alleviation initiatives. The Federal Constitution also determines that the federal government shall institute, by supplementary law, a Fund for Combating and Eradicating Poverty (*Fundo de Combate e Erradicação da Pobreza*—FCEP), financed by the tax on industrial products, the tax levied on financial transactions (which has been extinguished), and the as-yet unregulated Wealth Tax.<sup>21</sup>

Regardless of precedent, exempting revenues from the PIT from earmarking would not be trivial from a legislative point of view and would face political opposition by representatives of local and state governments. A Constitutional Amendment would be necessary to include

21. Foreseen in Articles 79, 80 and 81 of the Federal Constitution.

the PIT among the FCEP's funding sources and, subsequently, a supplementary law would be needed to institute the federal fund. This complication is the reason why we present two alternative budget scenarios in Table 4: BRL58.3 billion, redirecting earmarked revenues from the PIT to fund the FCEP; or BRL56.7 billion, excluding earmarked revenues.

A second hurdle is that measures that affect tax expenditures (and which would increase revenues) do not generate fiscal space on their own to accommodate expenses. The 'new fiscal regime', which has been in place since 2017, imposes a ceiling to the federal government's primary expenditures, regardless of the trajectory of revenues.<sup>22</sup> In light of this institutional specificity, measures to increase revenues can only be translated into expenditures if they can be accommodated under the expenditure ceiling. The problem is that this accommodation must be accomplished inside the 'fiscal margin' (the difference between the ceiling and mandatory expenses), which is currently very narrow, despite fiscal adjustment efforts over the past few years. It is no coincidence that the report by the Senate's Independent Fiscal Institution (*Instituição Fiscal Independente*—IFI 2020) points out that there is a high risk of breaching the cap in 2021, based on estimates that the fiscal margin projected in BRL72.3 billion in 2020 will not be enough to maintain the current day-to-day functioning of the government (BRL89.9 billion).

In other words, a mere unification of social programmes that includes revenue-raising measures, such as for example the revisions of *Salário Família* and the deduction per dependent in the PIT, puts additional pressure on the fiscal margin during an unfavourable context, without any leeway to even meet the expenditure ceiling without compromising the functioning of the public administration.

When we consider the scenarios in Table 4, the measures to increase revenue are not very significant, adding up to BRL3.7 or BRL5.2 billion, depending on the re-shifting or not of revenues for the FCEP. Therefore, the more modest version of a new fiscally neutral transfer programme can be made compatible with the current expenditure ceiling, if the additional pressure is accommodated via the intensification of existing efforts to cut other expenditures.<sup>23</sup>

A third barrier regards the time gap between changes in legislation and the full availability of budget resources. The PIT, for instance, is assessed on an annual basis. A legislative change in, for example, 2020 would have only partial effects in 2021. The other part of revenue gains would only come into effect after the 2022 tax returns, which are based on the incomes accrued during the previous year. Something similar happens with *Abono Salarial*, whose base are wages accrued by the beneficiary in the previous year, but with an even slower legislative process, as it requires the approval of a Constitutional Amendment.

In other words, even the BRL58 billion per year scenario, which might seem simple at first as it relies on existing budget expenses and tax expenditures, would take at least two years to become fully operational.

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22. According to articles 107 and 144 of the Temporary Constitutional Dispositions Act (*Ato de Disposições Constitucionais Transitórias*—ADCTs), which establish a duration of 20 years for the new tax regime, with the annual limit on expenditures indexed to inflation during the first 10 years. After 10 years, the indexer can be altered through supplementary law.

23. Otherwise, the transfer programme would only be able to count on budget sources originating from expenditure-decreasing measures, as additional pressure would cause the breaching of the expenditure cap and its triggers would come into effect the following year. These triggers impose a forced adjustment on expenditures, mainly regarding personnel (i.e. no new hires or wage adjustments) and social security (a freeze on the value of the minimum wage), but also prohibiting the creation of mandatory expenses, which can be a further obstacle to the consolidation of a new non-contributory programme.

## 6.2 UNIFICATION OF BENEFITS PLUS FUNDING FROM THE GST

Moving beyond fiscal neutrality, a complementary source of revenue for non-contributory transfers is the new GST, foreseen in the tax reform currently being analysed by the Mixed Committee in Congress. According to PEC 45/2019's main text, five taxes (IPI, PIS, Cofins, ICMS and ISS) are to be gradually replaced by a value-added tax—GST, transforming the current model of taxation of goods and services, which is fragmented and inefficient, into a new, broad-based model free of cumulative effects.

The reform dictates the gradual elimination of fiscal benefits that exist in current taxes and precludes the creation of tax benefits related to the GST. The only exception would be a mechanism to offset the tax paid by the poorest households, to be operationalised in a similar manner to a cash transfer. It is unlikely that this Constitutional Amendment Bill will go through Congress without granting special treatment to some goods and services. It is more realistic to accept that it will be made more flexible, introducing exceptions with special rates, ideally limited to a small list, regulated by the GST national legislation (for example: food basket items, medicines, public transportation, health care and education). Even so, there would be a significant reduction in the scope of the current distributive policy through tax benefits, replacing it with a more efficient mechanism of tax refunds to the poorest population, in line with what is recommended in the international literature.<sup>24</sup>

There is nothing in the Amendment's text regarding the design of the tax refund mechanism, which will be the object of a future supplementary law. There are only generic references indicating that the refunds will be made possible by cross-linking data between administrative databases, which allow for the identification of the beneficiary audience, and the electronic invoice systems, based on personal information declared by consumers when they acquire goods and services. The goal is to create a cash transfer that is proportional to the consumption expenditures of the poorest people, which would require the operationalisation of a national electronic system to assess personalised consumption data.

Given that the tax reform is still in the debate stage, nothing precludes the mechanism of tax refunds from being altered so that the GST can become one of the financing pillars of non-contributory transfers. Our estimates suggest a standard rate of 26.9 per cent, already envisioning a tax return mechanism to the poorest people of BRL29.2 billion, or 0.4 per cent of GDP.<sup>25</sup> According to guidelines in PEC 45/2019, this reference rate is calibrated to make it so that revenues from the collection of the new tax (after refunds to the poorest) exactly recompose the loss of revenue from the eliminated taxes, so that the tax burden remains unaltered.

To incorporate the cash transfer from the GST as a supplementary funding source in non-contributory transfer programmes budgeted at BRL120 billion or BRL180 billion, it would be necessary to modify some of the fundamental principles of the tax reform proposal. First, the refund mechanism—which is meant to be personalised and proportional to the poorest

24. The Mixed Commission is based on the texts of PEC 45/2019 and PEC 110/2019. Both include tax refunds to the poorest populations. See Orair and Gobetti (2019) for a detailed analysis of the two proposals and for simulations of rates and redistributive impacts at the social and federative levels. Regarding international recommendations, the main reference is OECD/KIPF (2014), which gathers empirical results attesting to the redistributive inefficiency of special tax rates on goods and services.

25. This standard rate is also compatible with special rates (5 per cent or 18 per cent) applicable to a restricted list of goods and services (items in the basic foods basket, medications, public transportation, health care and education).

population's consumption basket—, would have to be altered to transfer per capita values, according to the eligibility criteria of the new non-contributory transfers. Second, the directive to not increase the tax burden would have to be scrapped entirely.

In light of these considerations, Table 5 presents various budget scenarios that combine the unification of social benefits with GST revenues. The budget resources resulting from the unification of benefits are exactly the same as discussed in the previous subsection, adding up to BRL58.3 billion (or 0.8 per cent of GDP). The additional funds depend on the standard rate of the new GST.

**TABLE 5.** Financing through the unification of benefits and GST revenues

Budget sources	Resources available according to different standard GST rates					
	(BRL millions)			(% of GDP)		
	26.9%	28.0%	30.2%	26.9%	28.0%	30.2%
Unification of benefits	58,305.6	58,305.6	58,305.6	0.8	0.8	0.8
GST revenues	29,219.1	61,700.6	121,702.7	0.4	0.9	1.7
<b>Total</b>	<b>87,524.7</b>	<b>120,006.2</b>	<b>180,008.3</b>	<b>1.2</b>	<b>1.7</b>	<b>2.5</b>

Source: Authors' elaboration.

Our estimates suggest that the GST standard rate would have to reach 28 per cent by the end of the transition period in order to generate additional revenues amounting to BRL61.7 billion (0.9 of GDP) to finance the budget scenario of BRL120 billion per year (1.7 per cent of GDP). For the budget of BRL180 billion per year (2.5 per cent of GDP), the estimate for the GST standard rate is even higher at 30.2 per cent.

It is evident that such a model would face strong political opposition. First, standard rates of 28 per cent or 30.2 per cent are high according to international standards. In OECD countries, the highest rates for similar taxes are of 27 per cent in Hungary and 25 per cent in Denmark, Norway and Sweden (OECD 2019). Second, the burden would fall proportionally more on the bottom half of the income distribution. The share of income spent on household consumption decreases as income grows, and thus consumption taxes are slightly regressive.

Third, one of the main virtues of the new GST is its transparency, as it figures explicitly in bills of sale to final consumers, but this degree of visibility has the collateral effect of making it unpopular among taxpayers. In addition, there are the usual counterpoints to tax reform, such as those originating from economic sectors that currently enjoy tax breaks and from representatives of state and local governments, who resist losing their autonomy in granting tax benefits.

Overall, the budget scenarios in Table 5 require surmounting political resistance to a more efficient and transparent model for the taxation of goods and services. The downside is the high tax rate and the fact that most of the burden will be borne by the lower and intermediate deciles of the income distribution, rather than the top. A possible way to avoid such high rates and rebalance the tax burden would be to combine GST revenues with the progressive taxation of income and wealth, as we will see in the following subsection.

Before that, however, it is worth discussing some additional aspects related to the use of GST revenues to finance non-contributory transfers. It is possible to imagine two alternative financing structures. The first is to include the GST among the sources of funding of a FCEP,

to be managed by the federal government. For example, GST rates of 28 per cent or 30.2 per cent would result from the combination of the standard rate of 26.9 per cent to fund federal, state, and local budgets, plus additional rates of 1.1 per cent or 3.3 per cent earmarked to the FCEP. It would also be necessary to exclude the FCEP from the spending ceiling, because the additional pressure of an expenditure financed through GST revenues (of BRL61.7 or BRL121.7 billion in each of the scenarios) would absorb almost all or even surpass the fiscal margin projection for the following years (of around BRL72 billion).

A second alternative is a national fund. PEC 45/2019 introduces an innovation in the Federal Constitution, which is a national tax—GST—to be managed by the National Management Committee (*Comitê Gestor Nacional—CGN*), composed of representatives from all three federative entities. The Committee would be responsible for managing the centralised tax collection, as well as operationalising the disbursement of revenues to federative entities, after discounting the refunds for the poorest people and other credit compensations.

Therefore, it would be necessary to amend the legislation to institute a national-level FCEP with access to GST revenues as one of its sources of funding. This national fund would be free from the constraints of the federal government's spending ceiling (or, in other words, its revenues could be transformed into expenditures), with the possibility of being supplemented by contributions from the federal government (excluded or not from the spending ceiling), similar to what happens today with the Fund for the Maintenance and Development of Basic Education (*Fundo de Manutenção e Desenvolvimento da Educação Básica—FUNDEB*). This supplement would be equal to the total resources resulting from the unification of social benefits.

Both financing alternatives require significant changes in legislation through Constitutional Amendments. The points raised in the previous subsection remain valid, regarding political resistance and the time gap between legislative change and the full availability of budget resources. However, the time gap would be much greater: the tax reform foresees a 10-year transition period, starting in the year following the approval of the GST supplementary law, but it is possible to shorten this period in Congress.

### 6.3 UNIFICATION OF BENEFITS PLUS FUNDING FROM THE GST AND INCREASED PROGRESSIVE TAXATION OF INCOME AND WEALTH

Taxes on income and wealth can be converted into a complementary source of funding for non-contributory transfers, with a potential dual role: *i*) preventing the standard GST rate from reaching levels that are too high; and *ii*) rebalancing the tax burden, re-shifting it towards the top of income distribution. In this case, it would be necessary to pass a tax reform to institute a more consistent, broader-based model of taxation by restraining tax deductions and exemptions and closing tax loopholes. Therefore, we start this subsection by presenting a brief diagnosis of the shortcomings of Brazil's current income tax model and then we estimate revenues that could be generated by a reform following these guidelines.

- The statutory rates of the corporate income tax (CIT) are too high (up to 34 per cent), but there is a wide variety of deductions and special regimes that, in most situations,

greatly reduce effective rates—whose average is around 23.4 per cent.<sup>26</sup>—while generating arbitrariness in the tax treatment within and among economic sectors.

- Asymmetries in the tax treatment between the various sources of capital income, with an unfavourable bias towards active business assets. CIT rates (up to 34 per cent) are frequently higher than those on capital gains (15 per cent), financial investments (usually ranging from 15 per cent to 22.5 per cent, in addition to countless exemptions) and PIT's top rate (27.5 per cent). Asymmetries occur even for the same source of income, as is the case of rents received by an individual, which might be exempt when this person is a shareholder of a real-estate investment fund, or submitted to rates of up to 27.5 per cent in the PIT, if real estate is registered to the individual.
- Asymmetries in the treatment of small businesses and self-employed workers in relation to wage workers. Poorly calibrated parameters in the special regimes for small and medium-sized enterprises (SMEs), allied with the exemption of distributed dividends and high payroll taxes, generate incentives towards shifting from overtaxed labour income to undertaxed capital income: workers artificially become business partners or business owners for tax avoidance purposes. Under the conventional wage regime, the tax wedge represents, on average, 42.4 per cent of labour costs (adding up social contributions, payroll taxes and the PIT). Partners organised in small and medium-sized enterprises (SME) special regimes can significantly reduce this cost. In extreme cases of activities of a highly individualised character, with low operational costs, the tax wedge of service providers falls to an average of 8.1 per cent for small businesses and 17.9 per cent for medium ones, which violates the basic tax principle of horizontal equity.
- A high volume of deductions and exemptions that have no social or economic justification.

Far from being exhaustive, this brief list of distortions shows that Brazil's current income tax model is fragmented, incoherent and unjust, discouraging investment in active business assets (in favour of other types of assets) and leaving several loopholes for tax elision. Faced with this diagnosis, there is room to expand the collection and the progressivity of income taxation, as long as care is taken not to reproduce or even amplify current distortions.

The idea of expanding the progressivity of income taxation is usually associated with the restriction of deductions and/ the introduction of new income tax brackets with higher marginal rates. However, under the current framework of Brazil's PIT, these measures would have very limited redistributive and revenue-increasing effects, because they would apply only to so-called 'taxable income', thereby excluding dividends and income from financial investments, which are the main sources of income of the rich. The increased burden would fall disproportionately on wage workers, and this would be partially counterproductive as it would strengthen the incentives to artificially report labour income (which is taxable) into capital income (which is exempt from PIT).

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26. Based on the authors' own calculations using data available at <<http://receita.economia.gov.br/dados/receitadata/estudos-e-tributarios-e-aduaneiros/estudos-e-estatisticas/principais-fichas-dipj>>. Our calculations relative to 2013 (last available year) indicate a total tax amount of BRL185.5 billion (adding up the IRPJ, CSLL and withholding tax on the allowance for corporate equity), or 23.4 per cent of the BRL792 billion profit estimate.

On the other hand, the mere reinstatement of dividend taxation would not solve the problem by itself, as it would still maintain the misalignment of rates, disincentives to investment in active business assets and gaps that can be exploited for tax elision purposes. If dividends were subject to the PIT's progressive schedule, for example, businesses would exploit alternative mechanisms to distribute profits, such as share buybacks.

In addition, the top statutory rate on dividends, combining CIT and PIT, would be over 50 per cent, which is too high for international standards. In other words, if profit is taxed up to 34 per cent at the corporate level, and on the 66 per cent remaining a 27.5 per cent rate is applied at the personal level, we reach the top taxation of 52.2 per cent. Only five OECD countries have rates that are close to or above this percentage, and the average in these countries is of 41.6 per cent, subdivided into an average rate of 23.3 per cent at the corporate level and a 23.9 per cent rate at the personal level (applied on the remaining 76.7 per cent profits).<sup>27</sup>

International experience suggests that Brazil has taxes that are too high at the corporate level when compared to OECD countries, where there is a more balanced taxation between personal and corporate levels. Most of these countries apply mechanisms to integrate the taxation of profits at the corporate and personal levels and to ameliorate the double taxation of dividends, but practically none of them make dividends completely tax-free. In Brazil, taxes on profits vary according to the size of the company and can reach up to 34 per cent, which today is higher than even the highest OECD rates of 32 per cent (in France, scheduled to be reduced to 25 per cent in 2022), or 31.5 per cent (in Portugal). On the other hand, Brazil grants full exemption for dividends at the personal level, something only found in Estonia and Latvia. The result is a model filled with anachronistic extremes, which provides incentives for businesses to distribute dividends instead of retaining and reinvesting their profits.

These findings reinforce the idea that, rather than piecemeal measures, Brazil must overhaul its income taxation system in line with international practices: *i*) greater isonomy in the tax treatment between labour income and income from active business ownership (including small businesses); *ii*) greater isonomy in the taxation of different sources of capital income (dividends, financial investments and capital gains); and *iii*) the adoption of a consistent mechanism to integrate CIT and PIT, with rates in line with international standards.

The specialised literature discusses some alternative models. One possible approach is introducing comprehensive taxation of income, subjecting the entirety of the taxpayer's income to the PIT's progressive schedule (whether they result from labour or capital ownership), in an integrated manner regarding the CIT. These procedures include: *i*) the adoption of an accrual criterion to compute the shareholder's earnings, such that the relevant concept is attributed income (regardless of profits being withheld or distributed as dividends), to deal with the issue of locking in profits; *ii*) the establishment of a credit system to provide the complete integration with CIT, by allowing compensation of the taxes already paid at the corporate level (that is, the CIT is treated as a kind of forward payment that generates credits, to be compensated out in the PIT); *iii*) monetary correction mechanisms to tax only the real gains from financial investments; and *iv*) mechanisms for monetary correction and retroactive calculation of owed taxes to be paid when the capital gain is realised, avoiding a lack of liquidity when these gains are taxed on the basis of accrual.

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27. Data available at: <[https://stats.oecd.org/Index.aspx?DataSetCode=TABLE\\_I14](https://stats.oecd.org/Index.aspx?DataSetCode=TABLE_I14)>.

This approach hopes to operationalise the progressive taxation of the increase in purchasing power of the taxpayer's wealth, according to the basic principles of the PIT's comprehensive model. Given that all income is included in the tax base and submitted to progressive taxes, a uniform treatment is preserved on the various sources of income. The disadvantage is that the procedures required are difficult to operationalise and, in practice, no country has managed to fully implement all of them.

A second alternative, which is more feasible from an operational standpoint, is the 'dual model' initially adopted in Nordic countries during the 1990s, after constant revisions, and which has inspired countless tax reforms around the world, such as Chile's 2014 reform. This model preserves a dual structure, providing for different treatments between labour income, which is subject to the PIT's progressive tax schedule and capital incomes. The latter are taxed more broadly through linear, well-aligned rates. On the other hand, in the 'semi-dual' model adopted in Brazil, the tax base is restricted by countless exemptions and misaligned rates.

A possible setup for a dual model includes establishing a single rate of, for example, 20 per cent on a broad base of capital income at the personal level (dividends, financial investments and capital gains) and on corporate profits. In the specific case of income attributed to the shareholder (in other words, the sum of dividends and capital gains according to the accrual criterion), an allowance might be granted (or not) up to capital's normal rate of return. Thus, normal profits would be taxed exclusively at the corporate level at the 20 per cent tax rate, in alignment with the taxation of financial investments and capital gains. The rate on excess profit would reach 36 per cent, considering the 20 per cent paid at the corporate level combined with 16 per cent at the individual level (that is,  $0.8 * 20$  per cent, corresponding to the rate on the shareholder's income above normal return). At the end of the day, integrated taxes on profits would vary between 20 per cent and 36 per cent, according to a higher or lower volume of excess profits. The symmetry of this model presupposes that the top rate of the PIT's progressive table, which is applied to labour income, is close to 36 per cent.

It would also be necessary to introduce a mechanism to split the income of owners or shareholders of SMEs into normal and excess return. The normal return is considered capital income, and is subjected to the CIT rate (20 per cent) and exempt when distributed to the individual. On the other hand, excess return must be considered as labour income and submitted to the PIT's progressive rates. There would also be an option for self-employed workers or family-owned businesses not to adopt this special regime and submit to the PIT's progressive table instead. The result of these mechanisms is that both the taxation of income attributed to shareholders or business owners (combining the corporate and personal levels, regardless of the size of the company) as well as the taxation of self-employed workers or wage workers would become more aligned, with a top rate of 36 per cent.<sup>28</sup>

The great advantage of this dual model is combining, on the one hand, the simplicity and functionality of withholding tax with linear rates for capital incomes, and, on the other, an alignment of rates that ensures a more equitable treatment across the various sources of income. The main experiences of the dual model suggest that its adoption has promoted

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28. The main experience of this dual model is Norway's, after the 2006 reform, with a capital rate at the personal level of 28 per cent, taxation of shareholder income at between 28 per cent and 48.2 per cent ( $28 \text{ per cent} + 0.72 * 28 \text{ per cent}$ ) and progressive table rates ranging from 28 per cent to 48 per cent. The method to calculate the normal capital return is similar to what is currently used in Brazil for the allowance of corporate equity and consists of applying a long-term interest rate on the company's equity.

gains in tax collection due to the homogenisation and broadening of the tax base, as well as increased its progressivity by promoting the revision of tax benefits granted to capital incomes and the closure of tax loopholes.

The main criticisms are related to the maintenance of linear rates for capital incomes and the allowance that exempts the shareholder's normal return, even if there are a series of theoretical justifications to tax it at some level. These characteristics constrain the degree of progressivity of the PIT at the top of the income distribution, which is particularly relevant in a country with a level of inequality as high as Brazil. Therefore, it is justifiable for the dual model to be reinforced by a wealth tax if the goal is higher progressivity, unlike the comprehensive model, which may dispense with wide-reaching wealth taxation (see Sorensen 2020; Barreix, Roca and Velavos 2017; Orair and Gobetti 2018).

Unfortunately, the fiscal data currently available to the general public do not allow us to simulate the impacts of the comprehensive model more accurately. Thus, we will limit ourselves to presenting estimates that are based on two dual model benchmarks:

- a. Model 1: Unification of the rate on corporate profits and the main personal capital incomes at 20 per cent and increase in the top rate of the PIT's progressive schedule to 35 per cent.
- b. Model 2: 22.5 per cent rate on profit and personal capital incomes, and a 40 per cent top rate in the PIT's progressive schedule.

The first alternative means bringing Brazil's rates closer to countries such as Chile and Mexico, while the second would imply slightly lower rates than the OECD average.

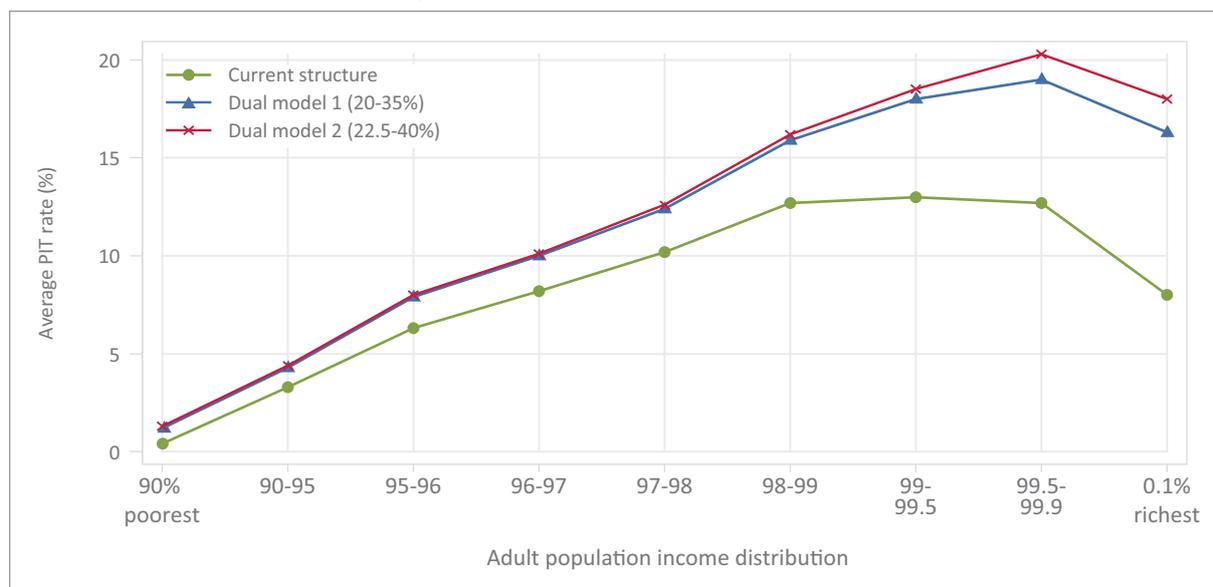
In addition to the realignment of rates, estimates foresee a revision of deductions and exemptions that increase the taxable basis. The first of these measures is the unification of medical or instruction expenses, under a ceiling of BRL6,000 per beneficiary. The second is the expansion of the taxable basis of capital incomes to include dividends and certain financial investments that are now exempt. To provide a realistic scenario, we admit that revisions in deductions, special rates and exemptions will not fully occur. In other words, we have opted to maintain a set of exceptions that are justifiable and/or politically sensitive, such as, for example, deductions of social security contributions and exemption of savings accounts earnings. On the other hand, we introduce a deduction that exempts part of the income attributed to shareholders (the rate-of-return allowance) to replace a similar mechanism that exists at the corporate level, and which is more susceptible to tax planning practices (the allowance for corporate equity).

Ideally, special regimes for SMEs should migrate to simplified base calculation methods based on value added or cash flow (instead of their gross revenue) and adopt mechanisms to split labour and capital incomes, such as in the main experiences of the dual system. As there is significant resistance to such changes, we have considered a mechanism that is easier to put in practice: consider as normal profits the percentage that is currently presumed by legislation. Therefore, the dividends distributed up to the limit of this normal profit are considered exempt at the individual level, while surplus dividends are taxed normally in SMEs, including applying the capital income tax at the personal level, or submitting them to the PIT's progressive rates for family businesses and self-employed workers. Using this method, a low-

income service provider would be tax exempt at the personal level and the high-income service provider would have a higher share of their income taxed at a rate that is aligned to the top rate of the PIT's progressive table, which is what happens with wage workers. Therefore, we are able to maintain the simplicity of special regimes, with greater balance in the taxation of income between businesses of different sizes and between the earnings of shareholders/business owners and self-employed and wage workers, reducing the incentives for income transfiguration phenomena.<sup>29</sup>

Figure 11 presents average PIT rates for the top 10 per cent of the income distribution under the current structure and in two simulated dual models, highlighting their increased progressivity. The average effective rate would increase from 7.6 per cent to 11 per cent in the first dual model or 11.6 per cent in the second, with most of this increase concentrated on the richest 1 per cent of the population. However, it is necessary to point out that although the simulated models attenuate the loss of progressivity of the richest .01 per cent, they do not eliminate it. Appendix 1 provides all data used to elaborate the figure.

**FIGURE 11.** Average PIT tax rates across the income distribution under the current structure and in two simulated models—Brazil, 2017



Source: Authors' elaboration based on the Large Numbers from PIT 2018 (2017 calendar year).

Table 6 summarises the revenue impact of these simulations. It is worth noting that the design of dual models includes a reduction in the statutory CIT rate, with a subsequent decrease in revenue. Some of these losses could be neutralised by broadening its taxable basis, whether through revisions in the allowance for corporate equity and of special regimes for SMEs, or through supplementary measures. Rate reductions provide a window of opportunity to move towards a more broad-based model of CIT. Even so, our estimates still point to the

29. As an example, under the actual regime for middle-sized businesses, profits are 'presumed', and taxes are calculated based on a percentage of revenue—currently at 12 per cent for industry and 32 per cent for services. However, profits are often above the presumed amount. This surplus is distributed as tax-exempt dividends to shareholders or business owners and is not taxed, even at the individual level. If distributed dividends up to the limit of presumed profits were taxed at the corporate level at 20 per cent and surplus dividends at 36 per cent (20 per cent + 0.8\*20 per cent), or submitted to progressive rates of up to 35 per cent, they would be taxed similarly to wages. Of course, some difference would remain due to payroll taxes, whose squaring off would require additional reforms.

need to compensate the remaining revenue losses with revenues from the PIT. After this compensation, we reach the estimates in Table 6, of additional revenues of 0.9 per cent or 1.5 per cent of GDP depending on the income tax model adopted.

**TABLE 6.** Revenue estimates for PIT reforms—Brazil, 2017

Reforms	PIT revenue (BRL millions)		CIT compensation (BRL millions)	Total revenue	
	Taxable income	Withholding tax		BRL million	% of GDP
Dual model 1 (20.0%-35.0%)	32,235	77,645	-47,176	62,703	0.9
Dual model 2 (22.5%-40.0%)	37,792	89,594	-21,508	105,877	1.5

Source: Authors' elaboration based on the Large Numbers from PIT 2018 (2017 calendar year).

There is an additional issue regarding the wealth tax, which might yield additional revenues and reinforce tax progressivity at the top of the distribution. This type of tax has been garnering increasing interest due to the renewed focus on the role of taxes in regulating the concentration of income and wealth at the top. This reflects recent international developments in rising inequality and the advancement of the global fiscal transparency agenda, which received new tools to prevent capital incomes and wealth from being hidden offshore, minimising the degree of distortion of such taxes.<sup>30</sup>

There are countless possible designs for a personal wealth tax. In the interest of simplicity, we will detail two scenarios based on concrete experiences. The first is based on the tax adopted in Spain, where progressive rates from 0.2 per cent to 2.5 per cent are applied on wealth that exceeds a relatively high exemption threshold (EUR700,000 or BRL2,526,082 according to 2017's average exchange rate). The second is based on Norway, which has a single 0.85 per cent rate and a much lower exemption threshold (EUR157,833, or BRL569,570). Both experiences illustrate the dilemma between a more progressive tax with a limited base and less progressive one with a broader taxpayer base.<sup>31</sup>

Results are presented in Table 7, based on a proxy for the taxable basis and an estimate of 80 per cent revenue efficiency.<sup>32</sup> That is to say, we have adopted the usual procedure in the literature—admitting that actual revenue will not reach its full potential due to uncontrollable aspects, such as tax evasion and avoidance. Curiously, both options lead to similar revenue

30. For more on these recent developments, see OECD (2018). The data from international experiences of wealth taxes, which we will discuss further, is based on this publication and are from 2017.

31. Switzerland is another OECD country that has a broad-based wealth tax, with revenues close to 1 per cent of GDP. This is partially explained by its substitutive role, as the country does not tax capital gains (OECD 2018). In Latin America, the main experiences are taxes with progressive rates in Argentina (0.5 per cent to 1.25 per cent) and in Uruguay (0.4 to 0.7 per cent) and a single rate in Colombia (1 per cent), whose revenues represent 0.2 per cent, 0.4 per cent and 1 per cent of GDP, respectively. In the last two countries, the higher revenue is explained mainly by the inclusion of businesses in the tax base.

32. The proxy corresponds to the average of taxpayers' net wealth in the PIT by hundredths in the income distribution, which underestimates the values of a significant share of the assets (which are underdeclared or declared according to their purchase value instead of current value). This proxy is reasonable for the purpose of approximating the taxable basis, which likewise underestimates the asset values, due to both operational difficulties in evaluating assets that are not negotiated often, and the existence of special rules, motivated by tax, social or economic concerns (such as special exemption limits for couples or distinct rules for primary residence, pension funds or business assets, etc.).

estimates: BRL20 billion or 0.3 per cent of GDP in the linear rate, broad-base model (1.7 million taxpayers, corresponding to the richest 1.16 per cent adult population in the country); and BRL21.8 billion or 0.33 per cent of GDP in the progressive rates, restricted base model (240,700 taxpayers, or the 0.16 per cent richest adult population in the country).

**TABLE 7.** Revenue estimates for wealth tax—Brazil, 2017

Wealth brackets (BRL million)	Taxpayers	Declared wealth (BRL millions)		Model 1: Linear rate and broad base				Model 2: Progressive rates and limited base			
				Rates (%)		Revenue (BRL millions)		Rates (%)		Revenue (BRL millions)	
				Total	Average	Marginal	Average	Potential	Estimate	Marginal	Average
0.6 a 2.5	1,521,558	1,601,420	1.1	0.85	0.37	5,852	4,682	0.00	0.00	0	0
2.5 a 3.1	53,994	151,118	2.8	0.85	0.67	1,009	807	0.20	0.02	32	26
3.1 a 3.7	41,324	135,979	3.3	0.85	0.70	945	756	0.30	0.05	73	59
3.7 a 4.9	39,826	180,451	4.5	0.85	0.74	1,331	1,065	0.50	0.16	285	228
4.9 a 7.3	40,383	241,759	6.0	0.85	0.76	1,849	1,479	0.90	0.31	758	607
7.3 a 12.1	29,466	281,002	9.5	0.85	0.80	2,238	1,791	1.30	0.63	1,758	1,407
12.1 a 21.7	12,499	198,041	15.8	0.85	0.82	1,620	1,296	1.70	0.99	1,958	1,566
21.7 a 40.9	18,599	578,017	31.1	0.85	0.83	4,818	3,855	2.10	1.46	8,428	6,742
> 40.9	4,633	625,953	135.1	0.85	0.85	5,297	4,238	2.50	2.23	13,966	11,173
<b>Total</b>	<b>1,762,282</b>	<b>3,993,742</b>	<b>2.3</b>	-	<b>0.62</b>	<b>24,959</b>	<b>19,967</b>	-	<b>1.14</b>	<b>27,260</b>	<b>21,808</b>

Note: Values in 2017 BRL.

Source: Authors' elaboration based on the Large Numbers from PIT 2018 (2017 calendar year).year).Note: Values in 2017 BRL.

Of course, these are imperfect estimates based on scarce available data, and revenue depends on factors related to the design and implementation of the tax and levels of income and inequality. Even so, the results are plausible and do not deviate from the revenues in reference countries: 0.18 per cent of GDP in Spain and 0.43 per cent of GDP in Norway (OECD 2018).

Thus, we might present some possible funding alternatives for non-contributory transfers through the unification of social benefits, GST revenues and a greater or smaller degree of progressive taxation of income and wealth. Tables 8 and 9 illustrate budget sources compatible with BRL120 billion social programmes (1.7 per cent of GDP) and BRL180 billion (2.5 per cent of GDP).

**TABLE 8.** Possible funding for non-contributory transfers of BRL120 billion through the unification of benefits, GST revenues and progressive taxation of income and wealth (as a percentage of GDP)

Budget sources		Required GST rate				
		28.0%	25.9%	25.0%	24.4%	23.6%
<b>Unification of benefits</b>		<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>
GST revenues		0.9	0.0	-0.3	-0.6	-0.9
Dual income tax model	20.0-35.0	-	0.9	0.9	-	-
	22.5-40.0	-	-	-	1.5	1,5
Wealth tax		-	-	0.3	-	0.3
<b>Total budget</b>		<b>1.7</b>	<b>1.7</b>	<b>1.7</b>	<b>1.7</b>	<b>1.7</b>

Source: Authors' elaboration.

**TABLE 9.** Possible funding for non-contributory transfers of BRL180 billion through the unification of benefits, GST revenues and progressive taxation of income and wealth (as a percentage of GDP)

Budget sources		Required GST rate				
		30.2%	27.9%	27.1%	26.4%	25.6%
<b>Unification of benefits</b>		<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>
GST revenues		1.7	0.8	0.5	0.2	-0.1
Dual income tax model	20.0-35.0	0.9	0.9	-	-	-
	22.5-40.0	-	-	1.5	1.5	1.5
Wealth tax		-	-	0.3	-	0.3
<b>Total budget</b>		<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>	<b>2.5</b>

Source: Authors' elaboration.

The basic reasoning behind these scenarios is that the larger the weight of income taxation (and eventually wealth taxation), the lower the required GST rate will be. If the financing of non-contributory transfers cannot count on the taxation of income and wealth, the standard GST rate would have to go up to 28 per cent in the BRL120 billion per year scenario or 30.2 per cent in the BRL180 billion per year scenario. To prevent such high GST rates and refocus the burden on the top of the distribution, one possible solution could be the expansion of income and wealth taxes. GST rates could be reduced down to 23.6 per cent in the BRL 120 billion per year scenario or 25.6 per cent in the BRL180 billion per year scenario.

In the extreme cases, revenue gains resulting from the taxation of income and wealth far exceed the cost of non-contributory transfers and this surplus is channelled to reduce the standard GST rates. This compensation mechanism could be included in the GST reform proposal through a small change in the legal text. According to the transition mechanisms described in the original tax reform proposal, the GST rates must be calibrated to only neutralise the loss of revenue resulting from ending 5 taxes (IPI, PIS, Cofins, ICMS and ISS) without altering (or as little as possible) the global revenue estimate. It would thus be sufficient to establish that the calibration of rates should be carried out in such a way as to neutralise the revenue losses, net of additional measures to increase revenue. This amendment to the original proposal could also establish guidelines for additional measures to focus on increasing revenue through income and wealth taxes. In case there is progress in this agenda, revenue gains would be considered to calibrate the GST, and the practical result would be for the GST rate to remain lower than its neutral estimate (26.9 per cent) at the end of the transition period.

The points raised in the previous section on operational challenges—more specifically, the need for legislative changes and the time gap until the full availability of resources—as well as political resistance remain valid, perhaps even more so. The greatest difficulty is related to the approval of reforms that require substantial changes to income tax legislation and the regulation, through supplementary law, of the wealth tax, which is already foreseen in the Federal Constitution (Art. 153, subparagraph VII).

If we admit, hypothetically, that it is possible to carry out these reforms, the financing structure options remain the same: *i*) institutionalisation of the FCEP, managed by the federal government and excluded from the spending ceiling; or *ii*) a national FCEP under the purview of the GST National Management Committee, which, in addition to GST revenues, would receive extra resources from the federal government, which are also exempt from

the spending ceiling. The inclusion of wealth tax revenues among the FCEP's sources of funding would happen more directly, as it is already foreseen in the Federal Constitution. It would be necessary to alter the earmarking of a share of PIT revenues to be destined to the fund; or, instead of simply readjusting the PIT rates, to create a kind of social contribution that is not shared with states and municipalities. Regardless of the path chosen (both are equivalent), this reallocation of resources would face even fiercer opposition by state and local governments, as it represents a significant share of revenue from income taxes (up to a third of total PIT revenues).

The choice for any of the scenarios described depends on the correlation of political forces, negotiation capacity and social preferences. This paper does not aim to provide definitive answers to these questions, but merely contribute to the debate by discussing various alternatives, pointing out their specificities and implementation barriers.

Finally, it is worth noting that our distributive impact simulations consider only the gross income reported in PNAD; in other words, they do not consider eventual reforms that render taxation more progressive. If such reforms do come to pass, the redistributive effects of the redesign of non-contributory transfers would be even greater than those detailed in Section 4. This is a gap that we intend to address in future studies.

## 7 CONCLUSION

The goal of this paper was to simulate alternative models of non-contributory income transfers in Brazil, estimating their costs and possible impacts on poverty and inequality, as well as evaluating operational and budget challenges to implementation. .

This debate is framed by the enactment, through Law No. 13.982/2020, of the Emergency Grant, a watershed moment for non-contributory social transfers in Brazil due to its broad-based coverage and generous benefit levels. Expenditures with the Grant—over 7 per cent of GDP per year—are not sustainable in the long term, but its success has amplified pressures to overhaul and expand the current *Bolsa Família* programme.

We have explored trade-offs between coverage, benefit value and total costs to simulate the distributive effects of three models of non-contributory transfers: *a)* targeted transfers, similar to the current *Bolsa Família* model, albeit with per capita benefits and eligibility lines almost twice as high as current values; *b)* universal transfers in the vein of a basic income; and *c)* hybrid transfers, combining a universal component for children with a targeted component for poor adults.

Our simulations encompassed three budget scenarios: *i)* BRL 58 billion per year, which is fiscally neutral—in other words, resources could be obtained through the reallocation of current benefits (including *Bolsa Família*, *Abono Salarial*, *Salário Família* and the tax deduction per dependent in the PIT); *ii)* BRL 120 billion per year, a compromise between the extreme scenarios; and *iii)* BRL 180 billion per year, which would bring Brazilian expenditures with this type of programme closer to what is observed in OECD countries.

In all simulations, coverage would be significantly higher than what is currently observed, leaping from 14 million households in *Bolsa Família* to at least 26 million households in the BRL58 billion per year targeted model. At most, the universal benefit model would by

definition cover all 73 million households in Brazil, regardless of the budget scenario. As expected, given a fixed budget, average benefits are highest in the targeted model and lowest in the universal model, while the hybrid model offers a middle road.

Simulations were carried out based on the 2019 PNADC, and the population projection for 2021. Eligibility for the new benefit models was determined considering only formal earnings reported to the survey. We estimated targeting indicators (incidence and concentration coefficients), as well as effects on inequality (measured through the Gini coefficient) and on poverty (measured by poverty rates according to the PPP USD1.90, PPP USD3.20 and USD PPP5.50 per day World Bank lines), and compared results to our estimates for the Emergency Grant and our adjusted estimate for the current *Bolsa Família*.

Results illustrate quite well the trade-offs of a universal basic income. The targeted model and, to a lesser degree, the hybrid one, would entail reductions in poverty and inequality in comparison with the current *Bolsa Família* in all three budget scenarios, with increasing effects according to the availability of resources. For example, in the BRL58 billion per year scenario, the Gini coefficient would decrease 1.3 per cent in the targeted model and 0.8 per cent in the hybrid model, whereas poverty, measured by the PPP USD1.90 per day line (BRL150 per month) would decrease 0.6 p.p. and 0.3 p.p., respectively. In the BRL180 billion per year scenario, Gini would decrease by 7.2 per cent in the targeted model, and under the same scenario poverty would be almost reduced to zero, while the hybrid model would slash inequality by 6 per cent and poverty by 3 p.p., from 6.2 per cent (with *Bolsa Família* in 2019) to 3.2 per cent.

The universal model, on the other hand, would entail an increase in poverty measured by all three international poverty lines in the most modest scenario, and it would only be unequivocally more redistributive than the current *Bolsa Família* in the BRL180 billion per year scenario, obtaining ambiguous outcomes in the intermediary budget scenario. Therefore, some degree of targeting (through a targeted benefit or the targeted component of the hybrid model) is the best option if the choice is indeed to work with budget scenarios that are similar to the ones presented in this paper.

As long as a highly progressive model is adopted (exemplified in this paper by the targeted or hybrid models), the most important factor for the reduction of poverty and inequality is the total programme budget. Consequently, further analysis should assess whether any of the models could generate stronger political support to maximise the budget allocated to non-contributory transfers.

The creation of a new non-contributory transfer programme that constitutes a significant increase in coverage imposes myriad operational challenges. Even if the new programme were to maintain a targeted design, significant coordination efforts with municipalities will be needed to register new beneficiary households and update those which are already enrolled in the Single Registry, but whose information is outdated.

The migration to an exclusively digital registration model should be examined carefully, as it could represent an access barrier to the most vulnerable population, increase measurement errors and, eventually, the possibility of fraud, in addition to demobilising the inter-federative cooperation of social assistance. However, there are possible advantages in the computerisation of access to the Single Registry, as long as these limitations are carefully considered and if such a process is carried out in a complementary manner, instead of simply replacing in-person registration altogether. In the case of benefits with universal

components (the hybrid and universal models), a streamlined approach to collect data on household composition, preferably based on refining existing administrative records, is perhaps the best alternative.

Regarding the operationalisation of payment, the current arrangement used by *Bolsa Família* (combining payments via social card with deposits in simplified Caixa banking accounts) can be supplemented with new digital payment strategies (such as those used by Caixa itself in the payment of the Emergency Grant) and, especially in the models with a universal component, deposits in checking accounts in other banks. The use of the National Civil Identity has the potential not only to facilitate the identification of beneficiaries, but also facilitate digital payments with adequate data security.

Finally, the difficulties to finance all budget scenarios are worthy of note. Even the most modest BRL58 billion per year scenario—which could be financed with resources resulting from the unification of existing programmes and would therefore be fiscally neutral—presents significant hurdles: eliminating personal income tax deductions by dependents raises revenues that would theoretically need to be shared with other federative bodies; the unification of programmes financed by tax expenditures would not open enough fiscal space for new expenses; and changes in the PIT legislation regarding deductions by dependent, or in the *Abono Salarial*, would only yield budget resources for the new programme after about two years. Ways around such hurdles would be limited and politically difficult, some requiring Constitutional Amendments.

A possible alternative, which is also valid for the more generous budget scenarios, would be attaching the new social programme to the negotiation of the tax reform bill, currently under analysis in Congress, which already foresees, along with the creation of a modern tax on surplus value, an income transfer mechanism for the poorest people, as compensation for the slow phasing out of current fiscal benefits. With some modifications, this mechanism could be transformed into one of the pillars for the reformulation of non-contributory transfers.

The standard rate estimated for the GST would be of 26.9 per cent and could result in around BRL29 billion in additional funds for a cash transfer programme. To reach budgets of BRL120 billion or BRL180 billion per year, starting from the baseline budget of BRL58 billion resulting from the unification of social programmes, the GST rate would have to jump to 28 per cent or even 30.2 per cent, higher than the highest rates of this kind in OECD countries. Funding could then combine the GST with measures to increase effective rates in the income taxes of the richest population, close the gaps that allow for fiscal planning and tax wealth at levels comparable to those observed in other countries. If this actually happened, then the redistributive effects of these reforms would be even higher than what we estimate in this paper.

Ultimately, we conclude that increased effectiveness in reducing poverty and inequality depends on a combination of strongly progressive benefit design (illustrated here by the targeted and hybrid models) and transfer budgets considerably more generous than current expenditures (here represented by the BRL120 and BRL180 billion per year scenarios). Modest budget expansions (as in the BRL58 billion per year scenario) translate into modest improvement in poverty and inequality indicators.

The design of non-contributory transfers, the level of benefits and coverage, the framing of operational issues and the conundrum of finding a robust financing solution during an adverse economic scenario and faced with significant institutional challenges are all issues that should be subjected to technical analysis. However, they will ultimately be answered in the political arena, where disputes, pacts and social preferences will carry significant weight.

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## ANNEX 1. INCOME DISTRIBUTION AND AVERAGE RATES OF PIT TAXPAYERS ACCORDING TO THE CURRENT STRUCTURE AND POST-REFORM SIMULATIONS—BRAZIL, 2017

Percentiles of the income distribution	Taxpayers (thousands)	Taxable income				Tax withheld income		Exempt income	Total income	
		Value (BRL millions)	Deductions (BRL millions)	Calculation basis (BRL million)	Average rate (%)	Value (BRL millions)	Average rate (%)	Value (BRL millions)	Value (BRL millions)	Average rate (%)
<b>Current structure</b>										
99.9 - 100	152.9	536,276	128,550	434,675	21.1	737,846	15.9	1,615,878	2,889,999	8.0
99.5 - 99.9	608.3	289,307	52,483	240,866	20.0	87,290	14.8	179,920	556,518	12.7
99 - 99.5	761.8	201,826	36,762	165,996	17.9	40,730	15.1	81,777	324,333	13.0
98 - 99	1,522.2	147,836	28,481	119,717	15.7	23,852	15.0	40,257	211,946	12.7
97 - 98	1,522.7	106,087	23,255	83,020	12.4	14,510	13.6	27,381	147,979	10.2
96 - 97	1,522.4	87,470	21,106	66,516	9.7	10,796	12.6	21,127	119,393	8.2
95 - 96	1,522.7	72,886	19,519	53,489	7.0	8,489	11.2	14,183	95,558	6.3
90 - 95	7,612.6	50,803	14,385	36,501	3.3	5,118	8.6	8,977	64,898	3.3
0 - 90	14,144.2	22,499	7,429	15,645	0.5	1,674	2.2	9,147	33,320	0.4
<b>Total</b>	<b>29,369.7</b>	<b>59,498</b>	<b>14,804</b>	<b>45,283</b>	<b>9.8</b>	<b>11,827</b>	<b>13.3</b>	<b>26,330</b>	<b>97,655</b>	<b>7.6</b>
<b>Dual model 1 (20%-35%)</b>										
99.9 - 100	152.9	536,276	119,313	441,589	26.8	1,984,441	16.5	369,283	2,889,999	16.3
99.5 - 99.9	608.3	289,307	44,605	247,620	24.7	213,986	16.1	53,225	556,518	19.0
99 - 99.5	761.8	201,826	30,363	172,055	21.5	92,577	16.2	29,929	324,333	18.0
98 - 99	1,522.2	147,836	23,301	124,692	17.9	45,002	16.1	19,108	211,946	15.9
97 - 98	1,522.7	106,087	19,218	86,948	13.4	27,320	15.1	14,572	147,979	12.4
96 - 97	1,522.4	87,470	17,850	69,675	10.6	18,293	14.5	13,630	119,393	10.0
95 - 96	1,522.7	72,886	16,542	56,400	7.9	13,277	13.4	9,395	95,558	7.9
90 - 95	7,612.6	50,803	12,147	38,695	3.8	7,434	11.4	6,661	64,898	4.3
0 - 90	14,144.2	22,499	6,436	16,478	0.6	3,041	9.0	7,779	33,320	1.2
<b>Total</b>	<b>29,369.7</b>	<b>59,498</b>	<b>12,567</b>	<b>47,362</b>	<b>11.4</b>	<b>25,943</b>	<b>15.3</b>	<b>12,214</b>	<b>97,655</b>	<b>11.0</b>
<b>Dual model 2 (22.5%-40%)</b>										
99.9 - 100	152.9	536,276	119,313	441,589	29.7	1,984,441	18.2	369,283	2,889,999	18.0
99.5 - 99.9	608.3	289,307	44,605	247,620	26.1	213,986	17.5	53,225	556,518	20.3
99 - 99.5	761.8	201,826	30,363	172,055	21.7	92,577	17.5	29,929	324,333	18.5
98 - 99	1,522.2	147,836	23,301	124,692	17.9	45,002	17.3	19,108	211,946	16.2
97 - 98	1,522.7	106,087	19,218	86,948	13.4	27,320	16.4	14,572	147,979	12.6
96 - 97	1,522.4	87,470	17,850	69,675	10.6	18,293	15.6	13,630	119,393	10.1
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<b>Total</b>	<b>29,369.7</b>	<b>59,498</b>	<b>12,567</b>	<b>47,362</b>	<b>11.7</b>	<b>25,943</b>	<b>16.7</b>	<b>12,214</b>	<b>97,655</b>	<b>11.6</b>

Note: Values in 2017 BRL.

Source: Authors' elaboration based on the Large Numbers from PIT 2018 (2017 calendar year).



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