

# DEVELOPMENT PLAN: The Role of Dividend Taxation in Top Income Inequality in Brazil

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## 1 CONTEXT:

In 1995, Brazil eliminated its dividend taxes, arguing that double taxation of corporate profits hindered growth and distorted capital allocation. This tax policy, however, helped the consolidation of a very regressive tax system, in which the 85th percentile pays a higher average tax rate than the 99th by 2022. Since then, inequality in Brazil has remained on the rise, confining the 7th most populous nation to a capital concentrating *status quo*. As of 2022, Brazil's Gini index is 53%, making it the most unequal country in Latin America and among the top 10 globally<sup>1</sup>. Brazil also has the highest wealth concentration worldwide: the top 1% holds 48.4% of national wealth<sup>2</sup>.

Considering the context of Brazil and the existing literature, I would like to dedicate my master's thesis to understanding the drivers of top-income inequality in Brazil, with a particular focus on the role of dividend taxation in shaping income distribution. The objective is to create a solid quantitative approach to contribute to this subject. In first instance, regarding the availability of data (and therefore feasibility of this thesis), the database provided by WID offers a plethora of time series indicators related to income distribution and inequality, which will be crucial for my analysis. In particular, the study by Morgan and Souza, 2025 presents an extensive analysis of the evolution of income, minimum wages, and wealth in Brazil over a 72-year period, by combining data from various official Brazilian agencies and other non-official microdata sources. Moreover, the authors provide a well-structured use of the raw data they compiled, along with a solid theoretical framework to understand the evolution of income and wealth in Brazil.

From a theoretical standpoint, a wide variety of models have attempted to explain the drivers of income inequality and the effects of capital taxation on income distribution, from neo-classical models with perfect competition to neo-keynesian models with sticky wages effects. Perhaps the most influential model and common framework for various empirical studies is the Atkinson and Stiglitz, 1976, that integrates asymmetric information and heterogeneous preferences to build a social welfare optimization problem. Regarding capital taxation, the model formalizes the redistributive role of capital taxes, while also considering the distortionary effects it could have on savings and investments.

The Atkinson-Stiglitz model provides a sound foundation for optimal taxation theory, but economic theory has, since its publication, incorporated lessons from behavioral economics and empirical findings. Also, this model does not consider dividend taxation separately, which is the main focus of my thesis. Thankfully, Chetty and Saez, 2007, two economists of same stature, have built a modern approach to dividend taxation that accounts for the agency problem: the notion that dividend taxes also influence the behavior of corporate managers that may reduce the pay-out ratio to avoid taxation (a value maximization problem). This model provides a more nuanced understanding of dividend taxation, demonstrating that dividends may not only serve as a redistributive tool, but also as a social optimization mechanism that reduces excessive

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<sup>1</sup>World Bank, 2022

<sup>2</sup>Global Wealth Report, 2023

pay-outs and encourages reinvestment within firms.

When it comes to empirical analysis, likewise, several studies have attempted to understand the role of taxation on top income inequality. Particularly, Berman and Klor, 2024 investigate the impact of dividend taxes on top income inequality in Israel, investigating both a tax increase and a tax decrease. They find that this tax decrease impacts almost immediately the rate of withdrawals from retained earnings, particularly among the top percentile of income earners. This highlights the relationship between tax policies and corporate behavior, as predicted by the Chetty-Saez framework, suggesting the necessity of robust methods for estimating and aggregating data on income distribution, similar to Piketty et al., 2016.

Moreover, the authors find that the tax increase stabilizes top-income the levels inequality. Using a panel regression, the paper provides an insight to the exact dynamics responsible for this: during subsequent years, growth was more homogenously distributed, conversely to the pre-tax trend of accumulation. The short-lived tax relief, nonetheless, did not produce any effect on top-income inequality, highlights the relationship the complex and long-term nature of income distribution dynamics, which must also be taken into account. The authors reiterate the important role of dividend taxation in shaping income distribution, particularly among the top income earners.

Similarly, Nallareddy et al., 2021 study the effects of corporate taxes on income inequality across US states. The authors provide a very holistic and sophisticated approach to this issue, constructing a solid framework for the subject. Since inequality is a complex multi-factorial phenomenon, the authors first address the issue of endogeneity and reverse causality, which are common in this type of analysis. They conduct three sets of tests to ensure validity of the analysis, and control the regressions to ensure the absence of confounding factors.

Furthermore, the authors use three different models to assess the impact of corporate taxes on income inequality: a differences-in-differences (DiD) model, a logistic regression model and a Synthetic Control Method (SCM). Altogether, the results of the different models offer a robust finding that corporate tax cuts do lead to increases in income inequality, particularly among the top income earners. More specifically, they estimate that a state corporate tax cut of 0.5pp would explain about 7.4% of the average rise in the share of income accruing to the top 1% between 1990 and 2010. This effect seems to only become significant three years after the tax cut, which is consistent with the findings of Berman and Klor, 2024 regarding the delayed impact of tax changes on income distribution.

Since my main (intended) approach will be the Synthetic Control Method (SCM), it would be also fruitful to provide a overview of this method. The SCM is a quasi-experimental method used to estimate the causal effect of an intervention or treatment on a single unit (the treated unit) by constructing a synthetic control group from a weighted combination of control units. This method is particularly useful when the number of treated units is small, as is the case for Brazil, and it provides a more grounded alternative that complements traditional methods by constructing robust counterfactuals. The SCM was formalized in Abadie and Gardeazabal, 2003 and further developed in Abadie et al., 2010. To improve the model's efficiency (and obviously avoid the blatant danger of OVBs) I will include a set of controls that capture the main determinants of income inequality, such as financial development, openness, government spending, and poverty rates, following the work by Afandi et al., 2017 and Roine et al., 2009.

Furthermore, in order to optimize the model's performance, I will use Machine Learning techniques to construct the synthetic controls, as described by Araujo, n.d. This helps create sparse coefficients that identify the most relevant control units. Similarly, clustering algorithms will be used to group the control units, reducing the dimensionality of the model and improving its efficiency, while allowing for robustness testing of the results. This process is yet again demonstrated by Abadie and L'Hour, 2023, who used penalized regression to estimate the synthetic control weights.

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## Disclaimer AI

During the process of writing this review, I used two different AI tools to assist me, namely ChatGPT and Github Copilot. I used ChatGPT during my reading of the literature to help me understand some key concepts and respond to some questions that troubled me (e.g., "Compare the SCM method and the DiD method", "Explain how Unsupervised ML could be used to improve the SCM method", etc.). I found it to be quite productive, as it addresses particular questions directly while providing the required details or context. At first, I also used ChatGPT to help me convert the references to `.bib` format (e.g., "Convert this reference to `.bib` format: ..."), but later I moved to Zotero to manage my references even more efficiently. Throughout the writing, I used Github Copilot to help me assess and fix codes, since this document is written in  $\text{\LaTeX}$  locally. When I finished writing the document, I asked ChatGPT to check for any grammatical errors and make suggestions, but asking not to change my style.<sup>3</sup>

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<sup>3</sup>"{...} mon sang se coagule en pensant qu'on y peut changer une virgule."