

# Finance and Income Inequality - panel BMA approach\*

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## Abstract

We investigate the impact of financial development on income inequality differentiating between depth, efficiency and access to financial markets and institutions. We apply panel Bayesian model averaging framework to address model uncertainty to reveal that financial development has complex influence on the income distribution within countries. The access to and efficiency of banking decrease income inequality. The size of the markets has no influence on overall income inequality, but contributes to the increasing top income shares. Moreover, unemployment along with investment into non-tangible assets increase income inequality while higher redistribution and physical capital investment imply lower levels of inequality.

**Keywords:** Income inequality, finance, Bayesian model averaging

**JEL Codes:** D31, E21

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# 1 Introduction

## 2 Related literature

Piketty and Zucman (2014) Van der Weide and Milanovic (2018) provide evidence that income inequality in the United States (US) has different implications for the future income growth of the rich and the poor. High inequality seems to hurt the prospects of the poor while the top for the distribution is unaffected. The rich thus disproportionately benefit from higher inequality as their subsequent income exhibit faster growth. The authors attribute this effect to the political channel the rich use to lobby for implementation for the policies which back their economic interests. Preferences of the rich are ultimately more likely to determine public policy than the preferences of the majority (Gilens and Page, 2014). High inequality together with a credit constraint and rich driving the political process results in low government spending and lasting high inequality.

Marrero and Rodríguez (2013) introduce two types of inequality - inequality of opportunity and inequality of effort/luck. Applying this to the EU countries and US states, they show that inequality of opportunity (driven by race and parental education ...) is negatively related to growth while the residual "good" inequality is growth inducing.

Income inequality and growth may intersect through varying channels. Accumulation of savings, unobservable effort, and investment project size favour the prediction on growth inducing inequality. Negative impact of inequality on human capital accumulation, entrepreneurial activity, and hence growth provides argument for the opposing view.

The average income inequality rose across Organisation for Co-operation and Development (OECD) by 1.4 percentage points (OECD, 2013).

Law and Singh (2014) argue that financial development decrease income inequality by allowing the poor to invest in human and physical capital.

### 2.1 theory

Galor and Moav (2004) provide a theoretical framework of thinking about the link between income inequality and financial development. In their model, the income inequality falls due to the decrease of financial friction which allows for physical and human capital accumulation of the poor. That is the extensive margin of financial development at work.

Banerjee and Newman (1993) also offer a theoretical setup in favour of the capital accumulation hypothesis due to finance (liberalization as claimed by de Haan and Sturm (2017)) and inequality decreasing effect.

Greenwood and Jovanovic (1990) on the contrary present a model where the intensive margin of the financial development is the key force and the benefits of more finance are accrued by the incumbents - primarily the rich - which implies an inequality increasing effect.

An exemption from focus solely on the size of financial sector is the study by Naceur and Zhang (2016) which applies a similar approach to ours, taking into consideration the access, efficiency, and stability of the financial sector. However, there are severe limitations to their study. First, their coverage does not correspond to the availability of the data. Second, they do not account for the different dimensions of finance simultaneously and always use a single indicator of development at a time. Third, they do not explicitly differentiate between the banking sector and financial markets. We provide a more detailed as well as more robust picture of the financial development effect on finance in these dimensions.

Gwartney et al. (2017) provide an economic freedom index of the Fraser Institute.

de Haan and Sturm (2017) examine different dimensions of finance on income inequality. Their results suggest that financial development, financial liberalization, and banking crises all increase market income inequality within countries. Additionally, they show that the effect of financial liberalization is conditional on democratic accountability. The higher the accountability, the less severe is the negative impact of liberalization on inequality. On the contrary, the financial development, proxied by the credit to GDP ratio, has an inequality increasing effect irrespective of the institutional background.

Claessens and Perotti (2007) explore the connectedness of growth, finance, and inequality, stressing the importance of institutional background in the effects.

Perotti and Volpin (2004) present a theoretical framework how established interests lobby for lower investor protection to prevent entrance of the new competitors. Greater accountability of the politicians is reflected in higher bribe required from the lobbyist therefore higher accountability implies higher market entry on more competition. After confirming their prediction empirically, they show that the most important factor of accountability is not the formal measure of democratic institutions, but *newspaper readership* which they interpret as broad awareness of policy choices and their outcomes.

Figure 1: Gini Coefficient and Efficiency of Financial Institutions

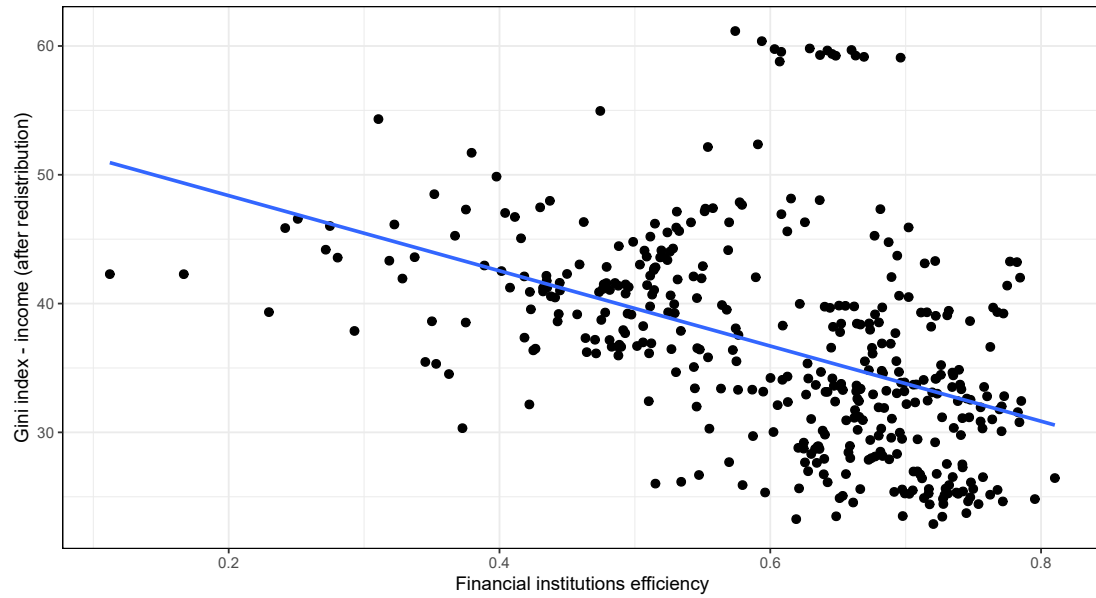


Figure 2: Gini Coefficient and Access to Financial Institutions

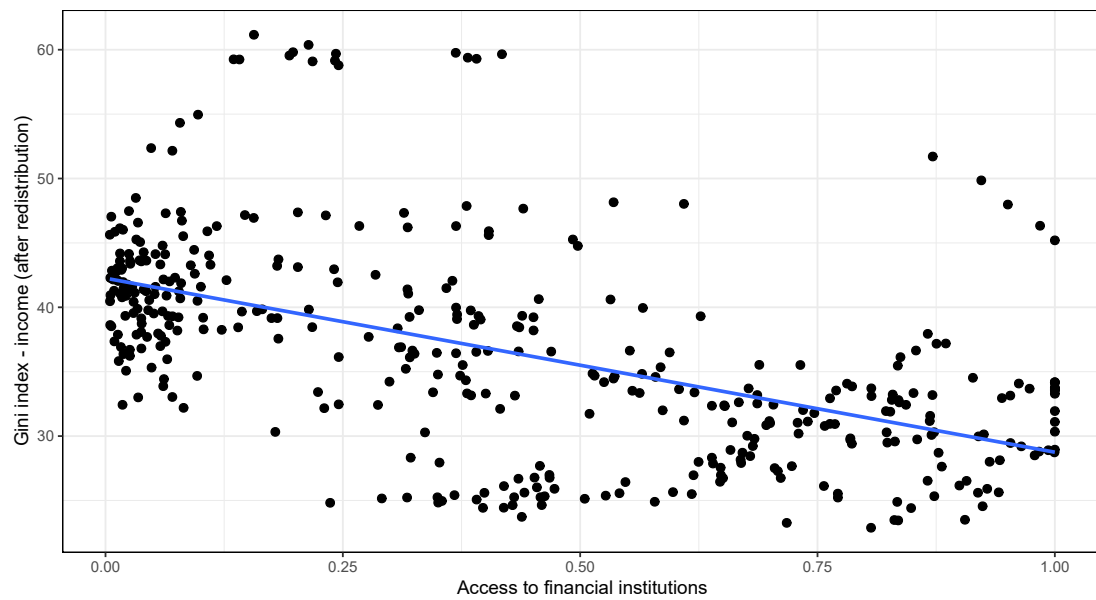


Figure 3: Gini Coefficient and Depth of Financial Institutions

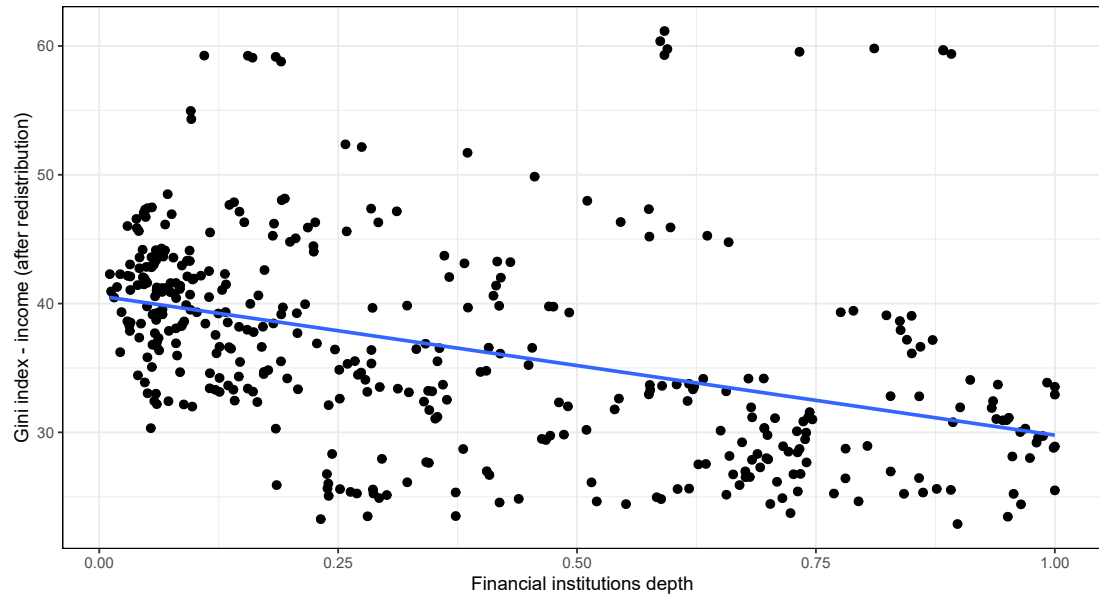


Figure 4: Gini Coefficient and Depth of Financial Markets

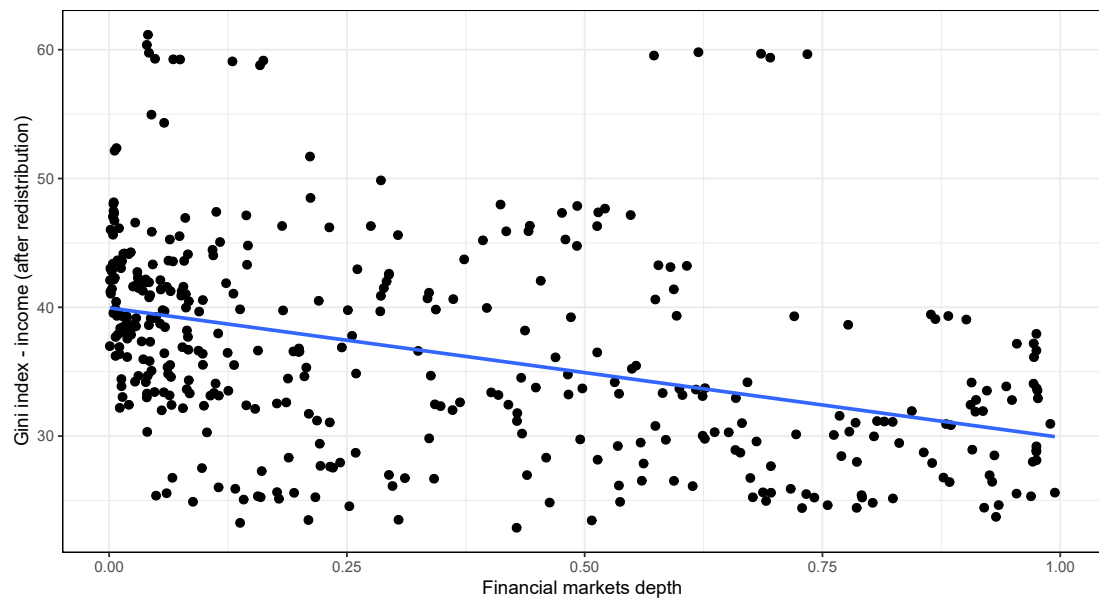


Figure 5: Gini Coefficient and Government Expenditures

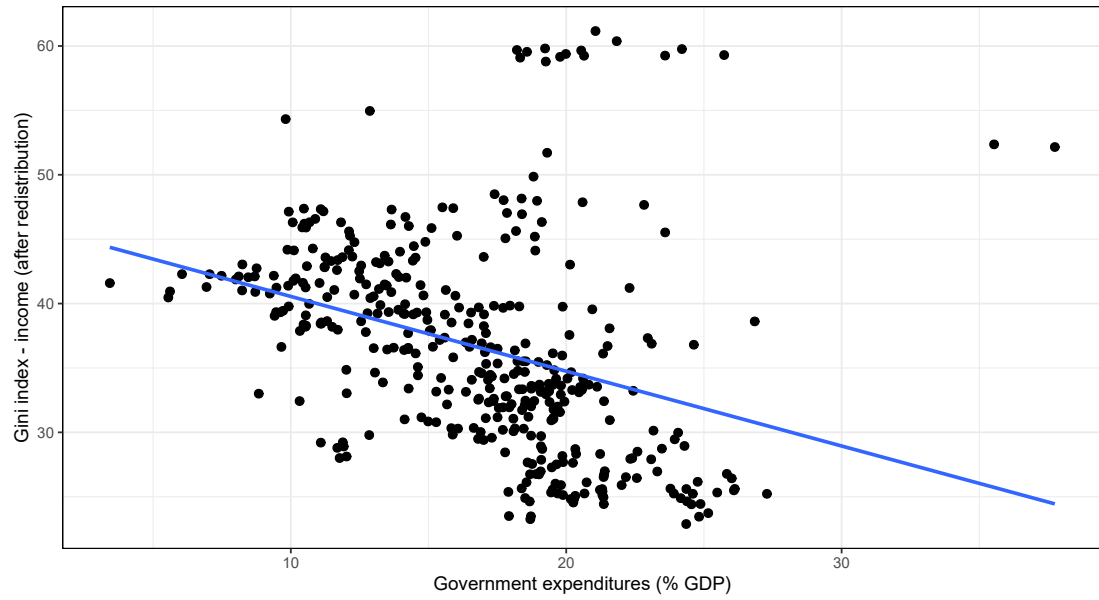


Figure 6: Gini Coefficient and Mortality

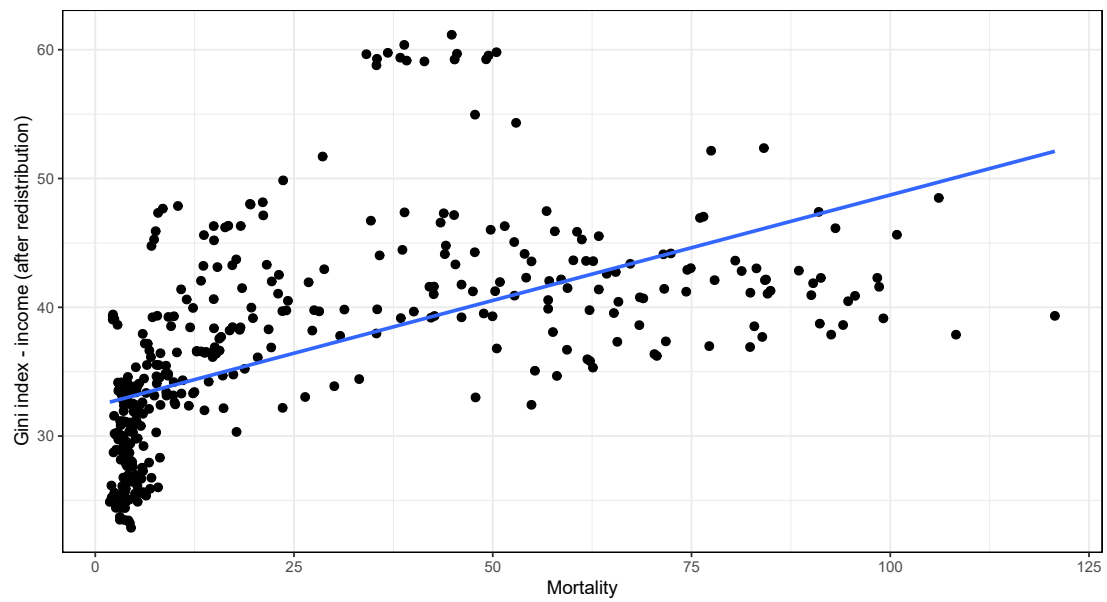


Figure 7: Gini Coefficient and Gross Domestic Product (GDP) per capita

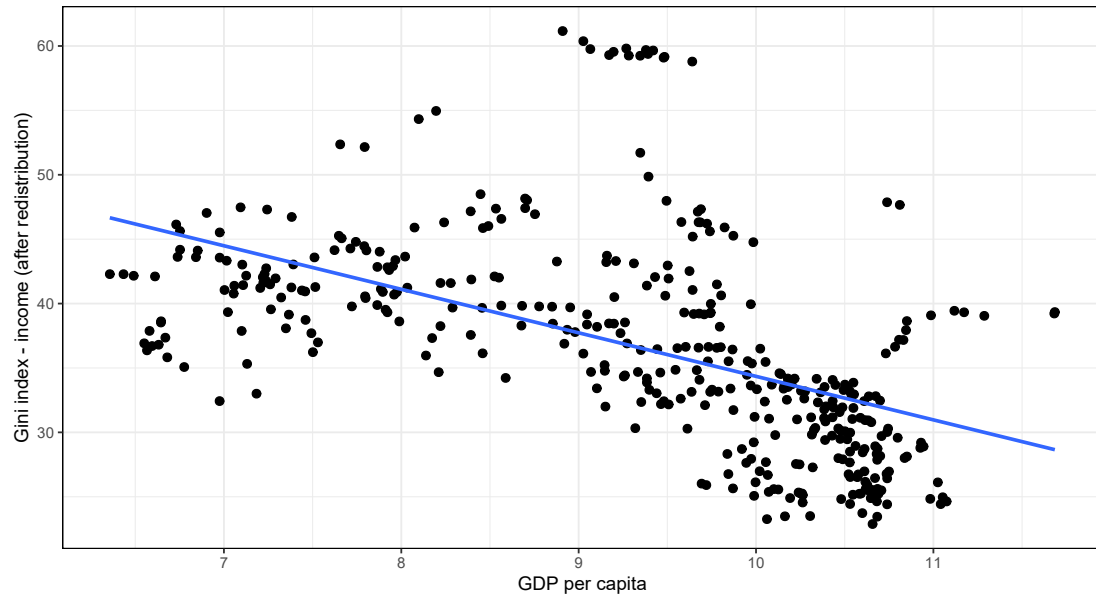


Figure 8: Gini Coefficient and Rule of Law

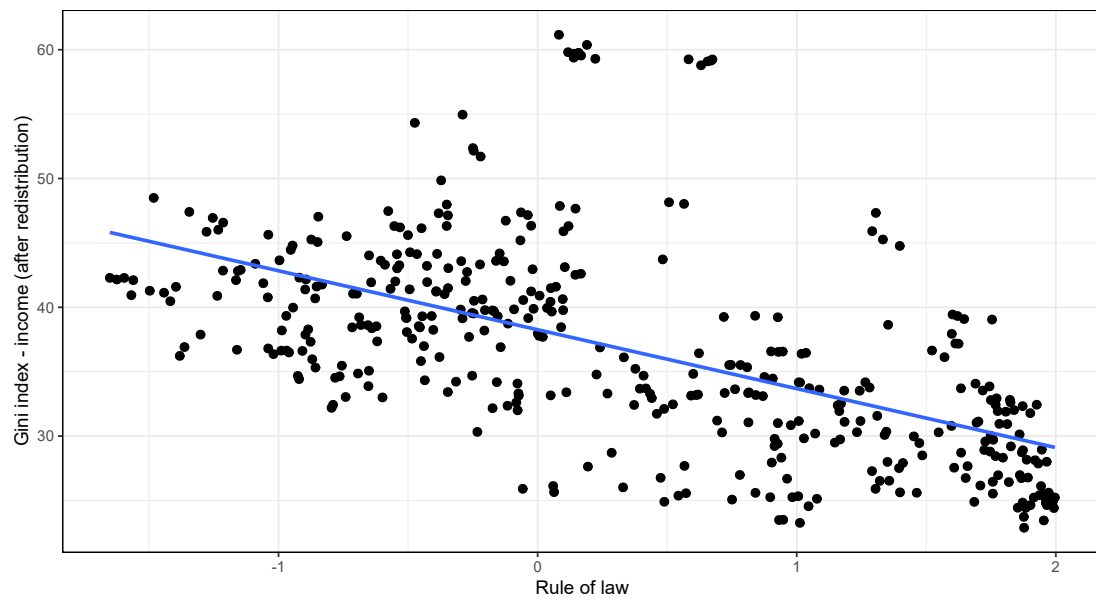


Figure 9: Gini Coefficient and Inflation

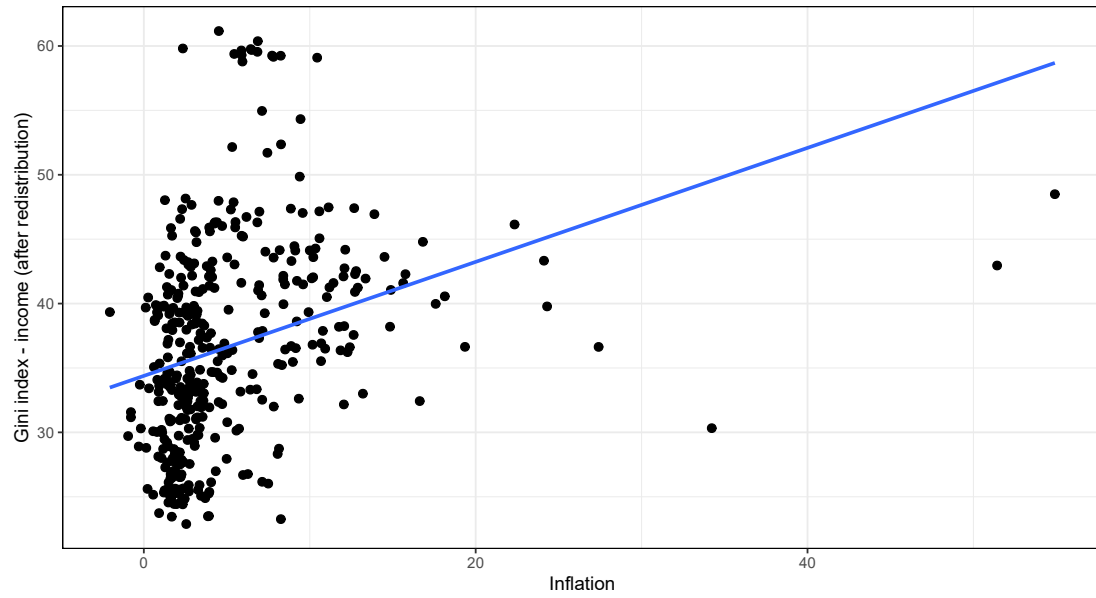


Figure 10: Gini Coefficient and Equipment Investment

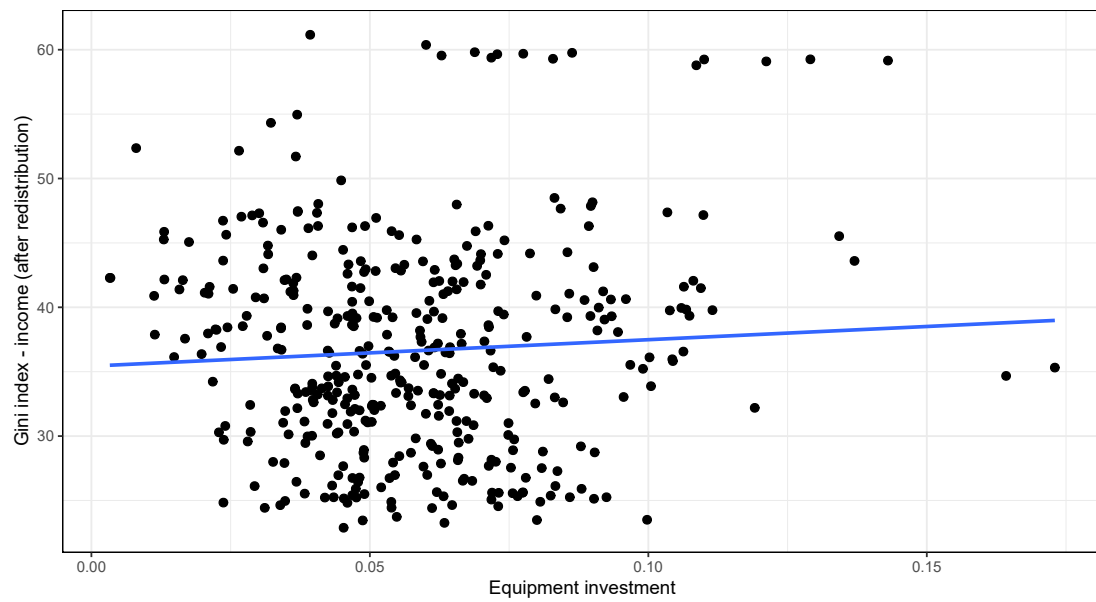
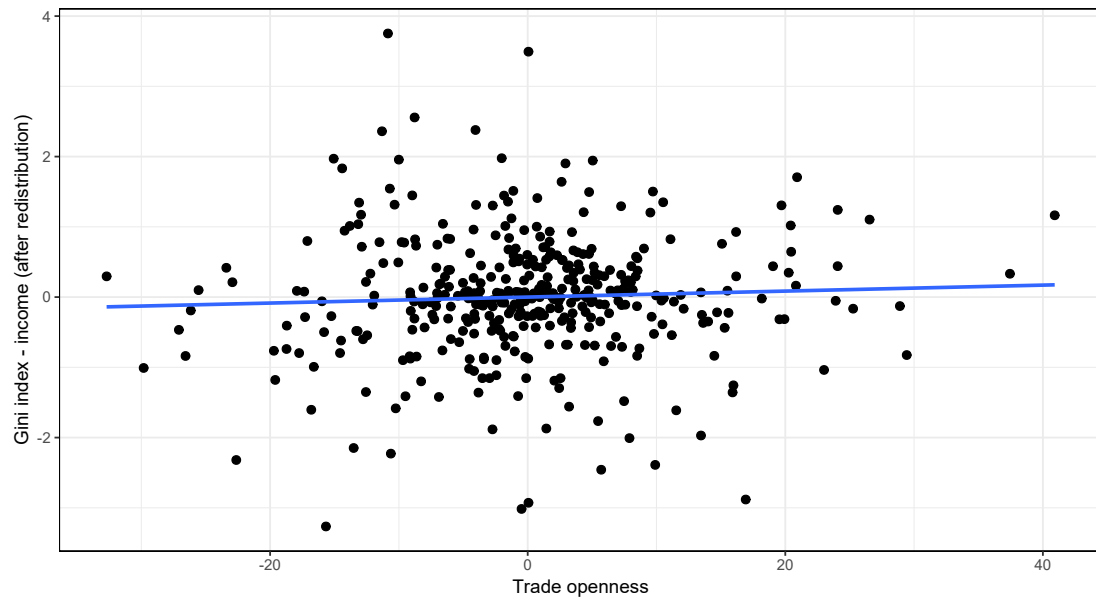




Figure 11: Gini Coefficient and Trade Openness



### 3 Data

### 4 Methodology

### 5 Results

Figure 12: Gini Coefficient and Financial Development Indicators

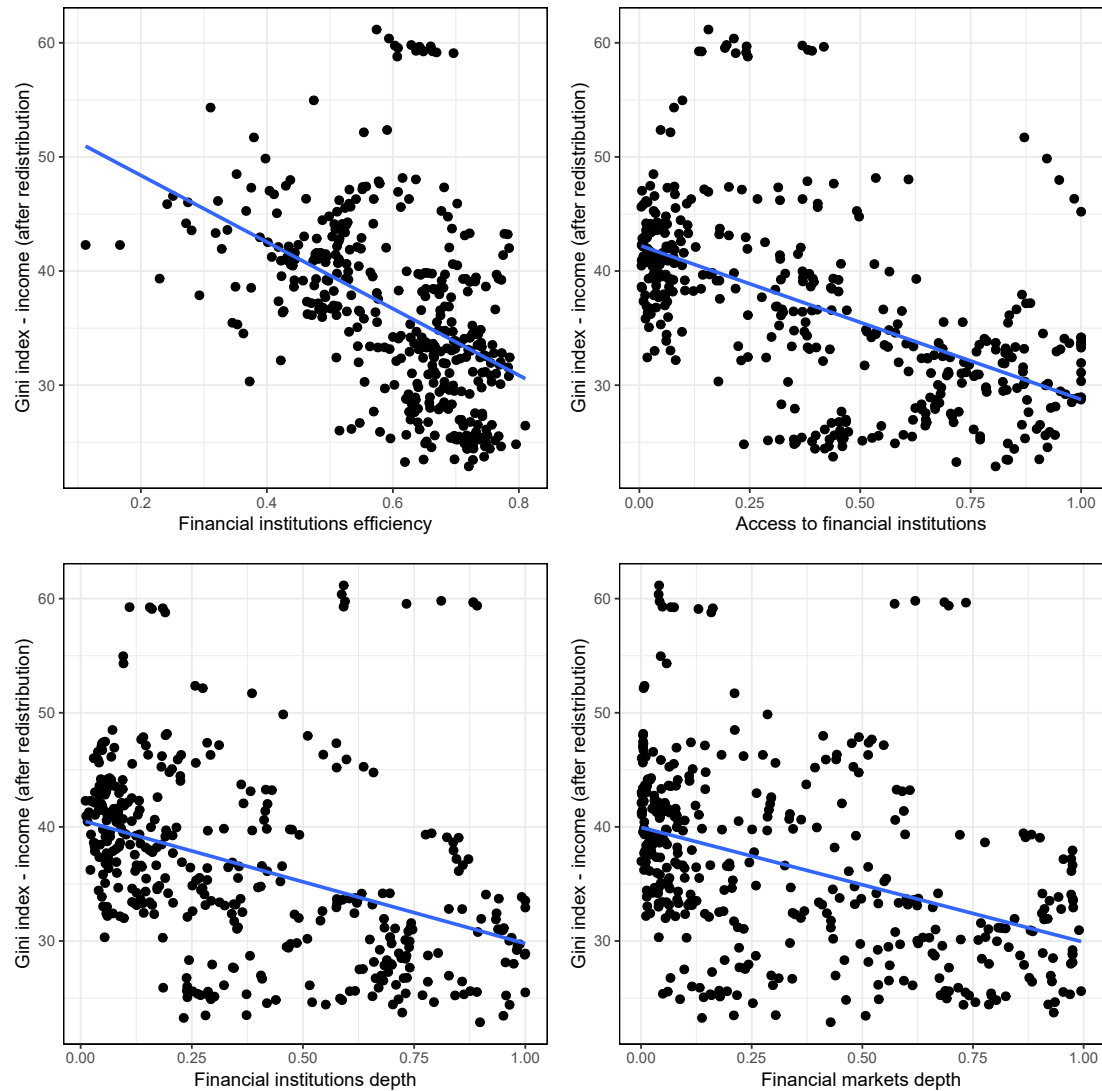


Figure 13: Gini Coefficient and Efficiency of Financial Institutions

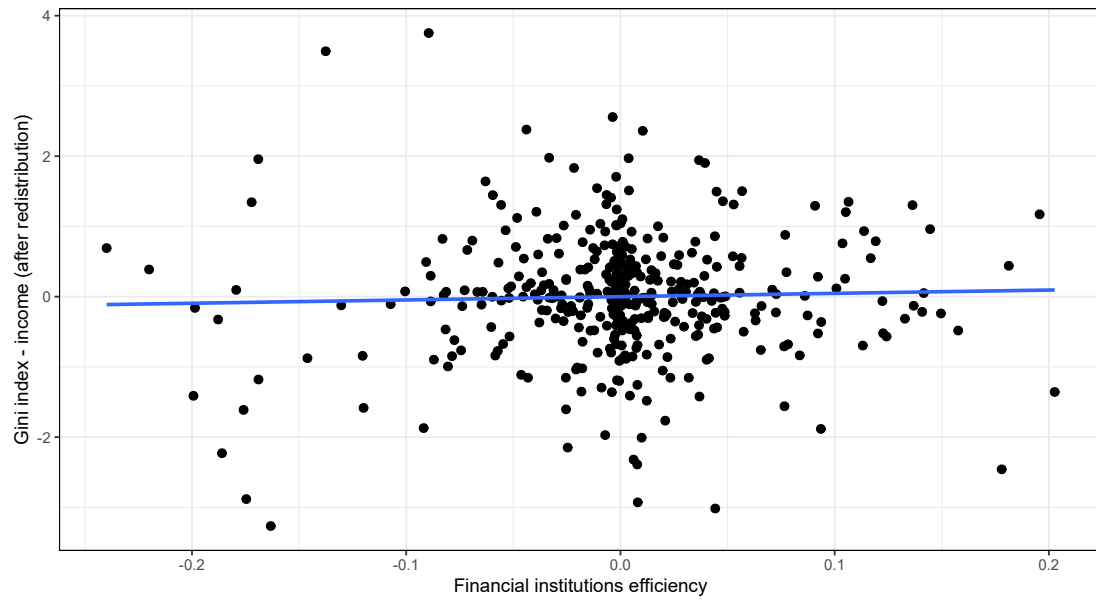


Figure 14: Gini Coefficient and Access to Financial Institutions

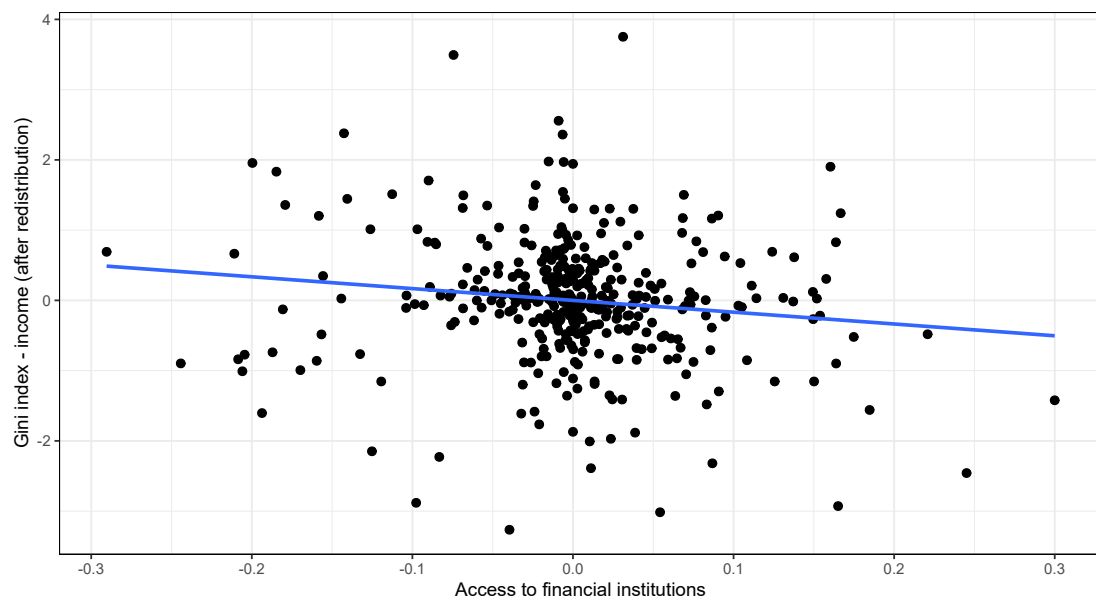


Figure 15: Gini Coefficient and Depth of Financial Institutions

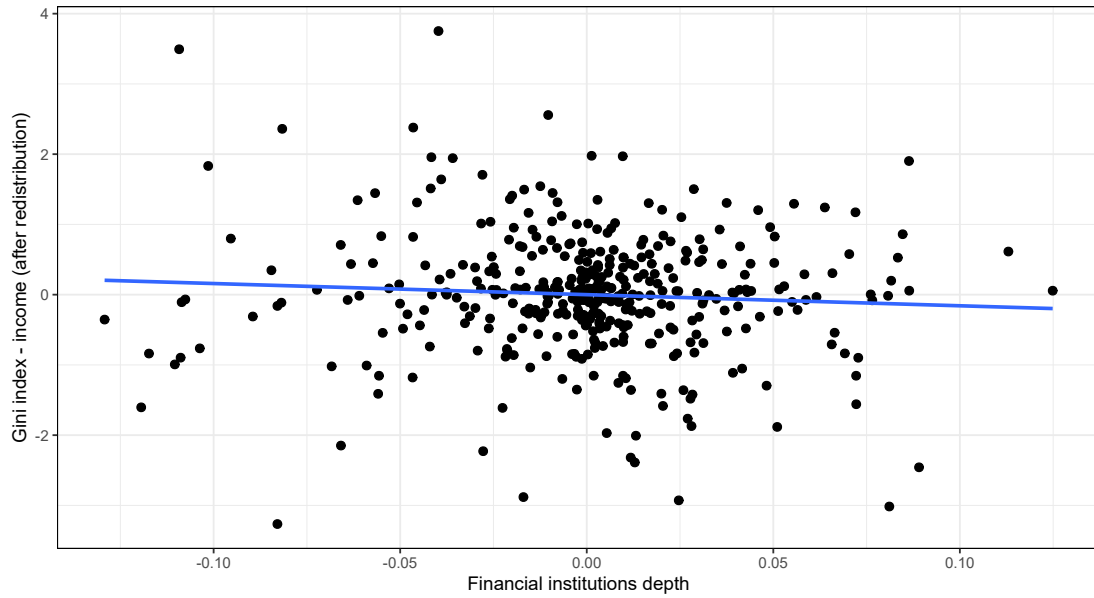


Figure 16: Gini Coefficient and Depth of Financial Markets

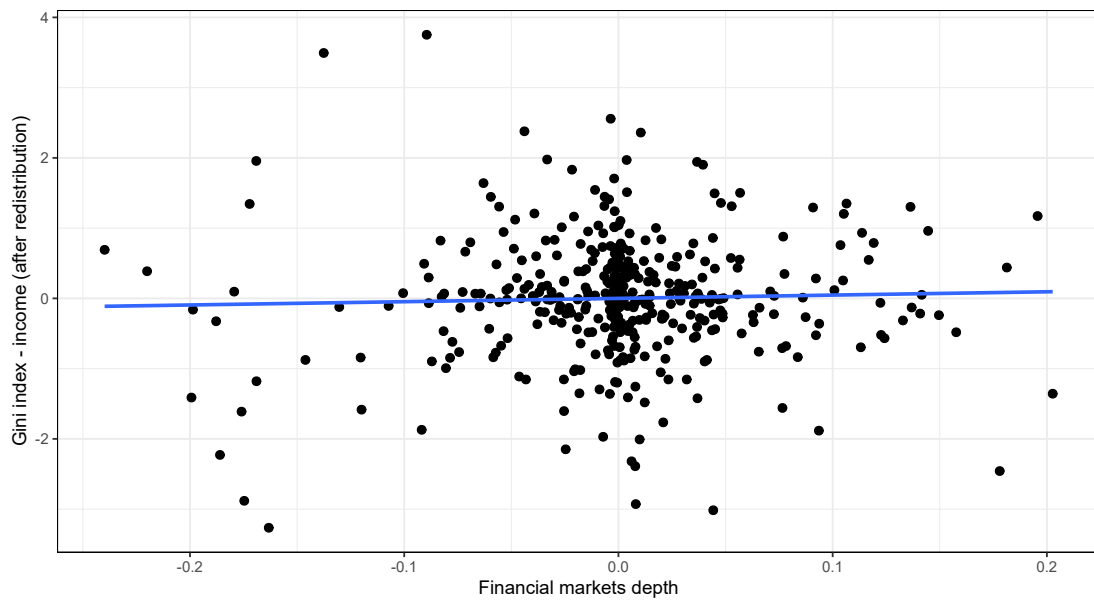


Figure 17: Gini Coefficient and Government Expenditures

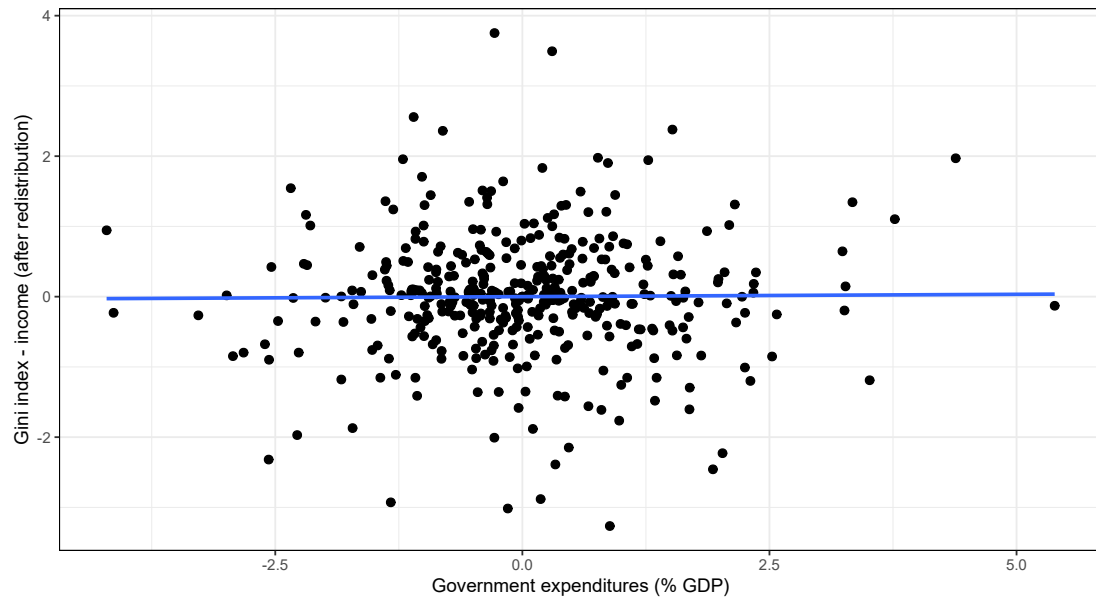


Figure 18: Gini Coefficient and Mortality

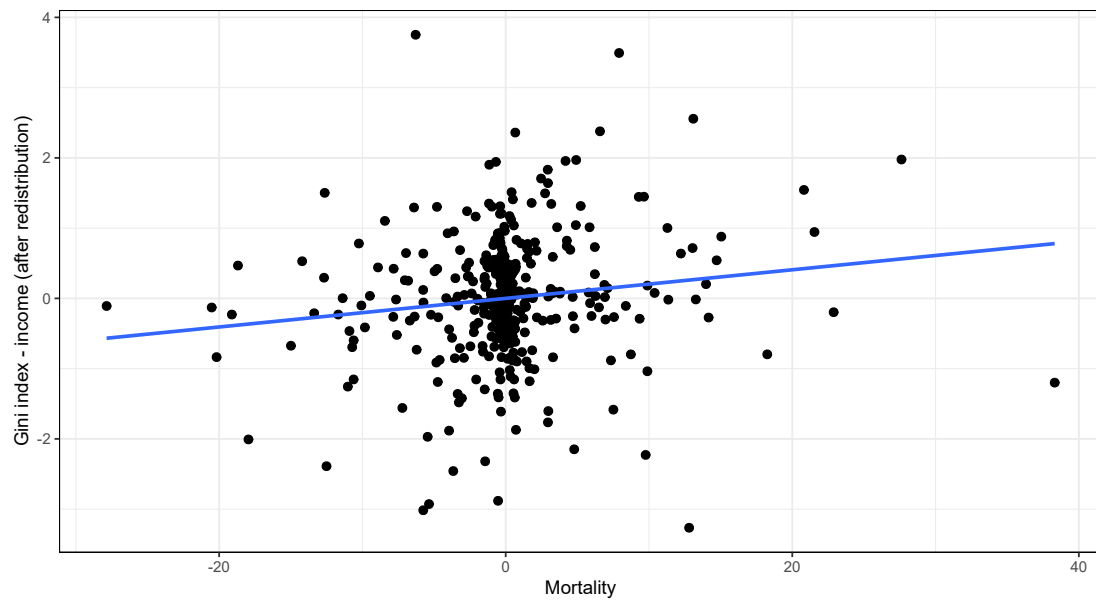


Figure 19: Gini Coefficient and GDP per capita

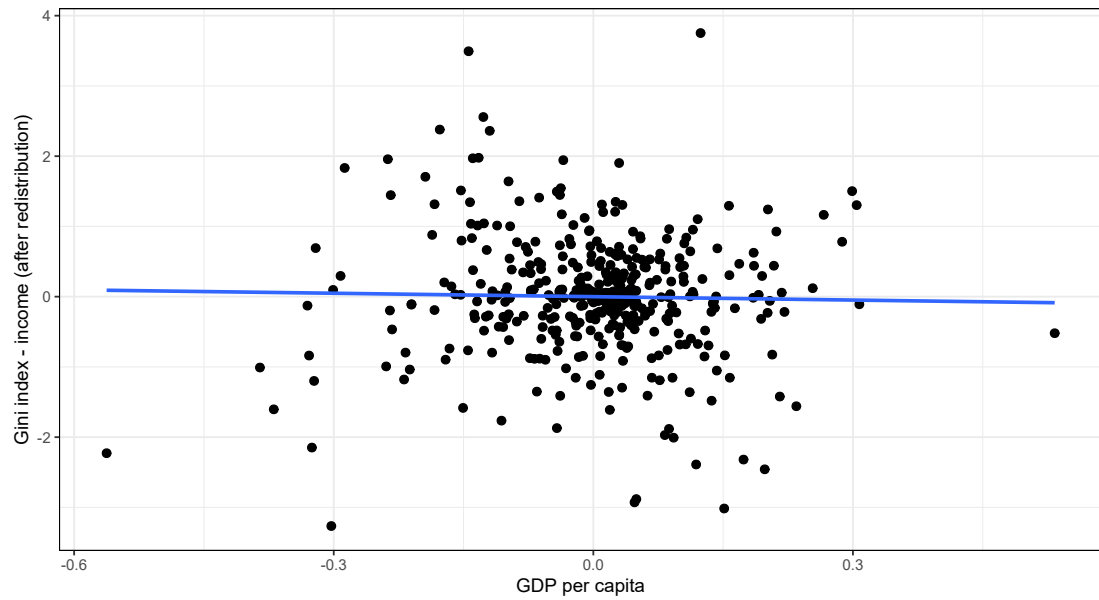


Figure 20: Gini Coefficient and Rule of Law

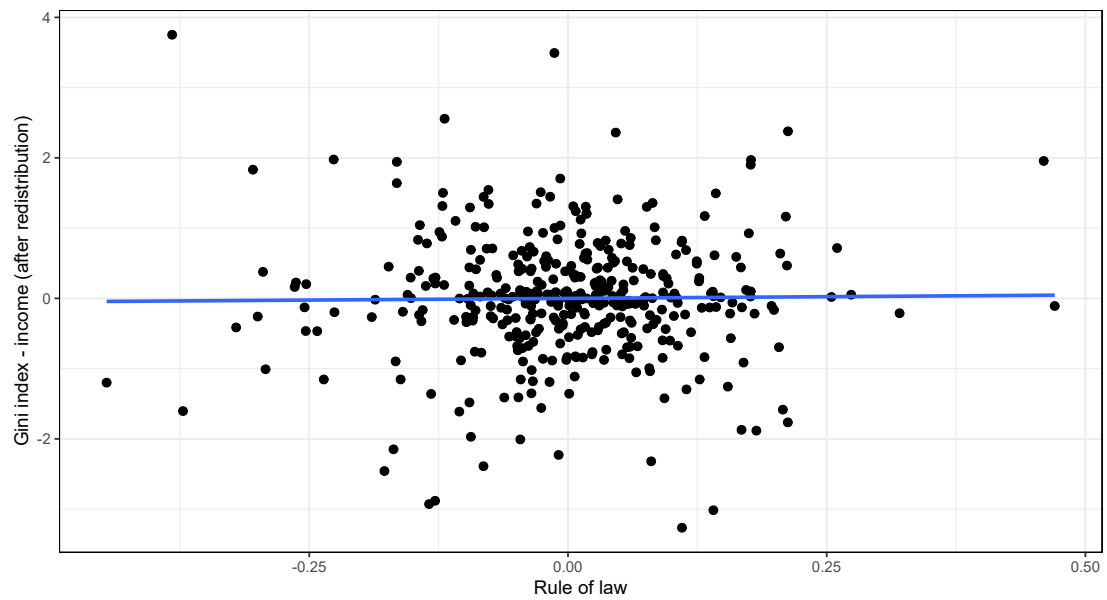


Figure 21: Gini Coefficient and Inflation

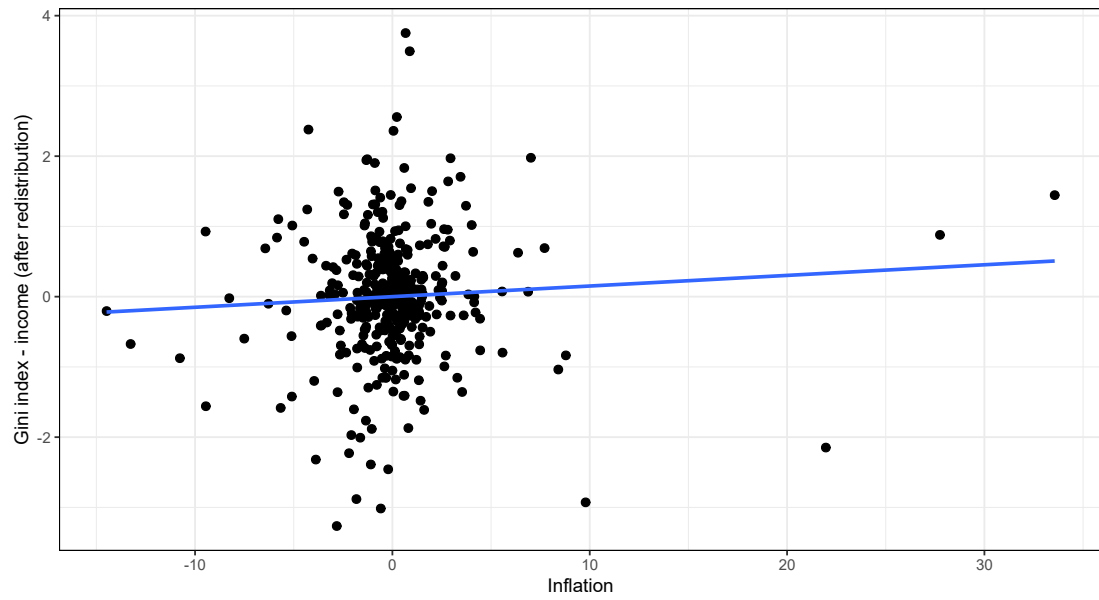


Figure 22: Gini Coefficient and Equipment Investment

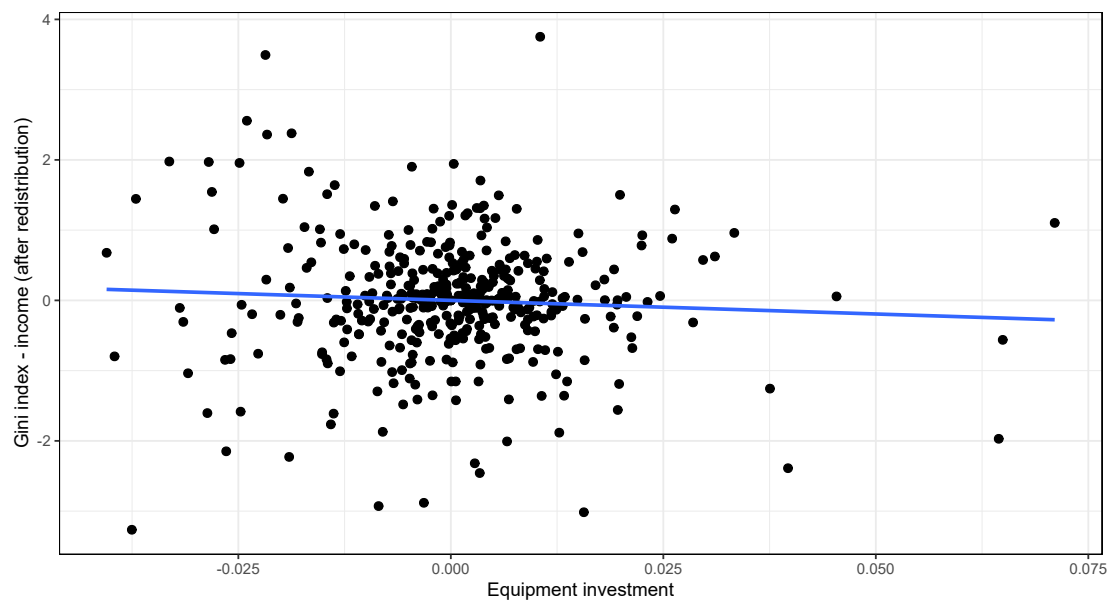


Figure 23: Gini Coefficient and Trade Openness

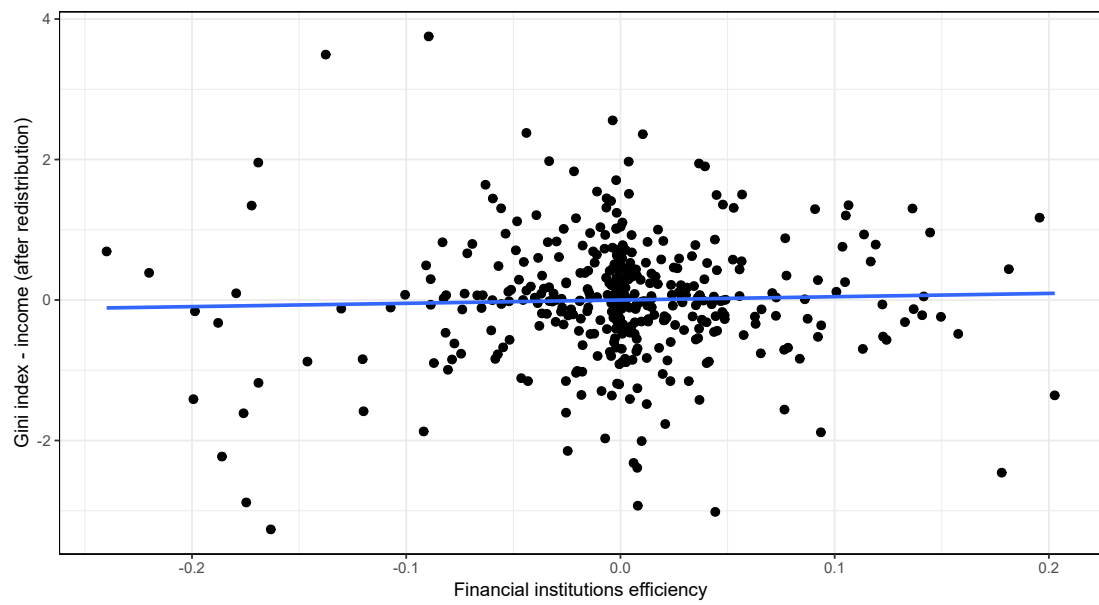
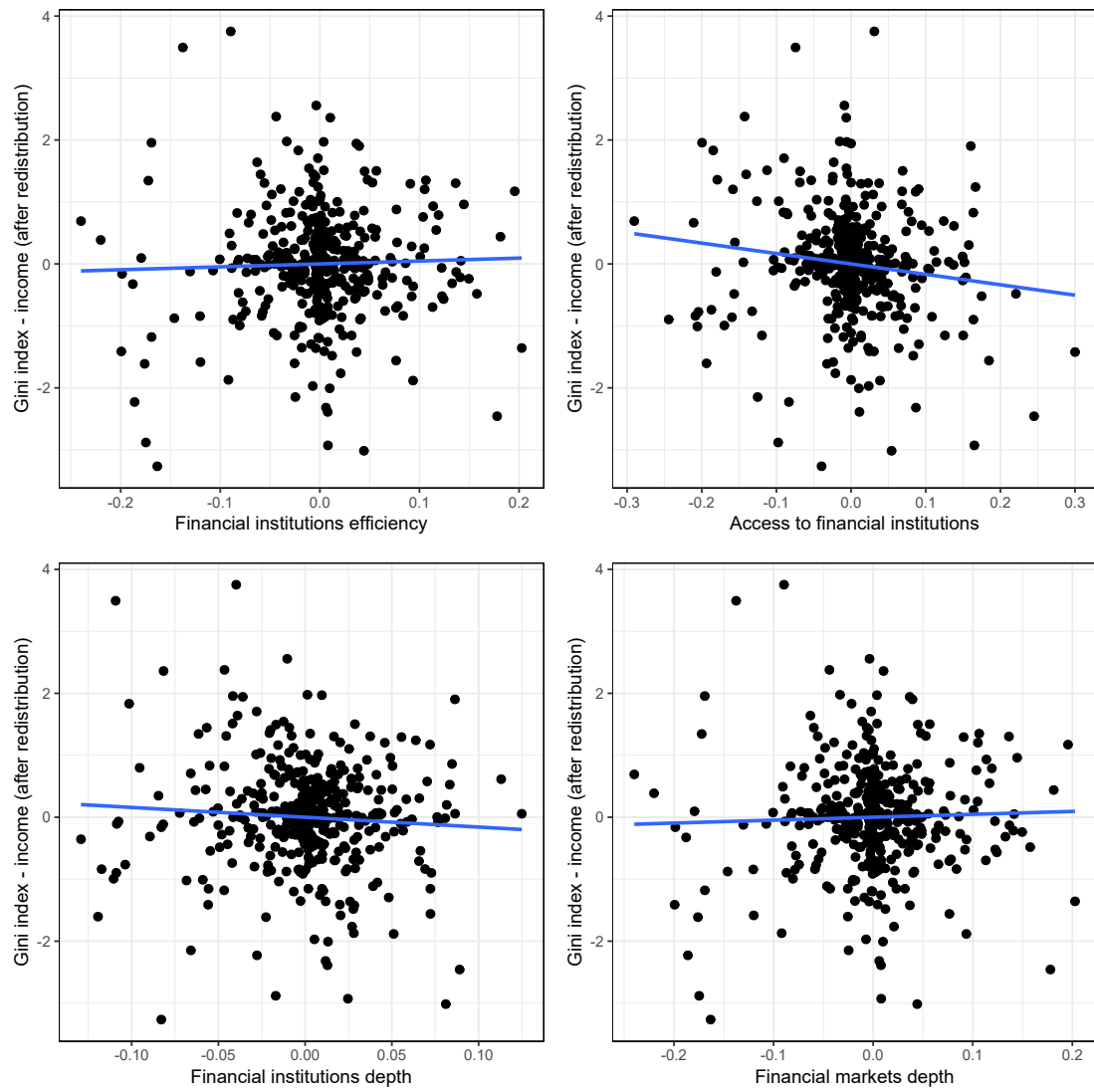




Figure 24: Gini Coefficient and Financial Development Indicators



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## A Appendix