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DISSERTATION

Three Essays on Financial Development

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Declaration of Authorship

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Prague, January 15, 2020

Mgr. Jan Mareš

Abstract

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Abstrakt

Nutnou součástí práce je anotace, která shrnuje význam práce a výsledky v ní dosažené. Anotace práce by neměla být delší než 200 slov a píše se v jazyce práce (tj. česky, slovensky či anglicky) a v překladu (tj. u anglicky psané práce česky či slovensky, u česky či slovensky psané práce anglicky). Anotace práce by neměla být delší než 200 slov a píše se v jazyce práce (tj. česky, slovensky či anglicky) a v překladu (tj. u anglicky psané práce česky či slovensky, u česky či slovensky psané práce anglicky). V abstraktu by se nemělo citovat.

Klasifikace JEL	C11, D31, E21, G10, 040
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Acronyms

BMA	Bayesian Model Averaging
DINA	Distributional National Accounts
GDP	Gross Domestic Product
GFDD	Global Financial Development Database
LIS	Luxembourg Income Study
OECD	Organisation for Co-operation and Development
PIP	Posterior Inclusion Probability
SWIID	Standardized World Income Inequality Database
US	United States
WALS	Weighted-average Least Squares
WID	World Inequality Database
WIID	World Income Inequality Database

Chapter 1

Introduction

There goes the general summary.

Chapter 2

Finance and Inequality - panel BMA approach

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.

2.1 Introduction

Finance captures the capacity of financial intermediaries and markets to screen investment opportunities, monitor the debtors who were provided funding, as well as pooling and management of risk. With inequality, we focus in the paper on the inequality in the distribution of income. Arguably, the literature discusses other concepts of inequality, e.g. intergenerational persistence of relative income differences or equality of opportunity (Demirgüç-Kunt & Levine, 2009).

Claessens and Perotti (2007) argue that although deeper financial systems generally provide better opportunities of access to finance, the relationship is not universal.

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

2.2 Related literature

The research in the area of financial development and income inequality is well established. Demirgüç-Kunt and Levine (2009), Claessens and Perotti (2007), and more recently de Haan and Sturm, 2017 provide extensive reviews of the topic. A similar theme emerges in all three papers. The implications from theoretical contributions provide conflicting predictions about the relationship and empirical results bring evidence for both positive and negative effect. Although majority of the papers point towards finance tightening the distribution of income this results is not universal with some papers suggesting the opposite while other stress potential non-linearities.

A key divide appears between the effect of financial development on extensive and intensive margin. The extensive margin captures the extend to which individuals, who had not been using financial services before, gain access. On the other hand, the intensive margin describes growing use of finance by the agents who had already been using it before (Demirgüç-Kunt & Levine, 2009). Financial development on the extensive margin might lead to more equal opportunities and outcomes. Access to credit by previously disadvantaged groups allows human capital accumulation (Braun et al., 2019; Galor & Moav, 2004; Galor & Zeira, 1993), formation and growth of new firms (Banerjee & Newman, 1993; Evans & Jovanovic, 1989), with more evenly distributed economic opportunities as a result[1].

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[1]Having similar economic opportunities might decrease the cross-generational inequality,

On the contrary, intensive margin of financial development might dispro-
portionately benefit the rich who may leverage financial services for their fur-
ther benefit or to protect their existing rents. Greenwood and Jovanovic (1990)
present a model where the finance is the key driver of inequality and the welfare
gains accrued by the incumbents - primarily the rich - in the initial develop-
ment stage. With time, more agents meet the fixed costs of joining the financial
intermediaries and they enjoy higher returns. Consequently, the efficiency of
resource allocation also increases, which enhances growth and reduces inequal-
ity. Perotti and Volpin (2007) present a framework based on political economy.
They argument depends on a lobby for lower investor protection to prevent
entrance of the new competitors. The politicians require higher bribe from
the lobbyist the greater is their accountability for policy decisions. Thus, with
increasing accountability, investor protection strengthens and spurs market en-
try and competition. The authors examine their prediction in a cross-section
and show that better investor protection correlates with larger entry rates and
higher firm density in more financially intensive sectors[2].

Financial development may also have indirect effect on income inequality
through economic growth. Townsend and Ueda (2006) model how finance in-
teracts with production and allocation of credit. If increased use of finance
increases the demand for low- relatively to the high-skilled workers, then it
may have equalizing consequences for income distribution. Empirical evidence
by Beck et al. (2010) show that bank deregulation and increased competition
in loan provision in the United States (US) primarily benefited the workers
with income below the median. Similarly, Delis et al. (2014) provide evidence
of bank deregulation and liberalization tightening the income distribution, al-
though this effect is only present in countries with high-quality institutions.
They attribute the effect to the changes in labour market conditions and rela-
tively higher wages and working hours of the low-skilled workers following the
reforms.

A set of distinct papers explores the relationship between inequality and
growth while stressing financial markets imperfections driving the outcomes.
Income inequality and growth may intersect through varying channels. Ac-

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by diminishing the effect of e.g. parental wealth. Depending on the innate abilities and
talents of the individuals, however, it may increase the inequality of income within every
generation at the same time.

[2]In addition, 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.

cumulation of savings, unobservable effort, and investment project size favor the prediction of growth inducing inequality. Negative impact of inequality on human capital accumulation, entrepreneurial activity provide argument for the opposing view. Van der Weide and Milanovic (2018) report how income inequality in the 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 of 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 in favor of the policies which support their economic interests. Preferences of the rich are ultimately more likely to determine public policy than the preferences of the majority (Gilens & Page, 2014). High inequality together with a credit constraint and rich driving the political process results in low government spending and lasting inequality.

The literature does not converge on the conclusions even in the empirical cross-country and panel data studies. The papers link higher levels of financial development with lower levels of inequality (Beck et al., 2007; Gimet & Lagoarde-Segot, 2011; Hamori & Hashiguchi, 2012; Kunieda et al., 2014)[3]. On the other hand, several other estimate a inequality inducing effect of finance (de Haan & Sturm, 2017; Jauch & Watzka, 2016; Jaumotte et al., 2013). Finally, some authors claim there the relationship might be non-linear, conditional on a threshold value of financial development (Kim & Lin, 2011; Tan & Law, 2012) or institutional quality (Delis et al., 2014; Law & Singh, 2014).

Three papers are the closest to ours, each in a different respect. First, 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 pre-tax income inequality within countries. Additionally, they show that the effect of financial liberalization is conditional on democratic accountability. Higher accountability mitigates the impact of liberalization on inequality. On the contrary, the financial development, proxied by the credit to GDP ratio, has inequality increasing effect irrespective of the institutional background. Second, Naceur and Zhang (2016) take similar approach in considering multiple dimensions — the access, efficiency, and stability of the financial sector, although not examining the indicators simultaneously. Third, Furceri and Ostry (2019) apply Weighted-average Least Squares (WALS) to identify robust determinants of income inequality. Their approach mirrors

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[3]For an extended list, we refer to de Haan and Sturm (2017).

ours in accounting for model uncertainty in the estimation. Their focus is more general rather than focused primarily on finance. We provide synthesis and extension to these papers in providing more detailed view on the link between finance in shaping income inequality and examining multiple measures of inequality while specifically identifying the determinants of top income shares along with the determinants of the overall income distribution[4].

2.3   Data

The key variable in the paper is the measure of income inequality. We want to examine how financial development affects income inequality and whether the effect might by different at the top quantiles of income distribution. As the overall measure of income inequality, we rely the after-tax Gini coefficient from Standardized World Income Inequality Database (SWIID) by Solt (2019), which is a standard resource in the literature[5]. Its critical advantage lies in the widespread coverage across countries and time and a unified methodology which provides a reasonable level of comparability. It typically takes values in the interval between 0 and 100 where the former suggests perfect equality (everyone in the economy enjoys the same income) and the latter perfect inequality (all the income goes to only a single unit). We depart from existing papers slightly in considering the after-tax rather than the before-tax income distribution as a dependent variable.

To explore the relationship in the top part of the distribution, we choose top income share from World Inequality Database (WID)[6]. The surveys suffer from well-known issues of underrepresentation of the top income earners and the distortions resulting from self-reported character of the data. This can influence not only the top income shares resulting from survey data, but also distortions in the overall measures of inequality. The data in WID make use of income tax records in individual countries and the derived shares obtained using consistent methodology of Distributional National Accounts (DINA) are arguably more reliable relative to the survey-based measures which are the primary source of majority estimates of income distributions.

The data spans from 2000 to 2014. We follow the literature (Dabla-Norris

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[4]Captured by income Gini index.

[5]There are alternative sources of for Gini coefficient, e.g. World Income Inequality Database (WIID) or Luxembourg Income Study (LIS), but each of them brings limitations in terms of comparability or coverage.

[6]The methodology and guidelines to database are provided by Alvaredo et al. (2016).

et al., 2015; de Haan & Sturm, 2017) and average both the inequality measure (dependent variable) and the potential determinants (independent variables) across three year intervals. There are important reasons for looking at the averages than observation in individual years. Annual macroeconomic data are subject to fluctuations and the data on income inequality is noisy Delis et al. (2014). Averaging should diminish the level of noise. On the top of that, the variables at the center of our analysis, e.g. stock market capitalization or credit to Gross Domestic Product (GDP), are likely to be affected by the business cycles and volatile on the yearly basis. Similar argument holds for top income shares, as they depend, among other things, on the bonuses paid out each year and capital income. We want to explore the long-term rather than the short-term relationship and that guides the choice of averaged data. Faced against the trade-off between length of the averaging periods and available observations in the time dimension, we take a compromise of three years in contrast to the literature, where generally the 5-year intervals apply. The availability of financial development indicators limits the analysis to a period from 2000 onward and we prefer to keep at least 5 unique time periods to just three under the case of 5-year average[7].

Table 2.1 report the summary statistics of the income inequality variables and financial development indicators.

Table 2.1: Summary statistics of selected variables

Variable	Mean	St. Dev.	Min	Max
After-tax Gini index	36.38	8.12	22.88	61.16
Top 10% income share	0.42	0.12	0.24	0.71
Top 1% income share	0.14	0.06	0.05	0.38
FIA	0.42	0.32	0.01	1.00
FIE	0.60	0.13	0.11	0.81
FID	0.37	0.30	0.01	1.00
FMD	0.33	0.32	0.00	0.99

We obtain the financial development indicators from Global Financial Development Database (GFDD). The database offers detailed indicators along four dimensions of financial systems and allows to estimate the affect of changes in access, size, efficiency, and stability of financial markets. Furthermore, we can distinguish between banking sector and financial markets in all these dimensions. The data in for access and stability of stock markets remains sparse

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[7]Nevertheless, we run the estimation with 5-year averages of data as a robustness check and find no critical qualitative differences compared to the baseline.

Table 2.2: Correlation matrix of selected variables

After-tax Gini index	.						
Top 10% income share	0.47	.					
Top 1% income share	0.39	0.84	.				
FIA	-0.14	-0.09	-0.12	.			
FIE	-0.14	-0.10	-0.06	0.28	.		
FID	-0.07	0.12	0.06	0.60	0.24	.	
FMD	0.03	0.2	0.13	0.36	0.1	0.40	.

Figure 2.1: Gini Coefficient and top shares
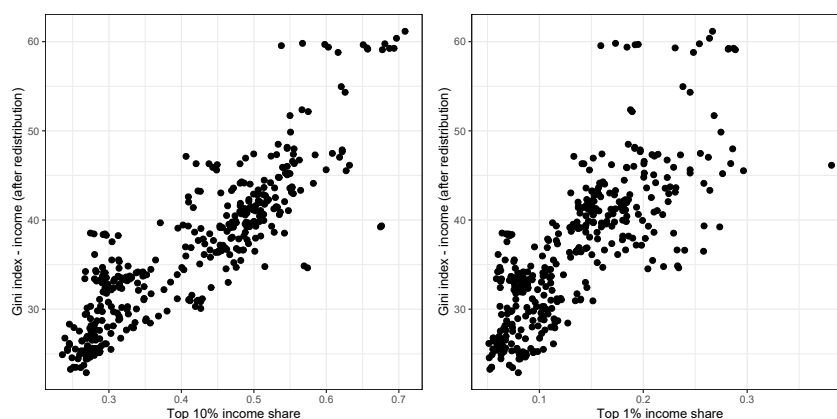
in the concerned period we must leave them out of analysis. We use the version of financial indicators from Svirydzenka, 2016. The authors make use of principal component analysis in order to construct aggregate indicators in each characteristic of financial sector. In summary, we have indicators of financial institutions depth (FID), financial markets depth (FMD), access to financial institutions (FIA), efficiency of financial markets (FME), and institutions (FIE)[8]. We report the composition of each indicator in Table 2.6.

We build the choice of other explanatory variables on a reviews of income inequality drivers (Nolan et al., 2019; Roine et al., 2009), related study of finance-inequality nexus (de Haan & Sturm, 2017), and a more general inquiry into the robust determinants of income inequality (Furceri & Ostry, 2019). The potential regressors could be categorized in several groups. They control for economic and financial development, demographics, globalization, and institutional background. Table 2.7 reports all the control variables and their sources.

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[8]Svirydzenka (2016) extrapolate the indicators from top to bottom if the original variables are unavailable, we make sure that that at least one variable is available for the construction of the index and no artificial correlation introduced to the data.

2.4 Methodology

2.5 Results

We examine the determinants of inequality in the panel Bayesian Model Averaging (BMA) framework and present the results in the following sections. We start with a model where we capture the overall inequality by Gini index in subsection 2.5.1. We then continue to estimations where we consider the shares of income going to the top 10% and top 1% of the income distribution as our dependent variable. We check the robustness of our estimates by employing alternative model and parameter priors throughout the analysis.

### 2.5.1 Gini index of inequality

We focus the analysis on the relationship between the indicators representing various aspects of financial development and income inequality. Figure 2.2 outlines the expected link after we have demeaned the variables using the cross-sectional averages. The relationship is not particularly strong, but we observe negative correlation between Gini index and indicators of access and efficiency of financial institutions, as suggested by a linear estimate. For size indicators of financial market and institutions, the link appears much weaker.

Table 2.3 reports the baseline results. The baseline estimate relies on the uniform model prior and hyper-g parameter prior. We choose the model prior to remain agnostic about the prior probability of each examined model. While uniform prior assigns the same prior probability to each model, the distribution of the prior model space is concentrated around $k/2$, where k is the number of potential covariates and consequentially the estimate may gravitate towards larger model sizes and higher number of covariates[9]. The hyper-g prior provides more robust results than some other traditionally applied g priors (Feldkircher & Zeugner, 2012). Overall, we have 16 variables with PIP above 0.8. The number of unique relevant regressors effectively shrinks by two if we abstract from the quadratic terms of the GDP per capita and the education index. Most of the estimated posterior means exhibit expected signs.

The only financial indicators which occur among the top regressors are access and efficiency of financial institutions with PIPs of 1 and 0.88, respectively. The posterior mean on the coefficients in both dimension is negative so higher

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[9]See Ley and Steel (2009) for details.

Figure 2.2: Gini Coefficient and Financial Development Indicators
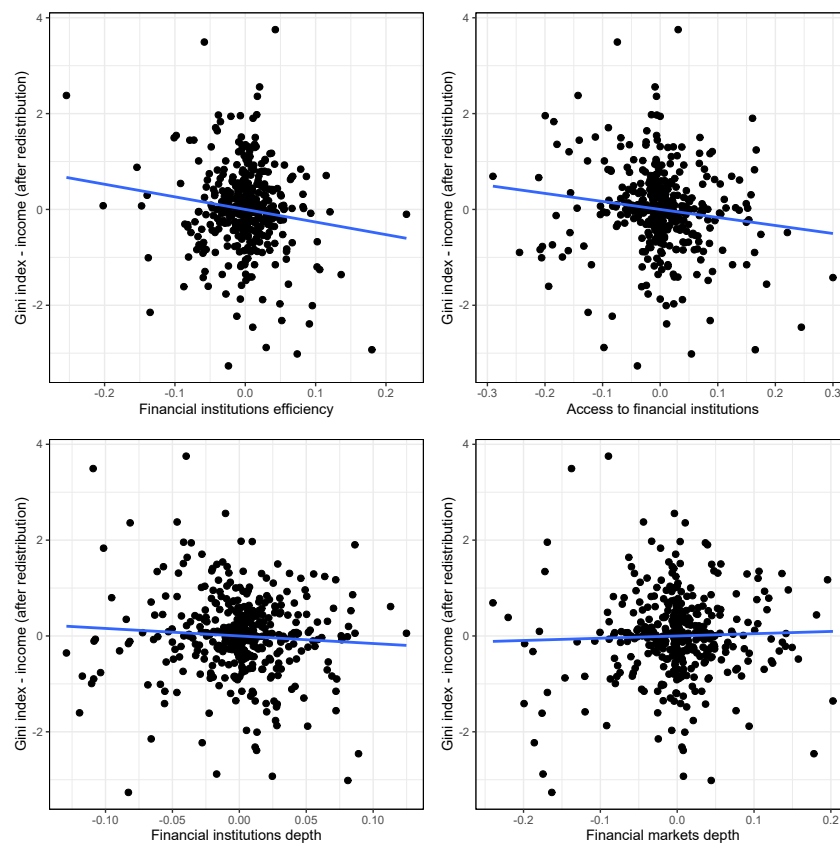
levels of access and efficiency are associated with lower levels of income inequal-ity. The inequality decreasing effect of access to finance on inequality mirrors Hasan et al. (2020) for wealth inequality, and partially also Furceri and Ostry (2019) who document similar effect, although not fully robust. The observation on inequality decreasing effect of access to finance supports also Claessens and Perotti (2007) who suggest that access may equalize economic opportunities and lead to more evenly distributed income. The efficiency of financial inter-mediation putting downward pressure on income inequality also has a precedent in Gimet and Lagoarde-Segot (2011)[10]. We fail to confirm that the efficiency of financial institutions is a robust determinant of inequality, however, as the PIP markedly decreases under alternative model priors. None of the size indicators of financial institutions or markets has high probability of inclusion.

Education expenditures (%share of GDP) along with the education index calculated using mean and expected years of schooling show inequality de-creasing effect. This is in line with prediction of Deaton (2013), Goldin and Katz (2009) who claim that the skill-biased technological change should be mit-igated by education. Furceri and Ostry (2019) provide similar evidence using the levels of education attainment.

The benefits of capital markets liberalization seem to be concentrated to the top of the income distribution. Top quintile of the distribution accrues nearly all of the income growth following the liberalization while the share of middle three quantiles decreases and the bottom remains unaffected (Das & Mohapatra, 2003).

Kroszner et al. (2007) show that financial crises have relative more severe impact on the sectors which depend more on external financing. The conse-quences of crises on firms relate to institutional environment and materialize through lower production capacity and competition.

2.6   Conclusion

Overall, these results suggest that policies seeking to improve the governance and robustness of local banks should be prioritized over size-enhancing reforms from a normative point of view (Gimet & Lagoarde-Segot, 2011).

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[10]They measure efficiency of banking sector by the difference between lending rate and the deposit rate (spread). They argue higher spread reflects low competition and high transaction costs. The imperfections in the credit market can skew the credit to high-income, wealthy households who can provide significant collateral, reinforcing the existing inequality.

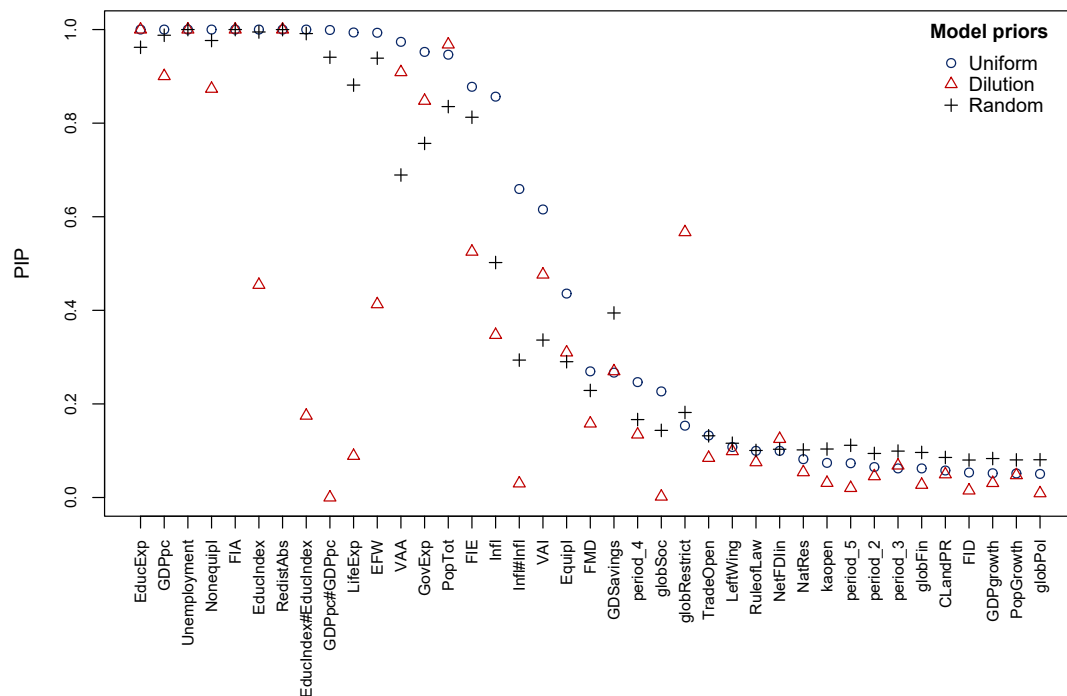Figure 2.3: Robustness checks with alternative model priors, Gini co-
efficient

Figure 2.4: Robustness checks with alternative model priors, Top 10
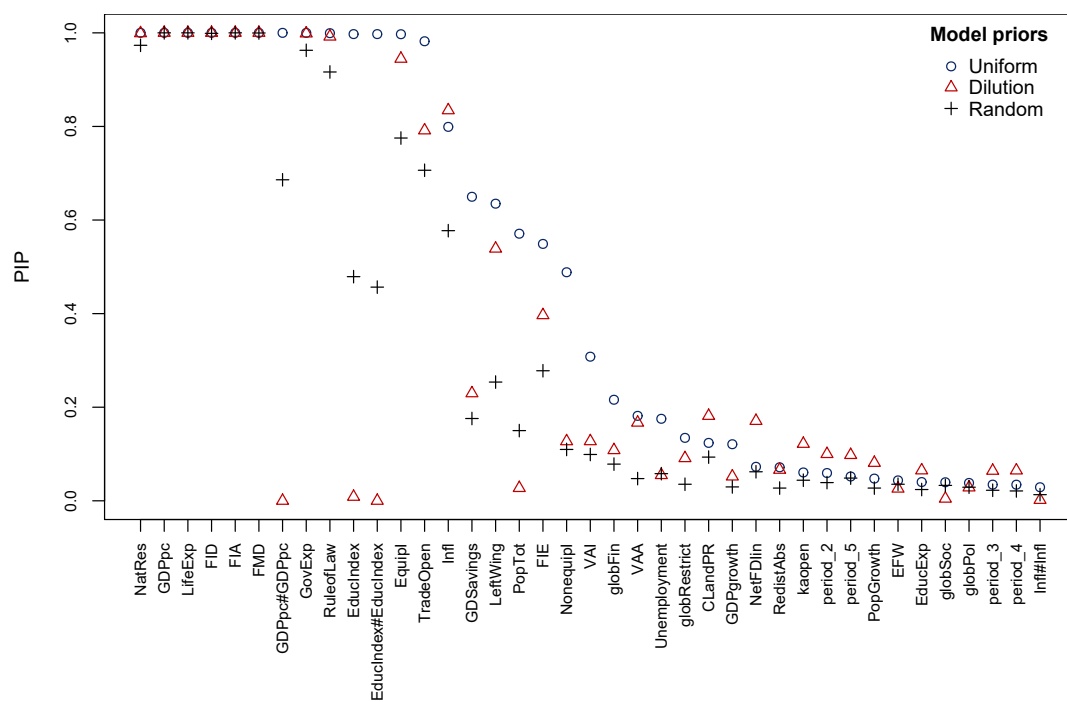% share

Table 2.3: BMA, baseline results. Dependent variable after-tax Gini index, 394 observations.

	PIP	Post Mean	Post SD
Education expenditures	1.00	-0.14506	0.05042
GDP per capita	1.00	1.62811	0.56870
Unemployment	1.00	0.23629	0.05907
Non-equipment investment	1.00	0.14977	0.05285
Access to financial institutions	1.00	-0.24629	0.06342
Education index (UN)	1.00	-0.58853	0.23865
Redistribution	1.00	-0.22055	0.05051
Education index sq.	1.00	0.82252	0.22008
GDP per capita sq.	1.00	-1.44906	0.57565
Life expectancy	0.99	-0.22879	0.09750
Economic freedom	0.99	0.18518	0.06941
Value added in agriculture	0.97	-0.12361	0.05947
Government expenditures	0.95	0.12259	0.05743
Total population	0.95	-0.15378	0.08478
Financial institutions efficiency	0.88	-0.08374	0.05599
Inflation	0.86	0.16879	0.12487
Inflation sq.	0.66	-0.11127	0.11201
Value added in industry	0.62	-0.05825	0.06407
Equipment investment	0.44	-0.03383	0.05359
Financial markets depth	0.27	0.01554	0.03673
Gross domestic savings	0.27	-0.02022	0.04597
Social globalization	0.23	0.02365	0.06279
Restrictions on globalization	0.15	0.00874	0.03214
Trade openness	0.13	0.00615	0.02589
Left-wing orientation	0.11	0.00339	0.01720
Rule of law	0.10	-0.00333	0.01812
Net FDI (% GDP)	0.10	-0.00283	0.01575
Natural resources rents	0.08	-0.00223	0.01583
Chinn-Ito index	0.07	-0.00205	0.01780
Financial globalization	0.06	-0.00134	0.01466
Civil liberties & political rights	0.06	0.00075	0.01131
Financial institutions depth	0.05	0.00060	0.01316
GDP growth	0.05	0.00016	0.01255
Population growth	0.05	0.00055	0.01052
Political globalization	0.05	0.00000	0.01432

Table 2.4: BMA, baseline results. Dependent variable Top 10% share,
394 observations.

	PIP	Post Mean	Post SD
Natural resources rents	1.00	-0.15595	0.04773
GDP per capita	1.00	2.13915	0.54791
Life expectancy	1.00	-0.53327	0.09806
Financial institutions depth	1.00	0.20288	0.05638
Access to financial institutions	1.00	-0.25218	0.06712
Financial markets depth	1.00	0.19376	0.04976
GDP per capita sq.	1.00	-1.80042	0.55408
Government expenditures	1.00	0.15638	0.05565
Rule of law	1.00	-0.12607	0.04665
Education index (UN)	1.00	-0.49573	0.22152
Education index sq.	1.00	0.58180	0.20423
Equipment investment	1.00	-0.13953	0.05578
Trade openness	0.98	0.12632	0.05604
Inflation	0.80	0.06758	0.05407
Gross domestic savings	0.65	0.06566	0.06764
Left-wing orientation	0.63	0.04567	0.04858
Total population	0.57	0.07224	0.08621
Financial institutions efficiency	0.55	-0.04309	0.05278
Non-equipment investment	0.49	0.03864	0.05320
Value added in industry	0.31	-0.02652	0.05253
Financial globalization	0.22	-0.01390	0.03673
Value added in agriculture	0.18	-0.01163	0.03405
Unemployment	0.18	-0.01019	0.03113
Restrictions on globalization	0.13	0.00637	0.02398
Civil liberties & political rights	0.12	0.00529	0.02137
GDP growth	0.12	0.00608	0.02464
Net FDI (% GDP)	0.07	-0.00217	0.01377
Redistribution	0.07	-0.00243	0.01571
Chinn-Ito index	0.06	0.00170	0.01373
Population growth	0.05	0.00097	0.01043
Economic freedom	0.04	0.00055	0.01416
Education expenditures	0.04	-0.00062	0.01030
Social globalization	0.04	-0.00004	0.01918
Political globalization	0.04	0.00060	0.01279
Inflation sq.	0.03	-0.00045	0.01581

Table 2.5: BMA, baseline results. Dependent variable Top 1% share, 394 observations.

	PIP	Post Mean	Post SD
Rule of law	1.00	-0.17039	0.04688
GDP per capita	1.00	0.48163	0.29090
Life expectancy	1.00	-0.45605	0.06980
Equipment investment	1.00	-0.19727	0.05526
Financial institutions depth	1.00	0.16380	0.05689
Access to financial institutions	1.00	-0.25945	0.06419
Financial markets depth	1.00	0.15454	0.04989
Government expenditures	0.99	0.11633	0.04718
Inflation	0.99	0.11773	0.04922
Trade openness	0.93	0.10374	0.05711
Restrictions on globalization	0.47	0.03804	0.05418
Non-equipment investment	0.42	0.03197	0.05001
Natural resources rents	0.34	-0.02182	0.04037
Financial globalization	0.28	-0.02001	0.04269
Value added in industry	0.21	-0.01389	0.03634
Value added in agriculture	0.17	-0.00969	0.03053
Net FDI (% GDP)	0.16	-0.00730	0.02401
Chinn-Ito index	0.15	0.00828	0.02797
GDP per capita sq.	0.15	-0.08401	0.28484
Economic freedom	0.12	-0.00945	0.03762
Gross domestic savings	0.11	0.00634	0.02688
Redistribution	0.11	0.00495	0.02085
GDP growth	0.11	-0.00504	0.02208
Social globalization	0.09	-0.00626	0.03233
Education index (UN)	0.09	-0.01003	0.07309
Unemployment	0.05	0.00131	0.01287
Political globalization	0.05	0.00137	0.01473
Financial institutions efficiency	0.04	-0.00070	0.01024
Education index sq.	0.04	0.01380	0.07857
Total population	0.04	-0.00060	0.01484
Inflation sq.	0.04	0.00053	0.01828
Population growth	0.04	0.00020	0.00844
Education expenditures	0.04	-0.00002	0.00935
Left-wing orientation	0.04	-0.00028	0.00843
Civil liberties & political rights	0.04	0.00009	0.00846

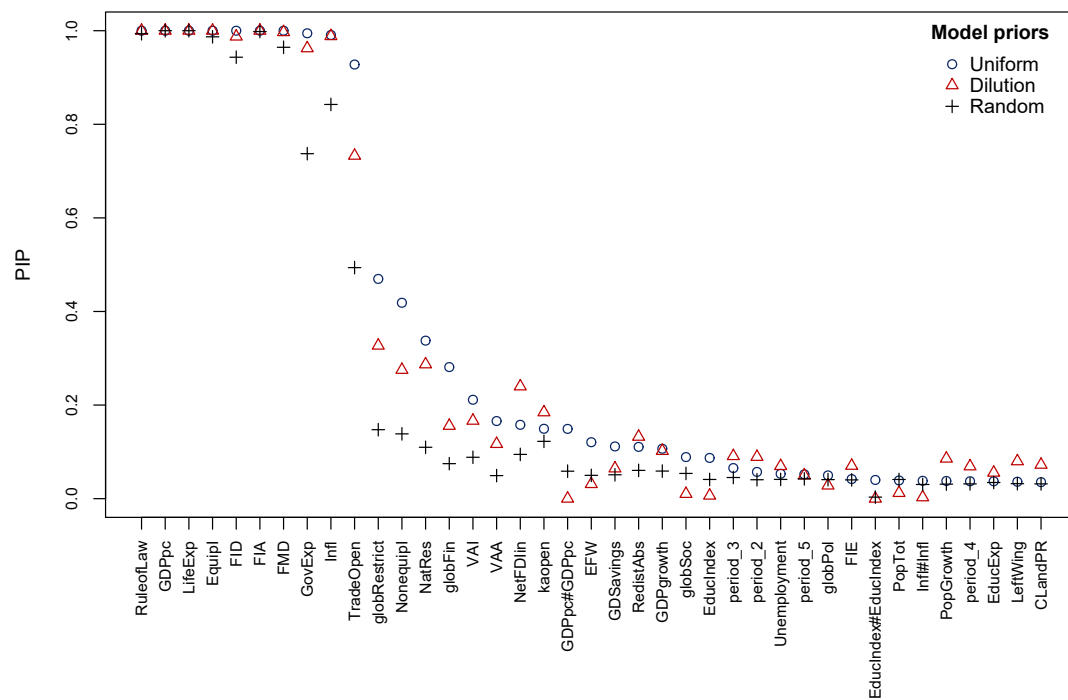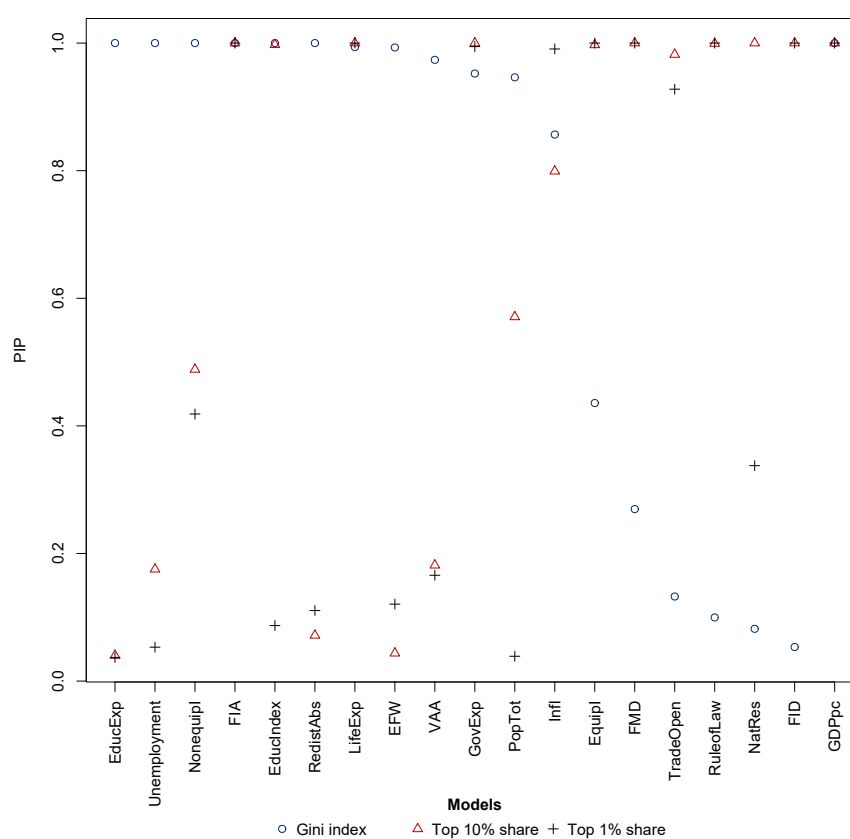Figure 2.5: Robustness checks with alternative model priors, Top 1% share
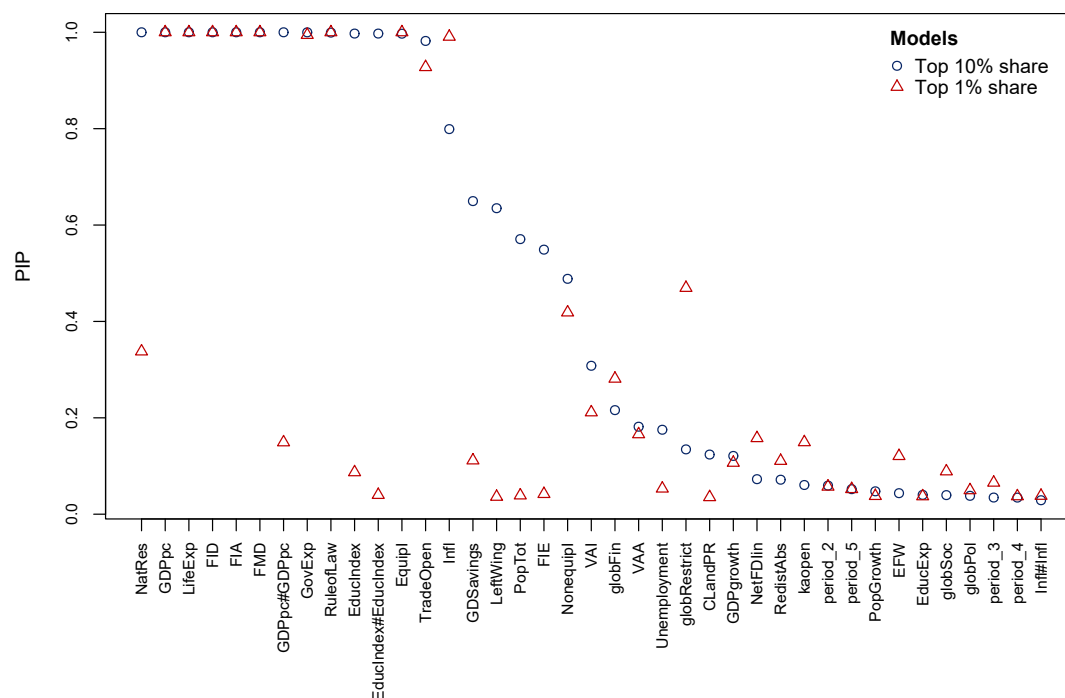
Figure 2.6: PIPs with different inequality measures

Note: The comparison only shows variables which show PIP > 0.9 in at least one of the models.

Figure 2.7: PIPs for different top income shares with baseline priors

Note: Random note. This figure might not be included in the end.

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Appendix

2..1   The composition of financial indicators

Table 2.6: Underlying Components of Financial Development Indicators

INDICATOR	MEASURE
Financial institutions	
Access	Bank branches per 100,000 adults ATMs per 100,000 adults
Efficiency	Net interest margin Lending-deposits spread Noninterest income to total income Overhead costs to total assets Return on assets Return on equity
Depth	Domestic private credit to the real sector to the GDP Pension fund assets/GDP Mutual fund assets/GDP Insurance premiums life and nonlife/GDP
Financial markets	
Depth	Stock market capitalization/GDP Stocks traded/GDP International debt securities of government/GDP Total debt securities of financial corporations/GDP Total debt securities of nonfinancial corporations/GDP
Efficiency	Stock market turnover ratio (stocks traded/capitalization)

2..2 Dataset description

Table 2.7: List of variables

Variable	Definition (+ optional comments)	Source
GiniNet	Aftertax Gini index based on distribution of income (The Standardized World Income Inequality Database).	Solt (2019)
GiniMarket	Before-tax Gini index based on distribution of income (The Standardized World Income Inequality Database).	Solt (2019)
Top10share	Share of income going top decile of the distribution.	WID
Top1share	Share of income going top percentile of the distribution.	WID
FIA	Access to financial institutions	Svirydzenka (2016)
FID	Financial institutions depth	Svirydzenka (2016)
FIE	Financial institutions efficiency	Svirydzenka (2016)
FMD	Financial markets depth	Svirydzenka (2016)
FME	Financial markets efficiency	Svirydzenka (2016)
GDPpc	Level of GDP per capita	WB
NatRes	Total natural resource rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents.	WB
PopGrowth	Annual population growth 1980-2009	WB
GovExp	General government final consumption expenditure (formerly general government consumption).	WB
NNSavings	Net national savings (gross national savings less the value of consumption of fixed capital, % GNI).	WB
EducExp	Education expenditure refers to the current operating expenditures in education, including wages and salaries and excluding capital investments in buildings and equipment..	WB
Infl	Inflation as measured by the consumer price index.	WB
VAA	Agriculture, forestry, and fishing value added (% GDP).	WB
VAI	Industry value added (% GDP).	WB
GFCF	Gross fixed capital formation (% of GDP).	WB
NetFDI	Foreign direct investment, net inflows (% of GDP).	WB
GDPgrowth	Annual growth of GDP.	WB

LifeExp	Life expectancy at birth.	WB
LabForce	Total labor force comprises people ages 15 and older who meet the International Labor Organization definition of the economically active population: all people who supply labor for the production of goods and services during a specified period. Labor force total.	WB
RuleOfLaw	Rule of law estimate	WB
CLandPR	Average of index for civil liberties and political rights	Freedom House
ChinnIto	Chinn-Ito index of financial openness.	Chinn-Ito
LeftWing	Dummy equal to 1 when left oriented party lead the country.	DPI
ActivRestrict	Activity restrictions. Regulatory restrictions on bank activities and the mixing of banking and commerce.	Barth et al. (2013)
CapitalReg	Capital Regulatory index.	Barth et al. (2013)
DiversIndex	Whether there are explicit, verifiable, quantifiable guidelines for asset diversification and banks are allowed to make loans abroad.	Barth et al. (2013)
EducIndex	Calculated using mean years of schooling and expected years of schooling	UN
NetInterestMargin	Accounting value of banks' net interest revenue as a share of average interest-bearing assets; a measure of the efficiency of the banking sector.	GFDD
BankZScore	return on banks' assets plus the ratio of banks' equity and assets, divided by the standard deviation of the return on assets (ROA+equity/assets)/sd(ROA); a measure of stability of the banking sector	GFDD
Privatecredit	Domestic private credit to the real sector to GDP; a measure of the depth of the banking sector	GFDD
MarketCap	Value of listed shares to GDP; a measure of the depth of stock markets.	GFDD
MarketTurn	Stock market value traded to total market capitalization; a measure of the efficiency of stock markets.	GFDD
BankBranches	Number of bank branches per 100,000 adults	GFDD
Loan2Deposits	Loan-to-deposit ratio.	GFDD

Redist	Difference between market (pre-tax) and net (after-tax0 Gini index based on distribution of income (The Standardized World Income Inequality Database).	Solt (2016)
FinLib	Averaged components of Economic Freedom of the World index 3D (freedom to own foreign currency accounts), 4C (black-market exchange rates), 4D (controls of the movement of capital and people), and 5A (credit market regulations).	Gwartney et al. (2017)