Finance, income inequality and income redistribution

van Velthoven, Adriaan; de Haan, Jakob; Sturm, Jan-Egbert

Published in:
Applied Economics Letters

DOI:
10.1080/13504851.2018.1542483

Applied Economics Letters

ISSN: 1350-4851 (Print) 1466-4291 (Online) Journal homepage: https://www.tandfonline.com/loi/rael20

Finance, income inequality and income redistribution

Adriaan Van Velthoven, Jakob De Haan & Jan-Egbert Sturm

APPLIED ECONOMICS LETTERS
2019, VOL. 26, NO. 14, 1202–1209
https://doi.org/10.1080/13504851.2018.1542483

ARTICLE

Finance, income inequality and income redistribution

Adriaan Van Velthoven[a,b], Jakob De Haan[a,c,d,e] and Jan-Egbert Sturm[d,e]

[a]De Nederlandsche Bank, Amsterdam, The Netherlands; [b]University of Utrecht, Utrecht, The Netherlands; [c]University of Groningen, Groningen, The Netherlands; [d]KOF Swiss Economic Institute, ETH Zurich, Zurich, Switzerland; [e]CESifo, Munich, Germany

ABSTRACT
Using a panel fixed effects model for a large sample of countries covering 1975–2005, we test the hypothesis that income inequality caused by finance (financial development, financial liberalization and banking crises) is related to more income redistribution than inequality caused by other factors. Our results provide evidence in support of this hypothesis. We also find that the impact of inequality on redistribution is conditioned by ethno-linguistic fractionalization. Our findings are robust to the inclusion of several control variables suggested by previous studies.

KEYWORDS
Income inequality; income redistribution; financial liberalization; financial sector size; financial crises

JEL CLASSIFICATION
D31; D63; F02; O11; O15

I. Introduction

It is widely believed that financial development and financial liberalization increase economic growth. Although there is indeed substantive evidence that financial development and financial liberalization enhance growth (see Arestis, Chortareas, and Magkonis 2015; Valickova, Havranek, and Horvath 2015; and Bumann, Hermes, and Lensink 2013; respectively, for meta analyses of both lines of research[1]) recent analyses suggest a more nuanced view about the benefits of finance.

First, several recent studies suggests a non-linear relationship between financial development and economic growth for several reasons.[2] At high levels of financial development, the further deepening of financial markets may be associated with financial services that have a lower growth potential, such as mortgage finance (Beck et al. 2012). Financial development and financial liberalization may also be associated with a higher frequency of financial crises (Rajan 2005). Finally, the financial sector may attract human capital away from the real economy (Kneer 2013).

Second, there is increasing evidence that financial development and financial liberalization lead to higher income inequality (Jauch and Watzka 2012; Jaumotte, Lall, and Papageorgiou 2013; Dabla-Norris et al. 2015; de Haan and Sturm 2017; Furceri and Loungani 2017; de Haan, Pleniger, and Sturm 2018; Furceri, Loungani, and Ostry 2018).[3] For instance, de Haan and Sturm (2017) find that financial development, financial liberalization and banking crises increase income inequality using panel fixed effects regressions for a large sample of countries. Higher income inequality, in turn, may have a negative effect on economic growth (Berg and Ostry 2011).

However, before jumping to conclusions, it is important to examine to what extent finance-related income inequality leads to more income redistribution. If so, the negative consequences of finance may be less severe. Previous evidence suggests that more unequal societies redistribute more. For instance, Ostry, Berg, and Tsangarides (2014) find that redistribution – defined as the difference between the Gini coefficients for market income and for net income – is positively related to the Gini coefficient for market income inequality. Using the estimates of de Haan and Sturm (2017) on the relationship between finance and income inequality as starting point, we examine whether income inequality that is caused by finance

CONTACT Jan-Egbert Sturm sturm@kof.ethz.ch KOF Swiss Economic Institute, ETH Zurich, Leonhardstr. 21, Zurich 8092, Switzerland
The views expressed are those of the authors and do not necessarily reflect those of DNB.
[1]We should add that notably the growth enhancing effects of capital account liberalization are hard to identify; see, for instance, Kose et al. (2009).
[2]For instance, Arcand et al. (2015) report that at intermediate levels of financial depth, there is a positive relationship between the size of the financial system and economic growth, but at high levels of financial depth, more finance is associated with less growth. In fact, the marginal effect of financial depth on output growth becomes negative when credit to the private sector reaches 80–100 per cent of GDP.
[3]However, there are also several studies suggesting that financial development and/or financial liberalization reduce(s) income inequality. de Haan and Sturm (2017) provide an extensive discussion of the literature.

leads to more redistribution than inequality caused by other factors.

In addition, we analyse whether the effect of income inequality on redistribution is conditioned by ethnic fractionalization. According to Becker (1957), individuals have stronger feelings of empathy toward their own group and this implies that countries with strong fractionalization exhibit lower levels of redistribution. Some recent papers provide cross-country evidence for this (e.g., Desmet, Weber, and Ortuño-Ortín 2009; Desmet, Ortuño-Ortín, and Wacziarg 2012). However, these studies measure redistribution by the share of transfers and subsidies to GDP. This is highly problematic as most of the redistribution occurs through the tax system. Following Ostry, Berg, and Tsangarides (2014), we therefore use the difference between the Gini coefficients for market income and for net income as our proxy for income redistribution. Using a similar measure, Sturm and de Haan (2015) provide some evidence that countries with a high degree of fractionalization have less income redistribution.[4]

Our results suggest that income inequality caused by finance is related to more income redistribution than inequality caused by other factors. We also find that the impact of inequality on redistribution is conditioned by ethno-linguistic fractionalization.

The rest of the paper is structured as follows. Section 2 explains the methodology and describes the data used. Section 3 presents the empirical results and section 4 concludes.

II. Method and data

Method

To capture the effect of inequality caused by finance on redistribution two models are needed; the first one to capture the extent to which income inequality is caused by finance and a second one to regress inequality caused by finance and inequality caused by other factors on redistribution. Since this study aims to capture the relationship between finance, inequality and redistribution over time, we use country fixed effects panel models.

Our first stage regression is drawn from de Haan and Sturm (2017) who estimate the effect of financial development (*FD*), financial liberalization (*FL*) and banking crises (*BC*) on income inequality, controlling for a host of other variables that other studies suggest to be related to income inequality using country-five-year periods as unit of observation (section 2.2 describes the data used in more detail). Using the estimated coefficients on financial development, financial liberalization and banking crises, we calculate the part of income inequality that is caused by finance (*F*). The remaining part of income inequality, i.e. the difference between actual income inequality and *F*, is denoted as *NF*. In the second stage, we estimate the following regression:

$$\begin{aligned} REDIS_{i,t} = & \ \beta_1 + \beta_2 F_{i,t-1} + \beta_3 NF_{i,t-1} \\ & + \ \beta_4 M_{i,t} + u_{i,t} \ i \\ & = 1, \ldots, N; t = 1, \ldots, T \end{aligned} \tag{1}$$

where *REDIS*, is the five-year non-overlapping average redistribution in country i at five-year interval t and M is a vector of control variables, while u is the error term.

Data

The dependent variable in the first-stage regression is the five-year non-overlapping average of the market Gini coefficient (market income inequality), in country i from the SWIID data base (Solt 2009). The Gini coefficient ranges between 0 (perfect equality) and 100 (perfect inequality).[5] We construct averages of the Gini coefficients across 5 years where the Gini coefficients are centered at the middle of the five-year period (see also Ostry, Berg, and Tsangarides 2014).[6] We use five-year non-overlapping averages for three reasons (see also Dabla-Norris et al. 2015). First,

[4]Further evidence on the importance of ethnic fractionalization is provided by Fum and Hodler (2010), who find that natural resources raise (after tax) income inequality in ethnically polarized societies, but reduce income inequality in ethnically homogenous societies.

[5]We acknowledge that the Gini coefficient is less than perfect and that other measures, such as the share of income of the lowest quintile, may sometimes be more appropriate. Data availability, however, dictates our choice. A downside of the use of Gini coefficients is that it is rather insensitive to movements at the end of the tails, the very rich and very poor. This is partly because it is hard to get the richest and poorest household to contribute to household surveys and hence they are underrepresented. This is unfortunate, since much of the increase in inequality is expected at the highest 1 per cent of the distribution (Alvaredo, 2011).

[6]The next paragraphs heavily draw on de Haan and Sturm (2017).

annual macroeconomic data are noisy, and this applies especially for data on income inequality (Delis, Hasan, and Kazakis 2014). Second, the annual income inequality data in SWIID are imputed for years for which no information was available in the underlying databases (there are only infrequent measures of inequality for much of Africa, Latin America, and Asia). Third, we want to ensure that our findings are not driven by short-term, i.e. business cycle, effects.

The independent variables in the first-stage regression are financial development (*FD*); financial liberalization (*FL*); a banking crisis dummy (*BC*); and control variables. We follow most of the literature and measure financial development by private credit divided by GDP. Following previous studies, we employ the data of Abiad, Detragiache, and Tressel (2010) that is based on several sub-indices mostly pertaining to banking regulatory practices measured on a scale from 0 to 3 (fully repressed to fully liberalized). The database consists of seven indices of financial sector liberalization. Our measure of financial liberalization is the sum of six of these. As the sub-index on banking supervision is not about financial sector liberalization we exclude it. Our crisis data come from Laeven and Valencia (2013) who provide information on the timing of systemic banking crises.

De Haan and Sturm (2017) considered a long list of potential control variables. Only democratic accountability (*D*) and economic globalization (*EG*) turned out to be significant. On a scale from zero (low quality) to six (high quality), the variable democratic accountability measures not just whether there are free and fair elections, but also how responsive government is to its people. It is taken from the ICRG database. The economic globalization measure we use is taken from the KOF Globalization Index (http://globalization.kof.ethz.ch/). See Dreher (2006) for details.

The dependent variable in the second-stage regression (redistribution), is measured by the difference between the market and net Gini coefficient (see also Ostry, Berg, and Tsangarides 2014).[7] As said, we decompose total income inequality by the part caused by finance and the part caused by other factors (i.e. the difference between total inequality and the part explained by finance). To test for Becker's view that fractionalized countries redistribute less, we use data from the Ethnic Power Relations (EPR) Core Dataset of 2014 (Cederman, Wimmer, and Min (2010) and Vogt et al. (2015)). It provides annual data on politically relevant ethnic groups, their relative sizes and their access to executive state power in all countries with a population of at least 500,000. Based on Alesina et al. (2003), we construct a Herfindahl index of ethnic fractionalization of politically relevant groups in a country.

We consider several controls motivated by previous studies, such as GDP per capita and its square to allow for a potentially non-linear relationship between development and income inequality as hypothesized by Kuznets (1955), as well as natural resource rents.[8]

Table 1 reports descriptive statistics and sources of our main variables.

III. Results

The first regression estimating the effect of finance on inequality while correcting for country-fixed effects is as follows:

$$Gini_t = \underset{(0.36)}{0.97\,BC_{t-1}} + \underset{(0.01)}{0.03\,FD_{t-1}} + \underset{(0.05)}{0.13\,FL_{t-1}} - \underset{(0.25)}{0.66\,D_{t-1}} + \underset{(0.02)}{0.07\,EG_{t-1}}$$

(Robust standard errors clustered at the country level are shown in parentheses.)

One may worry that in our first stage regression financial development is potentially endogenous. However, as shown in de Haan and Sturm (2017), when we use random effects and legal origin as

[7]We acknowledge that the Gini coefficient is an imperfect measure of income inequality. The main problem is that several welfare state characteristics may affect incentives to supply labor and capital, thereby affecting the market Gini coefficient. Other indicators of income inequality are often not available for most countries in our sample. Furthermore, the difference between the market and net Gini coefficients is a much better proxy for income redistribution than frequently-used other measures such as government transfers and subsidies, as also taxes may have redistribution consequences (Sturm and de Haan 2015).

[8]Data for GDP per capita and natural resource rents come from the World Bank's World Development Indicators. The natural resource rents measure the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents taken as percentage of GDP. These rents are estimated as the difference between the price of a commodity and the average cost of extracting these resources.

Table 1. Summary statistics and sources of the variables used.

Variable	N	Mean	SD	Min	Max	Source
Redistribution coefficient; the difference market-net income, avg of t + 1 to t + 5	338	7.6	7.13	−2.83	24.49	SWIID
Gini coefficient (market-based)	338	45.52	6.63	22.66	67.5	SWIID
Start of a Systemic Banking Crisis during t-4 and t	338	0.18	0.39	0	1	Laeven and Valencia
Domestic credit to private sector (% of GDP)	338	50.94	41.32	3.4	219.28	WDI
Financial liberalisation: Abiad et al. index (corrected)	338	11.96	4.73	0	18	Abiad et al.
Democratic Accountability	338	4.25	1.45	0	6	ICRG
Economic Globalization: Actual Flows	338	54.19	19.25	6.35	98.49	KOF
Gini coefficient explained by finance variables	338	3.22	1.55	0.4	9.43	SWIID, own calculations
Gini coefficient not explained by finance variables	338	42.3	6.54	21.18	62.78	SWIID, own calculations
Ethnic Fractionalization (relevant groups), EPR	338	34.91	27.83	0	92.82	EPR
Log(GDP per capita – constant 2005 US#)	335	8.33	1.59	4.85	11.11	WDI
Log(GDP per capita – constant 2005 US#) squared	335	71.91	26.34	23.5	123.41	WDI
Total natural resources rents (% of GDP)	337	6.65	9.83	0	55.15	WDI
Population ages 65 and above (% of total)	338	8.22	5.01	2.5	19.85	WDI
Age dependency ratio (% of working-age population)	338	63.92	17.28	37.09	111.89	WDI
Orientation of the Chief Executive Party is left-wing	338	0.34	0.48	0	1	DPI
Share of left-wing Chief Executive Party during t-4 and t	338	0.32	0.41	0	1	DPI
Institutional Quality (corru burea law_a democ)	338	3.71	1.37	0.33	6	ICRG
Adjusted savings: education expenditure (% of GNI)	336	4.04	3.03	0.6	43.27	WDI
School enrollment, primary (% gross)	309	99.74	14.73	29.27	138.32	WDI
School enrollment, secondary (% gross)	270	75.24	31.22	5.31	160.62	WDI

Note: At most 85 countries are covered in 5 5-year periods from 1985 to 2009.

instrument for financial development, the results are fairly similar to those shown above.

Table 2 shows the results for the model for income redistribution. The first column shows the relationship between income redistribution and gross market inequality, controlling for the Kuznets hypothesis as well as natural resource rents. In line with the results of Ostry, Berg, and Tsangarides (2014), our results suggest that higher market inequality is associated with more income redistribution. The estimates also provide support for the Kuznets hypothesis. The coefficient on natural resource rents is positive and significant as well. At first sight, this seems to be in conflict with the findings of Fum and Hodler (2010). However, their model is based on a cross section, while ours is a panel model. In other words, we focus on within country changes in income redistribution, instead of cross country differences therein. Our results suggest that countries facing an increase in natural resource rents use some of those receipts

Table 2. Main regression results.

VARIABLES	(1) Gini	(2) + frac	(3) Split Gini	(4) Split Gini+ frac
Gini coefficient (market-based)	0.324***	0.455***		
	(4.084)	(3.725)		
Ethnic Fractionalization (relevant groups), EPR		0.218**		0.219**
		(2.236)		(2.150)
Gini coefficient x Ethnic Fractionalization		−0.00403**		
		(−2.186)		
Gini coefficient explained by finance variables			0.531***	0.706***
			(4.475)	(4.638)
Gini coefficient not explained by finance variables			0.307***	0.438***
			(3.786)	(3.221)
Gini coefficient explained by finance x Ethnic Fractionalization				−0.00441
				(−1.071)
Gini coefficient not explained by finance x Ethnic Frationalization				−0.00408*
				(−1.943)
Log(GDP per capita – constant 2005 US#)	−9.120**	−9.162*	−8.849**	−8.815*
	(−2.124)	(−1.840)	(−2.173)	(−1.796)
Log(GDP per capita – constant 2005 US&) squared	0.533**	0.523*	0.487**	0.468*
	(2.171)	(1.860)	(2.109)	(1.714)
Total natural resources rents (% of GDP)	0.0568**	0.0497*	0.0615**	0.0547**
	(2.208)	(1.822)	(2.491)	(2.083)
Observations	334	334	334	334
R-squared	0.339	0.386	0.348	0.397
Number of countries	84	84	84	84
Number of periods	5	5	5	5
Hausman (p-value)	9.26e-07	4.53e-06	5.71e-09	1.15e-07
Gini parts equal (p-value)	999	999	0.0597	0.0494

Robust t-statistics in parentheses
*** p < 0.01, ** p < 0.05, * p < 0.1
Notes: Country-fixed effects included. Standard errors clustered at the country level.

for income redistribution purposes. This is in line with the experience of countries like Norway and the Netherlands, which used the additional income from natural gas exploitation to raise redistribution. Also recent evidence reported by Kim and Lin (2018) is consistent with our findings.

In the second column of Table 2, we add ethnic fractionalization and its interaction with gross market income inequality. The results suggest that the impact of market inequality on income redistribution depends on the level of ethnic fractionalization. The more fractionalized a country is, the lower is the marginal effect of market inequality on income redistribution. This is in line with the hypothesis put forward by Becker (1957).

In the third column, we split market inequality in a part that is related to finance (using the estimated coefficients for the finance variables in the first-stage model and the actual values of the finance variables) and market inequality related to other factors (the difference between total inequality and inequality attributed to finance). Here we use the same model as shown in the first column of Table 2, so without the interaction with ethnic fractionalization. The results suggest that the impact of income inequality caused by finance on income redistribution is higher than that of income inequality cost caused by other factors. The hypothesis that the coefficients on both parts of income inequality are equal can be rejected, as shown in the final row of Table 2.

Finally, in the fourth column we show the interaction of both parts of income inequality with ethnic fractionalization. The graphs in Figure 1 are based on these estimates. They show the marginal effect of income inequality on income redistribution for different levels of ethnic fractionalization. Consistent with the results in column (2), the graphs show that at higher (lower) levels of ethnic fractionalization the level of redistribution is lower (higher).

To examine the robustness of our findings, we have added several control variables to the model shown in column (4) of Table 2. First, following Desmet, Ortuño-Ortín, and Wacziarg (2012), we include the share in the total population of persons older than 65. It is expected that a higher share of elderly will lead to more income redistribution. This variable is taken from the World Bank's World Development Indicators (WDI). As an alternative, we use the age dependency ratio, also taken from the WDI. As shown in Table 3, the coefficients on both variables are insignificant.

Next, we consider several proxies for the political orientation of the executive. It is widely believed that left-wing political parties have a higher priority for income redistribution then right-wing parties. The Database of Political Institutions 2015 provides several proxies for the orientation of the executive party. As shown in Table 3, none of them turns out to be significant.

Third, we include a proxy for the quality of the economic institutions. Using the International

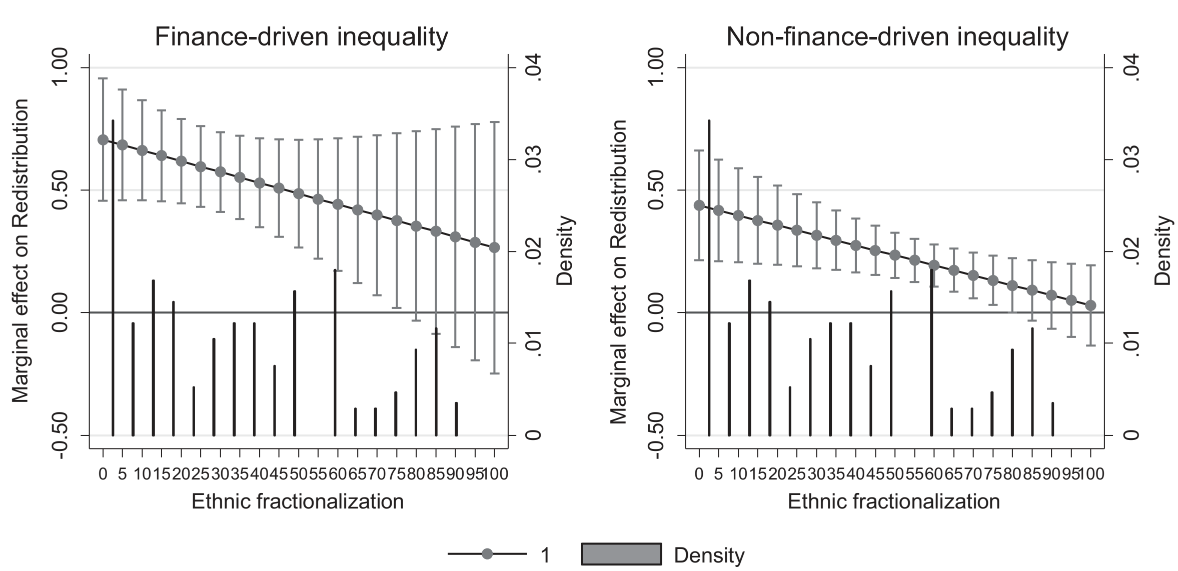

Figure 1. Marginal effects of finance-driven and non-finance-driven inequality for different levels of ethnic fractionalization.

Table 3. Some robustness checks.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	Baseline	shpop65	agedeprat	left	left5	instqual	democ	eduexpgni	schoolenrprim	schoolenrsec
Ethnic Fractionalization (relevant groups), EPR	0.219** (2.150)	0.216** (2.132)	0.226** (2.204)	0.220** (2.134)	0.218** (2.111)	0.221** (2.175)	0.222** (2.240)	0.221** (2.160)	0.269** (2.612)	0.233** (2.031)
Gini coefficient explained by finance variables	0.706*** (4.638)	0.650*** (3.896)	0.695*** (4.470)	0.711*** (4.708)	0.707*** (4.633)	0.724*** (4.740)	0.698*** (4.441)	0.721*** (4.710)	0.805*** (5.521)	0.792*** (4.406)
Gini coefficient not explained by finance variables	0.438*** (3.221)	0.429*** (3.089)	0.446*** (3.261)	0.441*** (3.150)	0.434*** (3.058)	0.438*** (3.247)	0.454*** (3.363)	0.443*** (3.222)	0.524*** (3.888)	0.459*** (4.013)
Gini coefficient explained by finance x Ethnic Fractionalization	−0.00441 (−1.071)	−0.00393 (−0.939)	−0.00461 (−1.137)	−0.00433 (−1.053)	−0.00460 (−1.089)	−0.00424 (−1.049)	−0.00437 (−1.042)	−0.00441 (−1.065)	−0.00638 (−1.647)	−0.00807* (−1.748)
Gini coefficient not explained by finance x Ethnic Frationalization	−0.00408* (−1.943)	−0.00406* (−1.946)	−0.00423** (−1.995)	−0.00415* (−1.892)	−0.00402* (−1.816)	−0.00417* (−1.975)	−0.00412** (−1.996)	−0.00416* (−1.952)	−0.00493** (−2.224)	−0.00401* (−1.951)
Log(GDP per capita - constant 2005 US#)	−8.815* (−1.796)	−8.267* (−1.726)	−9.409* (−1.851)	−8.765* (−1.772)	−8.982* (−1.828)	−8.438 (−1.630)	−8.679* (−1.940)	−8.757* (−1.764)	−2.445 (−0.704)	−7.667 (−1.628)
Log(GDP per capita - constant 2005 US#) squared	0.468* (1.714)	0.409 (1.505)	0.492* (1.771)	0.464* (1.685)	0.479* (1.743)	0.444 (1.537)	0.447* (1.797)	0.462* (1.674)	0.123 (0.572)	0.422 (1.555)
Total natural resources rents (% of GDP)	0.0547** (2.083)	0.0537** (2.009)	0.0520* (1.962)	0.0562** (2.124)	0.0526* (1.947)	0.0527** (2.071)	0.0546** (2.114)	0.0547** (2.086)	0.0568* (1.813)	0.0529 (1.571)
Population ages 65 and above (% of total)		0.173 (1.169)								
Age dependency ratio (% of working-age population)			−0.0144 (−0.827)							
Orientation of the Chief Executive Party is left-wing				0.139 (0.466)						
Share of left-wing Chief Executive Party during t-4 and t					−0.180 (−0.527)					
Institutional Quality (corru burea law_a democ)						−0.189 (−1.228)				
Democratic Accountability							0.200 (1.404)			
Adjusted savings: education expenditure (% of GNI)								−0.0208 (−0.674)		
School enrollment, primary (% gross)									0.00267 (0.282)	
School enrollment, secondary (% gross)										0.00389 (0.315)
Observations	334	334	334	334	334	334	334	332	307	269
R-squared	0.397	0.404	0.399	0.398	0.398	0.402	0.407	0.398	0.462	0.495
Number of countries	84	84	84	84	84	84	84	84	82	78
Number of periods	5	5	5	5	5	5	5	5	5	5
Hausman (p-value)	1.15e-07	1.75e-09	1.15e-07	2.30e-07	3.91e-07	1.92e-08	8.04e-09	2.60e-07	5.81e-07	1.50e-07
Gini parts equal (p-value)	0.0494	0.0882	0.0907	0.0327	0.0474	0.0140	0.0763	0.0352	0.0982	0.0930

Robust t-statistics in parentheses

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

Notes: Country-fixed effects included. Standard errors clustered at the country level.

Country Risk Guide (ICRG) database, our measure for the quality of economic institutions is the sum of three variables; corruption, bureaucracy and law and order. A higher number here indicates better quality.

Next, we include the quality of economic and political institutions using several proxies by the ICRG.[9] According to Meltzer and Richard (1981), in a more democratic society, higher inequality will create pressures for redistribution. In democracies, political power is more evenly distributed than economic power, so that a majority of voters will have the power and incentive to vote for redistribution. As shown in Table 3, the coefficients on both variables are not significant.

Finally, we have considered several proxies for education, all drawn from the WDI. Again, none of these variables turn out to be significant.

In conclusion, our main findings appear to be robust to the inclusion of all these control variables.

IV. Conclusions

Using a panel fixed effects model for a large sample of countries covering 1975–2005, we test the hypothesis that income inequality caused by finance (financial development, financial liberalization and banking crises) is related to more income redistribution than inequality caused by other factors. Our results provide evidence in support of this hypothesis. This implies that the inequality-raising effects of finance as reported by several recent studies have, to some extent, been redressed by policy makers. As finance is also contributing to economic growth, although probably in a non-linear way, its overall welfare effects are therefore likely to be positive.

We also find that the impact of inequality on redistribution is conditioned by ethno-linguistic fractionalization. Our findings are robust to the inclusion of several control variables suggested by previous studies.

Disclosure statement

No potential conflict of interest was reported by the authors.

ORCID

Jan-Egbert Sturm http://orcid.org/0000-0002-9421-5736

References

Abiad, A., E. Detragiache, and T. Tressel. 2010. "A New Database of Financial Reforms." *IMF Staff Papers* 57: 281–302. doi:10.1057/imfsp.2009.23.

Alesina, A., A. Devleeschauwer, W. Easterly, S. Kurlat, and R. Wacziarg. 2003. "Fractionalisation." *Journal of Economic Growth* 8 (2): 155–194.

Alvaredo, F. 2011. "A Note on The Relationship between Top Income Shares and The Gini Coefficient." *Economics Letters* 110 (3): 274–277.

Arcand, J.-L., E. Berkes, and U. Panizza. 2015. "Too Much Finance?" *Journal of Economic Growth* 20 (2): 105–148. doi:10.1007/s10887-015-9115-2.

Arestis, P., G. Chortareas, and G. Magkonis. 2015. "The Financial Development and Growth Nexus: A Meta-Analysis." *Journal of Economic Surveys* 29 (3): 549–565. doi:10.1111/joes.2015.29.issue-3.

Beck, T., B. Buyukkarabacak, F. K. Rioja, and N. T. Valev. 2012. "Who Gets the Credit? and Does It Matter? Household Vs. Firm Lending across Countries." *The B.E. Journal of Macroeconomics Contributions* 12 (1): 1–46.

Becker, G. S. 1957. *The Economics of Discrimination*. Chicago: University of Chicago Press.

Berg, A., and J. D. Ostry. 2011. "Inequality and Unsustainable Growth: Two Sides of the Same Coin?" *IMF Staff Discussion Note 11/08*. Washington: International Monetary Fund.

Bumann, S., N. Hermes, and R. Lensink. 2013. "Financial Liberalization and Economic Growth: A Meta-Analysis." *Journal of International Money and Finance* 33: 255–281. doi:10.1016/j.jimonfin.2012.11.013.

Cederman, L. E., A. Wimmer, and B. Min. 2010. "Why Do Ethnic Groups Rebel? New Data and Analysis." *World Politics* 62 (1): 87–119. doi:10.1017/S0043887109990219.

Dabla-Norris, E., K. Kochhar, F. Ricka, N. Suphaphiphat, and E. Tsounta. 2015. "Causes and Consequences of Income Inequality: A Global Perspective." *IMF Staff Discussion Note 15/13*. Washington: International Monetary Fund.

de Haan, J., and J.-E. Sturm. 2017. "Finance and Income Inequality: A Review and New Evidence." *European Journal of Political Economy* 50: 171–195. doi:10.1016/j.ejpoleco.2017.04.007.

de Haan, J., R. Pleniger, and J.-E. Sturm. 2018. "Does the Impact of Financial Liberalization on Income Inequality Depend on Financial Development? Some New Evidence." *Applied Economics Letters* 25 (5): 313–316. doi:10.1080/13504851.2017.1319554.

Delis, M. D., I. Hasan, and P. Kazakis. 2014. "Bank Regulations and Income Inequality: Empirical

[9]We measure the quality of political institutions using the democratic accountability variable included in the ICRG database. Our indicator of the quality of economic institutions is the sum of three ICRG variables, namely bureaucratic quality, corruption and law and order (taking differences in scaling of these indicators into account).

Evidence." *Review of Finance* 18: 1811–1846. doi:10.1093/rof/rft039.

Desmet, K., I. Ortuño-Ortín, and R. Wacziarg. 2012. "The Political Economy of Linguistic Cleavages." *Journal of Development Economics* 97 (2): 322–338. doi:10.1016/j.jdeveco.2011.02.003.

Desmet, K., S. Weber, and I. Ortuño-Ortín. 2009. "Linguistic Diversity and Redistribution." *Journal of the European Economic Association* 7 (6): 1291–1318. doi:10.1162/JEEA.2009.7.6.1291.

Dreher, A. 2006. "Does Globalization Affect Growth? Evidence from a New Index of Globalization." *Applied Economics* 38 (10): 1091–1110. doi:10.1080/00036840500392078.

Fum, R. M., and R. Hodler. 2010. "Natural Resources and Income Inequality: The Role of Ethnic Divisions." *Economics Letters* 107: 360–363. doi:10.1016/j.econlet.2010.03.008.

Furceri, D., and P. Loungani. 2017. "The Distributional Effects of Capital Account Liberalization." *Journal of Development Economics* 130: 127–144. doi:10.1016/j.jdeveco.2017.09.007.

Furceri, D., P. Loungani, and J. Ostry. 2018. *The Aggregate and Distributional Effects of Financial Globalization: Evidence from Macro and Sectoral Data*. Mimeo: IMF.

Jauch, S., and S. Watzka. 2012. Financial Development and Income Inequality: A Panel Data Approach. *CESifo Working Papers 3687*. Munich: CESifo.

Jaumotte, F., S. Lall, and C. Papageorgiou. 2013. "Rising Income Inequality: Technology, or Trade and Financial Globalization?" *IMF Economic Review* 61: 271–309. doi:10.1057/imfer.2013.7.

Kim, D.-H., and S.-C. Lin. 2018. "Oil Abundance and Income Inequality." *Environmental and Resource Economics* ((forthcoming)). doi:10.1007/s10640-017-0185-9.

Kneer, C. 2013. Finance as a Magnet for the Best and Brightest: Implications for the Real Economy. *DNB Working Paper 392*.

Kose, A. M., E. Prasad, K. Rogoff, and S. J. Wei. 2009. "Financial Globalization: A Reappraisal." *IMF Staff Papers* 56: 8–62. doi:10.1057/imfsp.2008.36.

Kuznets, S. 1955. "Economic Growth and Income Inequality." *American Economic Review* 65: 1–28.

Laeven, L., and F. Valencia. 2013. "Systemic Banking Crises Database." *IMF Economic Review* 61: 225–270. doi:10.1057/imfer.2013.12.

Meltzer, A., and S. Richard. 1981. "A Rational Theory of the Size of Government." *Journal of Political Economy* 89 (5): 914–927. doi:10.1086/261013.

Ostry, J. D., A. Berg, and C. G. Tsangarides. 2014. Redistribution, Inequality, and Growth. *IMF Staff Discussion Note, 14/2*. Washington: International Monetary Fund.

Rajan, R. 2005. "Has Financial Development Made the World Riskier?" *NBER Working Paper 11728*.

Solt, F. 2009. "Standardizing the World Income Inequality Database." *Social Science Quarterly* 90: 231–242. doi:10.1111/ssqu.2009.90.issue-2.

Sturm, J.-E., and J. de Haan. 2015. "Income Inequality, Capitalism and Ethno-Linguistic Fractionalization." *American Economic Review Papers and Proceedings* 105: 593–597. doi:10.1257/aer.p20151112.

Valickova, P., T. Havranek, and R. Horvath. 2015. "Financial Development and Economic Growth: A Meta-Analysis." *Journal of Economic Surveys* 29 (3): 506–526. doi:10.1111/joes.2015.29.issue-3.

Vogt, M., N. C. Bormann, S. Rüegger, L. E. Cederman, P. Hunziker, and L. Girardin. 2015. "Integrating Data on Ethnicity, Geography, and Conflict: The Ethnic Power Relations Data Set Family." *Journal of Conflict Resolution* 59 (7): 1327–1342. doi:10.1177/0022002715591215.