Income Inequality, Capitalism and Ethno-Linguistic Fractionalization

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I. Introduction

There is no consensus on the causes of inequality. Some blame policies. For instance, Stiglitz (2014) argues for the US that "In virtually every domain, we have made decisions that help enrich the top at the expense of the rest." Others pose that inequality is inherent in a market-based economic system. For instance, according to Muller (2013), "Inequality is an inevitable product of capitalist activity, and expanding equality of opportunity only increases it – because some individuals and communities are simply better able than others to exploit the opportunities for development and advancement that capitalism affords." However, countries with similar market-based economic systems exhibit differences in income inequality. Recent research suggests that ethno-linguistic fractionalization explains these cross-country differences in income redistribution (cf. Desmet et al. 2012).

This paper makes the following contributions. First, we examine the relationship between capitalism and income inequality for a large sample of countries using an adjusted economic freedom (EF) index as a proxy for capitalism and Gini coefficients as proxy for income inequality. Previous research on this relationship yields conflicting findings and suffers from several shortcomings. Most importantly, these studies did not adjust the EF index and thereby included redistribution policies in this proxy for capitalism. We only include components that relate to legal structure and security of property rights, freedom to trade internationally, and regulation of credit, labor, and business. Furthermore, previous studies often use income inequality *after* redistribution as a dependent variable. To properly test the view put forward by Muller (2013), we employ income inequality *before* redistribution. We do not find a robust relationship between economic freedom and income inequality.

Second, we analyze the relationship between income redistribution and fractionalization. According to Becker (1957), individuals have stronger feelings of empathy toward their own group and this implies that countries where there is strong fractionalization exhibit lower levels of redistribution. Some recent papers provide cross-country evidence for this (e.g. Desmet et al. 2009; 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. We therefore use the ratio of the income distribution resulting from market processes and that after redistribution as our proxy for income redistribution. Our results suggest that the impact of ethno-linguistic fractionalization is conditional on the level of economic freedom: countries that have a high degree of fractionalization have less income redistribution, while capitalist countries that have a low degree of fractionalization have more income distribution.

II. Economic freedom and income inequality

Although De Soto (2000) argues that economic freedom opens economic opportunities to less privileged and lower income individuals, thereby decreasing inequality, the prevalent view is that more freedom promotes growth at the expense of increased income inequality within countries (Bergh and Nilsson 2010). We examine the relationship between capitalism and income inequality using some parts of the Fraser Institute's EF index as a proxy for capitalism.

The EF index is a composite index. Most previous studies on the relationship between economic freedom and income inequality employ the aggregate EF index. This leads to biased estimates as the aggregate index includes income redistribution via the government sector and inflation.[1] The EF index is available for a large group of countries at 5-years intervals. As a dependent variable we use Gini coefficients based on households' income from Solt's (2009) Standardized World Income Inequality Database (SWIID). We construct averages of the Gini coefficients across 5 years to align them with the frequency of the EF index.[2] Gini coefficients can be calculated for gross income (i.e. before taxes and transfers) and net income (i.e. after taxes and transfers). In this

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[1] Indeed, the papers discussed in the next section examining the relationship between redistribution and fractionalization draw their measure of redistribution from the EF index.

[2] To be precise, the EF index reflects the time period t-3, when the 5-years average of the Gini coefficients is centered at period t. Also the control variables have been constructed in this way. This time lag is to avoid endogeneity issues.

part of the analysis we use gross income Gini coefficients, as we are interested in the income distribution resulting from market processes.

The control variables have been selected based on previous studies. We include the log of real GDP per capita to correct for any distributional effects driven by income levels (cf. Barro 2000). In line with the Kuznets hypothesis, we expect inequality to decrease with higher levels of development.

TABLE 1— RELATION BETWEEN CAPITALISM AND INCOME INEQUALITY

	(1)	(2)	(3)	(4)
Economic Freedom	0.112	0.013	-0.047	0.124
	(0.299)	(0.037)	(-0.128)	(0.323)
GDP per capita		4.899***	4.867***	4.205***
		(5.373)	(5.238)	(4.002)
Economic globalization			0.143***	
			(4.818)	
Stock of FDI				0.059***
				(3.095)
Observations	545	538	507	418
Number of countries	108	105	103	103
R^2	0.037	0.099	0.143	0.101

Notes: This table shows panel estimates for the relationship between 5-year averages of the market Gini coefficients and economic freedom. All explanatory variables are lagged. All estimations include country- and time-fixed effects. T-statistics are in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

Parts of the KOF economic globalization index are included, as several authors have argued that economic globalization has led to more within-country income inequality (see, for instance, Feenstra and Hanson 1996).[3]

Since Jaumotte et al. (2013) find that trade openness is associated with lower income inequality, while increased financial openness is associated with higher income inequality, we include the trade to GDP ratio (%) and the stock of FDI (as % of GDP) separately.

Education has been argued to affect income inequality as well (cf. Barro 2000). Therefore, we include the share of the population that has completed secondary education. We include the share of the labor force employed in the agricultural sector to control for the structure of the economy (cf. Jaumotte et al. 2013).

Table 1 summarizes the main results for an unbalanced panel of up to 108 countries over the period 1971-2010, i.e. 8 five-year intervals. In the first column only our adjusted measure of economic freedom is included. Subsequently, GDP per capita is added. This variable is highly significant and therefore retained in the other specifications. The remaining two columns show those results in which other controls variables also turn significant. Besides GDP per capita only economic globalization and its subcomponent financial globalization are significant. The insignificance of trade openness (not shown) suggests that it is notably financial globalization driving the finding that

[3] The KOF economic globalization index consists of two parts. Whereas the first part is based on actual across border flow data (trade, foreign direct investment, portfolio investment and income payments), the second part looks into trade restrictions like the existence of hidden import barriers, tariff rates, taxes on trade and capital account restrictions. As this latter part is in essence also

included in the EF index, we only take the economic globalization part that relates to actual flows.

economic globalization explains income inequality. The variables capturing education and the structure of the economy are not significant (not shown). The coefficient of our main variable of interest, the EF index, is negative, but not significantly different from zero. We therefore conclude that economic freedom is not robustly related to within country income inequality.[4]

III. Redistribution and ethnic fractionalization

If Becker's (1957) view is correct that individuals have stronger feelings of empathy toward their own group, it is not surprising that the U.S., where there is a strong racial component to the income distribution, exhibits lower levels of redistribution than Western European countries (Desmet et al. 2009). Several papers report evidence that ethno-linguistic fractionalization is negatively related to income distribution. While several studies examine this relationship at the micro level (see Desmet et al. (2012) for a further discussion), others present evidence at the macro level. Barro (2000) does not find any significant relationship between Gini coefficients and ethno-linguistic and religious

fractionalization measures, but La Porta et al. (1999) report that ethno-linguistic fractionalization, measured by an average of five existing indices of fractionalization, generally has a negative impact on several measures of public goods, such as literacy rates, infant mortality, and school attainment that may be related to redistribution.

While Alesina et al. (2003) report that the effect of ethno-linguistic fractionalization on redistribution appears sensitive to the inclusion of control variables, Desmet et al. (2009; 2012) find more robust evidence for a negative association. Desmet et al. (2009) conclude that linguistic fractionalization is negatively associated with redistribution. However, this result does not hold when measures of fractionalization do not account for the degree of linguistic distance between groups, suggesting that the depth of linguistic cleavages matters. Likewise, Desmet et al. (2012) find that linguistic diversity negatively affects redistribution, but the effect becomes smaller and insignificant at lower levels of aggregation. This suggests that "solidarity travels without trouble across groups that are separated by shallow gullies, but not across those separated by deep canyons" (p. 332).

Insightful as they may be, the latter three studies measure redistribution by the share of transfers and subsidies to GDP. This is highly

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[4] This conclusion is neither sensitive to other permutations of the explanatory variables, nor to the removal of the time-fixed effects. Results are available in Sturm and De Haan (2014).

problematic as most of the redistribution within countries occurs through the tax system. Furthermore, a substantial part of transfers and subsidies is not aimed at redistribution. That is why we use the ratio between the income distribution resulting from market processes and the income distribution after redistribution. Both distributions are proxied by Gini coefficients.

The studies discussed use different fractionalization measures. Most are based on language, but as Alesina et al. (2003) point out this may not always capture fractionalization. For instance, in Latin America several countries are relatively homogeneous in terms of language spoken, frequently the one of former colonizers, but much less so in terms of skin color or racial origin. That is why they develop measures for fractionalization of ethnicity, language and religion. Desmet et al. (2009) develop two indices. One index measures the probability of two randomly chosen individuals being from different ethno-linguistic groups and does not take into account the distances between the different groups (ELF), while the other one takes distances between different groups taken into account. Desmet et al. (2012) construct an ethno-linguistic fractionalization at 15 different levels of aggregation based on language trees. But only at a high level of

aggregation (i.e. ELF1), the relationship with income distribution is significant. That is why we only use this measure in our analysis. In total we have 6 fractionalization measures. The correlation between these different fractionalization measures is often very low. That is why we use them all in our regressions.

TABLE 2— EXPLAINING INCOME REDISTRIBUTION

	(1)	(2)	(3)	(4)	(5)	(6)
	Alesina et al. (2003)			Desmet et al. (2009, 2012)		
	Ethnical Frac.	Linguistic Frac.	Religious Frac.	ELF	ELF-distance	ELF1
EF	0.163***	0.154***	0.170***	0.153***	0.127***	0.120***
	(7.017)	(6.335)	(6.239)	(6.555)	(7.024)	(7.002)
Frac.	1.066***	0.817**	0.758**	0.741**	1.055*	0.666
	(3.260)	(2.339)	(2.149)	(2.452)	(1.793)	(1.104)
EFxFrac.	-0.205***	-0.143**	-0.133**	-0.137***	-0.200**	-0.135
	(-4.113)	(-2.598)	(-2.521)	(-2.883)	(-2.179)	(-1.438)
Constant	0.205	0.208	0.126	0.232	0.386***	0.429***
	(1.232)	(1.253)	(0.705)	(1.452)	(3.115)	(3.651)
Obs.	103	102	103	101	101	102
R^2	0.526	0.429	0.430	0.454	0.439	0.423

Notes: The dependent variable is the ratio between market and net Gini coefficients. EF, Frac. and EFxFrac represent, respectively Economic Freedom, Fractionalization and their interaction. The header of each column indicates which fractionalization measure is used. T-statistics are in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

Table 2 presents regression outcomes using the different fractionalization measures. As fractionalization is not time-varying, we estimate OLS cross-country regressions. We use data for (the period around) 2003, because this yields the largest sample. In all regressions we include the interaction between fractionalization and our adjusted economic freedom measure. The coefficients of the ethnic fractionalization measure of Alesina et

al. (2003) and its interaction term with economic freedom are individually and jointly significant. Hence, the impact of ethnic fractionalization on income redistribution is conditional on the degree of capitalism.[5]
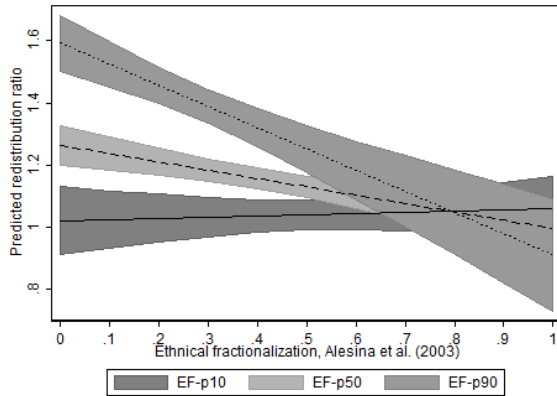

FIGURE 1. IMPACT OF FRACTIONALIZATION ON INCOME REDISTRIBUTION CONDITIONAL ON THE LEVEL OF ECONOMIC FREEDOM

Note: Based on the first column in Table 2. The predicted values for the redistribution ratio are given for all levels of fractionalization and three different values of the level of economic freedom. EF-p10, EF-p50 and EF-p90 equal the values of economic freedom representing its 10th, 50th and 90th percentile, respectively. The predictions are shown together with their 95 percent confidence intervals.

To illustrate this conditionality, Figure 1 shows the predicted values of the redistribution ratio as a function of the level of fractionalization and conditional on three different levels of economic freedom based on the first column of Table 2.[6] It shows that no significant redistribution takes place in highly fractionalized countries, i.e. the ratio between the market and the net Gini coefficients is not statistically different from one. The level of economic freedom does not matter in that case. However, at low levels of fractionalization, countries having a high level of economic freedom do show significantly more redistribution than countries having a low level of economic freedom. For most other measures of fractionalization we find similar results.

IV. Conclusions

In this paper we have examined the relationship between capitalism and income inequality for a large sample of countries using an adjusted economic freedom index as a proxy for capitalism and Gini coefficients based on gross-income as a proxy for income inequality. Our results suggest that there is no robust relationship between economic freedom and income inequality. In addition, we analyze the relationship between income redistribution (measured by the ratio of the income distribution resulting from market processes and the income distribution after redistribution) and ethno-linguistic fractionalization. We find that the impact of ethno-linguistic fractionalization on income redistribution is conditional on the level of economic freedom: countries that have a high degree of fractionalization have limited or no income redistribution, while capitalist

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[5] As a robustness check we have added several controls to the models presented and changed the sample period to reflect different time periods. This does not affect the coefficients of our variables of interest in any notable way as shown in Sturm and De Haan (2014).

[6] Figures for the other measures of fractionalization are very similar and available in Sturm and De Haan (2014).

countries that have a low degree of fractionalization have a substantial degree of income redistribution.

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