INSEAD
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Working Paper Series
2015/99/EPS/DSC

Beyond Gini: Income Distribution and Economic Development

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December 2015

In the literature on inequality and income development, the overwhelming focus is on the Gini coefficient, a single statistic for the entire income distribution. In this paper, we question this singular focus on the Gini coefficient and highlight how poverty and income shares of the bottom deciles impact economic development. In particular, we replicate Easterly [Easterly, William 2007. Inequality does cause underdevelopment: Insights from a new instrument, Journal of Development Economics 84, 755-776] and supplement his analyses with measures of poverty and differences in the income shares of the bottom two deciles. Our results show that compared to the Gini coefficient, these two measures are more strongly associated with lower per capita incomes, institutional quality and schooling. The Gini coefficient seems to matter less. At the very least, the causal link from inequality (as measured by Gini) to development outcomes is tenuous.

Keywords: Inequality; Poverty; Economic Development; Income Distribution
JEL Classification: D31; I32; O10

1. Introduction

Recent years have seen a renewed focus on inequality going by the extraordinary response to Thomas Piketty's "Capital in the Twenty-First Century." Piketty (2014) highlights that rising inequality in many advanced economies since 1980 is predominantly driven by the gains in income shares at the very top – the top 1%, the top 0.1%. This renewed focus on inequality at the top stands in stark contrast to the rich literature relating inequality to developmental outcomes such as economic growth (Alesina and Rodrik, 1994; Person and Tabellini, 1994), schooling (Galor, 2011; Galor, Moav and Vollrath, 2009), and institutional quality (Perotti, 1996). Here economists measure inequality most commonly using the Gini coefficient or, in some cases, the income share of the median quintile. Despite the availability of better quality datasets (Deininger and Squire, 1998) the literature has failed to reach a consensus on whether and how inequality matters for development outcomes. In contrast to previous findings that demonstrate a negative relation between inequality and development, others find either a positive relationship (Forbes, 2000) or a zero relationship between the two (Barro, 2000). Banerjee and Duflo (2003) highlight the non-linear relationship between inequality and growth to reconcile these divergent findings. At the same time, they are careful to acknowledge that these are correlations and that causality is hard to sort out. Easterly (2007) takes causality seriously. Building on Engerman and Sokoloff (1997), Easterly (2007) uses agricultural endowments as an instrument for inequality (specifically, the abundance of land suitable for growing wheat relative to that suitable for growing sugarcane) to show that inequality is indeed causally related to lower per capita incomes, adverse institutional quality and lower levels of schooling. What unifies all this work is the near-universal focus on the Gini coefficient as the

summary statistic for inequality.[1] Banerjee and Duflo (2003), for instance, question the assumption that the Gini coefficient is the appropriate measure of inequality suggesting that measures of poverty or interquartile range are equally valid candidates. Nevertheless, they proceed to present all results with the Gini coefficient.

In this paper we argue that it is important to extend the focus from the Gini coefficient to other measures of the overall income distribution. We focus on one aspect, the relative importance of inequality vs. poverty for development outcomes. Inequality is a measure of the relative disparities in levels of living standard while poverty encapsulates absolute levels of living – how many people fail to attain a certain predetermined consumption need (Ravallion, 2003). To facilitate comparison, we replicate Easterly (2007) exactly, and use poverty in lieu of and in conjunction with inequality. Our results show that for the most part, poverty has a stronger influence on developmental outcomes and that adding poverty makes the Gini coefficient results weaker or insignificant. At best, our results show that poverty rather than inequality matters more – for many countries, perhaps the focus should be on inequality at the bottom rather than inequality at the top. This has very different implications for redistributive measures adopted by policymakers – whether to focus more on policy alleviation instead of redistributing income from the top 1% towards the middle class

We employ the same land-endowment based instruments as in Easterly (2007) and show that these instruments strongly impact poverty and that the land endowment instrument affects development outcomes through poverty rather than inequality. In fact, simply adding the (uninstrumented) poverty measure to the regressions where inequality is instrumented is sufficient to make inequality insignificant. Despite this, we are aware that sorting out causality in cross-sectional regressions is a hard task. We do not make strong claims on causality and,

[1] Some work uses the share of the median quintile (e.g., Persson and Tabellini, 1994; Easterly, 2001) in addition to the Gini coefficient. Beck et al (2007) is one of the few that examines Gini and income share of the poorest quintile (measures of relative inequality) and percentage of poor living on less than $1 a day (measure of absolute poverty).

like Banerjee and Duflo (2003), see these as mainly associations. A more conservative interpretation of our findings is that the exclusion restrictions claimed in Easterly (2007) are questionable. Overall, even in a cross-country setting, the causal link from inequality to development outcomes is less robust than widely accepted in the literature (see Benabou, 2000).[2]

We build on the above finding by also examining the impact of income shares of various deciles – as potentially, the entire income distribution matters. It turns out that the bottom two deciles are important. Here we find an intriguing result – an increase in the difference of share of income accruing to the second poorest decile and the poorest decile is actually positive for development outcomes. In other words, increasing inequality among the two poorest segments of the population is associated with higher per capita incomes, improved institutions and higher levels of schooling.

The rest of the paper is organized as follows. In section 2 we provide a short example to highlight that an absolute measure of poverty and the Gini coefficient can diverge in various ways and a priori it is not clear which income distribution is preferable. In section 3, we discuss the data, measures and empirical strategy. Section 4 shows our results while section 5 concludes.

2. Poverty and Inequality

The Gini coefficient, where the mean absolute difference in income is divided by mean income, measures the relative dispersion of income in the population, regardless of whether the inequality occurs at, e.g., higher or lower income levels. As a result, two very different income distributions with the same Gini coefficient can have different poverty levels with one being

[2] A recent paper by Sarsons (2015) makes a similar point on the use of rainfall as an instrument for income shocks. She shows that while rainfall is plausibly exogenous, it affects civil conflict through a variety of channels and not just via income.

clearly preferred to another by a policymaker. The importance of assessing the entire distribution (as opposed to a single summary measure) is well known in decision theory, and a similar logic applies to comparing income distributions, as illustrated below using an example from Menezes et al. (1980).

Consider Country 1, with 50% of the population earning $1 per day, and 50% earning $2 per day. Gini coefficient for this country is 1/6. Country 2 started with the same income distribution as Country 1, but then went through some government interventions that changed the income distribution of the poorer part of its population (without changing the mean income) – so that those who were earning $1 per day split in two equal groups, earning either $0 or $2 per day. Thus, in Country 2, 25% of the population earn $0 per day and 75% earn $2 per day. Gini coefficient for Country 2 is ½, greater than that for Country 1. Finally, consider Country 3 that also started with the same income distribution as Country 1, but where income distribution of the wealthier part of the population was changed – those earning $2 per day split in two equal groups, earning either $1 or $3 per day – so in Country 3, 75% of the population earn $1 per day and 25% earn $3 per day. Gini coefficient for Country 3 is ½ – the same as for Country 2. In the terminology of Menezes et al. (1980), income distributions in Country 2 and Country 3 differ by a mean-variance preserving transformation. Compared to Country 1, Country 2 has more risk in a lower tail of the income distribution, and Country 3 has more risk in its upper tail.

Which of these three income distributions is better from a poverty perspective? Though Country 2 and 3 have a greater Gini coefficient than Country 1, the proportion of population strictly below poverty line is not necessarily higher in these countries, as the following table illustrates.

Measures	Proportion of Population below Poverty Line		
	Country 1	*Country 2*	*Country 3*
Poverty at $1.0 per day	0%	25%	0%
Poverty at $1.25 per day	50%	25%	75%
Poverty at $2.5 per day	100%	100%	75%
Gini coefficient	$^1/_6$	½	½

With a poverty measure of $1.0 per day, Country 2 is the worst; at $1.25 per day, Country 3 is the worst; and at $2.5 per day, then Country 3 is the best. This is because increasing inequality for the part of the population that is below poverty line decreases poverty, while increasing inequality for the part of the population above poverty line increases poverty. More broadly, an outward shift in the Lorenz curve, indicating a rise in the Gini coefficient while holding the mean income constant, can be consistent with either an increase or decrease in the widely used headcount measure of poverty. Therefore, the relative importance of poverty vs. inequality for economic development remains an empirical question that we turn to in the next section.

3. Data

Our data on poverty are from the Milanovic (2002) database on world income distribution. There are multiple advantages for using this database. First, it is based on household surveys which permit richer and more accurate measures of income distribution *within* countries, by deciles in this case. Second, the surveys also provide information on mean incomes within deciles, which is a far more accurate measure of household incomes and expenditures as compared to a crude measure such as per capita GDP. GDP, for instance, includes undistributed profits or increase in stocks, which may be orthogonal to the welfare of the population. The data on mean incomes are adjusted for differences in purchasing power to

facilitate comparability across countries. Finally, this database combines the internationally comparable poverty monitoring database (PovcalNet) compiled by the World Bank (see Chen and Ravallion, 2010, for more details) and the Luxembourg Income Study (LIS) which allows for the inclusion of advanced economies. We use this data to construct poverty measures in the year 1988, the earliest year for which data are available. We base our poverty measures on the widely used World Bank benchmark of $2.0 a day. For each decile, we define a dummy variable at the decile-county level, that takes the value 1, if the mean annual income of the decile in a particular country is less than $730 (2.0 a day*365 days). The $730 cut-off corresponds to the poverty measure of $2.0 a day. Summing up these deciles by country, gives us our poverty measures, $Pov^{2.0}$ as the percentage of population with incomes below $2.0 dollars a day.[3] The correlation between our measure and the widely reported headcount measures from the World Bank and available from the World Development Indicators is 0.67. The advantage of our measure is that it spans 93 countries while the standard headcount measures for 1988 are available for only 24 countries.

To compare the relative importance of poverty vs. inequality we simply rely on Easterly (2007) for the other variables. Easterly's measure of inequality is the Gini coefficient derived by adjusting data from the WIDER (2000) dataset. The three outcome variables of interest are income measured as per capita income in 2002, the aggregate institutional index from Kaufmann, Kraay, and Mastruzzi (2009) for 2002, and schooling measured as secondary enrolment rates averaged over 1998-2003. The other control variables are a set of regional dummies, an index of ethnolinguistic fractionalization from Alesina et al. (2003), and dummies for legal origins of countries. For instruments, we again follow Easterly (2007) and use the wheat-sugar ratio defined as

[3] Lacking more detailed data on income distributions, our poverty measures assume that that all people within each decile (data point) have the same income. While this may bias the overall poverty measure, the direction of bias is not obvious a priori. We are also able to replicate most of the results using a poverty cut-off of $1.25 a day.

$$\ln \frac{(1 + \text{share of arable land for wheat})}{(1 + \text{share of arable land for sugar})}.$$

This instrument is based on work by Engermann and Sokoloff (1997) who argue that land endowments are a central determinant of inequality.[4] In regressions with either poverty or inequality as the only independent variable, we use only the wheat-sugar ratio as an instrument. In results that instrument both inequality and poverty, we use the share of the country's cultivated land area in tropical climate zones from Sachs and Warner (1997) as a second instrument.[5]

4. Results

4.1 Poverty

Table 1 presents our OLS results. Columns 1A-1C use the log of per capita income as the dependent variable, Columns 2A-2C uses the institutional index while columns 3A-3C uses secondary enrolment as the dependent variable. For each of the three dependent variables, we first replicate the Easterly findings in the first column, use poverty in lieu of inequality in the second column, and the two in conjunction in the third column. Like Easterly (2007), we find that inequality predicts a lower level of development, lower institutional quality, and a lower level of schooling. When we use poverty instead of inequality we find a similar but stronger relationship – poverty explains a higher proportion of the variation in each of the three outcome variables. When we use the two in conjunction, we find that poverty continues to matter for the level of development, institutional quality and schooling. However, inequality matters only for

[4] Land endowments, for instance, in Latin America, were suitable for cultivation of commodities such as sugar at large scale and the use of slave labor, which was in turn associated with high inequality. In North America, the endowments led to wheat cultivation, smaller scale family farms, encouraging the growth of a middles class and lower inequality. High levels of inequality, in turn, have deleterious impact on the quality of institutions, the level of human capital investment, and ultimately economic development.

[5] Easterly (2007) uses this as a second instrument to conduct overidentification tests.

the institution index and weakly for schooling. Overall these results suggest that other aspects of the income distribution, namely the percentage of people below internationally comparable poverty lines, are equally if not more important than the oft-used single statistic, the Gini coefficient.

Next, we instrument inequality and poverty with the instrument based on Engermann and Sokoloff (ES instrument). To facilitate comparison with Easterly (2007) we first instrument inequality and poverty one at a time, while including the other measure uninstrumented. Subsequently we instrument both measures with the ES instrument and the share of tropical land. These results are shown in Table 2 where we also report the 1st-stage F-statistic to evaluate the strength of the instrument.[6] Columns 1A, 2A, and 3A show that when we instrument inequality but include poverty as an additional control, the inequality results weaken considerably.[7] Inequality is insignificant for per capita income but matters for institutional quality and schooling. When we instrument only for poverty in Columns 1B, 2B and 3B, we find that poverty is significant for all three outcome variables. Now, inequality does not matter at all. The results in Columns A mean that the exclusion restriction assumption in Easterly (2007) is questionable even if it plausibly exogenous and not subject to the weak-instrument critique. The results in columns B imply that the instrument works better for poverty and that the effect of poverty on development outcomes is relatively more robust to the inclusion of inequality. When we use the two in conjunction, we find that it is only poverty that matters for per capita income and schooling, while neither distributional measure matters for the institutional index.

[6] In all cases, the first-stage F-statistics are well above the critical values from Stock and Yogo (2004) so that the ES instrument is not subject to the weak instrument critique. We are unable to test for over-identification restrictions since our system is just-identified.

[7] Easterly interprets the increase in coefficient on inequality for the IV results as an underestimation of the causal relationship by the OLS specification. However, it may also be interpreted as attenuation due to measurement error in the inequality measure, which Easterly acknowledges when discussing the data sources for inequality.

Table 3 adds all the control variables from Easterly – regional dummies, ethnic fractionalization, and various dummies for legal origins. We are able to replicate the results from Table 2 – poverty again matters for per capita income and schooling while inequality does not matter for any of the development outcomes. A generous interpretation of our findings is that when it comes to economic development, it is poverty rather than inequality that plays a more important role. At the least, it should raise questions whether even in a cross-sectional setting inequality has a robust and negative impact on development outcomes. A more realistic assessment is that even with plausibly exogenous instruments, the exclusion restrictions for the ES instrument is questionable.

4.2 Deciles

Next we focus further on inequality at the bottom of income distribution by examining the importance of income shares of the bottom deciles. As an initial step, we regressed the development outcomes on the income shares of all deciles. Eliminating the decile with the highest *p*-values in a stepwise fashion, we identified the bottom two deciles as significant determinants. The coefficient on the first decile (D1) was negative while that on the second decile (D2) was positive. A simple *t*-test fails to reject that the two coefficients are equal in absolute terms. Therefore, in addition to our poverty measure we also include the difference in the share of the bottom two deciles as (D2 – D1). These results are shown in Table 4. As before, we continue to instrument poverty with the ES instrument and share of tropical land. We dropped the inequality measure since this also allows us to implement the overidentification test to assess instrument validity, whether contrary to the hypothesis, the instrument plays a direct role in influencing the development outcomes and not an indirect through its effect on poverty.

Table 4 shows that the results with respect to poverty are strengthened. Poverty continues to be detrimental for per capita income and schooling, but a higher incidence of poverty is also associated with poorer institutional quality. Moreover, comparing columns B and

C to column A shows that the results are robust to the inclusion of controls. Interestingly, in columns A and B we find that the difference in income shares of the bottom two deciles has the opposite effect. Higher inequality at the bottom of the distribution, as captured by a higher value of D2-D1, is associated with higher per capita incomes, better institutions, and improved schooling.[8]

The difference D2-D1 complements the poverty variable. If poverty is above 20%, this difference is very low by definition and thus stays approximately constant. On the other hand, for countries where poverty is close to zero, for example in advanced economies, D2-D1 is the only variable that relates to income distribution at the bottom. If we interpret D1 as close to the minimal income guaranteed by the government (and thus, as a poverty/survival level specific to a given country), D2-D1 tells us how much one can hope to improve if starting from the bottom. Our results show that this difference has to be high, as otherwise at least 20% of the population are doomed to be at the level close to the minimum.

Overall, our results indicate that it is inequality at the bottom, as measured by poverty and by the differential share of the bottom deciles that matter more for development outcomes than Gini coefficient, which perhaps is largely affected by inequality at the top.

5. Conclusion

It is widely acknowledged that Gini coefficient does not tell the whole story about income distribution – in particular, it is equally affected by increase in inequality at the top and at the bottom. At the same time, most of the previous research relied on Gini coefficient or the income share of the median quintile as an exclusive measure of income inequality. We address this gap by considering the impact of poverty and of the difference between two lowest deciles

[8] This variable is no longer significant in columns C where we include additional controls. This arises since the control for socialist legal origin is highly correlated with difference in the decile shares. Most of these are countries in Eastern Europe and the former Soviet Union who exhibit very little difference in income shares of the bottom two deciles.

(D2-D1) on per capita income, institutional quality, and level of schooling, complementing the analysis of Easterly (2007). We show that these two measure matter more than Gini coefficient. Future research, relying on deeper and more detailed datasets and more plausible identification mechanisms, is needed to address the causal links between income distributions and development outcomes.

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Table 1: Inequality, Poverty and Development Outcomes (OLS Results)

	(1A)	(1B)	(1C)	(2A)	(2B)	(2C)	(3A)	(3B)	(3C)
	Per Capita Income (log)			Institution Index			Secondary School Enrolment		
Poverty at $2.00 a day		-0.025***	-0.024***		-0.014***	-0.012***		-0.873***	-0.820***
		(0.002)	(0.002)		(0.002)	(0.002)		(0.083)	(0.089)
Inequality measure	-0.046***		-0.009	-0.040***		-0.023**	-1.577***		-0.486*
	(0.011)		(0.009)	(0.008)		(0.009)	(0.410)		(0.291)
Constant	10.082***	8.783***	9.141***	1.901***	0.548***	1.431***	146.747***	99.632***	118.206***
	(0.492)	(0.101)	(0.378)	(0.371)	(0.101)	(0.353)	(17.550)	(2.877)	(11.882)
Observations	72	72	72	87	87	87	82	82	82
R-squared	0.16	0.58	0.59	0.15	0.25	0.29	0.15	0.55	0.56
Joint significance test	18.03***	144.39***	72.63***	24.19***	46.60***	25.73***	14.78***	109.45***	60.48***

Robust standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Table 2: Inequality, Poverty and Development Outcomes (IV results)

	(1A)	(1B)	(1C)	(2A)	(2B)	(2C)	(3A)	(3B)	(3C)
	Per Capita Income (log)			Institution Index			Secondary School Enrolment		
Poverty at $2.00 a day	-0.021***	-0.029***	-0.045*	-0.007*	-0.020***	-0.009	-0.765***	-0.986***	-1.182**
	(0.003)	(0.008)	(0.026)	(0.004)	(0.007)	(0.014)	(0.108)	(0.196)	(0.483)
Inequality measure	-0.031	-0.002	0.059	-0.058**	-0.010	-0.050	-1.175*	-0.335	0.408
	(0.024)	(0.017)	(0.103)	(0.027)	(0.015)	(0.059)	(0.713)	(0.401)	(1.745)
Constant	9.916***	8.914***	6.788*	2.735***	1.033**	2.441	145.631***	115.925***	89.628
	(0.946)	(0.563)	(3.615)	(1.058)	(0.505)	(2.129)	(27.267)	(14.695)	(62.089)
Observations	67	67	67	82	82	82	78	78	78
Joint significance test	55.21***	23.94***	13.49***	15.44***	14.89***	13.28***	54.16***	30.91***	25.17***
1st stage F-statistic for poverty		15.07	23.11		18.57	26.51		17.63	23.89
1st stage F-statistic for inequality	12.25		14.28	15.30		16.91	15.86		16.28

Robust standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%
Columns 1A, 2A, and 3A instrument inequality with the wheat-sugar ratio; Columns 1B, 2B, and 3B instrument poverty with the wheat-sugar ratio
Columns 1C, 2C, and 3C instrument both poverty and inequality with the wheat-sugar ratio and share of tropical land as instruments

Table 3: Inequality, Poverty and Development Outcomes (IV results with controls)

	(1A)	(1B)	(2A)	(2B)	(3A)	(3B)
	Per Capita Income (log)		Institution Index		Secondary School Enrolment	
Poverty at $2.00 a day	-0.050*	-0.046*	-0.021	-0.022	-1.491***	-1.491**
	(0.028)	(0.028)	(0.016)	(0.014)	(0.557)	(0.601)
Inequality measure	0.085	0.051	-0.055	-0.043	1.012	1.405
	(0.138)	(0.133)	(0.063)	(0.048)	(2.095)	(1.773)
East and South Asia and Pacific	6.482	7.689*	3.073	2.803**	95.476	79.299
	(4.353)	(4.112)	(1.942)	(1.417)	(65.158)	(50.105)
Americas	5.670	7.130	3.305	2.891	70.038	47.844
	(5.777)	(5.341)	(2.583)	(1.935)	(86.453)	(67.707)
Europe and Central Asia	5.875	7.362	2.535	2.873	66.014	63.504
	(4.880)	(4.776)	(2.309)	(1.769)	(76.909)	(64.877)
Middle East and Africa	5.692	7.001	3.012	2.677*	64.139	44.687
	(4.991)	(4.648)	(2.225)	(1.600)	(74.568)	(57.851)
Ethnic fractionalization		-0.208		-0.439		-21.558
		(0.513)		(0.359)		(16.399)
British legal origin		0.082		0.111		12.024
		(0.401)		(0.238)		(12.893)
French legal origin		0.110		0.070		13.870
		(0.416)		(0.209)		(12.562)
Socialist legal origin		-0.819		-1.087***		-14.515
		(0.503)		(0.205)		(9.027)
Observations	67	67	82	82	78	78
Joint significance test	852.04***	1087.80***	5.53***	26.43***	140.65***	126.85***
1st stage F-statistic for poverty	7.96	7.70	8.32	7.80	6.43	7.01
1st stage F-statistic for inequality	5.18	4.48	6.99	5.93	5.25	5.64

Robust standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

All columns use the wheat-sugar ratio and share of tropical land as instruments; Constant term dropped for columns 1B, 2B, and 3B

Table 4: Poverty, Inequality in Bottom Deciles and Development Outcomes (IV results with controls)

	(1A)	(1B)	(1C)	(2A)	(2B)	(2C)	(3A)	(3B)	(3C)
	Per Capita Income (log)			Institution Index			Secondary School Enrolment		
Poverty at $2.00 a day	-0.026***	-0.032***	-0.038***	-0.017***	-0.026***	-0.031***	-0.994***	-1.132***	-1.146***
	(0.005)	(0.008)	(0.010)	(0.004)	(0.010)	(0.011)	(0.160)	(0.293)	(0.327)
Difference in income shares of bottom two deciles	0.435***	0.337*	-0.063	0.617***	0.529***	-0.062	16.252***	13.218***	3.565
	(0.168)	(0.179)	(0.224)	(0.191)	(0.163)	(0.218)	(5.171)	(4.983)	(6.255)
East and South Asia and Pacific		8.542***	9.397***		0.412	1.628***		101.596***	114.422***
		(0.523)	(0.610)		(0.549)	(0.632)		(16.675)	(18.286)
Americas		8.667***	9.295***		0.157	1.276**		89.210***	97.779***
		(0.456)	(0.527)		(0.475)	(0.542)		(14.041)	(15.170)
Europe and Central Asia		8.287***	9.305***		-0.230	1.438***		84.093***	107.191***
		(0.333)	(0.467)		(0.255)	(0.454)		(7.998)	(12.992)
Middle East and Africa		8.222***	8.888***		0.216	1.307**		78.048***	86.664***
		(0.500)	(0.560)		(0.535)	(0.585)		(16.058)	(16.526)
Ethnic fractionalization		-0.436	-0.260		-0.613*	-0.415		-24.805**	-22.818**
		(0.313)	(0.372)		(0.323)	(0.368)		(9.973)	(11.211)
British legal origin			0.133			0.088			12.532
			(0.308)			(0.321)			(9.136)
French legal origin			0.220			-0.001			15.945*
			(0.315)			(0.329)			(9.493)
Socialist legal origin			-0.961***			-1.206***			-9.819
			(0.346)			(0.322)			(9.151)
Observations	67	67	67	82	82	82	78	78	78
Joint significance test	55.09***	2009.05***	1059.00	40.36***	9.42***	7.44	37.15***	233.08***	154.24***
1st stage F-statistic for poverty	13.10	5.25	3.7	24.84	5.8	4.09	21.69	5.43	3.61
OID test	0.43	0.42	0.57	0.42	0.42	0.44	0.68	0.49	0.35

Robust standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

All columns use the wheat-sugar ratio and share of tropical land as instruments for poverty; Constant term dropped when regional dummies are included