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This paper examines the effects of financial development on income inequality and poverty. The results of both cross-country and panel data regressions suggest that inequality and poverty are reduced not only through enhanced loan markets, but also through more developed stock markets. We show that ethnic diversity and the distribution of land are significant and robust determinants of both income inequality and poverty. Finally, we find evidence that government spending leads to a reduction in income inequality in high income countries. In low income countries, however, we find no significant effect.

Keywords: Financial development, inequality, poverty
JEL classification: O16, G20

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1 Introduction

Inequality and poverty are complex and persistent phenomena, which fuel an ongoing debate between governments and international organizations. At least since the United Nations Millennium Declaration and the subsequent agreement on the Millennium Development Goals (MDGs), the international community has emphasized its commitment to the reduction of inequality and poverty. The negative consequences for human and economic development in terms of deprivation, social unrest, lower investment, and ultimately lower growth point to the need of appropriate national and international policies to fight inequality and poverty.[1]

Along with the concerns of the broad public the scientific community has dedicated substantial efforts to exploring the sources and the socio-economic consequences of inequality and persistent disadvantages across generations.[2] Scholars have developed various approaches to cope with the complexity and diversity of these phenomena.[3] Both policymakers and academics agree that unequal access to resources and distribution of power are at the core of perpetuating inequality and poverty. One strand of literature accordingly stresses that financial market imperfections prevent the poor from investing in productive assets. As a consequence, inherent disadvantages are transmitted across generations, resulting in persistent inequality and poverty.

The idea of the finance-inequality-poverty nexus roots in the finance-growth nexus, which has been discussed intensively in the economic literature. Theoretical models stress that financial development promotes economic growth through mobilizing savings, evaluating prospective entrepreneurs, and diversifying risks.[4] These predictions are strongly supported by empirical evidence.[5]

The question whether all social classes benefit equally from financial development was first considered and theoretically investigated in the model by Greenwood and Jovanovic (1990), which predicts an inverted U-shaped relationship between financial development and income inequality. The models by Galor and Zeira (1993) and Banerjee and Newman (1993) instead suggest that inequality decreases linearly with increasing financial development.[6] These two contradicting theories have been the subject of recent empirical studies. Clarke, Xu and Zou (1996) and Liang (2006) explicitly test the hypotheses. While Clarke, Xu and Zou provide weak evidence in favor of the inverted-U-shaped hypothesis, both studies find strong evidence for a linear relationship between financial development and income inequality. Li, Squire and Zou (1998) and Beck, Demirgüc-Kunt and Levine (2007) take the linear relationship between finance and inequality as given.

[1] Some studies show that there may also be a positive relationship between increasing inequality and economic growth. See for example Forbes (2000).

[2] A description of the channels through which inequality affects growth can be found in Persson and Tabellini (1994) and Alesina and Perotti (1996), among others.

[3] A comprehensive review of the theoretical and empirical literature is given in Barro (2000) and Easterly (2007).

[4] See Bencivenga and Smith (1991) or King and Levine (1993a), among others.

[5] See Levine (2004) for a detailed review of the finance-growth literature.

[6] A detailed summary of the theoretical models can be found in Liang (2006).

Most studies use a rather narrow definition of financial development, such as the value of credit issued by financial intermediaries to the private sector divided by GDP.[7] The main reason for the wide use of this measure in empirical studies is its availability across countries and time (Demirgüc-Kunt and Levine, 2008). However, financial development clearly has more dimensions. Expanding the knowledge, we examine how different aspects of financial development affect income inequality and poverty looking at different indicators of the financial and the stock market. The aim of this paper is to empirically investigate the effects of financial development on inequality and poverty, taking a broader view of financial development than in previous work. Both cross-country and panel regression results show that inequality and poverty are reduced not only through enhanced loan markets, but also through better developed stock markets. Since financial development may be endogenous, we use legal origin and the absolute value of the latitude of each country as instruments in a Two Stage Least Squares (2SLS) analysis. The results reinforce our overall findings. Given that developed and developing countries differ substantially in terms of institutional structures, political regimes and economic systems, we split the sample and estimate the regressions for each income group separately. To the best of our knowledge this is the first paper estimating the effects of financial development in split sub-samples, i.e. taking into account the particular characteristics of developed and developing countries. From this approach we gain some interesting new insights: i) the effect of financial development becomes rather weak particularly for developing countries, ii) government spending leads to a reduction in income inequality *only* in high income countries.

The remainder of the paper is organized as follows. Section 2 describes the determinants of income inequality and poverty considered in the analysis. Section 3 outlines the data and the empirical framework. Section 4 presents the results. Section 5 draws conclusions and points to future research.

2 Determinants of inequality and poverty

2.1 Financial development

The determinant of inequality and poverty which is of major interest in this paper is financial development. There are basically two ways in which finance can affect inequality and poverty: first, more agents - in particular the poor - are *directly* involved in the economy via enhanced access to financial services, for example provided by microfinance institutes. Second, better investment opportunities for firms and entrepreneurs reach the poor *indirectly* - e.g. through advanced economic performance, better employment opportunities etc. Hence, a single measure such as the ratio of private credit to GDP can measure direct access. It may be appropriate in developing countries, where saving and lending is the key business in financial intermediation. In emerging markets and industrialized countries, however, financial intermediation is more sophisti-

[7] See Clarke, Xu and Zou (2006), Liang (2006), and Beck, Demirgüc-Kunt and Levine (2007).

cated and therefore requires taking into account other dimensions of "finance", in particular the stock market.

The literature which addresses the determinants of financial development provides a comprehensive review of the manifold dimensions of finance. E.g., Acemoglu and Johnson (2005) use private credit to GDP as a measure of finance by the banking sector, and stock market capitalization to GDP as a measure of equity finance. Baltagi et al. (2007) capture financial development through different indicators of banking sector development (private credit, liquid liabilities, domestic credit to GDP) and capital market development (stock value traded, stock market turnover to GDP, number of companies listed). Girma and Shortland (2004) use private sector credit to GDP, stock market capitalization to GDP, and total stock market value traded divided by GDP to measure financial development. Herger, Hodler and Lobsiger (2007) use stock market capitalization and private credit as financial development measures.

In order to better understand how and to what extent financial development affects income inequality and poverty, we include not only measures of the banking sector's development, but also control for stock market development.[8] First, we use private credit to GDP as a measure of financial development. We use it in two different ways: *private_credit*1 denotes the value of private credit issued by deposit money banks divided by GDP, *private_credit*2 considers credits issued by deposit money banks and other financial institutions. Second, to control for stock market development, we use three common stock market measures. *Stock market capitalization to GDP* is equal to the value of listed shares and serves as a measure of relative stock market size. A bigger stock market, i.e. a higher capitalization, is associated with better mobilization of capital and better diversification of risk and thus indicates an important aspect of financial development. *Stock market total value traded to GDP* represents a common indicator of market liquidity and usually serves as a complementary indicator to market capitalization. *Stock market turnover ratio* is the ratio of the value of total shares traded to average real market capitalization and also serves as a liquidity measure.[9] In order to test for the joint development of financial and stock markets, we construct a composite index denoted as *finance*, which equals the value of private credit plus market capitalization relative to GDP. Finally, we use a composite measure of *access to financial services*, which measures the percentage of the adult population with access to an account with a financial intermediary (Demirgüc-Kunt, Levine and Honohan, 2008).

2.2 Other determinants

It is obvious that inequality and poverty are not solely determined by financial development. We use a set of control variables which are motivated by the literature. First, we control for ethnic diversity which is known to be a common determinant of inequality in the literature. It has been shown that countries

[8] Atje and Jovanovic (1993) as well as Levine and Zervos (1996) show that stock market development has a positive effect on economic growth. Hence, we test whether these positive effects are valid also for inequality and poverty.

[9] Demirgüc-Kunt and Levine (1995).

with higher ethnic diversity have more difficulties in providing public goods.[10] There are basically two reasons for this conflict. On the one hand, different ethnic groups have different preferences over which type of public good to produce with tax revenues. On the other hand, each ethnic group's utility level for a given public good is reduced if other groups also use it. Put differently, if tax revenues are collected from one ethnic group and used to provide public goods which also serve other ethnic groups, voters are likely to choose lower levels of public good provision (Alesina et al., 1999). Also, an ethnic elite in power may not want to invest in public goods like human capital, since this could raise other groups' political voices and enable them to replace the currently ruling elite (Easterly, 2001). Hence, by impeding agreement about the provision of public goods, we expect higher ethnic fractionalization to have an increasing effect on income inequality and poverty.

Second, we use the land gini index as a measure of the distribution of land. This serves us in two ways. First, it is a common measure of the distribution of wealth. Second, in most developing countries land serves as a collateral for financial services. Inequality in terms of land therefore prevents the poor from making productive investments such as education, and finally results in inequality of incomes. Using the initial distribution of land as a proxy for the poor's access to the financial market, Li, Squire and Zou (1998) find that an increase in land inequality causes an increase in the disparity of incomes. Deininger and Squire (1998) find a significant negative effect of initial land inequality on subsequent growth. In line with Li, Squire and Zou, they suggest that the effects of land inequality are transmitted through (imperfect) financial markets. They show that higher land inequality also has a negative effect on education. Hence, we expect a more equal distribution of land to be associated with a broader access to the financial market and thus a more equal distribution of income.

Third, we control for the effect of government spending. The allocation of tax revenues can crucially determine the income distribution. Depending on the particular redistribution efforts made by the government, higher government expenditure can either lead to a reduction in poverty and income inequality or to an increase in income disparities. Cross country comparisons of gini coefficients before and after taxes suggest that developed countries achieve an improvement in income distribution. Developing countries instead seem to lack appropriate redistributive programs to reduce income inequality (Chu, Davoodi and Gupta, 2000). The expected effect of government spending on inequality and poverty is thus ambiguous.

Finally, we control for the effect of human capital. While some theoretical models stress that the relation between education and inequality is not always clear, most empirical studies suggest that more education reduces income inequality.[11] A recent paper by Zhang (2007) maintains that persistent inequality traces back to public education spending at different levels. We hypothesize that countries with better and broader access to education in general

[10] See Easterly (2001), Easterly and Levine (1997), and Alesina et al. (1999, 2003).

[11] See for example De Gregorio and Lee (2002).

are expected to have less income inequality. We use secondary school enrollment as the main education measure. We also test for average years of schooling, the literacy rate, and the Human Development Index (HDI) as proxy variables for education. Since the results do not differ significantly, we will not report them.

3 Data and empirical framework

Our sample contains data of 78 developing and developed countries for the period 1960-2006.[12] Since income inequality is a rather time-persistent phenomenon, we argue that it is appropriate to use the Gini coefficient in levels instead of its rate of change.[13] Gini data are taken from the UNU-WIDER World Income Inequality Database WIID2b. Data on poverty are from the World Bank's poverty database (Povcalnet). The interesting explanatory variable of income inequality and poverty in this paper is financial development.

In a first step, we examine whether the data predict a linear or an inverted U-shaped relationship between financial development and income inequality. To do this, we estimate the following equation:

$$Y_{i,t} = \alpha + \beta_1 FD_{i,t} + \beta_2 FD_{i,t}^2 + \gamma X_{i,t} + \epsilon_{i,t}, \tag{1}$$

where the dependent variable $Y_{i,t}$ refers to the Gini coefficient measured in levels and the headcount ratio of country i at time t, respectively. The headcount ratio is equal to the percentage of the population living below the poverty line. We set the poverty line at \$2 per day. On the right hand side, we use financial development $FD_{i,t}$ as the main explanatory variable and a set of control variables, represented by the vector $X_{i,t}$. Banerjee and Newman (1993) and Galor and Zeira (1993) predict a linear relationship, i.e. $\beta_1 < 0$ and $\beta_2 = 0$. The model of Greenwood and Jovanovic (1990) supposes an inverted U-shaped relationship between financial development and income inequality, i.e. $\beta_1 > 0$ and $\beta_2 < 0$. To save space we do not report the results of these preliminary estimations. Our findings clearly support the linear hypothesis, so that from now on we use the linear equation. However, we slightly modify the regression equation by introducing an interaction term between financial development and a developing-country-dummy variable to check if the effect of financial development differs significantly between developing and developed countries. The modified equation takes the following form:

$$Gini_{i,t} = \alpha + \beta_1 FD_{i,t} + \beta_2 FD_{i,t} * DV_i + \gamma X_{i,t} + \epsilon_{i,t} \tag{2}$$

The control variables $X_{i,t}$ include measures of ethnic diversity, the distribution of land, government spending and education. Data on land distribution are

[12] Number of countries per income group: low income: 12, lower middle income: 22, upper middle income: 17, high income OECD: 23, high income non-OECD: 4.

[13] According to Li, Squire and Zou (1998) 91.8% of the variance in countries' inequality - measured by the Gini coefficient - is cross-country variance, whereas only 0.85% is variance over time. Similar evidence is found by Bruno et al. (1996).

taken from FAO statistics and Erickson and Vollrath (2004).[14] Data on ethnic fractionalization are taken from Alesina et al. (2003). They are available for single years, only. According to Alesina et al. (1999, 2003), however, ethnic fragmentation does not change substantially over a time span of 30 years. Drawing on this conclusion, we apply the available measure on ethnic fractionalization for the entire time span of 40 years. Data on government spending and education are taken from the World Bank's World Development Indicators (WDI). Financial data are taken from Beck, Demirgüc-Kunt and Levine (2000) and Demirgüc-Kunt, Levine and Honohan (2008). Summing up, we estimate the following equation:

$$\begin{aligned} Gini_{i,t} &= \alpha + \beta_1 * finance_{i,t} + \beta_2 * finance_{i,t} * dummy_i + \gamma_1 * educ_{i,t} \\ &\quad + \gamma_2 * land_{i,t} + \gamma_3 * ethnic_{i,t} + \gamma_4 * govexp_{i,t} + \epsilon_{i,t} \end{aligned}$$

The following equation is used for poverty estimations:

$$\begin{aligned} Headcount_{i,t} &= \alpha + \beta_1 * finance_{i,t} + \gamma_1 * educ_{i,t} \\ &\quad + \gamma_2 * land_{i,t} + \gamma_3 * ethnic_{i,t} + \gamma_4 * govexp_{i,t} + \gamma_5 * inflation + \epsilon_{i,t} \end{aligned}$$

Similar to above, we control for the effects of ethnic diversity, the distribution of land and government spending. Following the literature, we also examine the effects of inflation on the poor.

Table 1 presents descriptive statistics for the key variables.[15] It becomes

Table 1: Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max	Obs.
Gini coefficient (*gini*)	0.407	0.11	0.199	0.733	514
Headcount ratio ($2) (*headcount*)	0.356	0.282	0	0.981	182
Private credit/GDP* (*priv_cred1*)	0.414	0.351	0.014	2.072	641
Private credit/GDP*(*priv_cred2*)	0.469	0.388	0.014	2.649	643
Market capitalization/GDP (*market_cap*)	0.429	0.49	0	2.824	351
Total value traded/GDP (*val_traded*)	0.235	0.402	0	2.407	350
Turnover ratio (*turnover*)	0.43	0.505	0.001	3.716	345
Joint finance measure (*finance*)	0.481	0.403	0.03	2.034	336
Financial access (*fin_access*)	0.529	0.293	0.05	1	740
Ethnic fractionalization (*ethnic*)	0.408	0.256	0.012	0.930	770
Land gini (*lagini*)	0.653	0.168	0.247	0.930	600
Government expenditure/GDP (*gov_exp*)	14.548	5.037	4.013	32.844	710
Inflation (*infl*)	38.307	232.24	-0.524	3357.608	690
Secondary enrollment (*sec_enrtot*)	68.64	25.403	7.796	99.992	183
Average years of schooling (*avg_schooling*)	6.666	2.504	1.873	12.049	268
Literacy rate (*lit_tot*)	79.076	18	26.869	99.747	102
Human Development Index (*hdi*)	0.735	0.16	0.321	0.968	506

Notes: Variables descriptions are given in the Appendix.
* While *priv_cred1* includes private credit issued only by deposit money banks, *priv_cred2* accounts also for credit from other financial institutions.

evident that there are large variations in the data. Regarding income inequality, the sample contains countries with Gini coefficients ranging from around 20% to

[14] Land distribution data are available for one or up to three years, at most. According to the data, land distribution does not change significantly over time. We therefore take the mean value of land distribution and apply it to the entire time period.

[15] Due to missing data the number of observations shrinks drastically for education measures and headcount ratio.

over 70%. The headcount ratio varies between 0% for transition countries and 98% for Uganda. Similarly, we observe large variations in the control variables as well as in all finance measures. While in Nicaragua only 5% of the population have access to financial services, it is nearly 100% for several industrialized economies. The correlation matrix confirms all expected relations. In the next section, we present the results. We first run cross-country regressions, using the data averaged over the entire time span. In a second step, we use five-year averages to run panel regressions.

4 Results

We first present and discuss the results using standard OLS. Then we turn to the results of 2SLS regressions.

4.1 Inequality

Cross Country estimations

Table 2 displays the results of the cross-country regressions using Ordinary Least Squares (OLS). According to eq. (2), we include an interaction term between the finance variable and a developing dummy variable which is equal to one for developing countries and zero otherwise. We note that all measures of financial development turn out negative and significant, implying that financial development has a negative effect on income inequality. However, the positive and in most cases statistically significant coefficients of the interaction term suggest that the marginal effect of financial development is higher for developed countries. Although private credit to GDP turns out to have the strongest effect on inequality, the impact of stock market development is only slightly weaker. An increase of private credit to GDP by one percentage point for example decreases the Gini coefficient by 0.1. A one percentage point increase in market capitalization relative to GDP leads to a decrease in the Gini coefficient by 0.09. As mentioned earlier, we also use a direct measure of access to finance. These findings are given in table A.2 in the appendix. The results imply a very strong effect: an increase in the percentage of the population with access to finance by one percent could lower the Gini by 0.2.

The estimated coefficients on ethnic division turn out positive and significant across all regressions, implying that countries where a large number of different ethnic groups live together have to deal with higher income inequality. This confirms the evidence found in other empirical studies, which states that regions with large ethnic fragmentation have more difficulty in providing public goods like schooling and infrastructure. The lack of specific public goods like education finally leads to an increase in income inequality. However, without further details we cannot determine the channels through which the effect of higher ethnic division increases income inequality.

The coefficient on land distribution is positive and significant and implies that an increase of the land Gini by 1 unit increases the income Gini by 0.18. Hence, more inequality in terms of land causes more inequality in terms of in-

come. Whether this confirms the hypothesis that land is an important collateral to get access to financial services and therefore higher land inequality inevitably leads to higher income inequality, or if it just reflects the fact that inequality in incomes usually comes along with inequality in land cannot be determined without further analysis. Finally, the coefficients on government spending are negative but statistically insignificant.

Table 2: Inequality: Cross-country estimations

Dep. var.: Gini	1	2	3	4	5	6
priv_credit1	-0.119***					
	(0.0339)					
privcred1_dum	0.209***					
	(0.0510)					
priv_credit2		-0.0911***				
		(0.0317)				
privcred2_dum		0.194***				
		(0.0463)				
market_cap			-0.0960***			
			(0.0255)			
market_dum			0.142***			
			(0.0375)			
val_traded				-0.0815**		
				(0.0325)		
valtraded_dum				0.129		
				(0.103)		
turnover					-0.0962***	
					(0.0322)	
turnover_dum					0.0573	
					(0.0439)	
finance						-0.117**
						(0.0305)
finance_dum						0.184
						(0.0452)
ethnic	0.0709**	0.0756**	0.107***	0.129***	0.106**	0.0856**
	(0.0348)	(0.0354)	(0.0379)	(0.0410)	(0.0425)	(0.0367)
lagini	0.174***	0.172***	0.181***	0.220***	0.195***	0.177**
	(0.0501)	(0.0512)	(0.0583)	(0.0628)	(0.0631)	(0.0559)
gov_exp	-0.00270	-0.00294	-0.00360	-0.00456	-0.00449	-0.00287
	(0.00247)	(0.00255)	(0.00273)	(0.00287)	(0.00305)	(0.00263)
Constant	0.336***	0.331***	0.330***	0.301***	0.344***	0.333***
	(0.0603)	(0.0609)	(0.0654)	(0.0726)	(0.0763)	(0.0631)
No. of observations	59	59	53	52	52	53
R^2	0.665	0.651	0.642	0.578	0.591	0.671

Notes: Standard errors in parentheses.
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

In additional estimations we also control for education, using secondary school enrollment as the education measure. The results can be found in table A.3.

We use secondary school enrollment . Two aspects stand out, immediately. First, the coefficients of most finance variables become insignificant. Second, the significance of ethnic fragmentation vanishes, too. At first sight, this seems to suggest that the estimated effects of finance and ethnic division are not robust. However, there might be a plausible explanation for these effects. As already mentioned, different studies have shown that ethnic fragmentation plays a central role in the public goods problem. Easterly et al. (1999) use data for different urban US localities, cities, metropolitan areas and counties to show that the share of spending on education is significantly lowered by higher ethnic division.

The reason why the effect of ethnic division disappears might therefore be the rather strong correlation of (-0.674) between ethnicity and secondary school enrollment. If we look at the correlations matrix, we find even higher correlations between secondary school enrollment and finance. While the correlation with stock market development of (0.27) is at the lower end, the correlation coefficients with financial access and private credit are about (0.61) and (0.78), respectively. The reason for this strong relation can be found in the theoretical literature, where the presence of financial market imperfections restricts mostly poor people from making investments in human capital, which finally leads to an increase in inequality.

Panel estimations

The panel data regressions are estimated with random effects, since land gini and ethnicity are time persistent. As before, we first look at the results without controlling for education. The results are presented in table 3. Similar to the cross-country observations, the findings suggest that financial development leads to a reduction in income inequality. Of the stock market measures, only market capitalization is significant. Again, access to financial services has a strong and highly significant inequality-decreasing effect.[16] Table A.4 displays the results when we additionally control for education. With more observations, and thus more detailed information than in the cross country estimation, we find more robust effects of financial development when controlling for education. While the significance of stock market development clearly diminishes, the effects of private credit as well as access to finance remain highly significant. The same holds for the effect of ethnic fragmentation, which is robust across all regressions. Based on these specification, between $60-70\%$ of cross country variance can be explained.

In sum, we find significant evidence that financial development reduces income inequality, which again can spur economic growth. The findings of most previous studies have been primarily based upon a rather narrow definition of financial development. An important result is therefore that these findings generally also apply for stock market development. We have shown that stock market development - compared to the ratio of private credit to GDP - has a lower, yet significant effect on income inequality. The channel through which

[16] See the appendix, table A.2.

stock market development lowers income inequality is a priori not entirely clear. Previous studies suggest that larger stock markets benefit mainly large and mature firms. Through enhanced investment opportunities, they can expand and eventually offer better employment opportunities, resulting in lower inequality.

Table 3: Inequality: Panel estimations

Dep. var.: Gini	1	2	3	4	5	6
priv_credit1	-0.0541***					
	(0.0120)					
privcred1_dum	0.112***					
	(0.0233)					
priv_credit2		-0.0429***				
		(0.0109)				
privcred2_dum		0.0988***				
		(0.0204)				
market_cap			-0.0303***			
			(0.0114)			
market_dum			0.0732***			
			(0.0187)			
val_traded				-0.00758		
				(0.0112)		
valtraded_dum				0.0108		
				(0.0282)		
turnover					-0.0147	
					(0.0127)	
turnover_dum					-0.0177	
					(0.0195)	
finance						-0.0471***
						(0.0145)
finance_dum						0.117***
						(0.0195)
ethnic	0.101***	0.102***	0.131***	0.154***	0.155***	0.107***
	(0.0317)	(0.0322)	(0.0344)	(0.0373)	(0.0385)	(0.0341)
lagini	0.190***	0.189***	0.287***	0.320***	0.318***	0.273***
	(0.0482)	(0.0490)	(0.0530)	(0.0570)	(0.0582)	(0.0520)
gov_exp	-0.00334***	-0.00370***	-0.00158	-0.00142	-0.00142	-0.000936
	(0.000968)	(0.000960)	(0.00123)	(0.00126)	(0.00125)	(0.00126)
Constant	0.312***	0.315***	0.198***	0.162***	0.169***	0.208***
	(0.0392)	(0.0397)	(0.0456)	(0.0483)	(0.0490)	(0.0456)
No. of observations	366	367	206	203	202	200
R^2 overall	0.542	0.536	0.567	0.474	0.462	0.615
R^2 between	0.603	0.591	0.609	0.528	0.522	0.658

Notes: Standard errors in parentheses.
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

In order to get an idea of the economic significance of our results, we compute standardized (beta) coefficients, which measure the amount of change of the dependent variable in standard deviations caused by a one standard deviation

change in the explaining variable. They are given in table 4. It becomes evident that the finance variables are not only statistically significant, but in most cases also economically relevant. Stock market development has an economically significant effect on income inequality. In the cross country sample, the effect of stock market development in terms of higher stock market capitalization is even stronger (0.36) than traditional credit market development (0.29).

Table 4: Standardized coefficients

Coefficient	Inequality Cross country	Inequality Panel	Poverty Cross country	Poverty Panel
priv_credit1	-0.294	-0.172	-0.472	-0.310
priv_credit2	-0.256	-0.151	-0.529	-0.325
market_cap	-0.366	-0.134	-0.227	-0.199
val_traded	-0.231	-0.027	-0.254	-0.226
turnover	-0.344	-0.067	0.050	-0.088
finance	-0.344	-0.172	-0.328	-0.269
fin_access	-0.574	-0.415	-0.652	-0.702
ethnic	0.173	0.235	0.300	0.336
lagini	0.279	0.289	-0.387	-0.278
gov_exp	-0.106	-0.152	-0.188	0.006
infl			0.166	-0.031

Notes: Reported coefficients on ethnic, lagini, gov_exp, and infl are calculated in each case upon the results from regression (1).

Two-Stage-Least-Squares

So far, we have made the implicit assumption that financial development is an exogenous regressor. If it is not, however, OLS provides biased estimators. In the finance-growth literature there is a considerable debate about the exogenous component(s) of financial development. Beck et al. (2003a) empirically evaluate two theories about the historical determinants of financial development. The *law and finance* theory holds that historically determined differences in legal origin can explain cross-country differences in financial development.[17] The *endowment* theory claims that during colonial history the geographical endowment of a region determined whether Europeans formed settler colonies or created extractive states, which in turn defined the institutional environment. In temperate areas favoring the cultivation of grains and hays colonizers set up institutions that support private property, while in more tropical environments favoring more high-yield crops and with abundant minerals institutions were built that empower the elite and extract resources.[18] Beck et al. (2003a) apply the endowment theory to the development of the financial system. Their results show that endowment, measured by settler mortality and the absolute value of the latitude of each country, are more robustly associated with financial intermediary development than legal origin. Following, we use measures of the legal origin and latitude separately as instruments for financial development

[17] British Common law is usually said to stress private property rights and thus fosters financial development, whereas French Civil law is said to be less conducive to financial development. For more details see La Porta et al. (1998) and Levine et al. (2000), amongst others.

[18] See Acemoglu, Johnson and Robinson (2001) and Sokoloff and Engerman (2000).

to estimate the effect of the exogenous component of financial development on inequality, based on the two distinct theories described above.[19]

We first use legal origin as instrument for financial development. In the cross-country regression, most estimators of the finance variables get smaller and insignificant. In the panel regression, most estimators increase by size, but again are insignificant.[20] The results of the 2SLS analysis using latitude as an instrument are given in the appendix (tables A.5 and A.6). It becomes evident that compared to OLS all estimators are significant at the 10% level, and the effects are clearly stronger.[21] From the results we can draw two major conclusions. First, the results from the Two Stage Least Square analysis strongly support the findings using OLS, implying that financial development effectively can help decrease income inequality. Second, our results imply that latitude is a stronger instrument for financial development than legal origin providing support for the endowment theory as in Beck et al. (2003a).

So far, we have considered the effects of financial development on the gini coefficient, i.e. the entire distribution of income. We find evidence that financial development leads to a significant decrease in income inequality and thus support the results found in previous studies. However, we do not know what happens to the poor, which are located at the very low end of the income distribution. In the next section we thus turn to the question whether financial development is not only pro-equality but pro-poor, and examine the direct effects of financial development on poverty.

4.2 Poverty

In the long run, economic growth helps to reduce poverty. Financial development can therefore reduce poverty indirectly through enhanced growth. In the previous sections we have shown that financial development can also reduce income inequality. However, we do not know if it benefits the poor directly. In many poverty models, persistent financial market imperfections are core determinants of poverty.[22] These imperfections raise the constraints which keep the poor from investing in education, health and entrepreneurial activities. In this regard, financial development can help to attain the Millennium Development Goals. Contrary to the common opinion that the poor are mainly served by expanded financial access tailored to their needs (e.g. via microfinance services), there is evidence suggesting that the focus should be on the expansion of "finance for all". Broad financial development might improve the investment opportunities of large and mature firms and thus enhance overall growth and

[19] Clarke, Xu and Zou (2006) use legal origin data as instruments for financial development. Beck, Demirgüc-Kunt and Levine (2007) use legal origin and latitude together to instrument for financial development.

[20] Since most results turn out insignificant, they are not reported, here.

[21] Note that we checked the correlations between the finance variables and both instruments, legal origin and latitude. We find that latitude is clearly more correlated with all finance variables than legal origin. Legal origin appears to be a weak instrument and therefore introduces a downward bias into the results.

[22] See Demirgüc-Kunt (2008) for a review of this literature.

employment opportunities of the poor.[23] Jalilian and Kirkpatrick (2002), Honohan (2004) and Beck et al. (2007) show empirically that financial development can contribute to poverty alleviation. The results of the poverty estimations

Table 5: Poverty: Cross-country estimations

Dep. var.: Headcount ratio	1	2	3	4	5	6	7
priv_credit1	-0.498**						
	(0.230)						
priv_credit2		-0.491**					
		(0.213)					
market_cap			-0.155				
			(0.110)				
val_traded				-0.233			
				(0.295)			
turnover					0.0367		
					(0.116)		
finance						-0.291*	
						(0.159)	
fin_access							-0.607**
							(0.230)
ethnic	0.320**	0.322**	0.313**	0.325*	0.322*	0.301**	0.276*
	(0.144)	(0.143)	(0.150)	(0.158)	(0.160)	(0.145)	(0.142)
lagini	-0.630***	-0.599**	-0.572**	-0.630**	-0.554*	-0.574**	-0.604***
	(0.221)	(0.220)	(0.241)	(0.253)	(0.274)	(0.234)	(0.215)
gov_exp	-0.0125	-0.00885	-0.0206	-0.0263*	-0.0253*	-0.0183	-0.0198
	(0.0133)	(0.0137)	(0.0133)	(0.0129)	(0.0137)	(0.0130)	(0.0120)
infl	0.000366*	0.000339	-0.000202	-0.000145	-0.000166	-0.000212	0.000262
	(0.000214)	(0.000214)	(0.000369)	(0.000379)	(0.000391)	(0.000360)	(0.000215)
Constant	0.920***	0.870***	0.905***	0.982***	0.891**	0.922***	1.101***
	(0.265)	(0.263)	(0.279)	(0.290)	(0.331)	(0.269)	(0.267)
No. of observations	36	36	31	30	30	31	36
R^2	0.491	0.500	0.440	0.425	0.412	0.468	0.522

Notes: Standard errors in parentheses.
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

are presented in tables 5 and 6. It becomes evident that financial development has a significant negative effect on poverty. The fact that developing countries rely mostly on the banking sector, in particular on the market for loans, is confirmed by our results: the estimated coefficient on *priv_credit* is amongst the highest. It states that an increase in private credit to GDP leads to a reduction in poverty by 0.2 to 0.5%. Even more remarkable is the effect of financial access on poverty: one percent more people having access to financial services lowers the headcount ratio by around 0.6%. However, the results from the panel regressions show that financial development beyond credit markets can lower poverty, too. All stock market measures turn out negative and significant. The size of the effect is clearly smaller than for the credit market, indicating that the stock market is less important, yet significant for poverty alleviation. This suggests

[23] Demirgüc-Kunt, Levine and Honohan (2008).

that sophisticated financial systems that may primarily serve entrepreneurs can contribute to poverty alleviation.

Rather unexpected is that the effect of financial development on poverty is not only significant, but clearly higher than for income inequality.[24] This becomes clear when comparing the standardized coefficients in table 4. As be-

Table 6: Poverty: Panel estimations

Dep. var.: Headcount ratio	1	2	3	4	5	6	7
priv_credit1	-0.249***						
	(0.0582)						
priv_credit2		-0.236***					
		(0.0528)					
market_cap			-0.115***				
			(0.0364)				
val_traded				-0.158***			
				(0.0522)			
turnover					-0.0489**		
					(0.0205)		
finance						-0.188***	
						(0.0482)	
fin_access							-0.675***
							(0.222)
ethnic	0.370**	0.381***	0.328**	0.326**	0.317**	0.311**	0.293**
	(0.148)	(0.145)	(0.144)	(0.155)	(0.156)	(0.143)	(0.144)
lagini	-0.468**	-0.462**	-0.525**	-0.556**	-0.564**	-0.543***	-0.469**
	(0.213)	(0.210)	(0.212)	(0.222)	(0.223)	(0.210)	(0.202)
gov_exp	0.00336	0.00389	-0.000880	-0.00238	-0.00282	0.000667	0.00106
	(0.00308)	(0.00308)	(0.00310)	(0.00319)	(0.00330)	(0.00338)	(0.00305)
infl	-0.0000385	-0.0000348	-0.0000678**	-0.0000527*	-0.0000462	-0.0000632**	-0.0000316
	(0.0000267)	(0.0000266)	(0.0000320)	(0.0000316)	(0.0000323)	(0.0000321)	(0.0000283)
Constant	0.565***	0.555***	0.600***	0.624***	0.640***	0.625***	0.790***
	(0.193)	(0.190)	(0.187)	(0.200)	(0.201)	(0.186)	(0.207)
No. of observations	129	129	104	101	101	102	131
R^2 overall	0.363	0.389	0.358	0.325	0.272	0.379	0.376
R^2 between	0.387	0.418	0.407	0.375	0.334	0.423	0.464

Notes: Standard errors in parentheses.
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

fore, the coefficients imply that the effect of financial development on poverty is economically relevant. The coefficient on *financial access* shows that a one standard deviation increase in financial access leads to a decrease in the headcount ratio by 0.7 standard deviations. This implies that poverty can be significantly alleviated by securing access to financial services.

As we mentioned in the introduction, there is an important caveat. Our results are all based on a sample consisting of developing and developed countries. Intuitively, one could argue that the process of financial development depends

[24] As before, the size of the effect of finance on poverty as well as of the other explanatory variables and their significance decline drastically when we control for education. See the appendix, tables A.7 and A.8.

crucially on the state of development as well as on fundamental differences we have not yet controlled for. In order to better allow for such possible differences among the two groups of developing and developed countries, we estimate our general equation for high and low income countries separately. All results can be found in the appendix.[25] We find weak evidence for an inequality-decreasing effect of financial development in high income countries. In low income countries, the effect vanishes totally or even changes the sign, implying that financial development leads to an increase in income inequality. Ethnic fractionalization is no longer significant. Finally, the effect of government spending on income inequality is negative for high income countries, implying that higher government expenditures lead to a significant decrease in income inequality. The opposite is true for developing countries, where we get a positive, though in most cases insignificant, coefficient.

There are basically two possible reasons why most effects might disappear when we split the sample. First, it could tell us that in fact there may be no significant effect of financial development on income inequality. In this case the evidence we obtain using the entire sample would be based on statistical inaccuracy. Second, the significance may vanish due to too limited variance in the data within the sub-samples.

In a last step, we estimate the equation using the entire sample, but additionally include the developing country dummy separately. The results are given in the tables A.13 and A.14. The findings are very similar to those of the split sample. In a few cases, we find a significant negative effect of financial development on inequality. As before, ethnic fractionalization becomes insignificant, and government spending is significant only in very few cases.

Hence, the general conclusion that financial development decreases income inequality and poverty should be treated with caution. Several open question remain and require additional research. The overall significant effect of the developing country dummy implies that there are considerable differences between developed and developing countries that have not been considered in past research.

5 Conclusions

Given the negative consequences of income inequality and poverty for human and economic development, there is an ongoing lively debate on particular policies to fight inequality and poverty. Using several measures of the financial and the stock market to examine the robustness of the effect of financial development on income inequality and poverty, we have shown that stock market development - compared to credit market development - clearly has a lower, yet significant effect on income inequality and poverty. This is a major result. It supports our view that financial development affects the poor not only through enhanced loan markets, but also through developed stock markets. Surprisingly, the effect of financial development on poverty is not only significant, but also clearly higher than on income inequality. Both the identification of the

[25] See tables A.9-A.12.

particular channels through which financial development affects inequality and the poor and the set up of implications for particular policies are left for future research.

We have also shown that ethnic fractionalization is a significant and robust determinant of both income inequality and poverty. This confirms the results found in other studies which suggest that countries with higher ethnic diversity are likely to have more difficulties in providing public goods. The lack of public goods like education then perpetuates income inequality.[26] Our results strongly support the notion that education is a key to widespread welfare. Another persistent and robust determinant of income inequality is the distribution of land. More inequality in terms of land ownership is significantly associated with higher inequality of incomes. A priori, the effect of higher government expenditure is not clear-cut, but depends crucially on redistributive effects. In most specifications government expenditure enters negatively yet insignificantly. However, within different income groups there is weak evidence suggesting that higher government expenditure leads to a reduction in income inequality in high income countries. In low income countries however, we find a positive but insignificant effect.

Finally, we have pointed to some critical aspects regarding the sample selection. A closer look at sub-samples shows that the link between financial development and inequality particularly for developing countries is rather weak. However, we do not question the importance of financial development for economic welfare.

So far, we know little about the channels through which financial development affects inequality and poverty. Future research will hopefully shed light on these aspects. Hence, promoting financial development by appropriate policies at best forms one of many steps which can help to reduce inequality and poverty.

[26] According to our results education leads to a strong and significant reduction in income inequality when we omit ethnicity.

References

Acemoglu, D., S. Johnson and J.A. Robinson (2001), "The colonial origins of comparative development: an empirical investigation", *American Economic Review*, 91, 1369-1401.

Acemoglu, D. and S. Johnson (2005), "Unbundling Institutions", *Journal of Political Economy*, 113 (5), 949-995.

Alesina, A. and R. Perotti (1996), "Income distribution, political instability, and investment", *European Economic Review*, 40, 1203-1228.

Alesina, A., R. Baqir and W. Easterly (1999), "Public Goods and Ethnic Divisions", *The Quarterly Journal of Economics*, 114(4), 1243-1284.

Alesina, A. et al. (2003), "Fractionalization", *Journal of Economic Growth*, 8, 155-194.

Atje, R. and B. Jovanovic (1993), "Stock markets and development", *European Economic Review*, 37, 632-640.

Baltagi, B., P. Demitriades, and S. Hook Law (2007), "Financial Development, Openness and Institutions: Evidence from Panel Data", paper presented at the Conference on New Perspectives on Financial Globalization.

Banerjee, A.V. and A.F. Newman (1993), "Occupational Choice and the Process of Development", *The Journal of Political Economy*, 101 (2), 274-298.

Barro, R.J. (2000), "Inequality and Growth in a Panel of Countries, *Journal of Economic Growth*, 5, 5-32.

Beck, T., A. Demirgüc-Kunt, and R. Levine (2000), "A New Database on Financial Development and Structure (updated in 2007)", *World Bank Economic Review*, 14, 597-605, World Bank, Washington D.C.

Beck, T., A. Demirgüc-Kunt, and R. Levine (2003a), "Law, endowments, and finance, *Journal of Financial Economics*, 70, 137-181.

Beck, T., A. Demirgüc-Kunt, and R. Levine (2003b), "Law and finance: why does legal origin matter?, *Journal of Comparative Economics*, 31, 653-675.

Beck, T., A. Demirgüc-Kunt, and R. Levine (2004), "Finance, Inequality and Poverty: Cross-Country Evidence", *World Bank Policy Research Working Paper*, wp 3338, World Bank, Washington D.C.

Beck, T., A. Demirgüc-Kunt, and R. Levine (2007), "Finance, inequality and the poor", *Journal of Economic Growth*, 12, 27-49.

Bencivenga, V.R. and B.D. Smith (1991), "Financial Intermediation and Endogenous Growth", *Review of Economic Studies*, 58, 195-209.

Bruno, M., M. Ravaillon and L. Squire (1996), "Equity and Growth in Developing Countries", *World Bank Policy Research Working Paper*, wp 1563, World Bank, Washington D.C.

Chu, K., H. Davoodi and S. Gupta (2000), "Income Distribution and Tax and Government Social Spending Policies in Developing Countries, *IMF Working Paper*, WP/00/62, International Monetary Fund, Washington.

Clarke, G.R.G., L.C. Xu, and H. Zou (2003), "Finance and Income Inequality - Test of Alternative Theories?", *World Bank Policy Research Working Paper*, wp 2984, World Bank, Washington D.C.

Clarke, G.R.G., L.C. Xu, and H. Zou (2006), "Finance and Income Inequality: What Do the Data Tell Us?", *Southern Economic Journal*, 72(3), 578-596.

Coppin, A. and R.N. Olsen (1998), "Earnings and Ethnicity in Trinidad and Tobago", *The Journal of Development Studies*, 34 (3), 116-134.

De Gregorio, J. and J. Lee (2002), "Education and income inequality: new evidence from cross-country data", *Review of Income and Wealth*, 48(3), 395-416.

Deininger, K. and L. Squire (1998), "New ways of looking at old issues: inequality and growth", *Journal of Development Economics*, 57, 259-287.

Demirgüc-Kunt, A. and R. Levine (1995), "Stock Market Development and Financial Intermediaries", *World Bank Policy Research Working Paper*, wp 1462, World Bank, Washington D.C.

Demirgüc-Kunt, A. and R. Levine (2008), "Finance and Economic Opportunity", *World Bank Policy Research Working Paper*, wp 4468, World Bank, Washington D.C.

Demirgüc-Kunt, A., R. Levine and P. Honohan(2008), "Finance for All? Policies and Pitfalls", *World Bank Policy Research Report*, World Bank, Washington D.C.

Easterly, W. and R. Levine (1997), "Africa's Growth Tragedy: Policies and Ethnic Divisions", *The Quarterly Journal of Economics*, 112 (4), 1203-1250.

Easterly, W. (2001), "The Middle Class Consensus and Economic Development", *Journal of Economic Growth*, 6, 317-335.

Easterly, W. (2007), "Inequality does cause underdevelopment: Insights from a new instrument", *Journal of Development Economics*, 84 (2), 755-776.

Erickson, L. and D. Vollrath (2004), "Dimensions of Land Inequality and Economic Development", *IMF Working Paper* , WP/04/158, International Monetary Fund.

Forbes, K.J. (2000), "A Reassessment of the Relationship between Inequality and Growth", *The American Economic Review*, 90, 869-887.

Galor, O. and J. Zeira (1993), "Income Distribution and Macroeconomics", *The Review of Economic Studies*, 60(1), 35-52.

Greenwood, J. and B. Jovanovic (1990), "Financial Development, Growth, and the Distribution of Income", *Journal of Political Economy*, 98 (5), 1076-1107.

Herger, N., R. Hodler and M. Lobsiger (2007), "What determines Financial Development? Culture, Institutions, or Trade?", *NCCR Trade Regulation Working Paper No. 2007/05*.

Honohan, P. (2004), "Financial development, growth and poverty: how close are the links?", *World Bank Policy Research Working Paper*, wp 3203, World Bank, Washington D.C.

Jalilian, H. and C. Kirkpatrick (2002), "Financial Development and Poverty Reduction in Developing Countries", *International Journal of Finance and Economics*, 7, 97-108.

King, R.J. and R. Levine (1993a), "Finance, entrepreneurship and growth: Theory and evidence", *Journal of Monetary Economics*, 32 (3), 513-542.

King, R.J. and R. Levine (1993b), "Finance and Growth: Schumpeter Might Be Right", *The Quarterly Journal of Economics*, 108 (3), 717-737.

La Porta, R., F. Lopez-De-Silanes, A. Shleifer and R.W. Vishny (1998), "Law and finance", *Journal of Political Economy*, 106, 1113-1155.

Levine, R. (1997), "Financial Development and Economic Growth: Views and Agenda", *Journal of Economic Literature*, 35 (2), 688-726.

Levine, R., Norman L. and T. Beck (2000), "Financial intermediation and growth: Casuality and causes", *Journal of Monetary Economics*, 46, 31-77.

Levine, R. (2005), "Finance and Growth: Theory and Evidence", in: P. Aghion & S. Durlauf (ed.), *Handbook of Economic Growth*, edition 1, volume 1, chapter 12, 865-934, Elsevier.

Levine, R. and S. Zervos (1996), "Stock Markets, Banks, and Economic Growth, *American Economic Review*, 88 (3), 537-558.

Li, H., L. Squire, and H. Zou (1998), "Explaining International and Intertemporal Variations in Income Distribution", *The Economic Journal*, 108 (January), 26-43.

Liang, Z. (2006), "Financial Development and Income Distribution: A System Panel Analysis with Application to Urban China", *Journal of Economic Development*, 31 (2), 1-21.

Persson, T. and G. Tabellini, "Is inequality harmful for growth?", *American Economic Review*, 84, 600-621.

Rajan, R.G. and L. Zingales, (2003), "The great reversals: the politics of financial development in the twentieth century, *Journal of Financial Economics*, 69, 5-50.

Sokoloff, K.L. and S.L. Engerman (2000), "Institutions, Factor Endowments, and Paths of Development in the New World", *Journal of Economic Perspectives*, 14, 217-232.

Zhang, L. (2008), "Political economy of income distribution dynamics", *Journal of Development Economics*, 87(1), 119-139.

Appendix

Table A.1: Variables and sources

Variable	Definition	Sources
gini	Gini coefficient, 1960-2006	UNU Wider World Income Inequality Database
headcount	Headcount ratio ($2), 1980-	World Bank, PovcalNet
priv_cred1	Private credit/GDP, 1960-2006 (credit issued by deposit money banks)	Beck, Demirgüc-Kunt and Levine (2000)
priv_cred2	Private credit/GDP, 1960-2006 (credit issued by deposit money banks and other financial institutions)	Beck, Demirgüc-Kunt and Levine (2000)
market_cap	Market capitalization, 1960-2006	Beck, Demirgüc-Kunt and Levine (2000)
val_traded	Total value traded/GDP, 1960-2006	Beck, Demirgüc-Kunt and Levine (2000)
turnover	Turnover ratio, 1960-2006	Beck, Demirgüc-Kunt and Levine (2000)
finance	Joint finance measure, 1960-2006	Beck, Demirgüc-Kunt and Levine (2000),
fin_access	Percentage of population with access to financial services	Demirgüc-Kunt and Honohan (2007),
ethnic	Ethnic fractionalization	Alesina et al. (2003)
lagini	Land Gini, 1970, 1980, 1990	FAO statistics, Erickson and Vollrath (2004)
gov_exp	Government final consumption expenditure/GDP, 1960-2006	World Bank
infl	Inflation, 1960-2006	World Bank
sec_enrtot	School enrollment, secondary, 1960-2006	World Bank
avg_schooling	Average years of schooling of adults (15+), 1960-2006	World Bank
lit_tot	Literacy rate (% of people 15+), 1960-2006	World Bank
hdi	Human Development Index, 1975-2005	UNDP
legal	Legal origin	Beck, Demirgüc-Kunt and Levine (2003b)
lat	Absolute value of the latitude	La Porta et al. (1998)

Table A.2: Composite measure of financial access

Dep. var.: Gini	1	2	3	4
fin_access	-0.205***	-0.152***	-0.156***	-0.166***
	(0.0360)	(0.0553)	(0.0331)	(0.0402)
finacc_dum	0.118**	0.147***	0.0830*	0.174***
	(0.0447)	(0.0472)	(0.0435)	(0.0537)
ethnic	0.0424	0.0239	0.0374	0.0393
	(0.0333)	(0.0346)	(0.0332)	(0.0326)
lagini	0.165***	0.175***	0.137***	0.195***
	(0.0474)	(0.0492)	(0.0469)	(0.0498)
gov_exp	0.00330	0.00292	-0.00284***	0.00240*
	(0.00264)	(0.00268)	(0.000963)	(0.00146)
sec_enrtot		-0.000535		-0.000161
		(0.000611)		(0.000273)
Constant	0.340***	0.349***	0.428***	0.311***
	(0.0595)	(0.0608)	(0.0480)	(0.0509)
Sample	Cross country	Cross country	Panel	Panel
No. of observations	56	51	376	89
R^2	0.730	0.749		
R^2 overall			0.560	0.821
R^2 between			0.679	0.807

Notes: Standard errors in parentheses
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

Table A.3: Inequality: Cross-country (with education)

Dep. var.: Gini	1	2	3	4	5	6
priv_credit1	-0.0649					
	(0.0405)					
privcred1_dum	0.191***					
	(0.0492)					
priv_credit2		-0.0327				
		(0.0373)				
privcred2_dum		0.172***				
		(0.0441)				
market_cap			-0.0631**			
			(0.0271)			
market_dum			0.122***			
			(0.0338)			
val_traded				-0.0419		
				(0.0333)		
valtraded_dum				0.166*		
				(0.0946)		
turnover					-0.0568	
					(0.0358)	
turnover_dum					0.0372	
					(0.0460)	
finance						-0.0696*
						(0.0347)
finance_dum						0.158***
						(0.0418)
ethnic	0.0240	0.0223	0.0418	0.0493	0.0505	0.0343
	(0.0355)	(0.0359)	(0.0378)	(0.0428)	(0.0426)	(0.0367)
lagini	0.196***	0.200***	0.191***	0.230***	0.209***	0.189***
	(0.0487)	(0.0492)	(0.0517)	(0.0566)	(0.0591)	(0.0513)
gov_exp	-0.000678	-0.000604	-0.000798	-0.000890	-0.00155	-0.000815
	(0.00261)	(0.00261)	(0.00268)	(0.00299)	(0.00312)	(0.00264)
sec_enrtot	-0.00123**	-0.00142***	-0.00153***	-0.00175***	-0.00161**	-0.00142**
	(0.000520)	(0.000528)	(0.000527)	(0.000594)	(0.000618)	(0.000549)
Constant	0.373***	0.371***	0.404***	0.384***	0.412***	0.398
	(0.0599)	(0.0598)	(0.0614)	(0.0699)	(0.0753)	(0.0602)
No. of observations	54	54	49	48	48	49
R^2	0.719	0.715	0.737	0.676	0.663	0.744

Notes: Standard errors in parentheses.
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

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Table A.4: Inequality: Panel (with education)

Dep. var.: Gini	1	2	3	4	5	6
priv_credit1	-0.0334***					
	(0.0119)					
privcred1_dum	0.115***					
	(0.0330)					
priv_credit2		-0.0245**				
		(0.0111)				
privcred2_dum		0.0842***				
		(0.0278)				
market_cap			-0.0101			
			(0.00933)			
market_dum			0.0726***			
			(0.0211)			
val_traded				-0.00161		
				(0.00833)		
valtraded_dum				0.0130		
				(0.0391)		
turnover					-0.00147	
					(0.0123)	
turnover_dum					0.00446	
					(0.0396)	
finance						-0.0246*
						(0.0129)
finance_dum						0.107***
						(0.0275)
ethnic	0.0864**	0.0881**	0.110***	0.127***	0.135***	0.106***
	(0.0367)	(0.0378)	(0.0386)	(0.0436)	(0.0435)	(0.0372)
lagini	0.267***	0.275***	0.288***	0.322***	0.324***	0.271***
	(0.0539)	(0.0553)	(0.0533)	(0.0606)	(0.0616)	(0.0520)
gov_exp	-0.0000454	-0.0000252	-0.000609	-0.000518	-0.00104	-0.000659
	(0.00154)	(0.00159)	(0.00160)	(0.00175)	(0.00170)	(0.00156)
sec_enrtot	-0.000419	-0.000497*	-0.000647**	-0.000650*	-0.000492	-0.000474
	(0.000292)	(0.000300)	(0.000308)	(0.000337)	(0.000325)	(0.000303)
Constant	0.233***	0.233***	0.226***	0.204***	0.198***	0.230***
	(0.0495)	(0.0510)	(0.0501)	(0.0552)	(0.0557)	(0.0489)
No. of observations	94	94	87	86	85	87
R^2 overall	0.762	0.753	0.754	0.669	0.661	0.776
R^2 between	0.713	0.706	0.711	0.630	0.622	0.736

Notes: Standard errors in parentheses.
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

Table A.5: Inequality: Cross-country (2SLS)

Dep. var.: Gini	1	2	3	4	5	6	7
priv_credit1	-0.328***						
	(0.104)						
privcred1_dum	0.204***						
	(0.0668)						
priv_credit2		-0.291***					
		(0.0976)					
privcred2_dum		0.184***					
		(0.0615)					
market_cap			-0.201***				
			(0.0540)				
market_dum			0.203***				
			(0.0510)				
val_traded				-0.306***			
				(0.109)			
valtraded_dum				0.203			
				(0.151)			
turnover					-0.319***		
					(0.110)		
turnover_dum					0.218**		
					(0.0956)		
finance						-0.232***	
						(0.0642)	
finance_dum						0.217***	
						(0.0539)	
fin_access							-0.312***
							(0.0667)
finacc_dum							0.0902*
							(0.0505)
ethnic	0.00654	0.0124	0.0997**	0.0925	-0.00454	0.0680	0.00552
	(0.0540)	(0.0544)	(0.0443)	(0.0607)	(0.0785)	(0.0427)	(0.0406)
lagini	0.133*	0.129*	0.135*	0.145	0.0991	0.139**	0.147***
	(0.0681)	(0.0703)	(0.0708)	(0.0956)	(0.1000)	(0.0662)	(0.0522)
gov_exp	0.00140	0.00228	0.000217	-0.00101	0.000469	0.000442	0.00675**
	(0.00373)	(0.00409)	(0.00358)	(0.00439)	(0.00489)	(0.00338)	(0.00336)
Constant	0.417***	0.404***	0.343***	0.363***	0.447***	0.360***	0.382***
	(0.0868)	(0.0868)	(0.0766)	(0.107)	(0.118)	(0.0731)	(0.0680)
No. of observations	59	59	53	52	52	53	56
R^2	0.427	0.389	0.513	0.139	0.167	0.572	0.683

Notes: Standard errors in parentheses.
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

Table A.6: Inequality: Panel (2SLS)

Dep. var.: Gini	1	2	3	4	5	6	7
priv_cred1	-0.245***						
	(0.0881)						
privcred1_dum	0.277***						
	(0.0842)						
priv_cred2		-0.210***					
		(0.0795)					
privcred2_dum		0.239***					
		(0.0743)					
market_cap			-0.211***				
			(0.0661)				
market_dum			0.240***				
			(0.0667)				
val_traded				-0.343			
				(0.218)			
valtraded_dum				0.334			
				(0.222)			
turnover					-0.360*		
					(0.215)		
turnover_dum					0.315		
					(0.214)		
finance						-0.203***	
						(0.0534)	
finance_dum						0.250***	
						(0.0526)	
fin_access							-0.229***
							(0.0580)
finacc_dum							0.0479
							(0.0529)
ethnic	0.0119	0.0154	0.0839	0.0722	-0.0383	0.0367	0.00537
	(0.0659)	(0.0678)	(0.0623)	(0.130)	(0.169)	(0.0532)	(0.0419)
lagini	0.122	0.117	0.166	0.210	0.179	0.173**	0.113**
	(0.0848)	(0.0892)	(0.103)	(0.195)	(0.197)	(0.0802)	(0.0544)
gov_exp	0.000801	0.0000686	0.000215	-0.000815	0.00239	0.00119	-0.00267***
	(0.00225)	(0.00213)	(0.00191)	(0.00311)	(0.00328)	(0.00170)	(0.000989)
Constant	0.386***	0.397***	0.318***	0.311*	0.364*	0.320***	0.502***
	(0.0704)	(0.0746)	(0.0904)	(0.181)	(0.193)	(0.0736)	(0.0685)
No. of observations	366	367	206	203	202	200	376
R^2 overall	0.462	0.449	0.447	0.260	0.302	0.549	0.541
R^2 between	0.590	0.580	0.541	0.396	0.433	0.616	0.668

Notes: Standard errors in parentheses.
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

Table A.7: Poverty: Cross-country (including education)

Dep. var.: Headcount ratio	1	2	3	4	5	6	7
priv_credit1	-0.147						
	(0.238)						
priv_credit2		-0.151					
		(0.224)					
market_cap			-0.0760				
			(0.110)				
val_traded				-0.185			
				(0.292)			
turnover					-0.00947		
					(0.111)		
finance						-0.157	
						(0.168)	
fin_access							-0.529*
							(0.282)
ethnic	0.249*	0.251*	0.253*	0.265	0.243	0.255*	0.254*
	(0.135)	(0.134)	(0.144)	(0.156)	(0.154)	(0.141)	(0.127)
lagini	-0.410*	-0.404*	-0.441*	-0.482*	-0.454*	-0.449*	-0.414**
	(0.210)	(0.208)	(0.221)	(0.233)	(0.250)	(0.219)	(0.197)
gov_exp	-0.00697	-0.00592	-0.0128	-0.0156	-0.0155	-0.0121	-0.00898
	(0.0120)	(0.0123)	(0.0123)	(0.0122)	(0.0130)	(0.0122)	(0.0110)
sec_enrtot	-0.00529**	-0.00520**	-0.00378*	-0.00362	-0.00414*	-0.00338	-0.00337
	(0.00191)	(0.00194)	(0.00206)	(0.00222)	(0.00209)	(0.00214)	(0.00206)
infl	0.000436**	0.000427**	0.0000641	0.0000817	0.000120	0.0000323	0.000303
	(0.000190)	(0.000192)	(0.000357)	(0.000359)	(0.000364)	(0.000357)	(0.000195)
Constant	0.876***	0.861***	0.888***	0.929***	0.932***	0.887***	0.957***
	(0.252)	(0.252)	(0.272)	(0.276)	(0.309)	(0.264)	(0.242)
No. of observations	33	33	29	28	28	29	33
R^2	0.601	0.602	0.534	0.530	0.521	0.542	0.643

Notes: Standard errors in parentheses.
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

Table A.8: Poverty: Panel (including education)

Dep. var.: Headcount ratio	1	2	3	4	5	6	7
priv_credit1	-0.136						
	(0.120)						
priv_credit2		-0.137					
		(0.0949)					
market_cap			-0.103*				
			(0.0596)				
val_traded				-0.0910			
				(0.107)			
turnover					0.0167		
					(0.0450)		
finance						-0.149*	
						(0.0827)	
fin_access							-1.119***
							(0.235)
ethnic	0.431**	0.435***	0.413***	0.439***	0.414**	0.399***	0.357***
	(0.167)	(0.161)	(0.143)	(0.164)	(0.164)	(0.141)	(0.125)
lagini	-0.350	-0.358	-0.514**	-0.569**	-0.523**	-0.512**	-0.303
	(0.247)	(0.239)	(0.205)	(0.227)	(0.232)	(0.205)	(0.185)
gov_exp	0.0101	0.00919	0.00507	0.00596	0.00757	0.00557	0.00901
	(0.00646)	(0.00650)	(0.00626)	(0.00666)	(0.00656)	(0.00620)	(0.00561)
sec_enrtot	-0.00155	-0.00151	-0.000523	-0.000652	-0.000984	-0.000587	-0.000967
	(0.00142)	(0.00146)	(0.00151)	(0.00160)	(0.00153)	(0.00148)	(0.00128)
infl	-0.00000797	-0.00000881	0.00000411	0.0000101	0.00000368	0.00000667	0.00000969
	(0.0000587)	(0.0000604)	(0.0000606)	(0.0000637)	(0.0000630)	(0.0000605)	(0.0000542)
Constant	0.397*	0.414*	0.492**	0.484**	0.443**	0.509***	0.705***
	(0.232)	(0.225)	(0.196)	(0.210)	(0.220)	(0.196)	(0.185)
No. of observations	48	48	41	39	39	41	48
Number of country_code	28	28	23	21	21	23	28
R^2 overall	0.460	0.497	0.539	0.489	0.466	0.549	0.674
R^2 between	0.485	0.509	0.629	0.584	0.558	0.640	0.706

Notes: Standard errors in parentheses.
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

Table A.9: Inequality: Cross-country: high income countries

Dep. var.: Gini	1	2	3	4	5	6	7
priv_credit1	-0.0781*						
	(0.0416)						
priv_credit2		-0.0246					
		(0.0419)					
market_cap			-0.0357				
			(0.0289)				
val_traded				0.00226			
				(0.0288)			
turnover					0.0128		
					(0.0311)		
finance						-0.0625	
						(0.0392)	
fin_access							-0.262**
							(0.0913)
ethnic	0.0179	0.0182	0.0422	0.00687	0.0112	0.0400	0.0392
	(0.0453)	(0.0493)	(0.0547)	(0.0507)	(0.0496)	(0.0501)	(0.0434)
lagini	0.156**	0.163**	0.121*	0.144**	0.144**	0.122*	0.111*
	(0.0580)	(0.0634)	(0.0654)	(0.0657)	(0.0652)	(0.0626)	(0.0558)
gov_exp	-0.00731**	-0.00580*	-0.00513	-0.00439	-0.00426	-0.00601*	-0.000414
	(0.00303)	(0.00323)	(0.00300)	(0.00317)	(0.00310)	(0.00303)	(0.00310)
Constant	0.406***	0.344***	0.355***	0.312***	0.302***	0.387***	0.489***
	(0.0817)	(0.0888)	(0.0740)	(0.0740)	(0.0753)	(0.0791)	(0.0805)
No. of observations	23	23	22	22	22	22	20
R^2	0.510	0.424	0.367	0.311	0.317	0.401	0.637

Notes: Standard errors in parentheses.
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

Table A.10: Inequality: Cross-country: low income countries

Dep. var.: Gini	1	2	3	4	5	6	7
priv_credit1	-0.0106						
	(0.0762)						
priv_credit2		-0.00814					
		(0.0704)					
market_cap			-0.00510				
			(0.0394)				
val_traded				-0.0511			
				(0.0985)			
turnover					-0.0542		
					(0.0361)		
finance						-0.00439	
						(0.0582)	
fin_access							-0.0700
							(0.0746)
ethnic	0.0683	0.0686	0.0807	0.105*	0.0996*	0.0800	0.0576
	(0.0481)	(0.0480)	(0.0529)	(0.0522)	(0.0502)	(0.0526)	(0.0485)
lagini	0.205***	0.205***	0.247***	0.253***	0.219**	0.247***	0.203***
	(0.0701)	(0.0701)	(0.0807)	(0.0794)	(0.0800)	(0.0805)	(0.0692)
gov_exp	0.00722	0.00722	0.00800	0.00808*	0.00605	0.00793	0.00713*
	(0.00429)	(0.00443)	(0.00476)	(0.00430)	(0.00434)	(0.00480)	(0.00398)
Constant	0.225**	0.224**	0.177*	0.159	0.220**	0.178*	0.253***
	(0.0853)	(0.0851)	(0.0978)	(0.0949)	(0.102)	(0.0967)	(0.0896)
No. of observations	36	36	31	30	30	31	36
R^2	0.248	0.248	0.298	0.360	0.407	0.297	0.268

Notes: Standard errors in parentheses.
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

Table A.11: Inequality: Panel: high income countries

Dep. var.: Gini	1	2	3	4	5	6	7
priv_credit1	-0.0262**						
	(0.0103)						
priv_credit2		-0.0163*					
		(0.00948)					
market_cap			-0.00844				
			(0.00786)				
val_traded				0.00502			
				(0.00757)			
turnover					0.00744		
					(0.00863)		
finance						-0.00968	
						(0.0113)	
fin_access							-0.0685
							(0.0830)
ethnic	0.00690	0.00651	0.0107	-0.000890	0.00407	0.00722	-0.00604
	(0.0382)	(0.0425)	(0.0410)	(0.0403)	(0.0395)	(0.0396)	(0.0434)
lagini	0.130***	0.131**	0.135**	0.138***	0.140***	0.137***	0.123**
	(0.0487)	(0.0541)	(0.0537)	(0.0533)	(0.0524)	(0.0521)	(0.0580)
gov_exp	-0.00886***	-0.00932***	-0.00380**	-0.00317*	-0.00373**	-0.00386**	-0.00946***
	(0.00122)	(0.00125)	(0.00181)	(0.00183)	(0.00178)	(0.00178)	(0.00130)
Constant	0.424***	0.427***	0.304***	0.287***	0.292***	0.307***	0.487***
	(0.0370)	(0.0400)	(0.0492)	(0.0489)	(0.0476)	(0.0489)	(0.0845)
No. of observations	161	161	85	86	85	85	143
R^2 overall	0.388	0.350	0.366	0.347	0.374	0.379	0.353
R^2 between	0.505	0.443	0.446	0.435	0.459	0.464	0.480

Notes: Standard errors in parentheses.
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

Table A.12: Inequality: Panel: low income countries

Dep. var.: Gini	1	2	3	4	5	6	7
priv_credit1	0.0392*						
	(0.0233)						
priv_credit2		0.0341*					
		(0.0203)					
market_cap			0.0321*				
			(0.0169)				
val_traded				0.00135			
				(0.0291)			
turnover					-0.0408**		
					(0.0169)		
finance						0.0524**	
						(0.0215)	
fin_access							-0.0678
							(0.0740)
ethnic	0.0620	0.0613	0.0490	0.0670	0.0641	0.0419	0.0539
	(0.0476)	(0.0476)	(0.0502)	(0.0503)	(0.0509)	(0.0506)	(0.0481)
lagini	0.178***	0.176**	0.275***	0.297***	0.281***	0.274***	0.169**
	(0.0686)	(0.0687)	(0.0724)	(0.0709)	(0.0721)	(0.0730)	(0.0674)
gov_exp	0.000879	0.000611	0.00215	0.00204	0.00172	0.00276	0.000664
	(0.00131)	(0.00130)	(0.00161)	(0.00162)	(0.00158)	(0.00168)	(0.00127)
Constant	0.309***	0.314***	0.230***	0.212***	0.237***	0.219***	0.354***
	(0.0636)	(0.0634)	(0.0661)	(0.0660)	(0.0672)	(0.0668)	(0.0699)
No. of observations	205	206	121	117	117	115	233
R^2 overall	0.138	0.138	0.332	0.302	0.298	0.345	0.122
R^2 between	0.182	0.179	0.358	0.399	0.397	0.364	0.197

Notes: Standard errors in parentheses.
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

Table A.13: Inequality: Cross-country with developing dummy

Dep. var.: Gini	1	2	3	4	5	6	7
priv_credit1	-0.0412						
	(0.0537)						
privcred1_dum	0.0700						
	(0.0902)						
priv_credit2		-0.0000949					
		(0.0503)					
privcred2_dum		0.0329					
		(0.0836)					
market_cap			-0.0280				
			(0.0336)				
market_dum			0.0447				
			(0.0487)				
val_traded				0.00781			
				(0.0348)			
valtraded_dum				-0.0586			
				(0.0986)			
turnover					0.0245		
					(0.0367)		
turnover_dum					-0.0953*		
					(0.0482)		
finance						-0.0411	
						(0.0484)	
finance_dum						0.0698	
						(0.0725)	
fin_access							-0.317***
							(0.111)
finacc_dum							0.248*
							(0.129)
ethnic	0.0545	0.0545	0.0582	0.0633	0.0652*	0.0573	0.0502
	(0.0351)	(0.0353)	(0.0391)	(0.0383)	(0.0360)	(0.0384)	(0.0340)
lagini	0.175***	0.177***	0.175***	0.180***	0.158***	0.176***	0.163***
	(0.0490)	(0.0493)	(0.0543)	(0.0544)	(0.0526)	(0.0542)	(0.0474)
gov_exp	0.000120	0.000542	0.000597	0.00154	0.000437	0.000277	0.00405
	(0.00286)	(0.00289)	(0.00293)	(0.00284)	(0.00271)	(0.00300)	(0.00273)
dummy_dev	0.0930*	0.119**	0.107***	0.137***	0.160***	0.0942*	-0.105
	(0.0502)	(0.0524)	(0.0375)	(0.0322)	(0.0335)	(0.0476)	(0.0990)
Constant	0.236***	0.201**	0.216***	0.173**	0.193***	0.229***	0.427***
	(0.0801)	(0.0820)	(0.0730)	(0.0689)	(0.0704)	(0.0804)	(0.101)
No. of observations	59	59	53	52	52	53	56
R^2	0.686	0.683	0.696	0.699	0.729	0.697	0.736

Notes: Standard errors in parentheses.
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

Table A.14: Inequality: Panel with developing dummy

Dep. var.: Gini	1	2	3	4	5	6	7
priv_cred1	-0.0403***						
	(0.0126)						
privcred1_dum	0.0792***						
	(0.0249)						
priv_cred2		-0.0300***					
		(0.0114)					
privcred2_dum		0.0694***					
		(0.0219)					
market_cap			-0.00566				
			(0.0115)				
market_dum			0.0383**				
			(0.0185)				
val_traded				0.00692			
				(0.0108)			
valtraded_dum				-0.00887			
				(0.0269)			
turnover					0.00707		
					(0.0124)		
turnover_dum					-0.0502***		
					(0.0190)		
finance						-0.00599	
						(0.0159)	
finance_dum						0.0581**	
						(0.0244)	
fin_access							-0.199*
							(0.107)
finacc_dum							0.133
							(0.126)
ethnic	0.0419	0.0420	0.0290	0.0330	0.0347	0.0249	0.0404
	(0.0347)	(0.0350)	(0.0347)	(0.0352)	(0.0350)	(0.0350)	(0.0339)
lagini	0.148***	0.146***	0.211***	0.220***	0.213***	0.212***	0.136***
	(0.0478)	(0.0482)	(0.0482)	(0.0486)	(0.0485)	(0.0490)	(0.0469)
gov_exp	-0.00286***	-0.00316***	0.000787	0.000798	0.000480	0.00118	-0.00280***
	(0.000962)	(0.000957)	(0.00122)	(0.00122)	(0.00119)	(0.00126)	(0.000969)
dummy_dev	0.0766***	0.0779***	0.132***	0.141***	0.150***	0.127***	-0.0418
	(0.0217)	(0.0220)	(0.0222)	(0.0212)	(0.0217)	(0.0246)	(0.0999)
Constant	0.309***	0.311***	0.169***	0.157***	0.165***	0.163***	0.466***
	(0.0378)	(0.0381)	(0.0413)	(0.0410)	(0.0409)	(0.0432)	(0.103)
No. of observations	366	367	206	203	202	200	376
R^2 overall	0.587	0.582	0.680	0.668	0.674	0.683	0.562
R^2 between	0.660	0.652	0.745	0.743	0.751	0.740	0.681

Notes: Standard errors in parentheses.
*, **, *** Statistically significant at 10%, 5%, and 1% levels, respectively.

Table A13: Cross-correlation table

Variables	gini	headcount	priv_cred1	priv_cred2	market_cap	val_traded	turnover	finance	fin_access	ethnic	lagini	gov_exp	infl	
gini	1.000													
headcount	0.206	1.000												
priv_credit1	-0.372	-0.298	1.000											
priv_credit2	-0.355	-0.316	0.935	1.000										
market_cap	-0.185	-0.180	0.626	0.664	1.000									
val_traded	-0.204	-0.033	0.572	0.646	0.694	1.000								
turnover	-0.345	0.109	0.327	0.371	0.209	0.643	1.000							
finance	-0.291	-0.234	0.880	0.866	0.921	0.714	0.303	1.000						
fin_access	-0.579	-0.482	0.619	0.629	0.454	0.431	0.303	0.618	1.000					
ethnic	0.458	0.454	-0.315	-0.317	-0.057	-0.173	-0.267	-0.197	-0.525	1.000				
lagini	0.446	-0.412	-0.184	-0.189	-0.204	-0.220	-0.266	-0.241	-0.295	0.022	1.000			
gov_exp	-0.404	-0.165	0.313	0.360	0.231	0.173	0.066	0.292	0.422	-0.235	-0.263	1.000		
infl	0.063	-0.087	-0.107	-0.108	-0.128	-0.094	-0.024	-0.145	-0.141	0.062	0.121	0.050	1.000	
sec_enrtot	-0.700	-0.727	0.612	0.632	0.451	0.407	0.274	0.575	0.786	-0.674	-0.207	0.500	-0.190	1.000
avg_schooling	-0.558	-0.559	0.542	0.618	0.424	0.435	0.260	0.496	0.739	-0.471	-0.125	0.379	-0.142	0.807
lit_tot	-0.031	-0.498	0.302	0.306	0.238	-0.003	-0.272	0.274	0.470	-0.391	0.653	0.004	0.056	
hdi	-0.492	-0.803	0.617	0.641	0.426	0.416	0.269	0.577	0.781	-0.592	0.063	0.301	-0.060	

Table A13: Cross-correlation table

Variables	sec_enrtot	avg_schooling	lit_tot	hdi
sec_enrtot	1.000			
avg_schooling	0.807	1.000		
lit_tot	0.694	0.803	1.000	
hdi	0.901	0.842	0.852	1.000

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