

# POLITICAL INSTITUTIONS, INTEGRATION, AND WITHIN-COUNTRY INEQUALITY

-AN EMPIRICAL STUDY

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## Abstract

Within-country inequality varies greatly between countries. Despite much research about the determinants of this inequality there is little consensus on what the underlying factors are. This thesis looks into the connection between political institutions, integration and inequality. Both institutions and integration has previously been put forward as important determinants of within-country inequality but they have seldom been investigated together. This thesis improves on previous works by using a more comparable set of Gini coefficients and by using interaction effects between integration and institutions. The results give robust support for the hypothesis that the quality of political institutions is negatively correlated to inequality. This negative relationship seems to stem from democracies providing more public goods than autocracies do, and not from differences in direct redistribution. The hypothesis that trade is positively related to inequality is not supported by the data. Instead, the results seem to suggest the opposite relationship. Lastly, this thesis finds that the answer to the hypothesis that institutions can affect how integration affects inequality is dependent on what sample and specification is used.

**Keywords:** Political institutions, economic institutions, within-country inequality, integration

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# 1 Introduction

According to the Human Development Report, in 2009 the ratio between the income of the richest 10% and the income of the poorest 10% in Japan was 4.5, the lowest in their sample (United Nations Development Programme 2009). The highest figure the same year, the one for Bolivia, was 93.9, more than 20 times as big. What causes these differences? What is it that separates Japan from Bolivia that leads to such large differences in equality? As within-country inequality, besides by many being seen as intrinsically bad, also has possible adverse effects on economic growth (see among others; Alesina and Rodrik 1994, Bénabou 1996, Persson and Tabellini 1994) the reason for these huge differences should be of outmost interest to economists. Two factors that are often put forward as important determinants of within-country inequality are integration and institutions, both with a large body of empirical work behind them.

Previous empirical investigations that investigate the relationship between integration and inequality show mixed results. While some studies find that large trade volumes increase inequality (Litwin 1998, Milanovic 2005) others find no robust or only a weak relationship (Edwards 1997, Dollar and Kraay 2002, Mahler 2004, Babones and Vonada 2009). Interestingly, some studies also find that trade increases inequality in LDCs, but not in rich countries (Ravallion 2001, Savvides 1998, Barro 2000). Studies looking into other measurements of integration also find mixed results; of the few studies looking into the effects of FDI on inequality some find that FDI flows increase inequality (Evans and Timberlake 1980, Alderson and Nielsen 2002) and some find no robust relationship (Mahler 2004). Studies using a composite openness index all find a positive relationship for only a sub-set of countries or under certain circumstances (Spilimbergo et al. 1999, Dreher and Gaston 2008, Bergh and Nilsson 2010).

There are also quite a few works that cover the relationship between political institutions and inequality. Several studies find that democracy decrease inequality (Rodrik 1999, Zafirovski 2002, Gradstein and Milanovic 2004) while others find no such relationship (Bollen and Jackman 1985, Sirowsky and Inkeles 1990, Deininger and Squire 1996, Timmons 2010). One study (Chong 2004) finds that there is something of a Kuznets-like relationship between democracy and inequality with democracy improving equality only in rich countries.

The problem of the studies above is that they assume that there is no need to control for political institutions when investigating integration. However, as will be discussed below, there are theoretical reasons to expect that integration should not have the same effect on inequality in a democracy as in an autocracy. Therefore the two should be studied together. There are a handful of studies (Li et al. 1998, Reuveny and Li 2003, and Wagle 2012, discussed at further length below) that deal with both institutions and integration at the same time. This thesis improves on these studies by

using an improved dataset for the Gini coefficient. This dataset also allows the use of more countries than has been used in this setting before. In addition to the improved data, this thesis will also use multiplicative interaction terms to see if any interaction between integration and institutions can be found in terms of effects on inequality. This has, to the author's knowledge, not been done in any previous study investigating this relationship.

## 1.1 Research Question

This thesis will, just as the studies above, investigate the relationship between integration, institutions and within-country inequality. But whereas all studies mentioned above treat integration and institutions' effects on inequality as unaffected by each other this thesis will also study a possible interaction effect between the two. As is explained at greater length below, it is entirely possible that the effect of integration on a country's level of inequality could be affected by the quality of institutions in the country. Therefore, *this thesis tries to find not only what effect integration and institutions have on within-country inequality but also if institutions affect integration's effect on inequality.*

## 1.2 Method and Data

The results and conclusions in this thesis come from unbalanced panel regressions using inequality data from the *Standardized World Income Inequality Database (SWIID)*. Political institutions are measured by data from both Polity IV and the Democracy and Development Extended Data Set. Trade and FDI, both measured relative to GDP, are used to measure integration. To capture the effects of institutions on integration's effect on inequality multiplicative interaction terms are used. Several different specifications are estimated and the total marginal effects of integration are also analyzed. In total, the data covers over 100 countries over 40 years.

## 1.3 Limitations

The main limitation in this thesis is that the kind of effects studied here require that the data covers a long period of time and the length of time available here is limited by the available data on Gini coefficients. Especially data from countries with autocratic governments and low levels of GDP is missing, which potentially skews the data towards democratic and rich countries. This is a common problem in investigations using data on within-country inequality and institutions and no easy solution is available.

Another issue is the multifaceted quality of democracy that is quite impossible to reduce to

simple measurement without a risk of measurement error. To lessen this problem, two different measures of democracy are used, but the risk of measurement error is still real.

## 1.4 Disposition

This thesis is divided in five sections. The following section covers the theoretical framework and previous research on inequality that study both integration and institutions. The three hypotheses of this thesis are also presented in this section. The third section deals with the method and data used and the results are presented and discussed in section four. Section five concludes.

# 2 Theoretical Framework

## 2.1 Integration

Over the past decades the world has reached unprecedented levels of cultural, economic, and political integration as globalization has deepened and spread. This thesis will focus on economic integration as this is expected to be the part of globalization most connected to inequality. Mainly, the thesis deals with two parts of globalization, trade and FDI, that both have been linked to inequality.

**Trade** The most famous of the theories connecting trade with inequality is the Stolper-Samuelson theorem (Stolper and Samuelson 1941). This theorem, based on the Heckscher-Ohlin model, predicts that it is the factor of production that is relatively abundant in a country that benefits from trade. If a country is abundant in capital or land (which is often concentrated in the hands of the few) increased openness is thus likely to lead to increased inequality as firms substitute unskilled labor with cheap imports (Spilimbergo et al. 1999, Rodrik 1997). At the same time, the theorem also predicts that it is labor that benefits from trade in countries where labor is abundant. So accordingly, less developed countries (LDCs) should in general become more equal from trade whereas developed countries (DCs) should become more unequal.

This effect has been called “self-evident” for developed countries (Stiglitz 2010:387) but the fact is that inequality has increased alongside globalization in most countries in the world, not just developed ones. Due to this lack of supporting data the Stolper-Samuelson theorem is not sufficient to explain the situation today. Instead, trade theories that incorporate intermediate goods have been put forward as better at predicting trade’s effect on inequality between skilled and unskilled labor in all countries. Even a simple model assuming a skilled abundant country producing a wide range of skilled-abundant goods and a country abundant in unskilled labor producing a range of unskilled-abundant goods is sufficient (Feenstra 2004). Assuming some basic conditions are met,

it is the production of the least skilled-abundant goods that moves from rich (skilled-abundant) to poor (unskilled-abundant) countries when the countries open up, increasing relative wages for skilled labor in both countries as relative demand for such labor increases. This effect comes from the fact that what is the least skill-intensive industry in the skill-abundant country is the *most* skill-intensive in the other. Thus inequality can be expected to increase in both countries when they open up.

**FDI** The continued integration of world markets has given rise to an increased number of multinational companies and other FDI activities. While some argue that these provide poor countries with tools to promote economic growth and that this by itself should increase equality (e.g. Dollar and Kraay 2002), there are several reasons to expect that FDI can exacerbate inequality.

FDI is likely to greatly lower the bargaining power of labor, which in turn is likely to decrease wages and increase inequality. The shift of bargaining power is due to the costs for labor to organize over national borders and the relative ease with which FDI could shift production internationally (Alderson and Nielsen 2002). This increased global competition can also pressure governments to change regulations on minimum wages and working conditions and lower taxes (Reuveny and Li 2003). This increased bargaining power for corporations vis-à-vis governments is likely to lower the total compensation to workers.

Complimentary to trade in the intermediate-goods theory, FDI might increase inequalities in both rich and poor countries as the production of low-tech goods is shifted from rich to poor countries where those goods are relatively high-tech. This leaves the unskilled workers in rich countries without employment while putting local firms out of business in LDCs by using a relative high level of capital (Feenstra and Hanson 1995, Robbins 1996). Should FDI lower the demand for unskilled labor this can force people into a large service sector where wages are subsistence and with only slim chances of leaving (Evans and Timberlake 1980).

As theory suggests that both trade and FDI leads to higher levels of inequality the first hypothesis of this thesis proposes a positive relationship between integration and inequality.

**Hypothesis 1:** Integration into the world economy is expected to increase the level of inequality in a country.

## 2.2 Political institutions

Institutions, as defined by North (1991:97), are “the humanly devised constraints that structure political, economic and social interaction”. These constraints controls the transaction costs of economic actors and as such are important determinants of economic outcomes. Defined like this, institutions

range a wide spectrum of constraints, from culture and religion to formal rules and laws. This thesis will deal with one part of this spectrum, namely *political institutions*.

The political institutions in a country are the rules deciding who has the political power and what constraints are put on those in power. This includes, but is not limited to, the written constitutions of countries, also including more informal constraints like the *de facto* rules followed by political actors (Weingast 1995). Political institutions cover all aspects of political systems and decision-making, like e.g. the level of centralization of power, but this thesis will focus on the democratic dimension of political institutions. Democracy has for long been put forward as an important determinant of inequality and this focus is supported by decades of theoretical work.

The classical arguments for a negative connection between democracy and inequality, brought forward in the 1960's in works by among others Lipset (1960) and Lenski (1966), explained the connection through increased participation in the decision-making process of the lower social strata made possible by elections. This increased participation puts the issues of the working class at the forefront of political discussion. As democracy makes leaders accountable to the population, more resources must be directed towards improving conditions for those who are worse off. This is in contrast to authoritarian regimes where instead favoritism and elitism are likely to abound, as there is no accountability (Bollen and Jackman 1985).

This is in line with the median voter theorem from the Public Choice literature, which comes to the same conclusions. The theorem predicts that elected leaders serve the interest of the median voter to ensure a majority of the vote. Models where leaders are chosen in elections show that the level of redistribution will increase with the extension of the suffrage, assuming that more wealthy citizens get the right to vote before less wealthy ones do (Meltzer and Richard 1981). The mechanism behind this is that the median voter becomes poorer and poorer the further the suffrage is extended. Other models show that the median voter theorem leads to higher level of public goods like education being supplied by the government in a democracy than in an autocratic society (Niskanen 1997).

Besides political competition and taxes and transfers, democracies are also likely to improve equality through improved conditions for workers. There are several possible channels through which democracy can improve workers' conditions and increase wages. First of all, democracies are likely to be more stable which works to create more outside options for the employees as more industries can develop and moving between jobs is less risky. Moreover, the political process increase political participation, competition, and contestation, all of which work towards improved conditions for workers as they gain political power (Rodrik 1999).



The above sections lead to the second hypothesis to be tested.

**Hypothesis 2:** Democratic institutions are expected to decrease the level of inequality in a country.

It is not impossible that this relationship runs in both directions; just as institutions can be expected to affect inequality it is also possible that inequality affects the quality of institutions. Some authors stress the idea of what they call a political Kuznets curve. According to this theory a country with autocratic political institutions will initially exacerbate inequality, but only to a point. After this point the institutions change and instead lower inequality (Bourguignon and Verdier 2000, Acemoglu and Robinson 2003, 2008). Such a curve is created when increased inequality, typically due to industrialization, leads to the organization of the poor. This organization leads to the introduction of democratic institutions that brings the level of inequality down. The relationship between institutions and inequality might therefore be more complex than a simple one-way causality.

### 2.3 Institutions and the effect of integration on inequality

As explained above, a well-functioning democracy can be a powerful tool to fight inequality. This is likely to be true no matter what causes the inequality. So while integration into the world economy is likely to create an upward pressure on inequality levels, this is likely to be offset in a country with high quality institutions. A prime example is the downward pressure on wages and working conditions for low-skilled laborers caused by globalization. As discussed above, FDI puts labor in a tougher bargaining position than domestic investments do. This pressure is likely to exist for both democracies and autocracies, but labor is likely to be in a better position to protest in democracies due to increased political participation. The opposition to deteriorations of worker rights can therefore be expected to be greater to begin with in those countries. As such, FDI is less able to increase inequality in democracies than it is in less democratic countries.

Due to the median voter theorem, there is also an upper limit on how much wages can decrease or, more specifically, *for how many* wages can decrease. Should a decrease in wages affect the income of the median voter, this is likely to lead to redistribution through government channels as leaders strive to ensure support from a majority of the voting population. The median voter theorem also works to counter any other positive effect on inequality that integration could possibly have in a democracy.

There is also a possible selection effect in play where goods that are considered to increase income inequality face higher trade barriers in democracies than those that do not. While workers, or more famously farmers, in a democracy has the possibility to pressure politicians looking for votes to stop

trade which would hurt their income, this is not possible for the same groups in an autocracy. As such, trade in democracies might be made up of a different mix of goods than trade in autocracies.

In conclusion, theory predicts that integration should have a positive effect on inequality, but that this effect should be markedly weaker in countries where political institutions are democratic and well functioning.

**Hypothesis 3:** When interacted, democratic institutions are expected to decrease integration's positive effect on inequality in a country.

Empirically, the results of using both institutional and integration variables in the same regression are mixed. Li et al. (1998) use measurements from Freedom House and the export ratio in the same regression with Gini from Deininger and Squire (1996)<sup>1</sup> as the dependent variable. They find that while improved civil liberties improve equality, trade is insignificant. Reuveny and Li (2003) investigates the relationships using trade and FDI flows as measurements of integration, Polity III as a democracy measurements, and Easterly (1999) for Gini. They find that both democracy and trade are negatively correlated to inequality while FDI is positively correlated. Lastly, Wagle (2012) use data on Gini from the *World Income Inequality Database* (WIID), democracy data from Polity IV and FDI flows and exports ratios as measurements of openness. The result is that none of these factors are very important in determining changes in equality<sup>2</sup>.

Despite having all the data necessary to investigate the third hypothesis of this thesis, none of the three papers mentioned here properly investigate if integration's effect on inequality is conditional on institutional quality.

## 3 Method and Data

This thesis will improve on previous works in three ways. First, a larger set of countries is used. Second, an improved version of the Gini coefficient is used as the dependent variable. Lastly, interaction effects are used between integration and democracy to properly study if the level of democracy in a country affects how integration affects inequality.

### 3.1 Method

The model estimated is an unbalanced fixed effects panel. This specification makes sure that all available data can be used and also allows the use of lags. The use of fixed effects across countries

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<sup>1</sup>The use of different sources of Gini coefficients is discussed in section 3.2

<sup>2</sup>Some studies, like Rodrik 1999, Milanovic 2005, and Timmons 2010, also use both democracy and openness in the same regressions. However, they use them only as controls and without much discussion.

will capture any time invariant difference in culture or geography between the countries while time fixed effects will adjust for any time effects that might be present. As inequality can be expected to change only slowly over time all independent variables are lagged. This will also deal with the potential endogeneity problems mentioned in section 2.2. All regressions are made in Stata 12.1. To capture the expected interaction effect between integration and institutions multiplicative interaction variables will be added to the regressions. The following specification is used:

$$g_{it} = c + a_i + b_t + \beta_1 x_{it-1} + \beta_2 y_{it-1} + \beta_3 x_{it-1} * y_{it-1} + \beta_4 z_{it-1} + \epsilon_{it} \quad (1)$$

Here  $g_{it}$  is inequality,  $x_{it-1}$  is institutional variables,  $y_{it-1}$  integration variables and  $z_{it-1}$  a vector of controls.  $c$  is a constant,  $a_i$  is a country specific effect,  $b_t$  is a time specific effect and  $\epsilon_{it}$  is the error term. As the introduction of an interaction term complicates the interpretation of stand-alone constitutive variables, regressions are also made without the interaction terms. This is to produce average marginal effects of the integration and institutional variables to ease interpretation.

Political institutions will be measured by two different variables in this thesis, *Polity* and *Regime*. If hypothesis 1 is correct,  $\hat{\beta}_1$  should be negative in the regressions without interaction effects when *Polity* is used and positive when *Regime* is used. This is because the latter, in contrast to the former, has high values for autocratic institutions (see section 3.2 for further discussion).  $\hat{\beta}_2$  is expected to be positive for all measurements used in this thesis.

Interpreting marginal effects in regressions with interaction terms is rather more complex than in these standard regressions. This is because the constitutive terms appear twice in the regression. In regressions without any interaction effects, the marginal effect of a variable such as  $y_{it-1}$  is simply the coefficient:

$$\frac{\partial g_{it}}{\partial y_{it-1}} = \hat{\beta}_2 \quad (2)$$

When an interaction term such as  $x_{it-1}y_{it-1}$  is introduced the total marginal effect of  $y_{it-1}$  on  $g_{it}$  in equation 1 is instead:

$$\frac{\partial g_{it}}{\partial y_{it-1}} = \hat{\beta}_2 + \hat{\beta}_3 * x_{it-1} \quad (3)$$

$\hat{\beta}_2$  can thus only be interpreted as the marginal effect of  $y_{it-1}$  in equation 3 when  $x_{it-1} = 0$ , in which case the equation simplifies to equation 2. If the third hypothesis is correct, the interaction regressions should give the result that  $\hat{\beta}_3$  is negative when *Polity* is interacted and positive when *Regime* is interacted. This would indicate that increased values of the former and decreased values of the latter are associated with a decrease of integration's marginal effect on inequality (which is assumed to be positive).

To further complicate things it is possible that as a result of being used twice, the total effect of (in this case) integration on inequality is significant in total, even if both the stand-alone and the interaction variable are insignificant. The reason for this complexity is that the standard error of interest in this case is not, in fact, that of  $\hat{\beta}_1$  or even  $\hat{\beta}_3$  but that of  $\hat{\beta}_1 + \hat{\beta}_3 * x_{it-1}$  from equation 3. This is calculated from the following formula (see Friedrich 1982):

$$s_{(\hat{\beta}_2 + \hat{\beta}_3 * x_{it-1})} = \sqrt{\text{var}(\hat{\beta}_2) + x_{it-1}^2 \text{var}(\hat{\beta}_3) + 2x_{it-1} \text{cov}(\hat{\beta}_2, \hat{\beta}_3)} \quad (4)$$

As can be seen this standard error not only differs from the ones presented in traditional regression tables, it also varies with the variable  $x_{it-1}$ , i.e. institutions. The result is that the effect of integration on inequality could be significant at some values of the institutional variables and insignificant at others. To fully capture the marginal effects of integration at different levels of institutional quality the total marginal effects of integration are graphed over the span of the institutional parameters used. The graphs are produced using the Stata Utility grinter (Boehmke 2008). This utility produces graphs of the marginal effects with easy to interpret confidence intervals.

## 3.2 Data

The data used in panels here consists of 105 countries<sup>3</sup>, more than any of the papers discussed in section 2.3. The sample covers the period 1970-2009 divided in eight five-year sub-periods (1970-1974, 1975-1979, 1980-1984, 1985-1989, 1990-1994, 1995-1999, 2000-2004, and 2005-2009). Data is the average of each sub-period except for dummies, which have the last value of the period. This gives a bit over 700 theoretically possible observations when lags are used. The number of observations will be much lower as many observations are missing. A summary of the data can be seen in table 3.1. All countries with data are listed in appendix A. The set covers both LDCs and DCs, but there are in general more observations for developed countries and these are therefore somewhat overrepresented in the regressions.

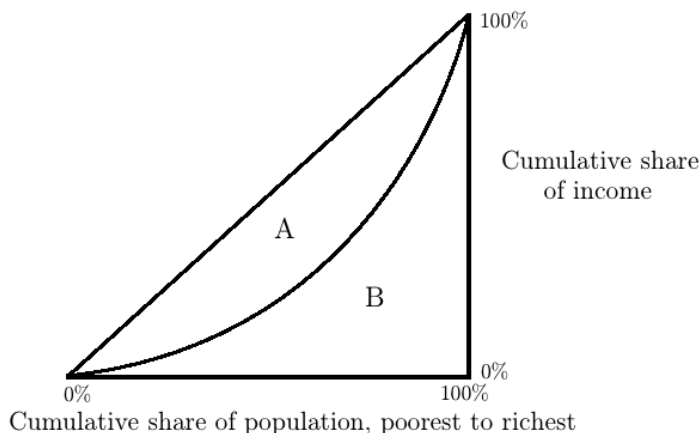
**The Dependent Variable: Inequality** The *Gini coefficient* is a measurement of inequality that meets all four of the standard requirements of such measurements; it is scale and population independent, treats every person equally, and any transfer from a rich to a poorer person will change the statistic (the so-called Pigou-Dalton principle). It is the latter of these requirements that makes the Gini coefficient preferable to other, simpler, measurements; by considering the entire population the Gini can capture changes in inequality ignored by the Kuznets ratio, the income of the top 10%,

<sup>3</sup>Singapore and Luxembourg were first considered but were removed as outliers due to their extremely high and fluctuating values of trade and FDI, respectively.

**Table 3.1:** *Summary of data*

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Gini	613	37.55	9.90	19	65
Polity	773	2.61	7.18	-10	10
Regime	689	0.46	0.50	0	1
Trade	769	67.29	35.26	7.21	226.87
FDI	733	2.10	2.77	-7.90	25.40
GDP	786	7.59	1.57	4.33	11.28
EFI2	665	5.63	2.30	0	10

or similar measurements.



**Figure 3.1:** *The Gini coefficient and the Lorenz curve*

The Gini coefficient is derived from the Lorenz curve, shown in figure 3.1. It plots the cumulative income of a population from the poorest to the richest against the total income of the population. If the income is shared completely equally (i.e. the poorest 1% gets 1% of the income, the poorest 2% gets 2% of the income etc.) the Lorenz curve is a 45° line. If the income distribution is completely unequal (i.e. one individual gets 100% of the income) the Lorenz curve is a horizontal line going from 0% of the population to 99.99...% and then a vertical line. The Gini coefficient is measured as the space between a country's Lorenz curve and the line of complete equality divided with the space between the line of perfect inequality and the lines of perfect inequality. This is the equivalent of  $A/(A + B)$  in figure 3.1. The Gini coefficient ranges from 0 (when the Lorenz curve of the country follows the line of perfect equality) to 100 (when the Lorenz curve of the country follows the lines of perfect inequality) on the percentile scale (Hindriks and Myles 2006:418f).

There are a number of datasets of Gini coefficients across countries and time. As there exists a number of ways of measuring the Gini coefficient (net or gross, income or consumption etc.) and

different countries don't necessarily use the same method there is a severe risk of measurement error across countries and even time should one use different types of observations. One of the most used datasets in the research reviewed here, the Deininger and Squire (1996) dataset, does not control for this, which makes different values incomparable. The WIID (essentially an extension of the Deininger and Squire set) and Easterly's (1999) set (the decade averages of the Deininger and Squire set) suffers from the same problem. There does exist a set, the *Luxembourg Income Study*, which provides Ginis that are comparable across time and countries, but only for a small number of rich countries.

To increase the number of comparable observations different attempts have been made to correct the heterogeneity of the former datasets and increase the range of the latter. Previous works discussed here often use dummy variables to add a fixed value to e.g. net values to make them comparable to gross values. This method is only correct if all countries have the same difference between net and gross Ginis (as well as between income and consumption etc.), a strong assumption to say the least. To avoid this problem this thesis will use Solt's (2009) SWIID. Solt uses a number of different methods to correct for difference in measurements of the various sources, making the values comparable across countries and time. The main difference between Solt and other standardized Ginis is that Solt takes care to use as much information as possible from observations close in time from the same country to correct values.

Throughout the net Gini is used so that the possible redistribution policies of states are taken into account. As the Gini coefficient is a bounded variable it is technically incorrect to perform an OLS regression. However, as there are no values close to either 0 or 100 (19 and 65 being the minimum and maximum value respectively) an OLS is still a functional solution (Kennedy 2008:372). The bounded dependent variable will therefore be used to ease interpretation<sup>4</sup>.

**Institutions** In this thesis the political institutions in a country will be measured by the Polity IV dataset (*Polity*). This dataset measures the level of democracy on a scale from -10 (strongly autocratic) to +10 (strongly democratic). Scores are given in two categories, democratic and autocratic, and each country's total score is the former minus the latter. Within each category scores are given based on how the executive is elected, the constraints (both official and *de facto*) on the executive, and what political participation is allowed (Marshall et al. 2010). The Polity IV index includes most of the political dimension one in general considers to be vital for democracy, but by including such a wide range of institutions, each by itself hard to define, the risk of measurement

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<sup>4</sup>The results from regression using an unbounded variable of the form  $Unbounded\ Gini = \ln(Gini/(100 - Gini))$  (from Reuveny and Li 2003) do not differ in any significant way from results using the bounded variable and are not reported here.

error is likely to increase.

The use of indices like Polity IV has been criticized by among others Przeworski et al. (1996) and Przeworski and Limongi (1997). These authors argue that countries are either democracies or not and hence prefer to use a dichotomous measurement. To qualify as a democracy a country must have contested elections, if such elections do not take place, a country is not a democracy in Przeworski et al.'s sense of the word. To take this critique into consideration Przeworski et al.'s (2002) dataset Democracy and Development Extended Data Set (*Regime*) will also be used as a measure of political institutions. This is a dummy variable that marks democracies as 0's and non-democracies as 1's. While lowering the risk of measurement error by using a simpler definition of democracy than Polity IV, this data has the limitation that it leaves out many of the institutions one would often say is required for a democracy.

**Integration** Integration will be measured by two different measurements, namely *Trade* and *FDI*. Trade will be measured as total trade, exports plus imports, as percentage of GDP. FDI is measured as net inflows from foreign investors to the country compared to GDP. Net in this case means new investment minus disinvestment (the removal of capital invested earlier). Data from both are from the World Development Indicators (WDI).

**Interaction variables** As there are two measurements of political institutions and two of integration in total four interaction variables will be used in the following regressions: *Polity\*Trade*, *Polity\*FDI*, *Regime\*Trade*, and *Regime\*FDI*. Each of these four variables are the product of its two sub-parts. To keep the interpretation of these as straightforward as possible, they are used separately from each other.

**Controls** Besides the fixed effects discussed above the natural logarithm of the value of GDP per capita (*GDP*) is used as a control. The data comes from the WDI and is measured in current US dollars. This variable is added as a control for the Kuznets curve (Kuznets 1955), which predicts that there is a relationship between inequality and the level of development of a country. Inequality is expected to increase in the takeoff phase of economic development but decrease after an economy has reached a certain level of development. *GDP* can also be said to implicitly control for other classic controls, like the structure of the economy since one can assume that these are highly correlated to the development level of a country (Reuveny and Li 2003). As a robustness check, regressions are later run using additional controls.

To isolate the effect of political institutions from that of economic institutions the latter are controlled for in all regressions. Economic institutions are those institutions that govern markets

and the action of economic actors, it is often discussed in terms of property rights. A number of works find that such institutions are related to equality (Chong and Calderón 2000, Gupta et al. 2002, Zafirovski 2002, Chong and Gradstein 2007, Dobson and Ramlogan-Dobson 2009) and as one can also expect them to be correlated to political institutions it is important to control for these. The quality of economic institutions will be measured using a sub-index of the Economic Freedom of the World Index (EFI) (Gwartney et al. 2011). The EFI is a composite index that consists of five parts that covers a range of institutions. The sub-index used is called *Legal structure and security of property rights* (*EFI2*). This sub-index consists of several sub-indices itself. It measures the impartiality of courts, legal enforcement of contracts, and other closely related issues. Higher values imply greater rule of law.

## 4 Results

To make sure that multicollinearity is not an issue, the correlations between the different variables are presented in table 4.1. This table shows a couple of high correlations, but most of these are harmless. Unsurprisingly, *Regime* and *Polity* are highly negatively correlated but as these are not used in the same regressions this will not pose a problem. Likewise, the high correlation between *GDP* and *EFI2* is of no importance as these are only used as controls. The reasoning behind this is that multicollinearity between two (or more) variables only increases the uncertainty of the affected coefficients; it does not bias the results or affect the variances of the other coefficients. This means that the effect of multicollinearity between controls is only that the uncertainty of the affected variables is increased and not that of the variables of interest (see Wooldridge 2009:98-99).

The correlation between *Polity* and *GDP* is quite high, but should not be high enough to cause any problems. Regressions are later run without *GDP* as a robustness check.

**Table 4.1:** *Correlations of key variables, pairwise sample*

	Gini	Polity	Regime	Trade	FDI	GDP	EFI2
Gini	1						
Polity	-0.1736	1					
Regime	0.1697	-0.8518	1				
Trade	-0.0423	0.1831	-0.1096	1			
FDI	-0.0266	0.2604	-0.2210	0.5117	1		
GDP	-0.4418	0.5981	-0.5191	0.2697	0.2479	1	
EFI2	-0.5227	0.4764	-0.385	0.1610	0.1684	0.6680	1

If nothing else is stated, country fixed effects are used throughout, their significance is controlled for using a Hausman test. The time effects pass a joint significance test for all specifications and



will therefore be used throughout. Modified Wald tests (xttest3) and Wooldridge tests (xtserial) are performed to check for heteroskedasticity and autocorrelation, respectively. As both seem to be present in the regressions robust standard errors (Huber/White/sandwich, the Stata command `vce(robust)`) will be used in all regressions.

## 4.1 Regression results

The results from the regressions using *Polity* as the institutional variable are presented in table 4.2. In this and all other regression tables p-values are presented in parenthesis and significance is denoted by asterisks. One asterisk indicates significance at the 10% level, two asterisks at the 5% level and three asterisks at the 1% level. The clearest result from these regressions is that democracy is always negatively and significantly correlated to inequality as expected from theory. The effect varies between 0.127-0.139 percentage points decrease in the Gini coefficient for every step higher score of the Polity IV index. One could note that these values mean a move from the lowest to the highest *Polity* score in the sample would imply a decrease of the *Gini* coefficient of only about 3%. Democracy can as such not be said to be the major determinant of inequality in the world.

Neither the *Trade* variable nor the *FDI* variable is significant implying that integration has no

**Table 4.2:** *Results using Polity. All independent variables are lagged.  
Dependent variable: Gini*

Polity	-0.127*	-0.143*	-0.139**	-0.125*
	(0.050)	(0.087)	(0.047)	(0.070)
Trade	-0.020	-0.022		
	(0.178)	(0.176)		
Polity*trade		0.000		
		(0.738)		
FDI			-0.022	0.093
			(0.780)	(0.370)
Polity*FDI				-0.020
				(0.150)
EFI2	-0.235**	-0.236**	-0.155	-0.157
	(0.028)	(0.028)	(0.153)	(0.138)
GDP	0.981	0.970	0.978	1.168
	(0.238)	(0.245)	(0.252)	(0.143)
Constant	35.113***	35.252***	33.538***	32.247***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	431	431	422	422
Countries	100	100	100	100
R <sup>2</sup>	0.1195	0.1198	0.0947	0.1005
p(F-value)	0.0000	0.0000	0.0014	0.0014

effect on inequality. Both are however negative in their respective stand-alone regressions, which is counter to what is expected.

Table 4.3 summarizes the results from regressions using the *Regime* variable for institutions. In these regressions none of the variables of interest are significant. As *Polity* was significant in all of the four regressions it was used, this lack of significance for *Regime* stands out. It indicates that elections, the base for the variable *Regime*, are not themselves enough to affect inequality. Instead, it seems like elections need to be supported by other political institutions, constitutional or other, such as those captured by the Polity IV dataset, to have a negative effect on inequality.

Interestingly, economic institutions, as measured by *EFI2*, are only significant in the regressions measuring integration with the *Trade* variable and never in the regressions using *FDI*. This is made even more interesting by the fact that *EFI2* is barely correlated to any of the two integration variables. Despite these low correlations it seems like some of the effect of economic institutions is captured by foreign direct investment. However, as pointed out above, the high correlation between *GDP* and *EFI2* makes the interpretation of either potentially troublesome.

The interaction effects are always insignificant in both tables, indicating that integration's effect on inequality does not change at different levels of democracy. As discussed above, this result should

**Table 4.3:** Results using *Regime*. All independent variables are lagged.  
Dependent variable: *Gini*

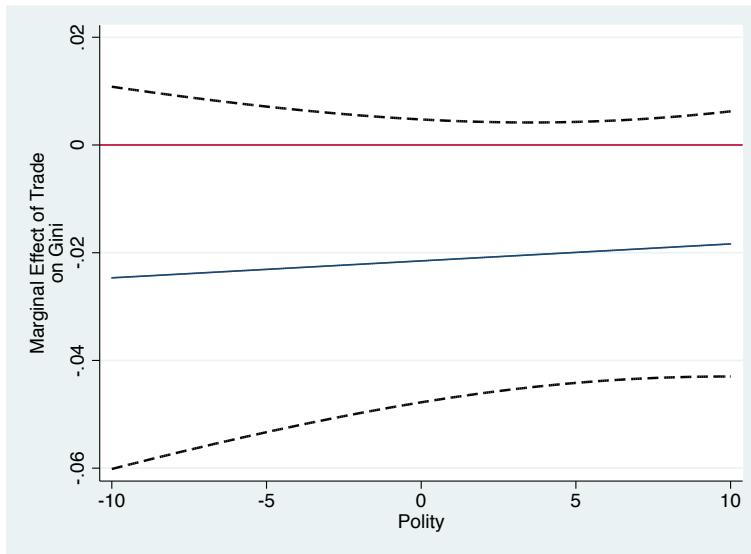
Regime	0.743 (0.310)	1.320 (0.162)	0.832 (0.273)	0.609 (0.406)
Trade	-0.022 (0.104)	-0.019 (0.142)		
Regime*trade		-0.011 (0.286)		
FDI			-0.019 (0.810)	-0.062 (0.457)
Regime*FDI				0.255 (0.232)
EFI2	-0.247** (0.023)	-0.255** (0.020)	-0.173 (0.126)	-0.173 (0.116)
GDP	1.094 (0.215)	1.083 (0.225)	1.091 (0.234)	1.206 (0.170)
Constant	34.057*** (0.000)	33.911*** (0.000)	32.310*** (0.000)	31.633*** (0.000)
Observations	435	435	426	426
Countries	102	102	102	102
R <sup>2</sup>	0.0997	0.1024	0.0697	0.0738
p(F-value)	0.0000	0.0000	0.0041	0.0058

be interpreted with caution as the true marginal effects need to be calculated. This will be done in the next sub-section.

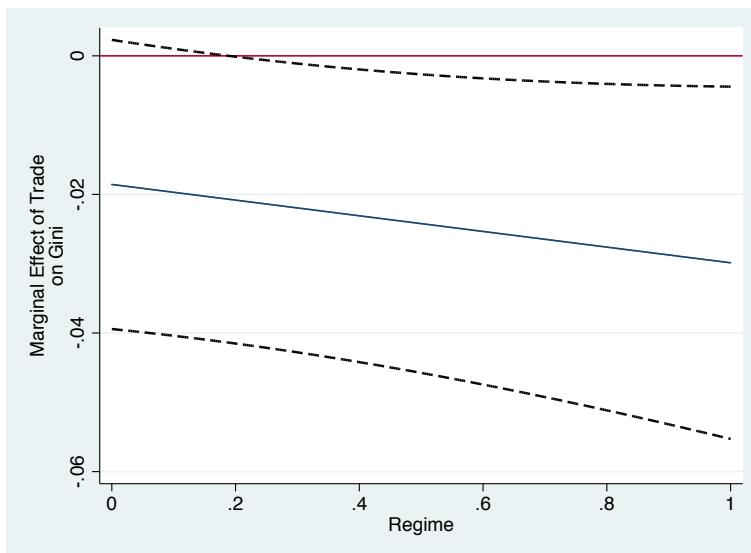
**Marginal effects** The full marginal effects of integration on inequality from the interaction regressions in tables 4.2 and 4.3 are here presented in the form of graphs. Two integration variables, each interacted with each of the institutional variables gives in total four graphs produced from the same number of regressions. The graphs have three lines, the solid line in the middle represents the marginal effects while the two dashed lines are 90% confidence intervals. If all three lines are at the same side of zero the effect is significantly different from zero. This might be true only for some values of the institutional variable. The results from *Trade* are presented in figures 4.1 and 4.2 and those from *FDI* in figures 4.3 and 4.4.

These graphs indicate that the total marginal effect of foreign direct investment is never significant at the 10% level. The variable *Trade* is, however, significant when interacted with *Regime*, in figure 4.2. This one result indicate that trade is significantly negatively correlated to inequality in autocracies (*Regime*=1) but not significantly so in democracies (*Regime*=0). This effect is also quite large compared to the effect of democracy; a total marginal effect of about 0.03 percentage points lower Gini coefficient for every percentage point increase in trade would indicate a change of almost 7% lower Gini should an autocratic country move from the bottom to the top value of trade in this sample. This is more than twice the maximum of the about 3% predicted by changes in Polity IV scores, indicating that autocracies that open up should experience greater changes in equality than if it improves political institutions.

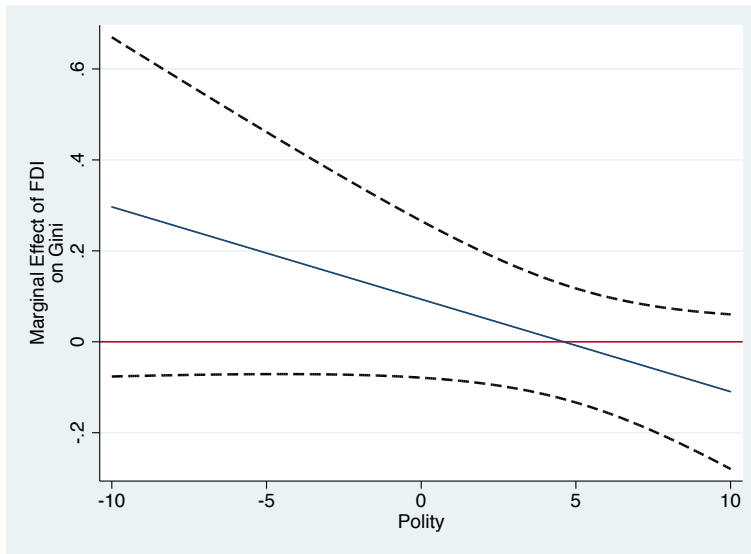
The negative correlation between trade and inequality is the opposite of what is expected from theory and so is the fact that this relationship is only significant in autocracies. A possible explanation could be that of those countries deemed autocratic by the *Regime* variable only those that are less autocratic allows trade to any extent. As such this result might be a sign of small changes in democracy (such as those captured by *Polity*) affecting inequality, not that integration improves equality. Another possibility could be that trade allows a new section of society to grow and catch up with older elites, such as the growth of the merchant class in Britain in the seventeenth century. As traditional domestic revenue streams like farming were then controlled by the old elite, trade was the only field in which one could catch up and alter the old distribution of income (North and Weingast 1989 and Acemoglu et al 2005). This argument could still be valid in modern times. If access to materials or revenue from domestic production is limited by the state, as it can be in an autocratic state, the possibility to trade with other countries could lead to the emergence of a new group outside the elite. This could perhaps also explain why this result is present in the regression



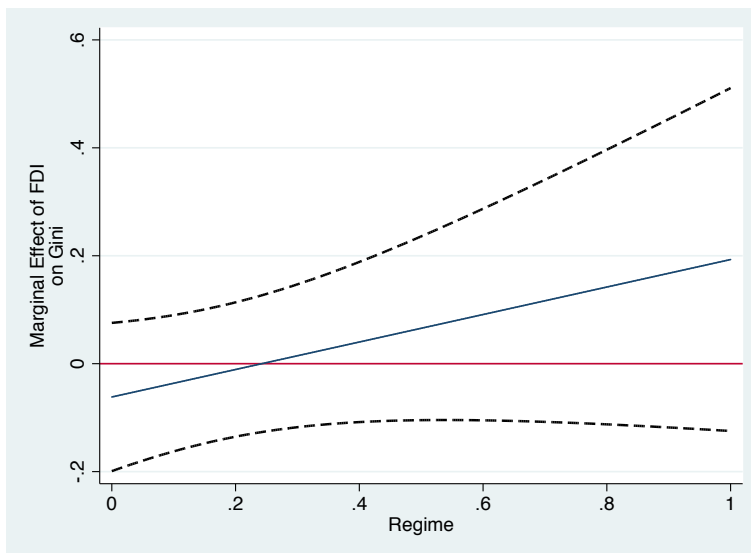
**Figure 4.1:** *The marginal effects of integration on inequality using the variables Trade and Polity*



**Figure 4.2:** *The marginal effects of integration on inequality using the variables Trade and Regime*



**Figure 4.3:** *The marginal effects of integration on inequality using the variables FDI and Polity*



**Figure 4.4:** *The marginal effects of integration on inequality using the variables FDI and Regime*

using *Regime* and not the one using *Polity*. As the latter measurement encompass political participation the opportunities of non-elite groups are likely to be reflected in this measurement, making opportunities offered by trade less important in comparison.

In summary, only hypothesis 2 finds any support in these regressions, even if the size of the effect is quite small. No support is found for the other two hypotheses. If anything, it seems like trade lowers inequality, but only in autocracies, which is the exact opposite of what is predicted by hypotheses 1 and 3.

## 4.2 Robustness checks

To test the robustness of the above results four different specifications are tested. Results from these regressions are found in appendix B. Graphs with the total marginal effects from the regressions using interaction effects are also found in this appendix.

**Removing *GDP*** The variable *GDP* was added to the regressions above as a control for the Kuznets curve. However, it is always insignificant and has worryingly high correlations with especially *Polity*. Therefore, the same regressions as in table 4.2 and 4.3 are run without *GDP* as a robustness check.

The main difference in result caused by this is that *Trade* is now significantly negative in the *Regime* regressions with coefficients of a size indicating a decrease of the Gini of about 5% should a country move from the lowest to the highest value for trade. This gives support for the previously insignificant result that trade is negatively correlated to inequality. As the interaction variable between *Trade* and *Regime* is also negative it seems like trade reduces inequality more in autocracies than it does in democracies. This is confirmed by the total marginal effect which is now significant for both democracies and autocracies, but with a larger effect in the latter.

*Polity* is still significant with similar sized coefficients as in the original regressions, and once again neither the integration variables nor the *Regime* variable is significant. As such, the potential multicollinearity between this variable and *GDP* does not seem to cause any problems with these variables in the original regressions.

**Additional controls** In this section two new controls are added, capturing the differences in demography and economic structure between countries. These were not added to the original regressions as the *GDP* variable is expected to capture the effects of demography and economic structure. Data comes from the WDI.

The first variable to be added is the share of population living in rural areas (*Rural population*). This variable is added to control for the structure of the economy, as there are reasons to expect that it is related to both the amount of trade and FDI received by a country as well as the level of inequality in the country. Similar controls can be found in Rodrik (1999), Alderson and Nielsen (2002), and several others. This variable suffers from a high correlation with *GDP* which makes interpretation of coefficients hard.

To control for demographical differences the share of population aged 0-14 years was first considered. However, it had to be excluded due to severe multicollinearity with *Polity*. Instead, another demography variable was added, namely the natural logarithm of population (*Population*). This is added as a large population is expected to be related to trade as small countries are likely to involve in more cross-border trade than large countries to access larger markets. Population size could also be expected to lower inequality in autocracies as large populations are expected to make popular revolt harder to crush and thus leads to leaders instead trying to win over the population by redistribution or by the provision of public goods. Demographic controls are used by among others Bollen and Jackman (1985) and Dreher and Gaston (2008).

With these additional controls in the regression almost all variables of interest are insignificant. *Polity*, however, is still significant, but this time only once, even if it is right on the 10% line in the stand-alone regression using *FDI*. While not as significant before, democracy's (as measured by *Polity*) negative relationship with inequality seems quite robust to these controls. *Regime* is never significant.

Among the integration variables, there is a significant result for trade in the regression using *Regime* as a democracy variable. This result is confirmed by the marginal effects which show the same result as in the original regressions, i.e. that trade is negatively significant for those countries with a *Regime* value of 1 but is insignificant for those with a value of 0.

The *Rural population* variable is insignificant throughout. This is probably best explained by the variable being quite highly collinear with *GDP*. *Population* has the expected negative sign throughout and is significant in three of the *Regime* regressions, but in none of the regressions using *Polity*.

**Lagged Gini coefficient as control** Following Reuveny and Li (2003) the lagged Gini coefficient is used as an additional control. This variable should capture any time invariant effects present in countries and as such country specific effects do not need to be used. Time specific effects are still used to control for any temporal differences. The clearest result here is that the  $R^2$ -value increases to over 30% for all regressions. The lagged Gini is also significant at the 0.1%-level in all regressions.

This shows that inequality changes only slowly over time. Even with this control *Polity* is still significant in three of the regressions, but no longer in the regression where it is also interacted with trade. The coefficient is now only about half as big as before. *Trade* is once again negatively significant in both of the *Regime* equations where it is used, but this coefficient is also smaller than before. Interestingly, with this control the total marginal effects of *Trade* with both *Polity* and *Regime* is negatively significant for democracies, but not for autocracies. This is in line with the hypotheses but the opposite of the results from both the robustness check above and the original regressions. They are, however, only just significant at the 10% level.

**Using the KOF index** To cover a broader view of globalization the KOF index (originally from Dreher 2006, updated in Dreher et al. 2008), will be used as extensions of the trade and FDI variables used above. Two versions of the index will be used, one which only incorporates economic integration (*KOFE*) and one which also incorporates social and political dimensions of integration (*KOFT*). The economic index is decided by actual flows of among others trade and FDI (with 50% weight) and trade tariffs and other trade restrictions (50%). The total index incorporates this economic index, social factors (such as the extent of tourism, the number of internet users, and the number of McDonald's restaurants), and political factors (such as the number of embassies in the country and international treaties signed). The three dimensions have about equal weight, with slightly less weight being given to the political factors. In both indices high values indicates high levels of globalization.

The two different indices are never significant, either alone or when interacted, following the pattern of *FDI*. The interacted effects show only on significant result, for *KOFE* interacted with *Polity*, which is just significant for a *Polity* value of 10. As this result is positive it indicates that integration as measured by *KOFE* increases inequality in democracies but not in autocracies. *Polity* is significant on three out of four occasions, only losing significance in the regression where it is interacted with *KOFE*. *Regime* is significant for the first time, but only once and then only at the 10% level. It is interesting to note that these indices are never significant, despite being made up partly by trade, which has been significant a number of regressions. This is likely due to a dilution by the other factors included in these indices, like McDonald's restaurants and FDI (which in general is insignificant).

What can be concluded from these robustness checks is that the result for *Polity* is more or less robust to all specifications, at least in the regressions without interaction. These results strengthen the support for hypothesis 2. *Regime* is still insignificant for all specifications but one, which gives



support for the idea that elections are not enough to decrease inequality.

The negative relationship between trade and inequality hinted at in the original regressions finds more support in these regressions, giving further reason to reject hypothesis 1. Other parts of globalization, like *FDI* and those measured by the KOF indices, seem to be of less importance.

The last hypothesis finds mixed support from these robustness checks. The interaction effects of the regression without *GDP* and those with additional controls give support for the claim that trade decreases inequality only in autocracies as measured by *Regime*, while the marginal effects using a lagged Gini point in the opposite direction.

### 4.3 Split samples

In this section the sample will be split in three ways: between LDCs and DCs, between countries with high levels of initial political institutions and countries with low initial levels of institutions, and lastly between countries exporting natural resources and those exporting manufactured goods. This is made to see whether the results from previous sections hold up more or less in these groups. These regressions will focus on the *Polity* variable instead of the *Regime* variable due to the in general insignificant result for the latter. Results from these regressions and total marginal effects are found in appendix C.

**LDCs and DCs** In this split the countries are divided into two groups after the level of GDP per capita in the first observation available. This means that countries with an initial level of GDP of \$617 and below are labeled as LDCs and those above as DCs.

Among the LDCs all variables and total marginal effects are insignificant, probably due to the lack of data in this category; there are less than 200 observations in these regressions. In the group of DCs the results differ somewhat from the ones before. *Polity* is significant in three out of four regressions, with coefficients of approximately the same size as before. *Trade* is negatively significant once, and the total marginal effects show that this effect is stronger the less democratic a country is, which is in line with the previous results. The effect is even insignificant for countries with a *Polity* score of 10.

For the first time, *FDI* is significant, and negatively so, indicating that investment from abroad can help improve equality in developed countries, but not in less developed ones. Furthermore, the total marginal effects show that this is only significant for those countries with a polity value above 0. This means that *FDI* is only significantly negative in relatively democratic rich countries. With a size effect of about -0.2 this means a total decrease of the Gini coefficient of about 7% should a country move from the lowest to the highest value of *FDI* in the DC sample. A possible explanation

for this result might be that FDI in DCs are there for different reasons than FDI in LDCs. Foreign companies are more likely to invest in more developed economies due to market access or to local talent or knowledge than it is in an LDC. Therefore they are more likely to act in an environment where domestic actors have already established rules. As such, the only effect of investment in DCs is to increase the abundance of capital relative to labor and thus, if anything, decrease inequality. In LDCs FDI is more likely to be present due to an abundance of cheap labor that is used to produce export goods. Investment is therefore more likely to move, deteriorating the bargaining power of local labor as they compete with unskilled labor in other parts of the world. This is in line with the total marginal effects as labor can be expected to have the best protection in democracies, making this argument especially true for democratic countries.

**Initial level of political institutions** The split between democracies and autocracies is made so that an initial Polity IV value of -4 or less is considered low, splitting the countries in two groups of almost equal size. Three countries (Bahamas, Iceland, and Malta) lack any data on *Polity* and are removed from these samples. The split is not a perfect one as some countries rapidly changed their level of democracy during the investigated period, but such changes are not very common.

Just as when the split was made between DCs and LDCs one of the groups has no significant variables or total marginal effects, in this case it is the group with a low level of initial political institutions. This can once again probably be explained by the lack of data as there are even less observations in this group than in the LDC group. In the group with high levels of initial political institutions only *Trade* and *EFI2* are significant, both negative. The total marginal effects show that *Trade* is significantly negative only for those countries with a *Polity* value of above 0. This result is in line with theory, but opposes the result from the total marginal effects in figure 4.2 which indicated that trade decreases inequality in autocracies only. Here the result is quite the opposite, indicating that trade's negative effect on inequality increases with the level of *Polity*.

The fact that *Polity* is now always insignificant could be interpreted as the exact level of democratic institutions being of less importance than whether you are a democracy or an autocracy on a more general level.

**Different type of exports** Since trade and FDI encompass a plethora of different goods and services, it is possible that some subtleties are missed when using these collective measurements. One of these subtleties is that countries exporting natural resource might differ from those that export manufactures. The third split is therefore made between those countries that mainly export natural resources and those that export other goods (here, all exports that are not natural resources will be called manufactures). The division is based on how large a part of merchandise exports is

made up of fuels, ores, and metals in the latest year available. The data on the type of exports comes from the WDI and covers all countries but two, Haiti and Sierra Leone, which are removed from the sample. To create a fairly even split, countries where more than 12.5% of merchandise exports come from these sources are considered to be reliant on natural resources.

Once again one of the groups is without significant results; no conclusions can be made on average in those countries whose exports are not reliant on natural resources. For the group that exports natural resources the pattern from the regressions is the same as before with *Polity* and *Trade* in general being significant and negative and the interaction variables being insignificant. The total marginal effect of *Trade* is also significantly negative, but only in the span of *Polity* values between -2 and +2 and even then only just. The size effect is also smaller than before.

The total marginal effects of *FDI* differ greatly between the samples, but both are positive when significant, indicating that FDI increase inequality in both groups. Natural resource-exporting countries appear to show a positive relationship between democracy and FDI's effect on inequality, shown by the upward sloping marginal effects line. A possible explanation for this result could be that democratic countries are more likely to have privately owned natural resources and investments in these countries therefore benefit an economical elite more than the state. Another explanation could be that FDI in non-democratic, natural resource-exporting, countries creates more transparency in the dealings than purely domestic investment and thus leads to a decrease of the income from the resources being lost to corruption. The result for the manufacturing countries is in line with theory in that FDI increases inequality, but less so in democracies; for the most democratic countries the effect is not even significant.

In total the results from the split samples show that the effects of FDI on inequality and the effect of democracy on the effect of integration is dependent on what sample is used. The result for *Trade* and *Polity* are however quite robust, both of their coefficients being negative whenever they are significant.

#### 4.4 How does democracy affect inequality?

The most consistent result in both the original regression as well as in the robustness checks is democracy's negative effect on inequality. As discussed in section 2.2, there are a number of different channels through which democracy can work to contain inequality, including direct redistribution, the provision of public goods, and improved conditions for labor. The following regressions are made to see which of these channels are of importance. The results and the significant marginal effects can be seen in appendix D.

**Gross Gini coefficient** The *gross Gini* coefficient is used as the dependent variable in these regressions to see if it is through redistribution that democracy affects inequality, as predicted by theory. This new dependent variable changes the original results only marginally, *Polity* now being insignificant in the regressions with interaction effects. This indicates that democracy seems to improve gross Gini as well as net Gini and thus that redistribution is not the main channel through which democracies improve equality. In fact, the size of the significant coefficients are slightly larger when the gross Gini is used than when the net Gini is, which means that democracy has a greater effect on the former than on the latter.

The marginal effects show only one significant result, the negative relationship between trade and inequality for autocracies as measured by the variable *Regime* which was also present in the original regressions.

**Government policy** The next specification tried is the addition of three new control variables controlling for government policy. The reason why these variables were not added to the robustness checks is that democracy is expected to act through these channels, so a loss of significance for democracy due to these do not necessarily indicate that democracy is not effective in lowering inequality.

The first variable is a subindex from the EFI (*EFI1*) that measures the size of government through tax levels, government consumption, and investment. Large governments are given low values. This control is added as one of the major channels through which political institutions are expected to affect inequality is through the provision of public goods, something that should be captured by this control. The question is if it is the size of government itself that is good for equality or if democracy is sufficient. To further pinpoint what actions of the state affects inequality an educational variable is added as well. This is a control used in most studies investigating the relationship between inequality and either democracy, integration, or both (see e.g. Li et al. 1998, Litwin 1998, Timmons 2010). The reasoning behind this variable is the same as for *EFI1*, i.e. that a democracy will lead to an increased provision of this public good. In this thesis education will be measured by the net primary school enrollment (*Primary school enrollment*). This variable uses data from the WDI. The fifth sub-index from the EFI (*EFI5*) is also used. This measures the regulation of credit, labor, and business with high values indicating less regulation. Just as government consumption, the extent of regulation is also expected to be positively correlated with democracy as labor unions and similar are expected to have a greater say in democratic countries. *Primary school enrollment* is somewhat collinear with *GDP*, but otherwise multicollinearity should not be an issue.

In all, there is only one significant result for these three variables, a negative result for the

*Primary school enrollment.* This lack of significance says that the size of government, the extent of regulation, and the primary education system has no effect on inequality using these controls. This is unexpected but perhaps reasonable since democracy is controlled for; both a democracy with a well-developed social safety net and a dictatorship with a large military and secret police would indicate as a large state, but only the former would lower inequality. Likewise, both tough but fair regulations as well as excessive ones would be given high values of *EFI5* and a free education and an indoctrinating one would mean a high primary enrollment.

What is more interesting is that none of the democratic variables are now significant, or even close. This indicates that democracy without a large government, regulation, and education is not efficient in reducing inequality. As the use of a gross Gini coefficient barely changed the results (indicating that direct redistribution is not a very important channel through which democracy affects inequality), this result seem to show that it is through the provision of public goods such as education and regulation that democracy has its greatest effect on inequality.

Furthermore, trade is significant in all four regression where it is used, always negative. The total marginal effects likewise show that trade is significantly negatively related to inequality at all levels of democracy. A possible reason for this increased significance is that one of the channels through which integration might increase inequality, reduced protective regulation for labor, is controlled for, leaving only positive effects of trade.

In conclusion, democracy's effect on regulation and the provision of public goods like education seem to be of greater importance than direct redistribution when it comes to explaining democracy's negative effect on inequality.

## 5 Conclusions

The purpose of this thesis has been to study the relationship between political institutions, integration, and inequality. Out of the three hypotheses tested here only hypothesis 2, that democratic political institutions are expected to decrease the level of inequality, find substantial support. This hypothesis gets strong support from democracy as measured by *Polity* in most of the specifications. The second democracy variable, the dummy *Regime*, shows only a single significant result. As the latter focus solely on elections, this result signals that elections are not sufficient to decrease inequality. Instead, other aspects of democracy have to be taken into account, like what constraints are put on the executive, aspects that are incorporated in the Polity IV dataset. The regressions splitting the sample after initial level of democracy point to the exact level of democracy being less

important than whether a country is at the bottom or top of the scale.

Hypothesis 1, that integration is expected to increase the level of inequality in a country finds no support. On the contrary, *Trade* is negative in all regressions where it is significant. It is significant in many of the different specifications, using both *Polity* and *Regime* as the democracy variable, even if significant results using the latter is overrepresented. This is the most consistent of the results of the integration variables. The regressions using only developed economies also finds that FDI decreases inequality in this sample and especially in relatively democratic developed countries. These results are the opposite of what is expected from theory, but does have precedent among earlier empirical studies. The reason for this negative relationship could possibly be explained by trade leading to the opportunities for a section of society previously left without possibilities, like the British merchant class in the 17th century.

The last variables of interest are the interaction variables. These are only significant in a few of the regressions, but as it is the total marginal effects that are important this does not necessarily indicate that these results should be disregarded. In the figures properly depicting the total marginal effects several significant results can be found. The most consistent result is that trade decreases inequality in autocracies but not in democracies, as measured by *Regime*. These results not only give further reason to refute hypothesis 1, but also hypothesis 3, that high quality institutions are expected to decrease integration's (expectedly positive) effect on inequality. Instead, it indicates that trade will improve equality in autocracies while the same is not true for democratic governments. However, when the lagged Gini is added as a control, the results indicate that only in democracies does trade decrease inequality, which is in line with theory. The same relationship is found among those regressions using only democratic countries. Democracy as measured by *Polity* also decrease FDI's negative effect in countries producing manufactures and increase FDI's positive effect in developed countries. So the effect of institutions on integration's effect on inequality is dependent on the sample and specification used. As a consequence, no clear-cut acceptance or rejection of hypothesis 3 can be made.

The policy implications of these results can be summarized in that leaders looking to reduce inequality do not necessarily need to avoid integration but should focus on improving democratic institutions. Furthermore, the results from the robustness checks point to the provision of public goods and education and the extension of regulation to be of greater importance than direct redistribution when it comes to reducing inequality.

Future research in this area could benefit from using additional controls to further pin down what it is that makes democratic institutions decrease inequality. Another aspect worth looking into is whether different sorts of trade and FDI have different effects. As data on institutional quality and

within-country inequality is scarce and no new data is likely to be discovered in the near future, any future researcher in this area will have to deal with this lack of data.

In conclusion, this thesis shows that integration into the world economy in the form of increased trade seems to be, if anything, negatively related to the level of inequality in a country, despite an abundance of theory saying otherwise. What is of greater importance when determining inequality, however, is the quality of political institutions. The quality of a country's democratic institutions are strongly and robustly related to inequality in a number of specifications and samples and as such seem to be a more important determinant of inequality than integration. When it comes to the interaction of the two variables, the results are inconclusive, some pointing to democracy decreasing integrations negative effect on inequality while other results point to the opposite relationship. The effect is clearly dependent on what sample is used.

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## Appendix A Countries used in regressions

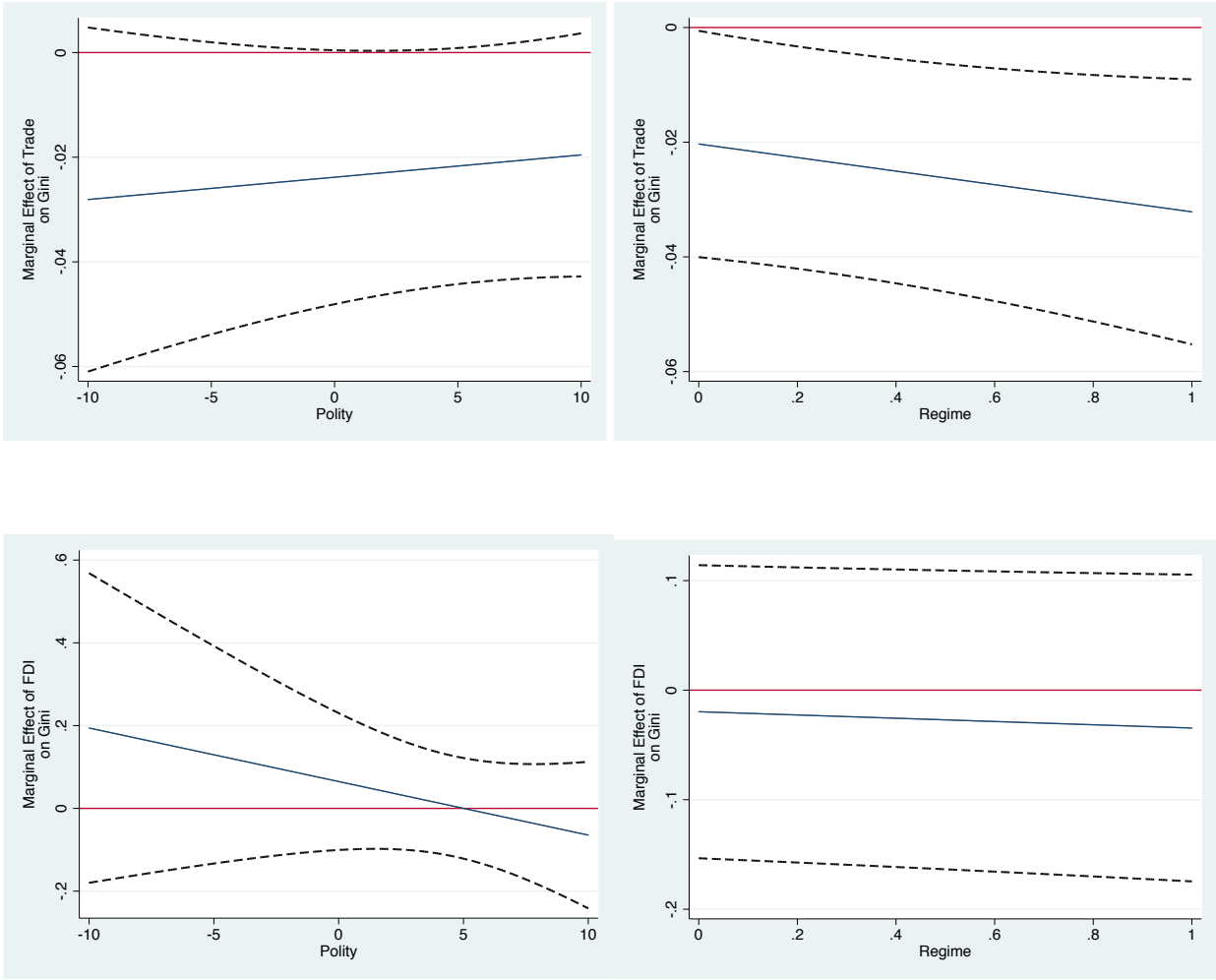
**Table A.1:** Countries used in regressions. <sup>A</sup> indicates a country in the low democracy group, <sup>B</sup> indicates a LDC, and <sup>C</sup> a natural resource-exporting country.

Albania <sup>AC</sup>	Egypt <sup>ABC</sup>	Jordan <sup>AB</sup>	Poland <sup>A</sup>
Algeria <sup>ABC</sup>	El Salvador <sup>B</sup>	Kenya <sup>AB</sup>	Portugal <sup>A</sup>
Argentina <sup>C</sup>	Estonia <sup>C</sup>	Korea, South <sup>B</sup>	Romania <sup>A</sup>
Australia <sup>C</sup>	Fiji <sup>B</sup>	Latvia	Russia <sup>C</sup>
Austria	Finland <sup>C</sup>	Lithuania <sup>C</sup>	Senegal <sup>ABC</sup>
Bahamas	France	Macedonia	Sierra Leone <sup>AB</sup>
Bangladesh <sup>B</sup>	Gabon <sup>AC</sup>	Madagascar <sup>BC</sup>	Slovak Republic
Belgium	Georgia <sup>C</sup>	Malawi <sup>AB</sup>	South Africa <sup>C</sup>
Benin <sup>AB</sup>	Germany	Malaysia <sup>BC</sup>	Spain <sup>A</sup>
Bolivia <sup>ABC</sup>	Ghana <sup>B</sup>	Mali <sup>B</sup>	Sweden
Botswana <sup>BC</sup>	Greece <sup>AC</sup>	Malta	Syria <sup>ABC</sup>
Brazil <sup>ABC</sup>	Guatemala <sup>B</sup>	Mauritius	Tanzania <sup>ABC</sup>
Bulgaria <sup>AC</sup>	Guinea-Bissau <sup>AB</sup>	Mexico <sup>AC</sup>	Togo <sup>AB</sup>
Burundi <sup>AB</sup>	Guyana <sup>BC</sup>	Morocco <sup>ABC</sup>	Trinidad <sup>C</sup>
Cameroon <sup>ABC</sup>	Haiti <sup>AB</sup>	Nepal <sup>AB</sup>	Tunisia <sup>ABC</sup>
Canada <sup>C</sup>	Honduras <sup>B</sup>	Netherlands	Turkey <sup>B</sup>
Central African Republic <sup>ABC</sup>	Hungary <sup>A</sup>	New Zealand	Uganda <sup>AB</sup>
Chile <sup>C</sup>	Iceland	Nicaragua <sup>AB</sup>	United Arab Emirates <sup>AC</sup>
China <sup>AB</sup>	India <sup>BC</sup>	Niger <sup>ABC</sup>	United Kingdom <sup>C</sup>
Colombia <sup>BC</sup>	Indonesia <sup>ABC</sup>	Nigeria <sup>ABC</sup>	United States
Costa Rica	Iran <sup>AC</sup>	Norway <sup>C</sup>	Uruguay
Croatia <sup>C</sup>	Ireland	Pakistan <sup>B</sup>	Venezuela <sup>C</sup>
Cyprus <sup>C</sup>	Israel	Panama <sup>A</sup>	Vietnam <sup>ABC</sup>
Czech Republic	Italy	Papua New Guinea <sup>BC</sup>	Zambia <sup>ABC</sup>
Denmark	Ivory Coast <sup>ABC</sup>	Paraguay <sup>AB</sup>	
Dominican Republic <sup>B</sup>	Jamaica <sup>C</sup>	Peru <sup>AC</sup>	
Ecuador <sup>BC</sup>	Japan	Philippines <sup>AB</sup>	

## Appendix B Robustness checks

**Table B.1:** Results for robustness check excluding the variable GDP.  
All independent variables are lagged. Dependent variable: Gini

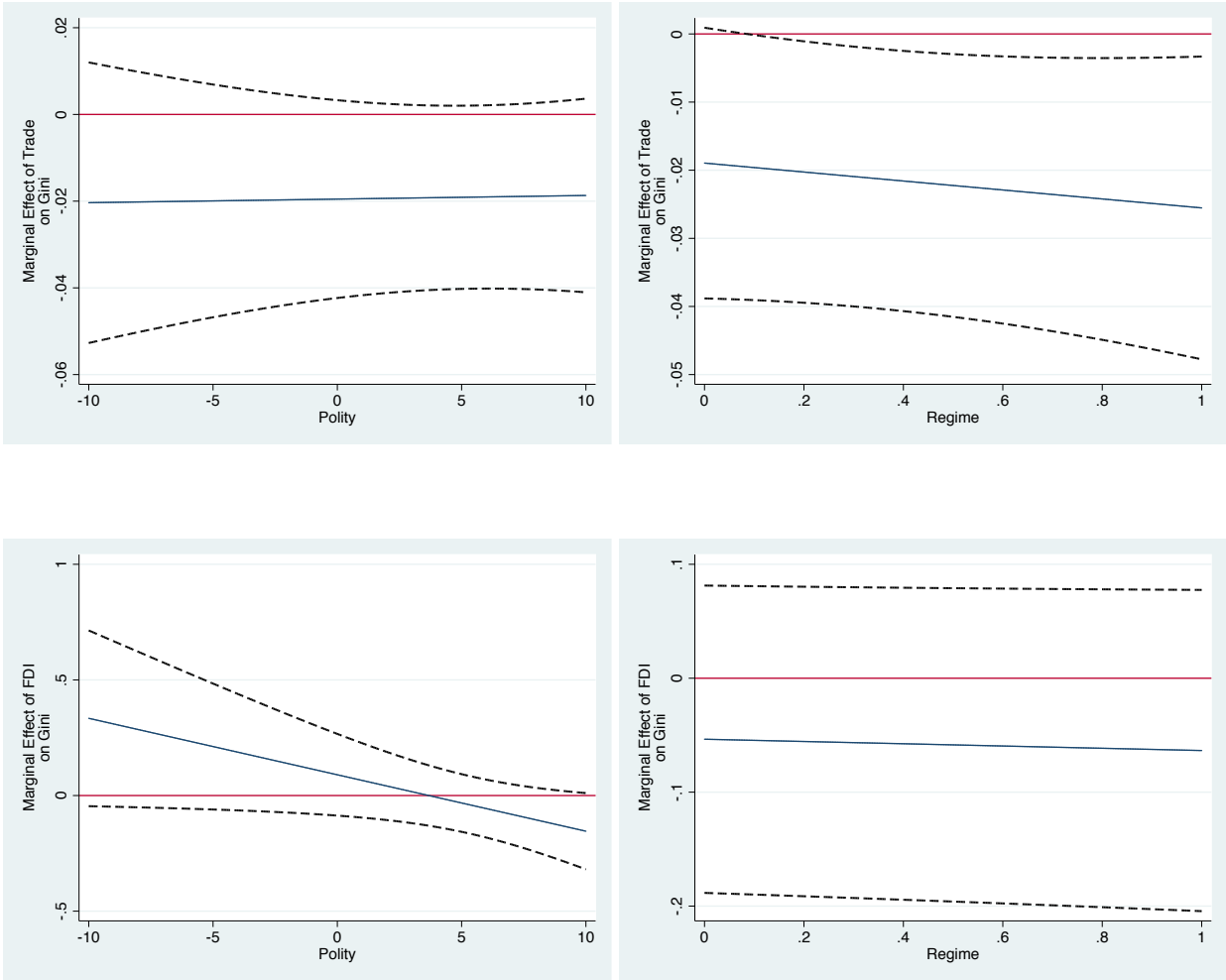
	Polity				Regime			
Polity	-0.134** (0.045)	-0.156* (0.071)	-0.144** (0.045)	-0.136* (0.062)				
Regime					0.765 (0.297)	1.370 (0.145)	0.850 (0.266)	0.701 (0.359)
Trade	-0.022 (0.118)	-0.024 (0.106)			-0.024* (0.058)	-0.020* (0.090)		
Polity*Trade		0.000 (0.635)						
Regime*Trade						-0.012 (0.233)		
FDI			-0.010 (0.895)	0.065 (0.516)			-0.006 (0.941)	-0.033 (0.693)
Polity*FDI				-0.013 (0.375)				
Regime*FDI								0.171 (0.408)
EFI2	-0.242** (0.023)	-0.244** (0.023)	-0.166 (0.117)	-0.168 (0.104)	-0.256** (0.019)	-0.264** (0.016)	-0.185* (0.090)	-0.187* (0.083)
Constant	41.573*** (0.000)	41.665*** (0.000)	38.639*** (0.000)	40.540*** (0.000)	41.264*** (0.000)	41.036*** (0.000)	38.038*** (0.000)	38.081*** (0.000)
Observations	431	431	422	422	435	435	426	426
Countries	100	100	100	100	102	102	102	102
R <sup>2</sup>	-1094	0.1099	0.0851	0.0876	0.0873	0.0902	0.058	0.0598
p(F-value)	0	0	0.0012	0.0017	0.0001	0.0002	0.0072	0.0114



**Figure B.1:** Total marginal effects from regressions without GDP

**Table B.2:** Results for robustness check using additional controls.  
All independent variables are lagged. Dependent variable: Gini

	Polity				Regime			
Polity	-0.115*	-0.119	-0.123	-0.103				
	(0.090)	(0.169)	(0.100)	(0.163)				
Regime					0.611	0.956	0.664	0.343
					(0.420)	(0.325)	(0.402)	(0.655)
Trade	-0.019	-0.020			-0.021*	-0.019		
	(0.136)	(0.158)			(0.076)	(0.116)		
Polity*Trade		0.000						
		(0.931)						
Regime*Trade						-0.007		
						(0.522)		
FDI			-0.045	0.090			-0.051	-0.111
			(0.556)	(0.400)			(0.522)	(0.165)
Polity*FDI				-0.024*				
				(0.085)				
Regime*FDI								0.342
								(0.107)
Rural population	0.033	0.033	0.062	0.072	0.052	0.048	0.085	0.097
	(0.540)	(0.543)	(0.389)	(0.317)	(0.319)	(0.356)	(0.202)	(0.153)
Population	-1.510	-1.501	-1.117	-1.256	-1.696*	-1.627*	-1.354	-1.477*
	(0.122)	(0.125)	(0.208)	(0.141)	(0.079)	(0.092)	(0.124)	(0.084)
EFI2	-0.230**	-0.231**	-0.159	-0.162	-0.244**	-0.248**	-0.178	-0.181*
	(0.027)	(0.028)	(0.133)	(0.116)	(0.022)	(0.021)	(0.104)	(0.092)
GDP pc	0.794	0.793	0.771	0.969	0.875	0.877	0.817	0.941
	(0.316)	(0.318)	(0.354)	(0.209)	(0.294)	(0.296)	(0.357)	(0.261)
Constant	58.763***	58.658***	49.596***	49.934***	59.945***	58.901***	51.511***	52.178***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	430	430	421	421	434	434	425	425
Countries	100	100	100	100	102	102	102	102
R2	0.1285	0.1285	0.1030	0.1111	0.1132	0.1140	0.0840	0.0910
p(F-value)	0.0000	0.0000	0.0010	0.0007	0.0000	0.0001	0.0027	0.0021

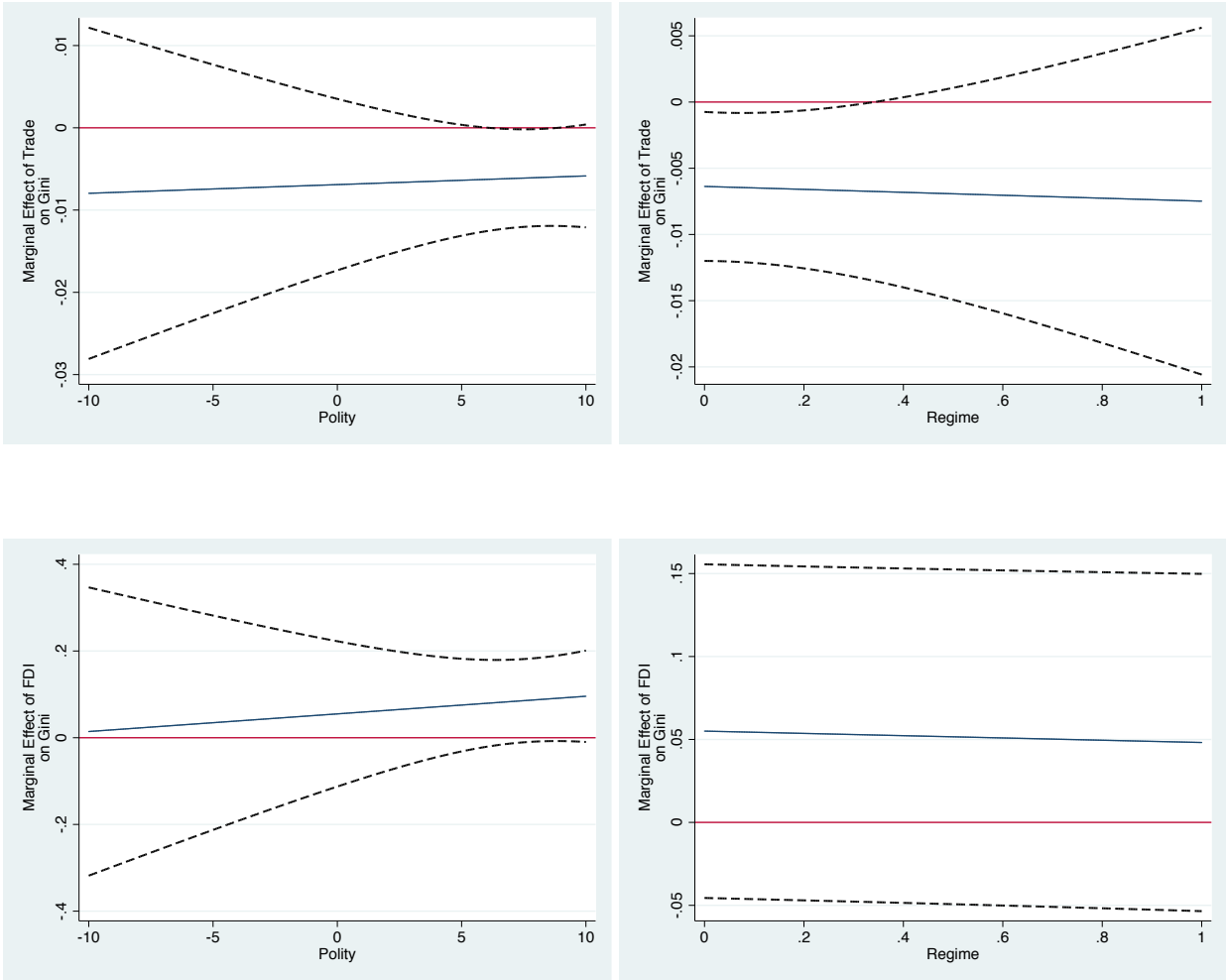


**Figure B.2:** Total marginal effects from regressions using additional controls

**Table B.3:** Results for robustness check using lagged Ginis as control.  
Regressions do not use country specific effects, all independent variables are lagged.  
Dependent variable: Gini

	Polity				Regime			
Polity	-0.072** (0.018)	-0.076 (0.141)	-0.058* (0.057)	-0.061* (0.054)				
Regime					0.497 (0.234)	0.542 (0.406)	0.336 (0.423)	0.266 (0.537)
Trade	-0.006 (0.120)	-0.007 (0.270)			-0.007* (0.084)	-0.006* (0.060)		
Polity*Trade		0.000 (0.869)						
Regime*Trade						-0.001 (0.880)		
FDI			0.079 (0.202)	0.055 (0.586)			0.055 (0.353)	0.046 (0.461)
Polity*FDI				0.004 (0.708)				
Regime*FDI								0.050 (0.728)
EFI2	-0.174 (0.103)	-0.173 (0.109)	-0.164* (0.093)	-0.164* (0.094)	-0.204* (0.058)	-0.203* (0.061)	-0.195** (0.047)	-0.197** (0.045)
GDP	0.011 (0.956)	0.014 (0.943)	-0.047 (0.780)	-0.054 (0.749)	-0.033 (0.854)	-0.026 (0.882)	-0.069 (0.665)	-0.062 (0.696)
Gini	0.857*** (0.000)	0.860*** (0.000)	0.861*** (0.000)	0.862*** (0.000)	0.860*** (0.000)	0.864*** (0.000)	0.865*** (0.000)	0.866*** (0.000)
Constant	7.208*** (0.000)	7.080*** (0.000)	6.601*** (0.000)	6.614*** (0.000)	7.082*** (0.000)	6.844*** (0.000)	6.422*** (0.000)	6.349*** (0.000)
Observations	398	398	390	390	401	401	393	393
Countries	98	98	98	98	100	100	100	100
R <sup>2</sup>	0.3397	0.3395	0.3331	0.3328	0.3229	0.3230	0.3179	0.3179
p(F-value)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

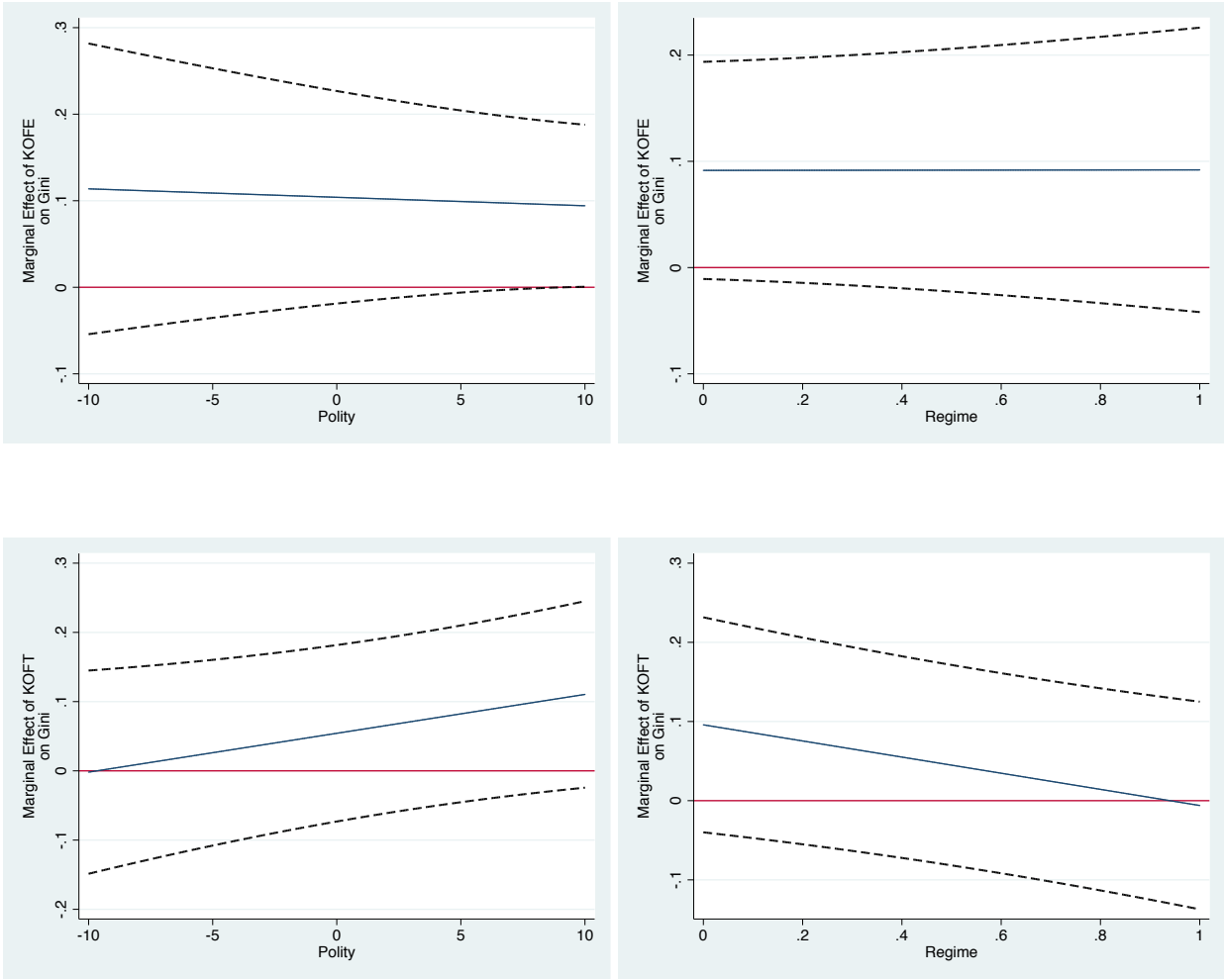




**Figure B.3:** Total marginal effects from regressions using a lagged Gini

**Table B.4:** Results for robustness check using the KOF index.  
All independent variables are lagged. Dependent variable: Gini

	Polity				Regime			
Polity	-0.118*	-0.352*	-0.102*	-0.062				
	(0.068)	(0.052)	(0.071)	(0.649)				
Regime					0.691	4.960*	0.490	0.470
					(0.339)	(0.050)	(0.438)	(0.778)
KOFT	0.098	0.054			0.076	0.096		
	(0.224)	(0.481)			(0.349)	(0.244)		
Polity*KOFT		0.006						
		(0.123)						
Regime*KOFT						-0.102		
						(0.048)		
KOFE			0.097	0.104			0.092	0.091
			(0.113)	(0.162)			(0.152)	(0.140)
Polity*KOFE				-0.001				
				(0.781)				
Regime*KOFE								0.000
								(0.990)
EFI2	-0.185*	-0.174	-0.204*	-0.207*	-0.199*	-0.203*	-0.218*	-0.218*
	(0.081)	(0.109)	(0.063)	(0.064)	(0.068)	(0.072)	(0.054)	(0.055)
GDP	0.605	0.283	0.806	0.884	0.754	0.368	0.893	0.896
	(0.401)	(0.684)	(0.274)	(0.254)	(0.323)	(0.623)	(0.250)	(0.271)
Constant	32.058***	35.663***	31.027***	30.304***	31.586***	32.993***	30.392***	30.382***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	438	438	438	438	442	442	442	442
Countries	100	100	100	100	102	102	102	102
R <sup>2</sup>	0.1051	0.1196	0.1186	0.1192	0.0836	0.1107	0.0984	0.0984
p(F-value)	0.0003	0.0001	0.0002	0.0004	0.0005	0.0002	0.0003	0.0006

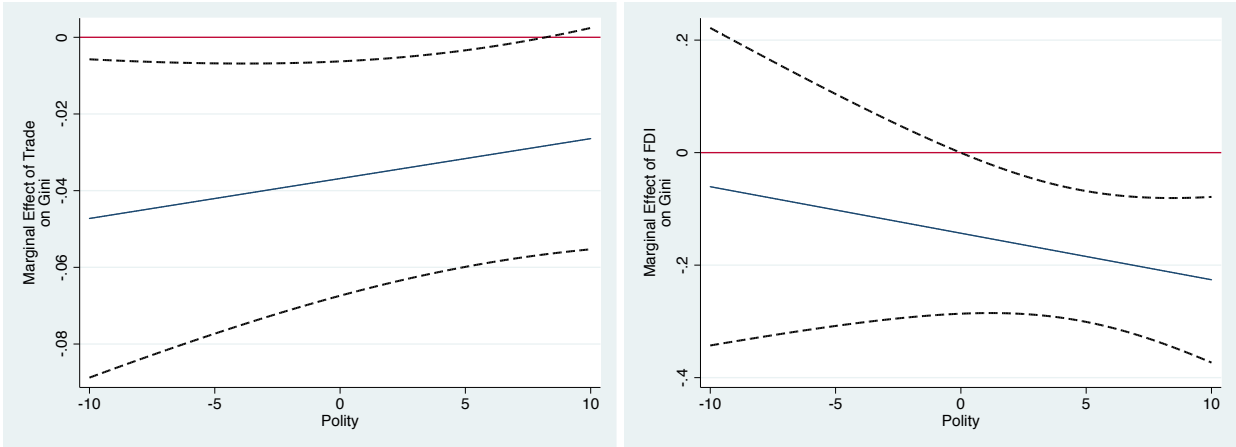


**Figure B.4:** Total marginal effects from regressions using *KOFE* and *KOFT*

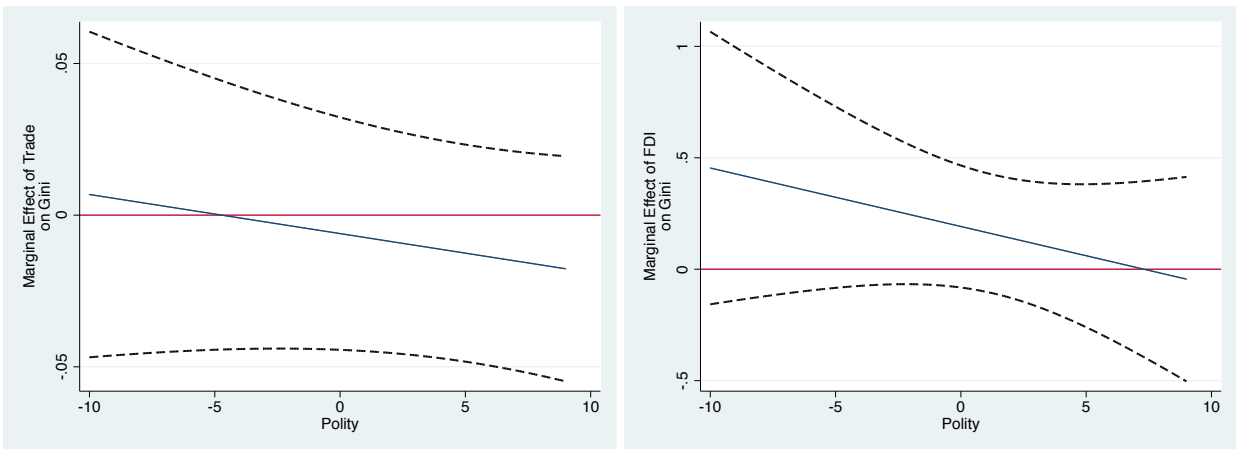
## Appendix C Split samples

**Table C.1:** Results from separate sample for LDCs and DCs.  
All independent variables are lagged. Dependent variable: Gini

	DCs				LDCs			
Polity	-0.110*	-0.166	-0.136**	-0.130**	-0.134	-0.071	-0.137	-0.116
	(0.058)	(0.105)	(0.033)	(0.047)	(0.255)	(0.507)	(0.266)	(0.337)
Trade	-0.027	-0.037**			-0.010	-0.006		
	(0.112)	(0.048)			(0.627)	(0.790)		
Polity*trade		0.001				-0.001		
		(0.349)				(0.413)		
FDI			-0.211**	-0.143*			0.157	0.192
			(0.012)	(0.098)			(0.304)	(0.244)
Polity*FDI				-0.008		-0.001		-0.026
				(0.427)		(0.413)		(0.368)
EFI2	-0.187	-0.187	-0.055	-0.060	-0.213	-0.195	-0.215	-0.197
	(0.116)	(0.112)	(0.658)	(0.631)	(0.279)	(0.335)	(0.269)	(0.309)
GDP	1.008	1.062	0.873	0.901	0.842	0.919	0.663	0.825
	(0.248)	(0.233)	(0.313)	(0.289)	(0.486)	(0.456)	(0.576)	(0.470)
Constant	29.796***	29.773***	29.327***	29.082***	38.595***	37.768***	38.939***	37.833***
	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	233	233	230	230	198	198	192	192
Countries	50	50	50	50	50	50	50	50
R <sup>2</sup>	0.2173	0.2226	0.2112	0.2121	0.1198	0.1226	0.1060	0.1107
p(F-value)	0.0019	0.0029	0.0056	0.0076	0.0038	0.0060	0.0145	0.0191



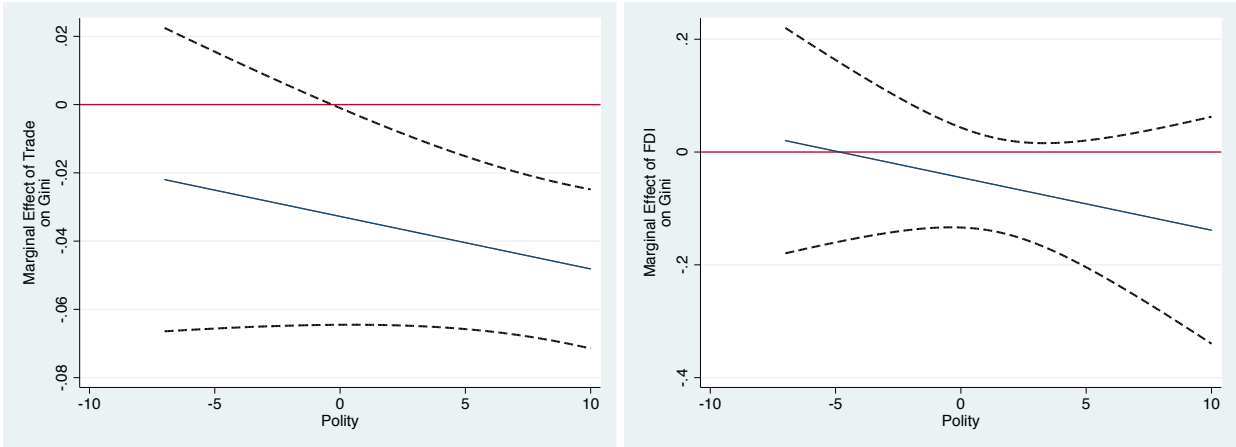
**Figure C.1:** Total marginal effects in DCs



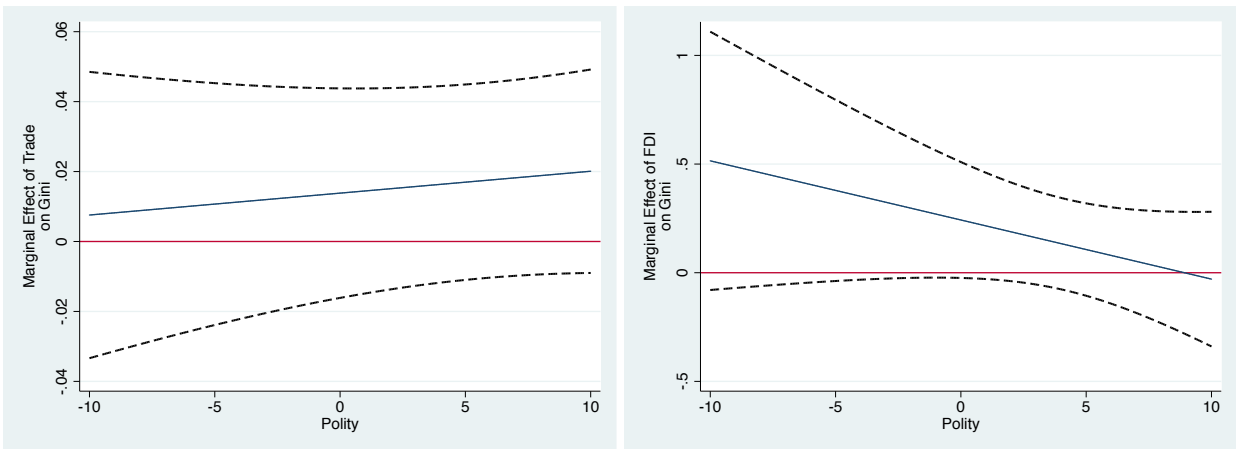
**Figure C.2:** Total marginal effects in LDCs

**Table C.2:** Results for countries with high and low levels of democracy.  
All independent variables are lagged. Dependent variable: Gini

	<b>High</b>		<b>Low</b>					
Polity	-0.032 (0.689)	0.033 (0.746)	-0.044 (0.573)	-0.038 (0.619)	-0.115 (0.310)	-0.154 (0.334)	-0.148 (0.248)	-0.117 (0.361)
Trade	-0.042*** (0.002)	-0.033* (0.089)			0.017 (0.308)	0.014 (0.440)		
Polity*Trade		-0.002 (0.270)				0.001 (0.582)		
FDI			-0.110 (0.216)	-0.045 (0.395)			0.166 (0.207)	0.243 (0.131)
Polity*FDI				-0.009 (0.468)				-0.027 (0.247)
EFI2	-0.257** (0.021)	-0.256** (0.022)	-0.294** (0.010)	-0.296** (0.010)	-0.175 (0.346)	-0.182 (0.344)	-0.049 (0.783)	-0.041 (0.810)
GDP	-0.364 (0.647)	-0.271 (0.734)	-0.118 (0.879)	-0.042 (0.957)	1.926 (0.099)	1.909 (0.103)	1.825 (0.157)	2.018 (0.103)
Constant	44.907*** (0.000)	43.808*** (0.000)	40.298*** (0.000)	39.668*** (0.000)	26.797*** (0.006)	27.120*** (0.005)	27.750*** (0.007)	26.329*** (0.007)
Observations	249	249	242	242	182	182	180	180
Countries	53	53	53	53	47	47	47	47
R <sup>2</sup>	0.2135	0.2188	0.1425	0.1437	0.1875	0.1887	0.1635	0.1712
p(F-value)	0.0001	0.0000	0.0494	0.0465	0	0.0001	0.0024	0.0008



**Figure C.3:** *Total marginal effects in democracies*

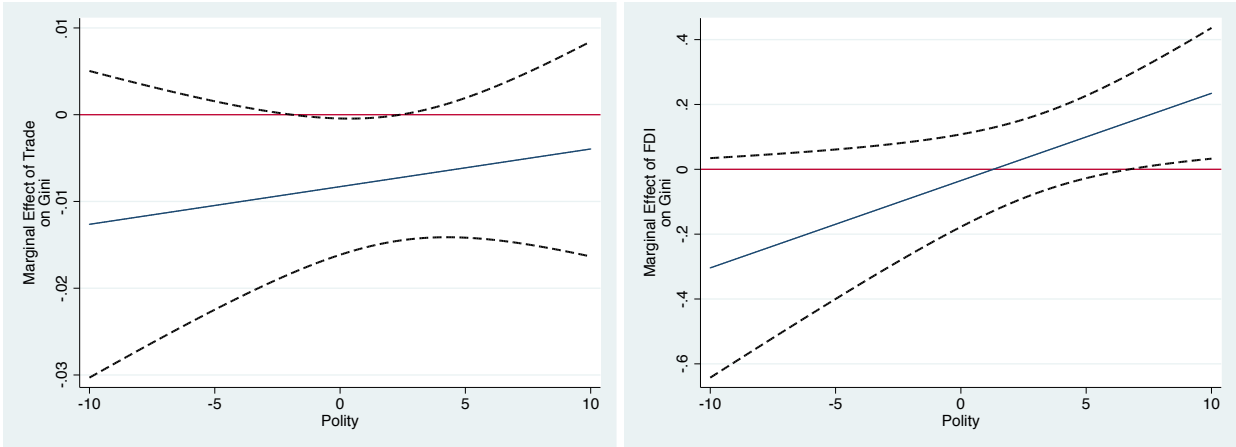


**Figure C.4:** *Total marginal effects in autocracies*

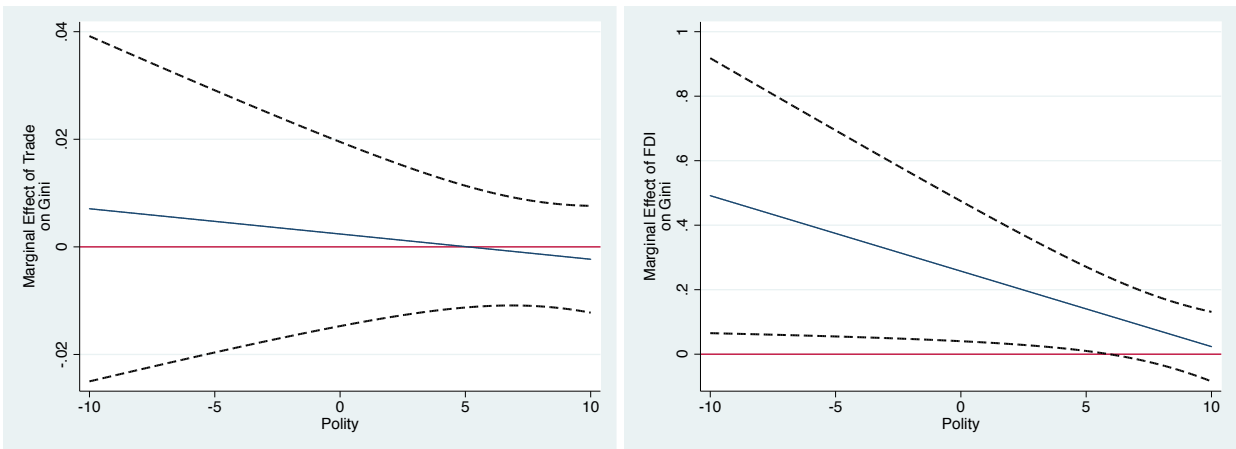
**Table C.3:** Results for countries exporting natural resources and manufactures.  
All independent variables are lagged. Dependent variable: Gini

	Natural Resources				Manufactures			
Polity	-0.157** (0.012)	-0.167 (0.116)	-0.174** (0.016)	-0.163** (0.026)	-0.119 (0.286)	-0.112 (0.447)	-0.113 (0.334)	-0.097 (0.382)
Trade	-0.035** (0.019)	-0.036** (0.027)			0.001 (0.959)	0.002 (0.926)		
Polity*trade		0.000 (0.892)				0.000 (0.927)		
FDI			0.029 (0.764)	0.068 (0.605)			-0.085 (0.528)	0.234 (0.523)
Polity*FDI				-0.009 (0.616)				-0.041 (0.330)
EFI2	-0.186 (0.173)	-0.185 (0.173)	-0.091 (0.546)	-0.095 (0.528)	-0.215 (0.141)	-0.214 (0.147)	-0.164 (0.250)	-0.174 (0.212)
GDP pc	0.222 (0.840)	0.219 (0.843)	0.503 (0.634)	0.586 (0.579)	1.894 (0.159)	1.896 (0.158)	1.963 (0.189)	2.035 (0.156)
Constant	42.686*** (0.000)	42.743*** (0.000)	36.957*** (0.000)	36.306*** (0.000)	22.667* (0.072)	22.609* (0.070)	22.583* (0.080)	22.002* (0.076)
Observations	211	211	210	210	220	22049	212	212
Countries	50	50	50	50	49	49	49	49
R2	0.1854	0.1855	0.1273	0.1287	0.1213	0.1214	0.1099	0.1239
p(F-value)	0.0000	0.0000	0.0040	0.0056	0.0023	0.0037	0.0027	0.0039





**Figure C.5:** Total marginal effects in natural resource-exporting countries



**Figure C.6:** Total marginal effects in manufacturing-exporting countries

## Appendix D How does democracy affect inequality?

**Table D.1:** Results using gross Gini coefficients.  
All independent variables are lagged. Dependent variable: Gross Gini

	Polity				Regime			
Polity	-0.166*	-0.195	-0.157*	-0.138				
	(0.058)	(0.105)	(0.090)	(0.139)				
Regime					0.821	2.172	0.722	0.470
					(0.407)	(0.117)	(0.473)	(0.636)
Trade	-0.036	-0.039			-0.038	-0.029		
	(0.232)	(0.235)			(0.184)	(0.247)		
Polity*Trade		0.001						
		(0.690)						
Regime*Trade						-0.026		
						(0.172)		
FDI			-0.051	0.106			-0.050	-0.098
			(0.759)	(0.410)			(0.766)	(0.592)
Polity*FDI				-0.028				
				(0.178)				
Regime*FDI								0.287
								(0.283)
EFI2	-0.280*	-0.282*	-0.144	-0.146	-0.291*	-0.308*	-0.161	-0.162
	(0.070)	(0.069)	(0.323)	(0.304)	(0.067)	(0.051)	(0.286)	(0.276)
GDP	1.679	1.659	1.877	2.138*	1.869	1.839	2.027	2.158
	(0.190)	(0.197)	(0.144)	(0.075)	(0.170)	(0.185)	(0.137)	(0.101)
Constant	40.351***	40.601***	36.015***	34.232***	38.676***	38.351***	34.558***	33.782***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	423	423	414	414	427	427	418	418
Countries	100	100	99	99	102	102	101	101
R <sup>2</sup>	0.1433	0.1437	0.1030	0.1086	0.1254	0.1319	0.0846	0.0872
p(F-value)	0.0005	0.0008	0.0011	0.0015	0.0012	0.0018	0.0029	0.0052

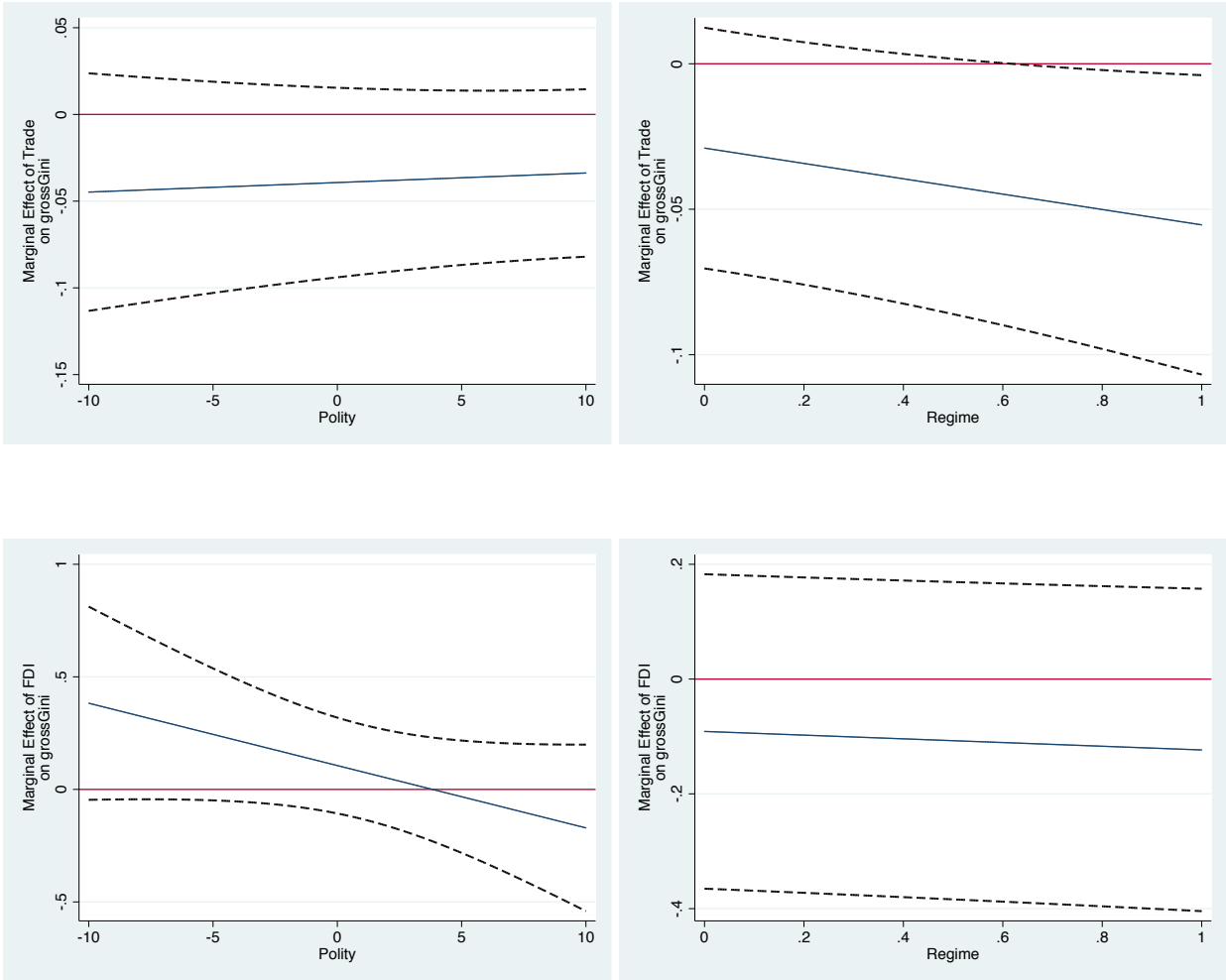


Figure D.1: Total marginal effects from regressions using the gross Gini as the dependent variable

**Table D.2:** Results from regressions controlling for government policy.  
All independent variables are lagged. Dependent variable: Gini

	Polity				Regime			
Polity	-0.053	-0.094	-0.050	-0.044				
	(0.219)	(0.169)	(0.247)	(0.316)				
Regime					-0.077	0.938	-0.071	-0.113
					(0.880)	(0.285)	(0.882)	(0.823)
Trade	-0.029**	-0.034**			-0.029**	-0.021**		
	(0.025)	(0.014)			(0.019)	(0.048)		
Polity*trade		0.001						
		(0.334)						
Regime*Trade						-0.020		
						(0.092)		
FDI			-0.059	0.024			-0.056	-0.063
			(0.438)	(0.866)			(0.463)	(0.477)
Polity*FDI				-0.010				
				(0.531)				
Regime*FDI								0.048
								(0.824)
EFI1	0.188	0.183	0.183	0.180	0.196	0.191	0.183	0.182
	(0.333)	(0.349)	(0.389)	(0.397)	(0.320)	(0.335)	(0.386)	(0.391)
EFI2	-0.203*	-0.210*	-0.109	-0.112	-0.210*	-0.219*	-0.115	-0.116
	(0.072)	(0.065)	(0.330)	(0.312)	(0.078)	(0.063)	(0.329)	(0.324)
EFI5	0.144	0.154	0.200	0.193	0.148	0.157	0.202	0.199
	(0.408)	(0.384)	(0.286)	(0.300)	(0.409)	(0.383)	(0.291)	(0.300)
Primary school enrollment	-0.061	-0.059	-0.028	-0.027	-0.064*	-0.060	-0.030	-0.030
	(0.107)	(0.118)	(0.393)	(0.398)	(0.096)	(0.115)	(0.367)	(0.368)
GDP pc	-0.156	-0.203	-0.186	-0.165	-0.027	-0.095	-0.078	-0.072
	(0.840)	(0.796)	(0.800)	(0.821)	(0.974)	(0.909)	(0.920)	(0.926)
Constant	46.359***	46.770***	40.648***	40.474***	45.077***	44.804***	39.595***	39.585***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	308	308	303	303	311	311	306	306
Countries	96	96	96	96	98	998	98	98
R2	0.1934	0.1963	0.1516	0.1535	0.1835	0.1948	0.1436	0.1438
p(F-value)	0.0003	0.0005	0.0183	0.0207	0.0006	0.0002	0.0326	0.0376

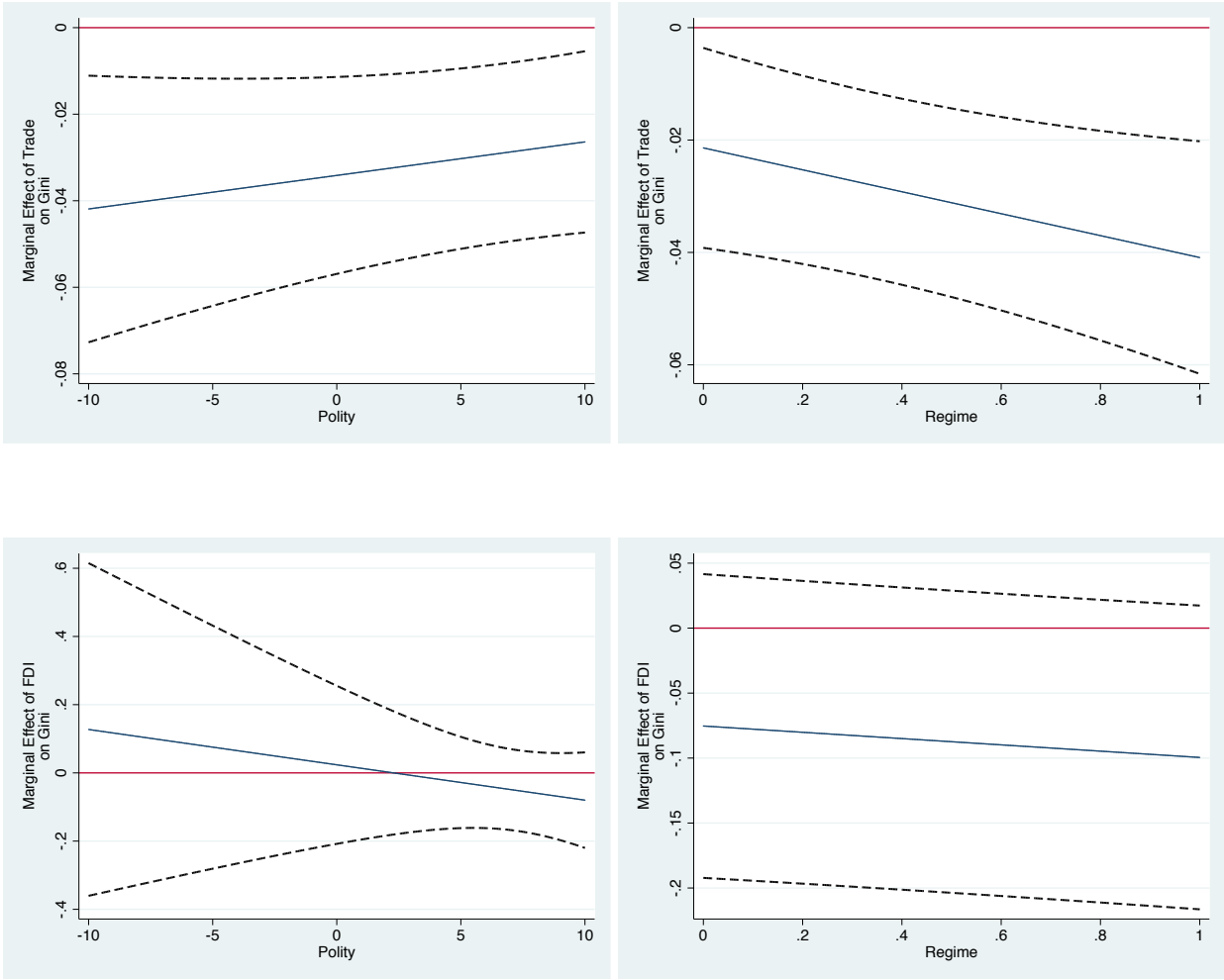


Figure D.2: Total marginal effects from regressions controlling for government policy