Inequality, Economic Development, and Democratization*

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Abstract

Although multiple theories suggest that economic development and inequality somehow affect democratization, these claims have received only limited empirical support. I contend that much of the confusion stems from the implicit assumption held by the literature that development and inequality affect democratization independently of one another. I combine, for the first time, the causal mechanisms of modernization and inequality theories, and argue that inequality affects democratization differently at different levels of development: in middle income countries inequality fosters democratization; in rich countries, however, it harms democratization. Using a data set covering almost all autocracies between 1960 and 2006, I find evidence consistent with my hypothesis.

Keywords: Inequality, Economic Development, Democratization, Modernization Theory.

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The literature on the economic roots of democracy has been dominated by two sets of theories, which offer two distinct mechanisms through which individual income influences preferences over political regimes. First, the modernization theory argues that economic development – usually, if imperfectly, operationalized as income per capita – promotes democratization (e.g., Lipset 1959). This approach views democracy as a luxury good that the population values in itself, and for which one's demand increases with his/her income. A second group of theories focuses on the effect of inequality – more precisely, inequality between the masses and the elites – on democracy (e.g., Acemoglu and Robinson 2006). These authors do not view democracy as an intrinsic good but as an instrumental good; a tool to redistribute income. Inequality increases demand for democracy by the masses, which in turn compels the elites to democratize whenever the masses pose a credible revolutionary threat. The force driving transition is the relative (rather than absolute) income of the masses. Unfortunately, empirical tests of both sets of theories find only weak support (e.g., Przeworki et al. 2000; Houle 2009). While these results suggest that neither inequality nor development cause democratization, they do not tell us what does.

This paper addresses this puzzle by combining, for the first time, the causal mechanisms of modernization and inequality theories. Surprisingly, while these two sets of theories have dominated the political economy literature on democracy, to my knowledge no author has ever looked at whether the effect of income distribution is *conditioned* by the income level, or vice versa.[1] However, that inequality has the same political impli-

[1]One partial exception is Reenock, Bernhard and Sobek (2007) who show that deprivation only destabilizes middle income democracies. However, this study looks at democratic breakdowns – not democratization – and focuses on deprivation, not inequality. Przeworski (2006) argues that inequality is more destabilizing in poor democracies. Again, Przeworski (2006) does not look at the question of democratization, and factors that affect democratization and consolidation are often different (e.g., Przeworski et al. 2000). Boix (2003) argues that the effect of inequality depends on asset mobility – even though his empirical tests do not account for a conditional relationship – which depends partially on development.

cations at all levels of development seems implausible. For example, consider the cases of Sweden and Niger, two countries with nearly the exact same, very low, levels of interclass inequality. While in Sweden low inequality implies that almost everyone is relatively rich, in Niger it actually means that virtually no one is rich. If one's preference over democracy is influenced by both his/her absolute and relative income, equality ought to have very different political implications in these two countries. Equality enables countries like Sweden to democratize rapidly (and remain democratic) through the mechanisms described by the modernization theory; while those like Niger are unaffected by such mechanisms because equality does not translate into high levels of individual incomes.[2]

I argue that the effect of income distribution on democratization depends on the income level: inequality does not affect democratization at low levels of development; it fosters democratization at intermediate levels; and it harms democratization at high levels. The key to my argument is that democracy is both an intrinsic and an instrumental good, and that, at any given level of development, inequality influences not only the relative income of the masses but also their absolute income. Inequality thus affects democratization through two types of mechanisms: one associated with the modernization theory and the other with inequality theories. First, autocracies are likely to follow the modernization route to democracy when they are rich and equal. In fact, the mechanisms described by the modernization theories does not only presuppose that income per capita is high, but also that it is evenly distributed.

Second, as suggested by inequality theories, inequality may foster democratization if the masses are able to create a credible revolutionary threat; a path to democracy I refer to as the 'distributive conflict' route. Inequality can only lead to democracy through this path when two conditions are met. First, inequality can only affect democratization if the state is sufficiently developed to be eventually used to do at least some income/wealth

[2]In poor countries, inequality is not even significantly related to deprivation (Reenock, Bernhard and Sobek 2007).

redistribution (see Soifer 2013). Since very poor countries typically lack the capacity to redistribute (see Ravallion 2010), inequality should bear little relationship to democratization among the poorest autocracies. Transitions do occur in such countries but should be driven by mechanisms other than those described by inequality and modernization theories (e.g., pressure from external actors), and happen at all inequality levels.

Second, the masses can only pose a credible revolutionary threat if the state does not dispose of a coercive apparatus sufficiently strong to easily repress them. However, the capacity of the state to repress/coopt largely depends on development. In fact, Kennedy (2010) and Miller (2012) explain the weakness of the effect of development on democratization by arguing that development has an additional effect, unforseen by modernization theorist: it increases the capacity of the ruling elites to retain power through coercion. In rich autocracies, inequality is thus unlikely to foster democratization through distributive conflicts. Middle income dictatorships, for their part, should be more likely than richer ones to follow the distributive conflict path to democracy – because states are weaker – but less likely to follow the modernization path – because the masses are poorer. In sum, autocracies that are rich and equal democratize through the modernization mechanisms, while unequal countries at middle levels of development democratize through distributive conflicts.

I test the effect of inequality on the probability of democratization at different levels of development using a sample containing up to 123 authoritarian regimes between 1960 and 2006, which accounts for nearly all autocracies during that period. I find evidence consistent with my hypothesis: in poor autocracies inequality has no discernable effect; in middle income countries it fosters democratization; and in rich ones it harms democratization. The results are robust, among other things, to specifications that account for endogeneity and country-specific unobserved factors.

The Economic Roots of Democratization

Economic Development and Democratization

The most distinguished economic theory of democratization is arguably the modernization theory, which contends that dictatorships become more likely to democratize – and eventually consolidate – as they develop economically (e.g., Deutsch 1971; Lerner 1958; Lipset 1959). Its main argument rests on the assumption that increasing the aggregate income level of a country increases the absolute income of individual members of the masses. Modernization scholars view democracy as an intrinsic good that the population values in itself, and a luxury good for which one's demand increases with his/her income. The idea is that one will satisfy his/her basic material needs, such as access to food and shelter, before devoting resources demanding political rights, which are not necessary for survival. In Huntington's words, "people who are really poor are too poor for politics" (p. 52). An increase in GDP per capita is thus believed to promote democratization by raising the income of the masses, which in turn fosters demand for democracy (e.g., see Inglehart and Welzel 2005; Minier 2001).

Economic development is also believed to affect democracy through alternative mechanisms. One of them is through its effect on values. For example, people are expected to become more likely to hold values conducive to democracy – such as tolerance – as they have access to education and take part in activities with people from different backgrounds (e.g., Inglehart and Welzel 2005). The role of the middle class is at the core of the modernization theory. It is claimed to be the social class with the most democratic values. Moreover, the middle class is believed to have particularly high expectations in terms of both political rights and economic prosperity.

Unfortunately, the empirical evidence about the effect of development on democratization is mixed. In a series of studies, Przeworski and his coauthors have demonstrated that rich countries are not more likely to become democratic, but simply more likely to

remain democratic once they have democratized (Przeworski and Limongi 1997; Przeworski et al. 2000). In other words, development promotes democratic consolidation but does not affect the likelihood of transition to democracy itself. These studies have been subsequently challenged notably on the grounds that they do not account for partial regimes and that they focus on a period – the post-World War II period – that is not representative (e.g., see Boix and Stokes 2003; Boix 2011; Epstein et al. 2006; Treisman 2014). However, many studies have confirmed that, at least after World War II, the relationship between income levels and democratization is weak; suggesting that, on balance, the evidence is at best mixed for that period (e.g., Acemoglu et al. 2008; Houle 2009; Miller 2012).

An interesting explanation for these weak findings has recently been advanced by Kennedy (2010) and Miller (2012). According to them, economic development affects regime transitions through an additional channel, not described by the modernization theory: it increases the capacity of the ruling elites to use the state's coercive apparatus to retain power. Development stabilizes all regimes – including dictatorships – by increasing state capacity. Its overall effect on democratization is thus ambiguous, because while it increases demand for regime change by the population, it also provides the ruling elites with the means to prevent it.

Inequality and Democratization

A second set of theories – that I refer to as inequality theories – argues that it is not income level but income distribution that explains democratization. These theories focus on the role of *interclass* inequality; inequality between the owners of the means of production and the laborers.[3] Most authors argue that inequality harms democratization. This view has first been expressed by Aristotle and reaffirmed by some of the classical authors on

[3]Autocracies are assumed to represent the interest of the capital class, and democracies those of the median voter who is a member of the labor class.

democracy, such as Lipset (1959) and Dahl (1971), as well as more recent authors (e.g., Boix 2003; Muller 1995). Most of them base their arguments on the logic of the median voter theorem as applied by Meltzer and Richard (1981) to the question of redistribution, which suggests that unequal democracies redistribute more. They argue that inequality decreases the willingness of the ruling elites to democratize; reducing the likelihood of democratization.

Acemoglu and Robinson (2006) – who do not test their predictions – propose a second possible relationship between inequality and democratization. Unlike most other authors, they argue that the relationship is inverted U-shaped. In equal autocracies, the population simply does not demand democracy because it has little to gain in terms of redistribution. At intermediate levels of inequality, however, the population has incentives to demand democracy. At the same time, the ruling elites are unwilling to use repression, because the cost of redistribution is relatively low; and so they democratize. But when inequality is high, the elites opt for repression, because the cost of redistribution is too high.

Although these theories arrive at different conclusions, they share a similar understanding of the process leading to democracy.[4] Democracy is viewed as an instrumental good – a tool to redistribute income – not an intrinsic good as in the modernization literature. Inequality between the masses and the ruling elites affects democratization by raising the stakes of holding office – and hence have the opportunity to set redistributive policies – for both groups. The masses trigger the democratization process by generating social unrest. In response, the ruling class can either maintain the regime through repression or establish a democracy. It grants democracy if the cost of repression and the risk of being ousted outweigh the cost of democracy in terms of redistribution. When faced with the possibility of a revolution, the elites opt for democracy, because under such a regime

[4]Theories that do not rely on the role of redistribution use a different logic (e.g., Ansell and Samuels 2010).

their interests are at least protected by the rule of law. Following Haggard and Kaufman (2012), I refer to this path to democracy as the 'distributive conflict' route.

The empirical evidence on the relationship between inequality and democratization is also inconclusive. Some authors find that there is no relationship, some a negative relationship, others a positive relationship, and yet others an inverted U-shaped relationship.[5] Freeman and Quinn (2012), for their part, find that the effect of inequality depends on whether an autocracy is financially opened or not: in closed dictatorships the relationship is inverted U-shaped; in opened ones it is positive. However, other recent studies have found that the relationship between inequality and democratization is weak (e.g., Ahlquist and Wibbels 2012; Houle *forthcoming*) and that less than fifty percent of transitions occurring during the third wave of democratization were actually caused by distributive conflicts (Haggard and Kaufman 2012).

In addition to the various empirical problems that plague these tests – particularly regarding the quality of the inequality data – Houle (2009) proposes a theoretical explanation for why the link between inequality and democratization is weak. He argues that the relationship is theoretically ambiguous because inequality simultaneously increases the willingness of the masses to demand democracy *and* decreases that of the elites to concede it. Inequality increases both the cost (and risk) of maintaining an autocracy and the cost of democratization for the elites. Without accounting for conditions that influence the relative strength of each of these two effects, we cannot predict which of them dominates in any particular instance. The capacity of the ruling elites to use the state's coercive apparatus to quell revolts is the key factor because it determines the relative strength of the two opposite effects of inequality.

[5]For studies finding no relationships see Bollen and Jackman (1985); Papaioannou and Siourounis (2005); Houle (2009), a negative relationship see Muller (1988), (1995); Boix and Stokes (2003); Boix (2003), a positive relationship see Ansell and Samuels (2010); Midlarsky (1992), and an inverted U-shaped relationship see Burkhart (1997).

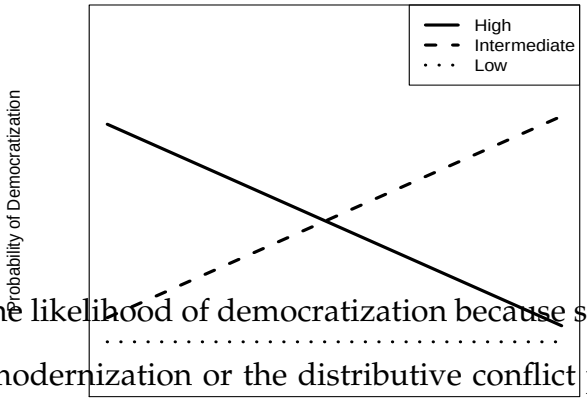
Another complementary explanation for the weakness of the relationship between inequality and democratization has been suggested by Soifer (2013), who argues that many states simply do not have the capacity to redistribute income. Yet inequality can only influence the choices of the masses and the elites through the distributive conflicts mechanisms if the state could potentially be used as a tool to redistribute. This raises the following puzzles: under what conditions does inequality foster democratization by increasing the cost of maintaining an autocracy for the ruling elites? Why do some unequal dictatorships transition to democracy through distributive conflicts while others do not? Conversely, are there conditions under which inequality harms democratization precisely because it creates distributive conflicts; thus preventing transitions through non-distributive conflict routes?

Conditioning the Effect of Inequality

This paper addresses these questions by combining, for the first time, the causal mechanisms of modernization and inequality theories. I argue that inequality affects democratization differently at different levels of development: inequality is unrelated to democratization in poor autocracies; fosters democratization in those at intermediate levels of development; and harms democratization in rich ones. My argument is based on the idea that democracy is both an intrinsic and an instrumental good, and that, at any given level of development, inequality influences not only the relative income of the masses but also their absolute income. Therefore, inequality affects transitions through two types of mechanisms: one related to the modernization theory, and the other to inequality theories. Inequality reduces the likelihood of transitions through modernization mechanisms, because it decreases the income of the masses. At the same time, it fosters the probability of transitions through distributive conflicts in countries that have some (albeit often limited) capacity to redistribute but that cannot easily repress the masses.

My predictions are given in Figure 1. Among the poorest autocracies, inequality is un-

Figure 1: Expected Effect of Inequality on the Democratization at Different Income Levels



related to the likelihood of democratization because such countries are unlikely to follow either the modernization or the distributive conflict paths to democracy. First, equality does not translate into high levels of individual incomes for the masses. In fact, at low levels of development, inequality bears little relationship to the actual level of deprivation within a society (see Reenock, Bernhard and Sobek 2007). Equality may even increase the proportion of the population that lives under poverty. In any event, very poor dictatorships do not democratize through the modernization mechanisms even when they are equal, simply because the masses remain too poor.

Second, the poorest autocracies are also unlikely to democratize through distributive conflicts because, as shown by Ravallion (2010) for example, such states typically lack the capacity to redistribute. Therefore, inequality cannot affect the decision of the masses (and elites) to demand (concede) democracy through its effects on redistribution.

Table 1 classifies all transitions to democracy between 1980 and 2000 according to the role of distributive conflicts during the transition using the data set of Haggard, Kaufman

and Terence (2012).[6] Regimes are measured using the data set of Cheibub et al. (2010). The first column shows that only three out of the 15 transitions (20 percent) that happened in poor autocracies during that period were driven by distributive conflicts (Burundi 1993; Madagascar 1993; Nepal 1990).[7] Given that these states are weak, in many instances democratization was primarily driven by external actors such as foreign donors (e.g., Central African Republic 1993) or local elites who believed they could control the process (e.g., Ghana 1993). In these cases, mass mobilization did not play a central role.

Table 1: Paths Toward Democracy at Different Levels of Economic Development

	Levels of Economic Development			
	Low	Intermediate	High	Total
Distributive Conflict Transitions	3	19	3	25
Non-Distributive Conflict Transitions	12	15	12	39
Total	15	34	15	64

Note: Based on the data set of Haggard, Kaufman and Terence (2012).

I also test whether, as implied by my argument, poor autocracies that democratized have on average about the same inequality level as those that did not. Here I use the full sample that spans the period from 1960 and 2006. I measure inequality with the capital shares of the valued added in production (see below). I find that while dictatorships that democratized are on average slightly more unequal (68.64 vs. 68.32), the difference is not statistically significant ($p - value = 0.895$).

At the other extreme, among very rich autocracies, inequality harms democratization. First, as argued by Kennedy (2010) and Miller (2012), development increases the capacity

[6]Cases in which mass mobilization occurred but did not oppose groups from different social classes are categorized as non-distributive conflict transitions (e.g., Ukraine 1991). These transitions clearly do not provide support for the causal mechanisms of inequality theories.

[7]The cut-off points between the different groups are set at $1,000 and $8,000. These have been estimated in the regressions reported below (see model 2 of Table 2).

of states to repress/coopt the masses.[8] Strong states have not only stronger military and police forces, but they also have the administrative capabilities to identify and punish those that challenge the regime. This implies that, among rich dictatorships, inequality will not increase the likelihood of democratization by creating distributive conflicts, simply because the ruling elites have the means to prevent it. Inequality increases the cost of democratization for the elites – by increasing redistribution – without substantially increasing the cost of maintaining an autocracy.

At the same time, equality increases the likelihood that a rich autocracy democratizes through the modernization mechanisms. Development has a stronger effect on the masses' demand for democracy – which is perceived as a luxury good by modernization theorists – in equal countries because a larger share of the value created accrues to them. The same is true for the other mechanisms relating development to democracy. For example, education can only transform the value system of a society if a large portion of the population has access to it. Moreover, the size of the middle class increases as income becomes more evenly distributed. Therefore, among rich dictatorships, inequality reduces the likelihood of democratization because it increases the incentives of the elites – who control a state with a strong coercive apparatus – to repress the masses and impedes the democracy-enhancing effects of development.

Column 3 of Table 1 shows that only three out of 15 transitions (20 percent) that occurred among rich autocracies between 1980 and 2000 were caused by distributive conflicts. The three exceptions are Poland (1989), Suriname (1988) and South Korea (1988). But even in those cases it is not clear that democratization was really the result of demands for redistribution from the masses. Particularly in the cases of Poland and South

[8]This argument is consistent with the results of Fearon and Laitin (2003), according to which GDP per capita decreases the likelihood of civil war by improving the ability of the state to repress insurgents. Moreover, Hendrix (2010) shows that GDP per capita is the measure of state capacity that correlates the most highly with a number of other possible measures.

Korea, the argument has often been made that mass mobilization was in fact the product of increased expectations created by economic development, not redistributive demands (see Huntington 1991; Inglehart and Welzel 2009; Scalapino 1993).[9] As for poor autocracies, I test whether rich dictatorships that democratized were on average more (or less) equal than those that did not. As my argument suggests, those that democratized were on average more equal (63.1 vs. 67.36; $p - value = 0.011$).

Finally, I expect inequality to promote democratization at intermediate levels of development. Such dictatorships should be more likely than richer ones to follow the distributive conflict path to democracy – because states are weaker – but less likely to follow the modernization path – because, at any given level of inequality, the masses are poorer.

The idea that middle income countries are most prone to revolutions is not new. Huntington in his landmark book *Political Order in Changing Societies* already argued that revolutions usually happen in those countries.[10] Here I build on this argument by making the claim that if inequality only fosters democratization when the masses are able to create a credible revolutionary threat, then it is among middle income autocracies that inequality is the most likely to promote democracy.[11]

[9]In Poland, for example, while the Solidarity movement was clearly based on the industrial working class (Haggard, Kaufman and Terence 2012), its aim was to replace communism with capitalism (which eventually led to an increase in inequality). Similarly, the transition to democracy in South Korea has usually been perceived as caused by an increase in income that led to demands for political rights rather than because the masses wanted more redistribution (Huntington 1991; Inglehart and Welzel 2009). Although mass mobilization did play a crucial role, it involved cross-class mobilization as well as elements of the middle class (Haggard, Kaufman and Terence 2012). Lastly, despite its relatively high per capita income, Suriname is heavily aid-dependent. Although class mobilization did play a central role during the transition, so did international actors, in particular the Netherlands and the United States that suspended all aid following massive military repression (Haggard, Kaufman and Terence 2012).

[10]See also Binder et al. 1971; Calhoun 1982; Feierabend et al. 1969; Haas and Stack 1989; Rostow 1967; Tadjoeddin and Murshed 2007; and White 1989.

[11]My argument is also consistent with the findings of Reenock, Bernhard and Sobek (2007), who show

Notice that my argument does not rely on the assumption that countries acquire the capacity to redistribute before they acquire the capacity to repress. While the capacity to redistribute affects the *magnitude* of the relationship between inequality and democratization, the capacity to repress affects its *direction*. In countries that cannot redistribute (and repress) inequality simply does not affect democratization. In those that have an intermediary capacity to redistribute and repress, inequality promotes democratization. Under such conditions, inequality is salient (although less than in rich autocracies) and the ruling elites do not have the capacity to eliminate threats from the masses. Lastly, in autocracies that can easily repress and redistribute, inequality is highly politically relevant for both the masses and the ruling elites but the balance of power favors the latter; suggesting that inequality harms democratization.

It is nonetheless important to establish that middle income countries are indeed more capable to redistribute income than those that are poor. I thus use the Gini coefficients from Solt (2009) to construct a measure of redistribution.[12] I measure redistribution as the absolute value of the relative change between the pre- and post-tax/transfers Gini coefficients of a country during a given year. It is calculated as follow

$$Redistribution_{i,t} = |\frac{Gini_{pre_{i,t}} - Gini_{post_{i,t}}}{Gini_{pre_{i,t}}}|$$

where $Gini_{pre_{i,t}}$ is the pre-tax/transfers Gini coefficient (market inequality) and $Gini_{post_{i,t}}$ the post-tax/transfers Gini coefficient (net inequality) in country i and year t. In poor autocracies, the average change between the pre- and post-tax/transfers Gini coefficients is 5.87 percent, while it is 8.63 and 8.21 percent among those at middle and high income respectively. Although this evidence is not conclusive – notably because it looks at ob-

that deprivation destabilizes middle income democracies, but not rich or poor ones. Although these authors are primarily interested in democracies, not autocracies, their findings directly connect to mine, since they imply that distributional issues are most destabilizing at middling GDP per capita levels.

[12] I use the version of the data made available in October 2014.

served redistribution levels rather than the capacity to redistribute – it does suggest that middle income autocracies have at least some capacity to redistribute.

This indicator only captures direct income/wealth redistribution that occurs through taxation and transfers. However, countries also dispose of other means to redistribute. They may also redistribute, for example, through expenditure (e.g., public education) or labor regulations (e.g., allowing unions). Therefore, I expect only very poor states – that cannot follow such policies – to be unaffected by inequality. In fact, the results of Ravallion (2010) suggest that only very poor countries lack the capacity to adopt any kind of redistributive policies.

Column 2 of Table 1 shows that middle income dictatorships are indeed much more likely to democratize through distributive conflicts than either poor or rich ones. Nineteen out of 34 transitions (56 percent) that occurred at middle income levels between 1980 and 2000 were driven by distributive conflicts, whereas, as reported above, only 20 percent of those that happened in poor and rich ones were. Even more telling, while only 38 percent (15 out of 39) of non-distributive conflict transitions occurred in middle income autocracies, 76 percent (19 out of 25) of distributive conflict transitions happened in these countries. Many of the distributive conflict transitions were primarily driven by labor movements (e.g., Argentina 1983; Bolivia 1982; Peru 1980; Uruguay 1985) or left-wing insurgencies (e.g., El Salvador 1984; Guatemala 1986). Others involved ethnic tensions that were reinforced by economic cleavages (e.g., Fiji 1992; Indonesia 1999; Sudan 1986).

Among the non-distributive conflict transitions, there are communist regimes (e.g., Mongolia 1990) and regimes that were deposed by foreign invasions (Panama 1989; Grenada 1984). Some of the remaining cases are small countries whose transitions were overwhelmingly affected by external actors (e.g., Cape Verde 1990; Sao Tome and Principe 1991). There are also some cases in which mass mobilizations – either by the working or middle class – simply did not play a central role (e.g., Pakistan 1988) (Haggard, Kaufman

and Terence 2012). These transitions were primarily driven by intra-elites divisions.[13]

As implied by the logic of my argument, I find that autocracies that transitioned through distributive conflicts were on average more unequal than those that followed other routes (73.57 vs. 66.9; $p - value = 0.007$). I also find that middle income autocracies that democratized were on average more unequal than those that did not (73.58 vs. 66.44; $p - value = 0.000$).

How do these predictions differ from those of previous authors? The main distinction is that the effect of inequality is contingent on the level of economic development. For one thing, contrary to Acemoglu and Robinson (2006), I do not hypothesize that equal countries are necessarily less likely to democratize. Moreover, like Acemoglu and Robinson (2006) but contrary to Boix (2003) among others, I account for the possibility that the cost of maintaining an autocracy increases with inequality; meaning that unequal democracies are not necessarily less likely to democratize. I further identify conditions under which the mechanisms identified by authors such as Boix (2003) are likely to hold. Finally, contrary to Acemoglu and Robinson (2006), I do not argue that autocracies at middle levels of inequality are necessarily more (or less) likely to transition.[14]

[13]The absence of distributional conflicts during a transition does not necessarily imply that inequality had no role in explaining why the transition occurred. Since, everything else being equal, the different factions of the elites have more to lose economically when inequality between the elites (as a whole) and the masses is large, transitions through non-distributive conflicts may be facilitated by low levels of inequality.

[14]Houle (2009) argues that these predictions by Acemoglu and Robinson (2006) are driven by the assumption that the cost of repression for the elites is binary, i.e. (1) the elites either repress or do not repress (in which case the cost of maintaining an autocracy is zero); and (2) when they repress the cost of repression does not depend on inequality.

Data

The unit of analysis is the country-year (although some models use five-year panels).[15] The main sample contains more than 3,600 observations and covers 123 autocracies between 1960 and 2006, which accounts for nearly all autocracies during that period. The regime of a country is determined using the data set of Cheibub et al. (2010), which revises and extends the data set of Przeworski et al. (2000) until 2006. A regime is defined as democratic if the chief executive and the legislature are elected by the population, there are multiple parties, and there has been at least one alternation in power through elections. Some models instead use the polity score which is a graded measure varying between -10 and 10; where 10 is given to the most democratic countries. Following the suggestion of the Polity IV project, I define as democratic any regime that has a polity score of at least six. I measure economic development using GDP per capita logged (Penn World Tables, 2005 US dollars).

I use two indicators of inequality, both of which measure interclass inequality. The first is the capital share of the value added in the manufacturing sector. Capital shares give the proportion of the value created within specific firms that accrues to the owners of these specific firms, as opposed to the laborers. Low capital shares indicate low levels of inequality. The data set has originally been assembled by Rodrik (1999) and updated by Ortega and Rodriguez (2006). It is constructed from data collected by the United Nations Industrial Development Organization (UNIDO). Houle (*forthcoming*) extends it to almost all countries using multiple imputation. Dunning (2008), Acemoglu and Robinson (2006), Przeworski et al. (2000), Haggard and Kaufman (2012), and Houle (2009) have used that same source of capital shares to measure inequality.[16] According to Dunning, "capital shares represent the best available cross-national indicator of private inequality " (p.143).

[15]Summary statistics are provided in Table A1 of the online appendix.

[16]Acemoglu and Robinson (2006) and Przeworski et al. (2000) use the version of Rodrik (1999).

Capital shares have several advantages over other measures of inequality, such as Gini coefficients. First of all, capital shares, unlike other measures, capture interclass inequality; inequality between the owners of the means of production and the laborers. It is thus closely related to the concept of class inequality of Karl Marx since it is based on the ownership of the means of production. In fact, according to Acemoglu and Robinson (2006), "when the major conflict is between the rich and the poor, one variable that captures intergroup inequality is the share of labor income [which is one minus the capital share]" (p. 59).

Gini indexes, which is the main indicator used by previous authors, do not capture inequality between social classes – which is the concept of interest in the theoretical literature – but the overall level of inequality in a society. They are opaque and do not capture any particular cleavage. A high Gini coefficient could, for example, either indicate that inequality between social classes is high or that inequality among members of the same social classes is high. These may have very different, and even opposite, implications on regime stability. For example, one may argue that while between-class inequality spurs demand for democratization from the lower class, within-class inequality may actually decrease it by reducing its cohesiveness. Gini coefficients confound these effects.

Moreover, alternative indicators are not comparable across countries and even within countries over time. Gini coefficients, for example, are based on surveys conducted by the countries themselves, using different definitions and methods. These sometimes even change within countries over time. Surveys differ along many dimensions, but three are particularly important: (1) the unit of reference (e.g., household vs. individual); (2) the definition of revenues (e.g., expenditure vs. income); and (3) net vs. gross income. Gini coefficients are likely to differ widely depending on how they have been calculated (see Galbraith 2012; Solt 2009). For example, Gini indexes using net income are likely to indicate lower levels of inequality than those using gross income, and the size of the bias depends among other things on the extent to which the taxation and distribution systems

are progressive. By contrast, capital shares are calculated not based on national surveys, but on surveys distributed directly by the UNIDO to firms using similar definitions and method for all countries, making cross-country comparisons meaningful.

Another advantage of the capital shares data set of Ortega and Rodriguez (2006) is that it contains a relatively high proportion of the observations during the period it covers; about 70 percent when both democracies and autocracies are included in the sample.[17] Other data sets typically have a higher proportion of missing values. For example, Houle (2009) notes that the widely used data set of Deininger and Squire (1996) contains only 11 percent of all the possible observations during the period covered. Even the recent article of Freeman and Quinn (2012) contains a maximum of 54 autocracies. Mine covers 123.[18]

One potential limitation with the capital shares is that, although the observations are comparable, they may not be representative of the interclass relationships outside the manufacturing sector. Moreover, size of the manufacturing sector varies across countries. However, previous studies demonstrate that inequality within a specific sector of the economy tends to reproduce itself in other sectors of its economy (Galbraith 2012; Williamson 1982). Therefore, using interclass inequality within a given sector of the economy – the manufacturing sector in this case – gives a good approximation of the overall level of interclass inequality of that country. This is consistent with the widespread finding according to which inequality does not vary much within countries over time, even though the structure of the economy does change through time.

In light of this potential limitation, I also use a second measure of inequality: proportion of the GDP accruing to the richest one percent of the population provided by Solt

[17]In the main analysis, I use the version of Houle (*forthcoming*) who imputes values for nearly all countries. As shown in section 3 of the online appendix, my results are robust to the use of the original data of Ortega and Rodriguez (2006) (see Table A2).

[18]Freeman and Quinn (2012) have recently pointed to some problems with the use of capital shares. I address these issues in section 1 of the online appendix and provide more information on capital shares and the problems related to the use of its main alternatives.

(2009). Members of a country's top one percent are among its upper class. Thus, this indicator measures inequality between the elites and the rest of the population.[19]

I include the following control variables: growth rates (*Growth*), the proportion of GDP emanating from oil production (*Oil*), the proportion of the population that is Muslim (*Muslim*), the number of transitions away from democracy that a country has experienced (# *Past Breakdowns*), and the proportion of the countries in the world that are democracies (% *World Democracies*).[20] I also include region and decade dummy variables. As discussed below, in the online appendix I estimate models with additional control variables: financial openness, agricultural share of GDP, ethnic and religious diversity, population, communist countries, a dummy for countries that did not exist before 1946, the proportion of the population that is catholic and protestant, former British colonies, the proportion of a country's neighbors that are democratic, and change in the proportion of a country's neighbors that are democratic today and five years (see Table A13).[21]

Empirical Analysis

Table 2 tests the effect of inequality on democratization using probit models. Estimates give the effect of each explanatory variable on the probability that a country that starts the year as an autocracy transitions to democracy within that same year. All explanatory variables are lagged. Standard errors are clustered by country. Column 1 shows that contrary to what most authors, such as Boix (2003), have suggested, inequality does not harm democratization. I also estimate the nonmonotonic relationship of Acemoglu and Robinson (2006) by adding inequality squared (see Table A3 of the online appendix). Contrary

[19] I use *Amelia II* to impute missing values. See section 3 of the online appendix for detail.

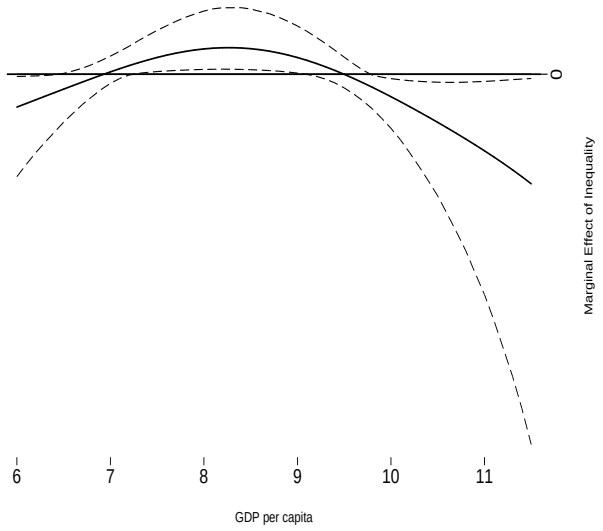
[20] *Oil* is taken from Haber and Menaldo (2011) and *Muslim* from Przeworski et al. (2000).

[21] Data on financial openness is from Freeman and Quinn (2012), agricultural share of GDP from the World Bank, population from Haber and Menaldo (2011), and those on the other variables from Przeworski et al. (2000).

to what they predict, the results suggest that the relationship is U-shaped, although weak.

Column 2 tests the hypothesis that inequality promotes democratization in middle income countries, but harms democratization in rich ones. It does so by adding three variables to model 1: *GDP per capita squared*; *Inequality * GDP per capita*; and *Inequality * GDP per capita squared*. The hypothesis is supported if the coefficients on *Inequality* and *Inequality * GDP per capita squared* are negative, and the coefficient on *Inequality * GDP per capita* is positive. This can be shown by finding the marginal effect of inequality on the likelihood of democratization, by taking the partial derivative. Intuitively, for inequality to increase the likelihood of democratization at high levels of development, and to decrease it at middle levels, the relationship between the marginal effect of inequality and income per capita must be inverted U-shaped (see Figure 2 below).

Figure 2: Marginal Effect of Inequality on Democratization across Income Levels



Note: Based on the probit estimations presented in column 2 of Table 2. Marginal effects are calculated by adapting the codes made available by Matt Golder (https://files.nyu.edu/mrg217/public/interaction3.pdf). Capital share is set at its mean. The shape of the relationship is unchanged through the full range of capital share values (available upon request). Control variables are set at their mean or median. Dashed lines give 95 percent confidence intervals.

As shown in column 2 of Table 2, all coefficients are of the expected signs and statistically significant at the one percent level. However, one needs to be cautious when interpreting coefficients on interaction terms with nonlinear models (see Ai and Norton 2003; Brambor, Clark and Golder 2006). To facilitate interpretation, Figure 2 gives the

Table 2: Probit Estimations of The Effect of Inequality on Transitions to Democracy

	All				Poor	Middle Income	Rich
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Cap. Shares	.009 (.007)	-1.101 (.293)***		-6.245 (2.970)**	-.014 (.009)	.03 (.009)***	-.038 (.016)**
GDP pc	.044 (.071)	-19.258 (4.796)***	-4.998 (2.299)**	-129.699 (54.109)**	.061 (.221)	-.02 (.124)	-.248 (.551)
GDP pc sq.		1.252 (.298)***	.308 (.146)**	7.719 (3.345)**			
Cap. Shares * GDP pc		.294 (.074)***		1.498 (.744)**			
Cap. Shares * GDP pc sq.		-.019 (.005)***		-.089 (.046)*			
Share 1 perc.			-1.999 (.937)**				
Share 1 perc. * GDP pc			.492 (.238)**				
Share 1 perc. * GDP pc sq.			-.030 (.015)**				
Growth	-.011 (.005)**	-.012 (.005)**	-.011 (.005)**	-.020 (.018)	-.003 (.009)	-.017 (.005)***	-.027 (.024)
Oil	-.473 (.315)	-.466 (.254)*	-.465 (.265)*	3.070 (2.558)	-148.888 (73.593)**	-.109 (.392)	-1.6 (.886)*
Muslim	.0002 (.002)	-.0004 (.002)	.0005 (.002)		-.001 (.003)	-.0005 (.002)	-.035 (.016)
# Past Break.	.238 (.049)***	.223 (.053)***	.261 (.051)***	-5.490 (1.235)***	.541 (.189)***	.161 (.063)***	.369 (.109)***
% World Dem.	2.482 (1.994)	2.354 (2.023)	2.726 (2.000)		2.944 (3.843)	2.183 (2.663)	6.338 (2.838)**
Country FE	N	N	N	Y	N	N	N
Year FE	N	N	N	Y	N	N	N
N	3645	3645	3886	1073	1149	1928	568
# Countries	123	123	123	58	53	99	31
Log-pseudolik.	-326.052	-320.007	-343.491	-138.628	-80.203	-188.622	-41.304

Note: Robust standard errors clustered by country in parentheses. All models include decade and region dummy variables. Poor autocracies are those with GDP per capita below $1,000; middle income between $1,000 and $8,000; rich above $8,000. The cut-off points have are based on the estimations reported in column 2. ***$p < .01$, **$p < .05$ and *$p < .1$.

marginal effect of inequality on the likelihood of democratization across different GDP per capita values, along with 95 percent confidence intervals.[22] The results are consistent with my hypothesis. In autocracies with GDP per capita below $1,000, inequality has little effect on democratization.[23] These are very poor countries in which the state lacks the basic capacity to be used to redistribute income.[24] Figure 3 shows the effect of inequality on the probability of democratization at low ($600) levels of development. The likelihood of democratization is low and unaffected by inequality.

As illustrated in Figure 2, the relationship between inequality and democratization becomes positive once a country attains a GDP per capita of about $1,000.[25] The relationship between inequality and the likelihood of democratization in middle income autocracies ($2,500) is plotted in Figure 3. Increasing inequality from 50 (e.g., Morocco) to 85 (e.g., Peru) increases the probability of democratization from 0.29 to 4.53 percent *per year*. Figure 2 shows that once a country attains a GDP per capita of around $8,000, the relationship reverses and inequality harms democratization.[26] Figure 3 shows the effect of inequality

[22]These are calculated using the codes provided by Matt Golder (https://files.nyu.edu/mrg217/public/interaction3.pdf). Control variables are set at their mean or median. In nonlinear models, the marginal effect of a variable varies with its level. Therefore, Figure 2 evaluates the marginal effect of capital share at its mean. I also evaluated the marginal effect of capital share across its full range (minimum and maximum values) using other marginal effects plots. The shape of the relationship is unchanged (available upon request).

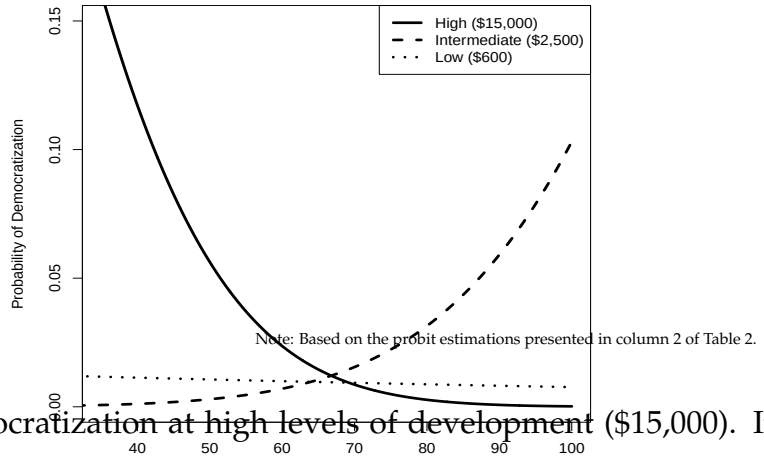
[23]Among the very poorest countries (GDP per capita below $400) the relationship is positive. However, very few countries are that poor. In fact, there has been only one democratization among such countries in the sample (Burundi 2005). Moreover, as shown in Figure 3, even in countries with a GDP per capita as low as $600, there is actually no relationship between inequality and democratization.

[24]Most sub-Saharan African countries as well as countries such as Haiti, Nepal and Afghanistan have GDP per capita below $1,000.

[25]Inequality promotes democratization in countries with GDP per capita between $1,000 and $8,000. Most Latin America countries and some Asian and North African countries are within that range.

[26]Most countries from the Middle East, Southern and Eastern Europe as well as some Asian countries,

Figure 3: Predicted Probability of Democratization at Different Income Levels



on democratization at high levels of development ($15,000). Increasing inequality from 50 to 85 now reduces the likelihood of transition from 5.63 to 0.15 percent per year.

In addition to testing the significance of each coefficient, I test the joint significance of my variables of interest using Wald tests. Tests relying on the log-likelihood (e.g., log-likelihood ratio tests) cannot be used with clustered standard errors. One has to instead perform Wald tests, which are asymptotically equivalent log-likelihood ratio tests (see Gould, Pitblado and Sribney 2006). A Wald test shows that my five variables of interest are jointly statistically significant ($p-value = 0.0001$). In section 4 of the online appendix, I further test my specification against a number of potential alternative specifications. In all cases, Wald tests suggest that my specification is a better fit of the data than its alternatives. Furthermore, column 3 shows that the relationship is unchanged when one measures inequality with the top one percent's share of GDP rather than capital shares.

One problem with the models estimated so far is that they do not fully account for country-level unobservable factors, potentially creating omitted variable bias. It is pos-

such as Singapore and Taiwan, have GDP per capita above $8,000.

sible, for example, that previous historical events have created conditions under which countries that are likely to establish stable democratic regimes are also those that are likely to develop economically and have equal income distributions, thus producing a spurious positive correlation (e.g., see Acemoglu et al. 2008). However, notice that the logic of this argument does not actually imply that intermediate income autocracies with high levels of inequality should be more likely to democratize. It instead suggests that equality and development should always, albeit spuriously, be associated with democracy; meaning that country-level unobservable factors are unlikely to drive the estimated relationship. In column 4, I nonetheless reproduce column 2 with country and year fixed effects. Despite the substantial decrease in the number of observations (from 3645 to 1073), results are largely unchanged.[27]

In section 5 of the online appendix, I adopt three additional strategies to make sure that my results are not driven by country-specific unobservable factors. First, I replicate model 2 using linear probability models (LPM) with country and year fixed effects (Table A6). Second, I follow Acemoglu et al. (2008), among others, and use linear models with country and year fixed effects (Table A7). In these models, my dependent variable is the polity score. Finally, I estimate random-intercept logistic models which have been employed notably by Svolik (2012) (Table A8). This method enables us to control for country-specific factors that may explain why some countries are inherently more (or less) likely to democratize irrespective of their level of inequality by allowing the intercept to vary across countries. In all cases, the results support my hypothesis.

Model 2 of Table 2 is somewhat difficult to interpret. Therefore, in columns 5-7, I test my hypothesis by running three separate regressions for poor, middle income and rich autocracies respectively. Using the results of model 2, I set the cut-off points at $1,000 and $8,000. As expected, inequality has no effect in poor autocracies, it foster democratization

[27]Observations from countries that remained authoritarian during the full period (e.g., Saudi Arabia) and years during which no autocracy within the sample democratized (e.g., 1964) are dropped.

in those with middle incomes and harms it in rich ones.

One of the main obstacles to the study of democratization is endogeneity. The regime type may, for example, affect inequality and the prospect for economic development. According to previous theories, income distribution affects regime transition precisely because it affects the incentives of different social classes to control redistributive policies, and thus change inequality. Moreover, the prospect for regime change may influence the economic environment of a country, and thus income distribution and income levels.[28]

In order to reduce (albeit not eliminate) the problems related to endogeneity, I opt for the same strategy as Freeman and Quinn (2012) and Heid, Langer and Larch (2012) and use the system Generalized Method of Moments (GMM) estimation of Blundell and Bond (1998).[29] Freeman and Quinn (2012) use system GMM to study the effect of inequality on democratization, and Heid, Langer and Larch (2012) that of GDP per capita on democratization. Following Heid, Langer and Larch (2012), I use the two-step system GMM with the corrected standard errors of Windmeijer (2005). System GMM uses internal lags of the independent variables as instruments. One problem with system GMM is that the number of instruments tends to increase exponentially with the number of time periods which increases the likelihood of false positive. Therefore, I follow the recommendations of Roodman (2009) and limit the number of instruments by collapsing the instrument matrix and by limiting the number of lags such that the number of instruments is always

[28] In section 6 of the online appendix, I test whether democratization in the future affects inequality and income levels today (Tables A10 and A11). Results show that it does not. This is essentially a test of whether the prospect of democratization affects inequality and income, which is among the main paths through which they could be endogenous to democratization.

[29] Acemoglu et al. (2008) use the difference GMM estimator of Arellano and Bond (1991). However, the system GMM estimator of Blundell and Bond (1998) is preferable when the independent and dependent variables are highly persistent within country over time (Heid, Langer and Larch 2012), which is clearly the case here. The results presented in Table 3 are largely unchanged when I use difference rather than system GMM (see Table A9 of the online appendix).

below the number of units (countries).

Table 3: System GMM Estimations of the Effect of Inequality on Change in the Polity Scores among Nondemocracy

	Annual Data	5-Year Panels
	(1)	(2)
Lagged polity	.622	.236
	(.113)***	(.087)**
Cap. Shares	-7.666	-3.453
	(3.622)**	(1.642)**
GDP pc	-120.580	-60.239
	(59.351)**	(29.959)**
GDP pc sq.	7.201	4.009
	(3.573)**	(1.876)**
Cap. Shares * GDP pc	1.833	.932
	(.882)**	(.418)**
Cap. Shares * GDP pc sq.	-.109	-.061
	(.053)**	(.026)**
Growth	-.007	-.057
	(.004)**	(.024)**
Oil	-.048	-.069
	(.037)	(.047)
% World Dem.	8.703	16.432
	(2.531)***	(2.103)***
# Instruments	124	105
AR(2) test	[0.602]	[0.599]
Hansen J-test	[0.595]	[0.232]
Diff-in-Hansen test	[0.434]	[0.961]
N	3738	724
# Countries	128	124

Note: Only includes countries with polity scores below 6. Robust standard errors clustered by country in parentheses. P-values in brackets. ***$p < .01$, **$p < .05$ and *$p < .1$.

The first column of Table 3 uses annual data and the second column five-year panels. Since my argument is about democratization, not democratic consolidation, and that factors affecting transitions to and from democracy are often different, I only include countries that were nondemocracies at the end of the previous year. As suggested by the Polity IV project, I classify all countries that have a polity score below six as nondemocracies. In all cases, coefficients are of the expected signs and statistically significant. Table 3 also reports some standard tests. The Hansen J-test is an overidentification test. The difference-in-Hansen test tests the validity of the additional moment restrictions made by system GMM. Again, in all cases these additional assumptions are valid. Moreover, as shown by the Arrellano-Bond (2) test, their is no evidence of significant second order autocorrelation.

In addition, it should be pointed out that there is little evidence that inequality and

development are closely related to one another in my data. The correlation coefficient between inequality and GDP per capita is only 0.0018 among autocracies (it is higher in democracies).[30] There is also little evidence of a nonlinear relationship, like the one proposed by Simon Kuznets, at least among autocracies. The average capital share is 68.32 among poor autocracies, 66.61 among those at middle levels of development and 67.32 among rich ones.[31] Therefore, there is little evidence that my results are driven by a (linear or nonlinear) relationship between inequality and economic development.[32]

I perform additional robustness tests in section 7 of the online appendix. First, I show that the main results are robust to the use of the measures of democracy of Boix et al. (2013) and the polity score (Table A12).[33] I also show that the results are not driven by outliers (Table A16). Moreover, I redo my main analysis with additional control variables: financial openness, agricultural share of GDP, ethnic and religious diversity, population, communist countries, a dummy for countries that did not exist before 1946, the proportion of the population that is catholic and protestant, former British colonies, the proportion of a country's neighbors that are democratic, and the change in the proportion of a country's neighbors that are democratic today and five years (Table A13). In addition, following Freeman and Quinn (2012), I estimate models in which the effect of inequality on democratization is conditional on financial openness (Table A14).[34] I also redo my main analysis with the Gini indexes of Solt (2009), which is (arguably) the most reliable data set

[30]Since I look at democratization, my sample only includes countries that were initially authoritarian.

[31]None of these averages are statistically significantly different from one another.

[32]See pages 21-22 of the online appendix for more discussion on the potential multicollinearity between inequality and development.

[33]In the models using the polity score, I follow the suggestion of the Polity IV Project and classify all regimes with polity scores of at least six as democracies.

[34]Boix (2003) makes the argument that the effect of inequality on democratization may be contingent on capital mobility, although his estimations do not account for a conditional effect. Therefore, I run models in which the effect of inequality is conditioned by the agricultural share of GDP (Table A15).

on Gini coefficients available (Table A17).

The effect of the control variables is usually consistent with the findings of previous authors. Economic crises increase the likelihood of democratization. Autocracies that rely heavily on oil income are less likely to transition to democracy. Furthermore, countries that have experienced many transitions in the past are more likely to transition in the future. Lastly, countries are more likely to establish democracies when many other countries in the world are democratic.

Conclusion

In this paper, I have argued that the effect of inequality on democratization is contingent on the level of economic development. In poor autocracies inequality is unrelated to democratization; in those at middle levels of development, inequality fosters democratization; and finally, among rich autocracies inequality harms democratization. Using two measures of interclass inequality and a data set covering almost all autocracies between 1960 and 2006, I find evidence consistent with my hypothesis.

These findings have important implications for policies aimed at promoting democracy, especially when combined with some of the findings of authors looking at the effect of inequality on democratic consolidation (e.g., Houle 2009; Reenock, Bernhard and Sobek 2007). Influential authors have recently suggested that, given the weakness of the relationship between income level and transition to democracy, promoting economic development, for example through trade, will not necessarily spread democracy (e.g., Przeworski et al. 2000). The recent experiences of countries such as China and Singapore seem to support this contention.

This paper offers a somewhat more nuanced view. It suggests that promoting economic development *and* equity is in fact the surest route to *stable* democracy. Although under some conditions intermediate income autocracies are about as (or even more) likely

than rich ones to democratize, the latter are much more likely to remain democratic. This has already been made clear by Przeworski et al. (2000), who show that no democracy with a GDP per capita above $6,055 (in 1985 US dollars) has fallen between 1950 and 1990. However, the data assembled for this paper enables us to go even further. It suggests that this threshold decreases as income becomes more evenly distributed. For example, of the 41 democracies with GDP per capita above $1,000 (in 2005 US dollars) that experienced a democratic breakdown between 1960 and 2006, only three had inequality levels below the median of the distribution (Fiji 2000; Suriname 1990, 1980). Democracies that are among the most equal half are essentially immune from breaking down if they reach a modest GDP per capita level of $1,000. Therefore, jointly promoting economic development and equality fosters both the establishment and the consolidation of democratic regimes.

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