

THE POLITICAL ECONOMY OF LAND REFORM ENACTMENTS: NEW CROSS-NATIONAL EVIDENCE (1900-2010)*

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Abstract

We construct a unique, extensive dataset that codifies 372 major land reform enactments in 165 countries during the period 1900-2010 and classifies them as those with several different motives. Exploiting the geographic and time variation in land reforms and political transitions across the globe over more than a century, we find that democratic transitions are linked with a greater likelihood of land reforms of the pro-poor type as well as those with different inequality-reducing motives. These results are robust to adding important controls, changing variable definitions, using alternative data, addressing endogeneity to the extent possible, and moving from enactments to implementations. We also estimate a positive impact of autocratic transitions on pro-poor and some inequality-reducing land reforms, but these results emerge mainly with instrumental-variables estimation. We also show that a leftward shift in the political ideology of the chief executive is associated with a higher likelihood of pro-poor land reforms as well as a few types of inequality-reducing ones.

JEL Codes: P16, P51, O13, O17

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1. Introduction

Land reforms have typically been used as an economic and political device in many countries. A land reform may mean improved property rights, enhanced collateral opportunities, better functioning capital markets, and greater economic growth and poverty reduction (Besley and Burgess 2000; Keswell and Carter 2014; Chernia, Dower and Markevich 2014). Politically, rulers often take advantage of land reforms to gain a competitive edge for reelection, generate legitimacy for their rule, improve their survival probability, or to punish their opponents (Bardhan and Mookherjee 2010; Albertus 2015). For example, Albertus and Menaldo (2012) posit that autocrats may use land reforms as a punishment tool when their interests diverge from those of economic elites and they want to harass the latter.¹ In more democratic settings, land reforms characteristically constitute a war of attrition among several political players. The reforms may take several years to enact, require a number of complementary bills to be passed, and may be reversed instantly when the power balance changes.²

Given this background, a central question about the politics of land reform is: who pursues a land reform? Put differently, whom does the land reform rest on? The principal objective of this paper is to investigate the relationship between political transitions and the probability of land reform enactments. New political regimes have strong incentives to bring land reforms to the fore in order to garner a coalition or to reward their existing coalition partners. Thus, the period around political transitions is an appropriate window of time to examine the political economy of land reforms.

¹ Albertus and Menaldo go on to highlight that there was at least one episode of large-scale expropriation of land, banks, or firms operating in the oil, natural gas, mining sectors in each of 11 of 18 autocratic regimes in Latin America during 1950-2002. Many other cases such as Egypt under Nasser, Zimbabwe under Mugabe, as well as Taiwan, Indonesia and the Philippines, are graphically portrayed by expropriation of land or capital of the economic elites. It is argued that expropriation has a substantial signalling value for the autocrat by which she shows her exclusive reliance on the group that inaugurated her or is her coalition partner in power.

² For example, the 1945 land reform act in Turkey (Law No. 4753), “Getting Farmers to Own Land”, was subject to a fierce debate for years on the parliament, was resisted to by the MPs who were also powerful landlords, and was revised in 1950 by the new government headed by a big landlord, Adnan Menderes, when its controversial redistribution clause (clause no. 17) was repealed. This Law was replaced by Law No. 1757 in 1973, which was later annulled by the Supreme Court in 1977 due to inadequate legislation on the nationalization of lands.

We construct a unique and extensive cross-national dataset that annually codifies a total of 372 land reform enactments around the globe during the period 1900-2010. Our dataset covers 165 countries, of which 155 introduced at least one major land related enactment during the said period. We pool this information from various sources and codify it adopting consistent principles. In addition, we identify the motive of the land enactments from their stated objectives, and code 12 separate motives: (i) landholding ceiling imposition, (ii) expropriation, (iii) redistribution, (iv) distribution, (v) restitution, (vi) consolidation, (vii) improving tenure security, (viii) privatization, (ix) collectivization, (x) nationalization, (xi) recognizing customary, indigenous, community, religious and traditional (CICRT) land rights, and (xii) other. Most land enactments had multiple motives.³ Moreover, we identify from the objective of the enactment if the initiative was intended to be pro-poor; 140 of the 372 enactments were explicitly intended to benefit the poor. Furthermore, despite inherent difficulties, we make an attempt to identify the implementation status of the enactments in subsequent years. Out of 372 enactments, only 163 (i.e., less than half) were fully implemented. To the best of our knowledge, this dataset is the most exhaustive land reforms dataset made available to the literature, comprising a comprehensive record of major land enactments, their motives, pro-poor benefits, implementation status, for a large number of countries over 110 years. We provide the detailed coding rationales, procedures, and the historical contexts of land reforms, in the Coding Document associated with this paper.

We place the microscope on two types of political transitions in the period 1900 to 2010: democratic vs autocratic, and left-wing vs right-wing. Autocracies and democracies may differ in their possibility of carrying out land reforms due to the procedural costs and incentives they face in land reform enactment. For example, democracies may find it more difficult to

³ While reforms normally refer to changes in policies or regulations that would be considered improvements, most land acts are not necessarily improvements from the standpoint of the country or its masses. Thus, we use the term “reforms” loosely to just mean big changes in laws or policies, not necessarily improvements. Nonetheless, these acts would probably result in improvements in the ruler’s own political and economic situation.

satisfy simultaneously all the necessary conditions for land reforms such as executive support, legislative funding, bureaucratic assistance, and constitutionality (i.e., Supreme Court support), while autocracies can more easily satisfy, or even bypass, those conditions (along with a greater likelihood of a coalition split between the ruling and the landed elite) (Albertus 2015). In terms of incentives, democratic and autocratic regimes both want survival and popular support (Alesina and Rodrik 1994), but democratic regimes feature greater political competition and political opportunism, making them more likely to engage in reforms, especially those aiming to reduce poverty and inequality.

As the second type of political transition, we focus on the left-wing vs right-wing transitions. It is well known that left-wing executives are more pro-poor and pro-labor than right-wing ones. Thus, a shift in the political ideology of the executive can yield pressure for or against land reform. In a world with electoral competition between parties with differing political ideologies, in the presence of a political moral hazard problem with rent seeking politicians, under certain plausible conditions, a left-wing executive is expected to undertake more redistributive land reforms, than a right-wing one, as per the ideology hypothesis arising in the competition-ideology hybrid model by Bardhan and Mookherjee (2010). We extend Cruz et al's (2016) data on political ideology of the chief executive backwards to 1900, and then take advantage of this extensive dataset to study the political ideology transitions and land reforms.

Our analysis documents several key findings. First, democratic transitions are strongly associated with many types of land reforms, especially pro-poor ones and some specific types that could reduce inequality and poverty. The latter types mainly include, redistributive land reforms (i.e., those that expropriate the land from absentee and big landlords and give that land to the landless), distribution of state-held lands to the landless, and enhancing security of the land tenure (especially for sharecroppers and leaseholds). These results are robust to controlling for ideological transitions and the existing stock of land reforms, addressing the

endogeneity concerns to the extent possible, using alternative definitions of democratic and autocratic transitions, and considering implementations instead of enactments. Autocratic transitions can also increase the probability of pro-poor and some inequality-reducing land reforms, however, those results appear robustly only with instrumental-variables estimations that use autocratic leaders' death as instrument for autocratic transitions. Endogeneity in political transitions may arise due to reverse causation (i.e., an increased demand for land redistribution that may affect the likelihood of democratization or an autocrat seizing power), or various omitted variables in the regression.

We also find that a leftward ideological movement of the executive has a positive effect on the likelihood of land reforms, especially pro-poor reforms, those with expropriation and redistribution motives, and those imposing landholding ceilings. These results are anticipated, because left-wing governments normally are more pro-poor and inequality-averse. We find that rightward ideological transitions do not exert any impact on any type of land reforms.

As explained in the next section, the main channels, through which large changes in the degree of democracy or autocracy and the left-versus-right-versus-center political ideology, affect the likelihood of various important types of land reforms, have been theorized by Albertus (2015), Acemoglu and Robinson (2001, 2006, 2008) and Bardhan and Mookherjee (2010). A split between the ruling elite and the landed elite (whose propensity is more likely in autocracies than in "captured democracies") leads to redistributive land reforms in autocracies where there are low institutional constraints (fewer veto points) than in democracies (Albertus, 2015). However, deeper democratizations, as opposed to moderate ones, might thwart elite capture of economic institutions and lead to policies favoring the average citizen, such as pro-poor and inequality-reducing land reforms (Acemoglu and Robinson, 2006 and 2008). These land reforms may be further supported if governments become more pro-poor or pro-labor, that is, when they move in a leftward direction in their ideology (Bardhan and Mookherjee, 2010).

The unique contribution of this paper to the existing literature is to study the political economy of land reforms by codifying a novel dataset of 372 land reform acts and exploiting the geographic and time variation in political transitions and land reform enactments around the world over a period of more than 100 years. The extant work establishes significant effects of land reforms on growth and development, particularly on agricultural productivity, in a number of intra-country studies (see Besley, 1995; Besley and Burgess, 2000; Banerjee and Iyer, 2005; Bardhan and Mookherjee, 2010).⁴ A different strand of the literature focuses on the political and institutional determinants of land reforms (see Binswanger-Mkhize et al., 2009; Lipton 2009; Bardhan and Mookherjee 2010). Yet a third strand is centered on the struggle between the elites and the poor and the role of redistribution, democracy and colonial past in the political evolution of countries. Land distribution, inequality and land reform are pivotal factors in this setting (Acemoglu and Robinson 2001 and 2008; Albertus and Menaldo 2014; Albertus 2015).⁵ We contribute to the intersection of these second and third strands in the literature. While some evidence exists on the cross-national differences in the redistributive role of land reforms in Latin America (e.g., Albertus 2015), little evidence exists on the role of political transitions of any type in land reform enactments and implementations globally. Also, because land reforms are commonly used as leverage to generate legitimacy and survival by new regimes, the direct implication of our investigation is to find out which group(s) the political transitions rest on.

The paper is organized as follows. Section 2 discusses the link from politics to land reform. Section 3 describes the land reform data and provides a brief sketch of land reforms and political transitions around the world during 1900 to 2010. Section 4 outlines our empirical methodology. Section 5 reports the results. Finally, section 6 concludes.

⁴ See also Bardhan (1973), Berry and Cline (1979), Rosenzweig and Binswanger (1993), Binswanger, Deininger and Feder (1995), and Banerjee, Gertler, and Ghatak (2002). See also Deininger (2003) and Galor, Moav and Vollrath (2009) for cross-country long-run growth effects of land reforms.

⁵ See also de Janvry, Gonzalez-Navarro and Sadoulet (2014), de Janvry, Emerick, Gonzalez-Navarro and Sadoulet (2015), and Bardhan, Luca, Mookherjee and Pino (2014).

2. The politics of land reform: citizen preferences, political representation, and land reform

The theoretical link from politics to land reform works through the key political players in a country. Such players comprise, in a broad categorization, the political ruler, the economic elite, the rural masses, and the urban masses.⁶ The political ruler, comprising the (elected) executives, bureaucrats, and sometimes the judiciary, makes the ultimate decisions and holds veto power on policies. The military may or may not be part of the ruling elite, but in less than advanced democracies, the military's position may be important in decision-making. The economic elite is generally formed by the landed elite and the non-landed elite. The latter consists of industrialists and businessmen,⁷ who become more powerful as the country industrializes. The urban masses include white-collar workers, who constitute the educated middle class, as well as blue collar workers who work in the industry or services sectors. The rural masses comprise the landless or small farmers, who are typically poor and live on subsistence. Importantly, a country is ruled by a coalition formed by some of these political players. The coalition must somehow win a sufficient number of votes in an electoral race, or may be in power as part of a political equilibrium inherited from the past and currently being sustained. That coalition, until overturned by another, holds the power to use the country's resources, allocate them, and make long-lasting decisions that ultimately influence poverty, growth and economic development.

The political economy of land reforms can emerge in three ways. First, the coalition between the political elite and the landed elite may break down, and the ruling elite may expropriate and redistribute the lands of the landed elite to punish the latter (Albertus and Menaldo 2012). Albertus (2015) has argued that, once such a coalitional split takes place,

⁶ An alternative, and more holistic, categorization of the political players in a country is citizens vs elites, or the poor vs the rich (Acemoglu and Robinson 2001, 2008).

⁷ For Acemoglu and Robinson (2001 and 2008), the political and the landed elite are the same (or play the political game together), while for Albertus (2015), they are different (and can fight).

redistributive land reforms will have a higher chance of getting implemented in an autocracy, since an autocracy has a smaller number of veto points and, thus, weaker institutional constraints (checks and balances) on implementing big changes in policies than in a democracy. The second avenue for land reforms is put forward by Acemoglu and Robinson (2006), who argue that, democratization, through greater power to the average citizen, leads to greater demand for redistribution to the masses in general. We argue that this kind of redistribution can take place through all kinds of pro-poor and inequality-reducing land reforms. Acemoglu and Robinson (2001) further argue that in “nondemocratic societies” the threat of revolt by rural masses may force the ruling elite to carry out redistribution. We believe that this redistribution can take the form of land reforms, especially those with such motives as redistribution, distribution, and improved tenure rights. However, stronger threats of revolutions can even lead to democratization, which could, in turn, result in even greater redistribution in the form of more major land reforms of the above types. In Acemoglu and Robinson (2001, 2006) the extent of redistribution is greater in democracies than in nondemocracies.

Acemoglu and Robinson (2008), however, propose a different set-up where they distinguish between *de jure* and *de facto* political power, so that a moderate amount of democratization, especially in the presence of extractive economic institutions, might not make redistribution to the masses greater and more likely. To counter citizen power, the elite will invest in their *de facto* political power, which will offset the direct effect of democratization. Also, under certain conditions, economic institutions might be captured by the elite even though democratization has taken place, leading to what is often called a “captured democracy.” Therefore, a more complete and full democratization will be needed, preferably in the presence of economic institutions that are not extractive, e.g., more competitive markets and greater factor mobility, to bring about pro-poor or inequality-reducing land reforms.

The third way in which the political economy of land reform arises is an ideological shift from a right- to a left-wing executive, which can yield pressure for a land reform given that left-wing leaders are more pro-poor and pro-labor than right-wing ones (a strong possibility seen in the ideology-competition hybrid model of Bardhan and Mookherjee, 2010). Crucially, however, Bardhan and Mookherjee empirically find that political opportunism and competition trump political ideology in determining the extent of land reforms. Greater political competition pushes the equilibrium towards policy convergence in their model.

Are these channels mutually exclusive in our cross-country, panel empirical analysis? Does evidence in favor of one totally rule out others? We do not believe that to be the case. While Albertus argues that democracies are quite likely to be captured by the landed elite, Acemoglu and Robinson (2008) argue that, only under certain conditions, will we see “captured democracies.” Indeed, democratic transitions, as we define them in this paper as being large positive changes in the *Polity2* scores (including movements from the autocratic range to the democratic range of the *Polity2* scores), could, in many cases, be considered to be deep and major, rather than moderate, democratizations, which may lead to various land reforms for the benefit of rural masses. In many countries, trade and other economic reforms, often facilitated by international organizations, might have taken place prior to democratization, thereby destroying extractive economic institutions. Under such conditions, comprehensive democratizations would lead to redistribution, including via land reforms.

However, we cannot rule out the possibility of coup d’états in the case of moderately or weakly democratic countries with extractive economic institutions, leading to an autocratic transition, and, in turn, to pro-poor and inequality-reducing land reforms. Note that autocratic transitions are unlikely to happen in mature democracies where democracy has become a self-absorbing state. However, economic institutions in moderate or weak democracies might be captured by the elite, including the landed elite. This capture can then be undone by an

autocratic transition, which might also be conducive to an “elite split.” The relaxation of institutional constraints brought about by this autocratic transition, along with a simultaneous elite split, will then enable redistributive land reforms. Thus, at some points in time and in some countries, the polity might move from being a moderate or weak democracy, that is most likely “captured,” to being quite autocratic, where forces uncovered by Albertus could be at play, leading to land reforms. Also, as mentioned earlier, at other points in time and countries, when and where there are deep democratizations, that are able to thwart capture by landed elites by the very virtue of their depth, we might see forces unleashed that create greater demand for redistribution, and, in turn, land reforms.

While the above channels work for given ideological orientations (left, right or center) of the government, it is clear that a leftward movement in the ideology spectrum is expected to lead to more redistribution, which is a strong possibility in the hybrid model of Bardhan and Mookherjee (2010), especially in countries with a stable degree of democracy or autocracy. Thus, all channels might actually show up in the data, as they indeed do, as seen later when we describe and analyze our empirical results.

Crucially, the above political economy channels suggest that whether or not a land reform will be enacted depends on the members of the ruling coalition and the motive of the land reform. If the dominant coalition is formed by the political ruler and the rural masses, then a pro-poor land reform can take place. The landed elite may object to such reforms, especially if the arrangements have a strong redistributive component. If the landed aristocracy is part of the ruling coalition, then a pro-poor land reform is unlikely to occur. Turning to non-pro-poor reforms, such land reforms would be undertaken by coalitions that include the ruler, the non-landed elite and presumably also the urban masses, who may expect enhanced opportunities, especially non-agricultural ones, in the land reform initiative.

Democracies and autocracies may be noticeably different in their probabilities of undertaking land reform. These probabilities are primarily determined by the aforementioned costs of and the incentives for land reform. In addition, the extent of political competition and political opportunism is greater in democracies compared to autocracies. Despite the complexities in law-making in democracies, obtaining the political support or votes of the rural masses is quite important in most middle-class dominated countries and/or partial democracies. In this respect, we may observe more land reforms in democracies.

However, the manner in which democratic or autocratic transitions occur and their more specific nature, including the type of government they install and the political and economic environment in which they happen, can also influence the probability of land reform. For example, landed elites may support a transition into a democratic regime if it promises them greater property rights following the transition. Alternatively, landed elites may capture a transition from autocracy to democracy to ensure safeguards against redistribution under democracy (Albertus and Menaldo 2014). Both possibilities reduce the likelihood of pro-poor land reform. However, in many cases, such as in poorer countries where a substantial proportion of the population is employed in agriculture, we would expect rural masses to play a powerful role in a democratic regime, so that a transition to it will initiate pro-poor and inequality-reducing land reforms.

Moving back to the case of autocratic transition, if this type of transition occurs in a way in which it rests on the landed elites, then the likelihood of land reform would go down. By contrast, if autocracies rest on the rural poor, then the likelihood of land reform would increase. The latter case is epitomized vividly in Latin America, where most dictators resorted to redistribution and expropriation of the lands of the elite.

The political ideology (i.e., whether the executive has a leftist, centrist or right-wing orientation) captures the policy preferences of the ruler. It reflects what the executive truly

believes in or where on the policy spectrum the preferences of its support base lie. Thus, as we move rightward from a left-wing to a right-wing orientation, the equity-efficiency trade-off is resolved more towards efficiency (or more against equity and redistribution). The concern for inequality becomes weaker with such a movement while it becomes stronger with the reverse movement. In fact, the more leftist governments might not even believe in this trade off in that more equity, in their opinion, could lead to higher productivity (which is consistent with some of the farm productivity studies). A right-wing executive, on the other hand, might believe that inequality reductions require distortionary policies that lower growth. In the case of major land reforms, therefore, we should expect to see more of these reforms as the chief executive moves more towards the left. This should be especially true of pro-poor or redistributive reforms. The chances would be even increased if the left-wing regimes are authoritarian regimes.

The above arguments outline many political economy channels through which changes in the extent of democracy in a country and in the ideology of a country's ruler(s) might affect the country's propensity to carry out land reforms. The net effects of a big democratization (which we call democratic transition) and a leftward movement in political ideology seem to be in the direction of initiating certain types of land reforms. However, there could exist other channels in the opposite direction where movements into autocracies could lead to certain types of land reforms. We, however, have no idea about the relative strengths of these various channels. The net impact of changes in the polity of a country on the likelihood of land reforms can only be determined through empirical investigation. That empirical work will also need to control for leftward and rightward ideological transitions and consider the characteristics of the actual types of the political transitions. Our theory here has sharpened our understanding of the various channels and the several common-interest coalitions that can be formed for and against the various types of land reforms.

Lastly, we discuss the timing of both the enactment and implementation of reforms. There are three relevant stages here. The first-stage is the initial (i.e., pre-enactment) struggle, the second is the enactment stage, and the third-stage is the implementation stage. If the initial struggle is unsuccessful, enactment does not occur. We focus on the second and third stages.⁸ The first stage could be related with the political transition whose impact we study. For example, that struggle (or, at least, the latter part of it) could take place in the interval between the political transition and the enactment. There is a further time lag in the implementation of the enacted reforms.⁹ Our empirical analysis takes into account these time lags.

In addition, our empirical specification will include the existing stock of reforms as an explanatory variable. This stock can have a negative impact on the likelihood of land reform since with every reform it might become more and more difficult to grant further concessions to the same group in society, and, at the same time, to this very group additional reforms may be subject to diminishing returns. This conjecture, explaining our empirical result, is different from Horowitz's (1993) prediction that "each episode of reform contains in itself the seed of further reform demands."

3.Data

3.1. Coding major land acts and directives

Our primary objective is to codify the major land reform enactments and their explicitly stated objectives over the period 1900-2010 for 165 countries. Our coding assigns a binary indicator (0/1) (i.e., No/Yes) to the answers to the following three questions:

- (1) Is there any major agricultural land-related act enacted at the parliament or order/directive issued by the executive in a country in a given year?

It is important to define 'major' here. It is conceivable that hundreds of land related

⁸ Albertus (2015) focuses on the first and the third stages; we add the enactment in between.

⁹ We do not rule out another struggle between enactment and implementation.

initiatives were undertaken in the world during 1900-2010. We code key acts and directives that constitute basic texts aiming to govern the fundamental rights of (i) land ownership, (ii) land tenure, and (iii) land use, in a country. We also code the ones that substantially amended existing texts. These acts and directives constitute a substantive milestone within a country's own historical context, set new directions, and/or change the prevailing rules regarding land ownership, land tenure, or land use rights.¹⁰ Crucially, we focus on only agricultural lands and do not code acts and directives related to urban land, forests, or pastoral lands. Note also that, in especially presidential countries, executive orders are as powerful as acts or legislations, so our coding includes these directives too. Thus, our term 'enactment' is more general than simply a legislative act. Our coding procedure confirms the act or order in at least two English language-based sources. We also identify the unique law or order number and record their names. For more details on these, see our Coding Document.

- (2) Are there any explicitly stated objectives behind land-related acts or executive orders? If yes, those motives are also recorded.

This way we code 12 motives of land enactments, namely, landholding ceiling imposition, expropriation, redistribution, distribution, restitution, consolidation, improving tenure security, privatization, collectivization, nationalization, recognizing CICRT rights, and other. Most land enactments have multiple motives, and we code all the identified motives.

Landholding ceiling imposes an upper limit on private land ownership. This occurs in highly unequal settings as part of the traditional land reform drive, mostly in combination with expropriation and redistribution. Expropriation is the confiscation of private land, and takes away the ownership (i.e., title) of the land from the former owner. We define redistribution as

¹⁰ The over-arching theme of major land acts and directives that govern the fundamental rights of land ownership, land tenure, and land use in a country is that they have the potential to influence the *long-term decision making* in agricultural activity. In particular, they have the capacity to shape farmers' decisions on physical capital investment, household labor allocation across agricultural and non-agricultural activities, intergenerational education decisions for children, crop choice, and market penetration.

the transfer of the ownership of the land from the rich to the poor by the ruler. Redistribution generally takes place following an expropriation. Although redistribution generally implies involuntary surrender of the land by the rich, some redistributions occur with compensatory payment to the land owners. Distribution is another land reform featured by the transfer of title to the new owner, whereby empty state lands are transferred to citizens.¹¹ Restitution is also characterized by the transfer of ownership whereby the state returns the collectivized lands back to former owners or their descendants following the collapse of communism. Privatization is also a case of transfer of ownership and refers to the sale of state-owned farmlands.

We consider tenure security improvement in relation to the tillers of the land (i.e., tenants and sharecroppers). The key feature here is that title still belongs to the land owner, but the tiller can make their own private and long-term decisions on agricultural activity. Collectivization, the primary mode of agricultural production in formerly communist countries, refers to ‘people’s’ ownership of the land, which is managed by the state, and the farmers have usufruct rights under central planning. The usufruct rights are shallow because farmers were generally unable to make their own private decisions on agricultural activity. Consolidation refers to re-parcelling fragmented lands into unitary land blocks. Farmers retain their ownership and tenure rights, but consolidation aims at improving their land use. Nationalization can have several variations, including a rhetorical, abstract, or passive move in land ownership whereby the state claims “all land belongs to the state”, or more concrete moves where the land is moved to state domain for its operation by state-owned enterprises. The final motive we code is the formal recognition of the CICRT land rights. Land rights could exist communally or privately. Communal rights refer to collective rights under the CICRT rules, while private rights refer to individual/household rights. Recognizing CICRT land rights aims to move the CICRT lands

¹¹ While the redistribution is typically preceded by expropriation, there is often expropriation by the government merely to punish landed elites and not to be followed by distribution. Also, often distribution of lands already held by the government is carried out, without any need for expropriation right before it. Therefore, we code all of these three related motives separately, namely, expropriation, distribution and redistribution.

from informal into formal domain, and may influence the long-term decisions in agriculture.

The “Other” motive includes a heterogeneous set that comprises, among others, administrative acts that enabled developing cadastral systems and recording transactions, or acts that gave women more rights.

Closely examining the stated principles and objectives of these initiatives, we also identify if the land reform is specifically intended for the benefit of the poor. There is a high correlation between pro-poor land reforms and the expropriation, redistribution and distribution motives. The latter three comprise “traditional land reforms” (sometimes accompanied by landholding ceilings too), aiming to improve the land distribution by taking the ownership away from the rich and giving it to the poor. Nonetheless, pro-poor land reforms do not always alter the ownership structure; they may sometimes only aim at improving tenure security of the poor. Thus, our coding of the pro-poor initiatives does not completely overlap with expropriation, redistribution and distribution.¹² For detailed definitions of the 12 motives and pro-poor land reforms, see our Coding Document.

(3) Is the land-related enactment implemented in the subsequent years? If yes, is the implementation partial (coded 0.5) or full (coded 1)?

An inherent judgment is associated with coding the implementation status of land acts, but we adopt consistent criteria, coupled with numerical evidence where possible. Most successful land enactments changed the countries’ land ownership, land tenure or land use patterns as intended.¹³ Most unsuccessful initiatives were repealed soon or became

¹² In pro-poor cases, the source documentation typically mentions one of the following words regarding the intended beneficiaries of the initiative: landless; poor; landless agricultural labor; bonded labor; marginal farmers; reduce poverty; peasants; subsistence peasants; subsistence farmers. Meanwhile, those initiatives that improve tenure security are not always pro-poor (e.g., many land-related acts in Europe).

¹³ The sources typically evaluated these cases with such phrases as “successfully implemented”, “remarkably successful”, “a deserved success”, and “rapid progress in implementation”.

dysfunctional after few years as a result of a political struggle.¹⁴ Partial implementation refers to a mixed success, with some progress made compared to the initial situation but falling short of the intended objectives.¹⁵ Out of 372 enactments, we code 163 to be fully implemented, 132 to be partially implemented, and 58 enactments not having been implemented. We could not find any information on the implementation of 19 enactments.

We believe that our coding covers all the major land acts and orders around the world during 1900 to 2010.¹⁶ We utilize the relevant information in the source documents by ensuring consistent and compatible coding as well as adopting systematic criteria applied to all country cases. As indicated below, land reforms occurred in waves and they concern some regions more than others. Our dataset mimics such well-known regularities. The full coding rationale and data, including countries, years, law/order numbers, stated principles and objectives, country narratives, and references are provided in our Coding Document.

It is instructive to compare our dataset with that of Albertus (2015) at this point. Albertus provides a riveting account of land reforms in Latin America with a view to illuminate the relationship between autocracy and redistribution. His focus is on testing the elite split theory through the lenses of redistributive land reforms. He finds that a coalitional split between the landed elite and the ruling elite leads to redistributive land reforms in countries where institutional constraints are weak, which is more likely to be the case in autocracies. He arrives at the same conclusions using his global dataset.

It is important to note that Albertus and we come up with our datasets virtually independently. Because we both investigate the political economy of land reforms, there are,

¹⁴ For unimplemented land acts and directives, an ignorable land size was subject to implementation, or the sources made negative assessments such as, “the implementation of the law was uneven and ineffective”, “neither law was implemented”, “implementation was blocked”, “the decree was never seriously implemented”, and so on.

¹⁵ For partial implementations, the key phrases included, “success was mixed”, “the law enjoyed a mixture of success and failure”, “implementation was slow” and “efforts have been relatively modest”.

¹⁶ A great majority of land-related enactments that we code occurred in the independent periods of countries, but we coded 22 initiatives in the semi-independent periods of countries as well. The reason is that a local (elected) parliament representing people’s will or an empowered executive were behind the initiatives.

however, natural overlaps in our datasets. Nonetheless, three important key differences exist between our dataset and that of Albertus (2015). First, we assign a binary value for a given country in a given year if it had a land-related enactment (our ‘act approach’ is consistent with Besley and Burgess 2002). Albertus’ approach primarily focuses on episodes of land ownership transfers, which is only a subset of changes in land rights within a country. In particular, he codes 1 in his global dataset and the actual proportion of land transferred in his Latin America dataset the years in which there was a land redistribution, colonization or negotiation within a country.¹⁷ Crucially, our dataset includes 165 countries with 155 having at least one enactment coded during 1900-2010, while Albertus (2015) codes for 145 countries, with 61 countries containing all-zero entries. Second, we code 12 different motives, plus a pro-poor motive. Albertus discusses a typology of four motives, namely, land redistribution, land colonization, land negotiation, and land titling. Rooted in an impressive body of work, his study is well aware of other land reform motives, such as nationalization or privatization, however.¹⁸ While land redistribution, negotiation, colonization and titling concern only land ownership (i.e., transfer of ownership of land), our 12 motives span both land ownership, land tenure, as well as land use rights. The latter two are also key to long-term decision making in agricultural activity. Third, Albertus defines major land reforms as those that concern more than 10% of a country’s surface area and minor ones as those below this threshold. We define major enactments as those that represent a substantive milestone within a country’s own historical context, set new directions, and/or change the prevailing rules regarding land ownership, land tenure, or land use rights. According to our coding, minor acts are generally technical in nature, make only minor

¹⁷ This indicates that Albertus (2015) focuses only on implementation. Also, his coding sometimes takes non-zero values over a prolonged period to capture continuous transfers (e.g., his coding may take 1 for all the years in the period 1955-75 during which land kept being redistributed slowly and continuously). We code our implementation as 1, 0.5 or 0 for a given reform in a country for the year the enactment was undertaken.

¹⁸ Importantly, Albertus does run some regressions with the African nationalization episodes incorporated into his global dataset.

adjustments in land related issues, or make small perturbations to a previously enacted major code, and thus, fall short of changing the trajectory of land ownership, land tenure, and land use within a country.

3.2. Data on Political Ideology

To investigate the role of political ideology transitions in land-related acts and directives over 1900-2010, we extend the well-known dataset on the political ideology of the chief executive by Cruz et al (2016) that covers the period 1975-2015 backwards up to 1900.

3.3 A brief sketch of land reforms and political transitions in the world 1900-2010

Appendix A1 provides a snapshot of land reform enactments, democratic and autocratic transitions, and ideological shifts in the nation's chief executive around the world for the period of 1900-2010. The earliest country that enacted a land act in our sample is the US in 1902, followed by Ireland in 1903. Early movers were mostly from the developed world; more than half of the 52 land-related acts and directives before WWII were enacted by currently developed countries. In the pre-war period, the developing world was led by Latin America, in particular, Mexico (with three reforms). Globally there are two key waves in land reform initiatives: the post-war period 1945-75 saw 158 reforms (with 95 being during 1960-75), and the 1990-2010 period witnessed 106 reforms. Of the latter, 48% were from the (formerly) communist block in Eastern Europe and Asia. The activity slowed down during 1980-89 with 29 reforms but surged during 1990-99 with 76 reforms. In our entire sample, the land reform tally is topped by India with seven reforms. Nine countries in our sample (Argentina, Czech Republic, Djibouti, Haiti, Montenegro, Qatar, Saudi Arabia, Serbia, Slovak Republic and Uruguay) never undertook any land enactment, and 39 enacted only one during 1900-2010. All the regions of the world have taken course in land reform enactment. Africa enacted 103 (mostly during the two waves), Europe 102 (with 55 being from former communist block), Asia (including the Middle East) 96, Latin America 59, and Oceania nine and North America three.

The sketch of political transitions during 1900-2010 is equally rich. Defining democratic (autocratic) transition as the change in the *Polity2* score being greater than or equal to (less than) 5 (-5) from one year to the next, the period 1900-2010 witnessed 184 (133) democratic (autocratic) transitions around the globe. The whole pre-WW II period saw only 19 democratic transitions, with Serbia making the first move in 1903. Ensuing WW II, democratic transitions surged during two decades; the 1970-79 saw 27 transitions compared to 16 in 1960-69, and 1990-99 saw 52 compared to 25 during 1980-89. Meanwhile, 86 of our 165 countries had at least one democratic transition and 79 had none during 1900-2010. Thailand tops the democratic transition tally with six. As for autocratic transitions, the pre-WW II period saw 29, with El Salvador being the first in 1903. The activity was intense during 1960-79 with 51 transitions (1960-69 had 25 and 1970-79 had 26), while the 1980-2010 period witnessed a total of 40 autocratic transitions. In our sample, 75 countries had at least one autocratic transition and 90 countries had none. The list is topped by Peru with six. Moreover, 59 countries had *both* democratic and autocratic transitions during 1900-2010. 19 countries in Africa (Sudan, 8), 16 countries Latin America (Peru, 10), 14 countries in Asia (Thailand, 9) and 9 countries in Europe (Greece, 8) exhibited such political zigzags, where in parentheses are the regional leaders and the *total* number of democratic and autocratic transitions during 1900-2010. The global leader is Peru. Finally, 63 countries had neither democratic nor autocratic transition during the entire century.

Turning to political ideology, our dataset shows that of the 12,261 independent country-year observations across the globe during 1900-2010, 38.0% had left-wing executives, while 25.9% had right-wing and 5.3% had centrist leaders. Ideology of the executive was uncertain in 30.8% of the cases. Latin America was mostly run by right-wing executives (with a share of 46.7% in the region), while Asia and Europe was dominated by left-wing executives (with shares of 39.7% and 49.2%, respectively). Half of Africa's executives were of uncertain

ideology (50.8%), with 34.2% of the cases having a left-wing record. The ideological transitions are also telling. Of the 8,244 country-year cases for which we can identify such transitions, 147 were Left→Right (with 70 in Europe, 35 in Latin America, 17 in Asia) and 145 were Right→Left (with 66 in Europe, 40 in Latin America, 11 in Asia). The entire 1900-2010 period saw one-step moves Center→Right, Center→Left, Right→Center and Left→Center as 52, 36, 59 and 31, respectively. A great majority of the cases were status quo, with 4,359 being Left→Left (52.9%), 2,873 Right→Right (34.9%), and 542 Center→Center (6.6%).

As evident in Appendix A1, sizeable geographic and time variation exists in both land reform enactments and political transitions around the world, permitting an important empirical leverage to tease out the relationships hypothesized in this paper.

4. Econometric Analysis

One of the key predictions from theory, to be taken to the data, is that democracies feature more political competition and opportunism. Thus, democratizations, especially deep and major ones, which are the ones primarily picked up by our democratic transition measures (and that could thwart elite “capture”) are relatively likely to lead to the enactment of land reforms, especially the pro-poor ones due to their need for satisfying the demand of the majority. Real-world economies always feature some degree of inequality. As a result, in most economies, especially democracies, there is demand for redistribution, which can take many forms. In this paper, we look at the redistribution of land, which includes expropriation of land from absentee and big landlords and distribution of that land to the landless. This is different from the distribution motive, which is mainly the distribution of already government-held lands to the landless. Democratic transitions are also relatively likely to lead to the enactment of land reforms with both the distribution and the redistribution motive due to the need to meet the demand of the masses for more assets and incomes. Motives of land reforms could also include restitution of land to the former owners, privatization state farmlands and state-controlled

agricultural farms, enhancing security of land tenure (especially for sharecroppers), legal recognition of land practice based on customs, traditions and religion, consolidation of land holdings, expropriation of land with or without compensation for future redistribution, and others where the acts or laws aim to eliminate feudal remnants of agriculture or abolishing feudal structures and intermediaries in agriculture. Whether land reforms with various motives, limited not just to redistribution or distribution, are encouraged by democratization is an empirical question.

In autocracies, the likelihood of land reform depends on who the members of the ruling coalition are. If the autocrat's support base is the rural poor and/or the autocrat is not in any coalition with (or has split up with) the landed elite, she is likely to carry out more pro-poor land reforms. On the other hand, if she teams up with the landed elite, then likelihood of the pro-poor land reform is lower. An autocratic transition is likely to happen starting from a weak or moderately democratic polity, often "captured" by the elite (including the landed elite). Thus, there is a good chance that such an autocratization (which is usually deep, going by the definition of our variable, autocratic transition) will be accompanied by a split between the ruling and the landed elite, as argued and demonstrated by Albertus (2015).

We expect left-wing executives to be more likely to push for land reforms, and especially, for the poor, while right-wing executives may not care about land reform, or they would care for non-pro-poor reforms if they expect higher efficiency and market opportunities as a consequence. To the extent that many autocrats head left-wing governments (especially as seen in Latin America and even in some parts of Asia), they are more likely to bring about pro-poor land reforms, in particular redistributive and distributive ones. However, once we control for the political ideology of the government (left, center or right), we are not sure whether a move to autocracy will lead to such land reforms.

We study the link between political transitions and land reform enactments for countries' independent periods. The *Polity2* scores are available to compute political transitions for 158 countries. Of the 372 land enactments we code, 350 occurred in countries' independent periods and 332 have an associated *Polity2* score in the country-year row. Table 1 provides summary statistics of the key data used in our empirical analysis (Online Appendix Table 1 presents additional descriptive statistics). Appendix A2 reports the variable definitions and data sources.

4.1. Econometric Specification

We first present the following regression equation:

$$LAND_REFORM_{i,t} = \alpha_0 + \alpha_{1i} + \sum_{j=1}^4 \alpha_{2j} Democratic\ Transition_{i,t-j} + \sum_{j=1}^4 \alpha_{3j} Autocratic\ Transition_{i,t-j} + \varepsilon_{i,t} \quad (1)$$

where $LAND_REFORM_{i,t}$ denotes land reform enactment (or, alternatively, implementation), with i denoting country and t for years, *Democratic Transition* is a dummy variable that takes the value 1 if the country experiences a democratic transition (and takes a value 0 otherwise), where democratic transition occurs if the change in the country's polity score relative to the previous year is greater than 5. Similarly, *Autocratic Transition* is a dummy variable that takes the value 1 if the country experience autocratic transition (and takes a value 0 otherwise), whereby autocratic transition occurs if the change in the polity score relative to the previous year in is less than -5.

A more restrictive version of the above equation, where coefficients across the last four years of democratic or autocratic transition are restricted to be equal, is:

$$LAND_REFORM_{i,t} = \beta_0 + \beta_{1i} + \beta_2 \sum_{j=1}^4 Democratic\ Transition_{i,t-j} + \beta_3 \sum_{j=1}^4 Autocratic\ Transition_{i,t-j} + v_{i,t} \quad (2)$$

where $\sum_{j=1}^4 Democratic\ Transition_{i,t-j}$ is the number of democratic transitions that have taken

place in the past four years where democratic transition occurs if the change in the country's

polity score relative to the previous year is greater than 5. $\sum_{j=1}^4 \text{Autocratic Transition}_{i,t-j}$ is the number of autocratic transitions that have taken place in the past four years, whereby autocratic transition occurs if the change in the polity score relative to the previous year is less than -5. The four-year period in this regression as well as the four separate lags in the previous regression are allowed for the possibility of changes in governments through elections, coups or revolutions and their lagged effects. Time intervals between such transitions can vary across countries or even within a country over time. Also, the strength of a particular lagged effect might vary across countries and over time. As a result, the second specification make more sense in that it will facilitate the estimation of the average impact over a period of four years, which might have a smaller temporal and spatial variation. Note that the polity score is a measure of the extent of democracy measured on a scale of -10 to +10. We also add a fifth lag of the cumulative land reforms (enacted) as a control. This variable gives us the number of land reforms that have already been enacted up to that year. One could consider that variable to be a stock of reforms at a point in time.

The next specification examines all possible transitions from autocracy to democracy and vice versa as well as absorbing states where an autocracy remains an autocracy or a democracy remains a democracy. We formulate this estimating equation as:

$$LAND_REFORM_{i,t} = \delta_0 + \delta_{1i} + \delta_2 AD_{i,t} + \delta_3 DA_{i,t} + \delta_4 DD_{i,t} + \xi_{i,t} \quad (3)$$

Defining democracy as a state where the polity2 score is in [1, 10] and autocracy as one which is in [-10, 0], this specification looks at how each of the elements of a transition matrix based on these two states (democracy and autocracy) are correlated with the enactment of reforms. We also do robustness checks with democracy defined as polity2 score in the interval [5, 10] and autocracy as one which is in [-10, 4] or alternatively in the ranges [7, 10] and [-10,6] respectively. The elements of this matrix are Autocracy→Autocracy (AA),

Autocracy→Democracy (AD), Democracy→Autocracy (DA) and Democracy→Democracy (DD), with AA and DD indicating status quo or absorbing states. Each of these transition variables is represented by the number of such transitions within the past four years. The reference group in the estimation is AA (which would be just 4 - AD - DA - DD).

We estimate equations (1) to (3) for all land reforms, exclusively focusing on pro-poor land reforms, and then separately for various land reforms by specific motive, namely landholding ceiling, expropriation, redistribution, distribution, restitution, tenure security, privatization, consolidation, nationalization, collectivization, CICRT recognition, and other.

To investigate the role political transitions in land reforms enactment based on shift in the political ideology of the chief executive, we estimate (2) with the number of leftward transitions (right to left and center to left) in the last four years and the number of rightward transitions (left to right and center to right) in the last four years as additional variables

When examining the impacts of leftward or rightward ideological shifts, as above we consider land reforms with all types of motives, pro-poor land reforms and specifically land reforms with specific motives. Given that there is a trade-off between equity and efficiency and that left-wing governments might be putting a higher weight on equity, the change in the political ideology of the government in power towards the left can lead to more pro-poor land reforms, as well as to more redistributive and distributive land reforms. Further, they might lead to more reforms that impose ceilings on land holding or provide tenure security.

4.2. Estimation and Econometric Issues

Our benchmark estimation methodology is OLS with country-fixed effects and year-fixed effects controlled for and standard errors clustered at the country level. We also adopt a Probit estimation to accommodate the discrete nature of land reforms and check the robustness of our results. Even though we isolate the entire set of time-invariant unobservables and common country shocks through country-fixed effects and year-fixed effects, we may not be

able to rule out the endogeneity through time-varying omitted variables to both land reform enactments and the *Polity2* score as well as due to reverse causation.

To shed light on endogeneity, we first run some Granger causality tests, recognizing fully their limitation that they do not test for contemporaneous endogeneity or simultaneity. However, more than a century-long data series offers advantages for such a test.¹⁹ Controlling for four lags of autocratic transitions and of land reforms, we find that autocratic transitions are endogenous in the Granger-causality sense to pro-poor land reforms as well as those with expropriation, redistribution and distribution motives (see Online Appendix Table 2).²⁰ Democratic transitions do not seem to present endogeneity. While, given the limitations of the Granger causality test, we cannot claim that democratic transitions are free of endogeneity, we have less of a concern with its endogeneity than that of autocratic transitions.

To address potential endogeneity further, we use leader's death as an instrumental variable (IV). Jones and Olken (2005) provide compelling evidence that unexpected leader deaths constitute a shock to countries' economic trajectory. Our use of exogenously-timed natural death of leaders extends this notion to political transitions. In particular, we use democratic leader's death and autocratic leader's death as sources of exogenous variation for democratic transitions and autocratic transitions. Such unexpected deaths may create an opportunity for political stakeholders to alter the political path of the country, or alternatively, someone in the same political clan may replace the outgoing leader. Our first-stage regressions indicate a significant negative effect of autocratic (democratic) leader's death on autocratic transitions at 1% (5%) level, suggesting potentially a strong instrument. That is, the passing away of an autocratic leader reduces the possibility of both autocratic transitions. Closely examining the

¹⁹ We would like to thank an anonymous reviewer for suggesting the Granger-causality tests.

²⁰ The signs of land reform variables are negative. Although the Granger-causality model might itself suffer from endogeneity, a negative coefficient for land reform nonetheless suggests that more land reforms reduce the possibility of autocratic transitions. The latter would arise if autocrats retain their positions, or if the countries experience democratic transitions, due to land reforms. In both cases, the OLS coefficient of autocratic transitions in equation (1) and (2) would be biased downwards.

data, this effect arises due to autocratic persistence, whereby countries' *Polity2* scores remain in the highly negative territory despite the departure of the autocratic leader. Importantly, this finding implies that an autocratic leader's death is associated with a lower likelihood of any autocratic transition, and any predicted transition into autocracy, in turn, getting used in the second-stage estimation, is then outside the autocratic persistence zone. These transitions are those in the middle or in the positive territory of the *Polity2* distribution. Thus, our IV estimation is likely to capture these cases where the causation is more likely to run from autocratic transition to land reform (because those regimes would be more willing to sustain based on popular support with land reforms), rather than vice versa (which would happen if autocratic transition occurs to facilitate the land reform). Our first-stage results also show that death of a democratic (autocratic) leader has a positive (negative) effect on democratic transitions, but both effects are insignificant.²¹ That is, when democratic transitions are treated as endogenous, there appears to be a weak instruments problem in the regression. Given all the Granger-causality test results and the instrument strength considerations, we instrument autocratic transitions with autocratic leader deaths and treat democratic transitions as exogenous. As will be seen, our IV estimates for autocratic transitions are statistically much more significant than the OLS estimates.²²

²¹ An autocratic leader's death may lead to persistence in the *Polity2* score because the autocrat's family and associates may ensure that power remains with them. This might be helped by a sympathy wave ensuing the death and the general practice of showering praises upon the departed leader. This persistence results in the negative relationship between an autocratic leader's death and a large jump in the *Polity2* score. When a democratic leader passes away, the family and associates might similarly be able to keep power but, in some cases, they might take advantage of the situation by turning slightly more authoritarian, and, in others, feel magnanimous and turn more democratic, thereby leading to the absence of a clear link between a democratic leader's death and any large jump in the *Polity2* score (but still a negative relationship with the probability of an authoritarian transition).

²² First-stage diagnostics for instrument (i.e., F-statistics for instrument strength) pose no problems when only autocratic transitions are considered as endogenous, as per standard rules of thumb in the literature. Regarding the excludability of the instrument, with country- and year-fixed effects controlled for and our focus on four-year intervals, there is no strong reason to expect that autocratic leader's death would affect land reform through channels other than the political avenue.

5. Results

5.1. The Impact of Democratic and Autocratic Transitions on the Likelihood of Land Reforms (All, Pro-Poor and By Individual Motive)

Columns (1) through (4) in Table 2a report the results for equation (1) and columns (5) to (8) present the results for equation (2). For each equation, first OLS and then Probit results are reported. And within each estimation type, first we have a regression with any-motive land reform and then one with pro-poor land reform as the dependent variable. The OLS and Probit for both specifications (1) and (2) are qualitatively similar. However, coefficient magnitudes are much simpler to interpret under OLS.

Focusing on columns (1) through (4), where equation (1) is estimated, the one period lagged democratic transition is always positive and significant at the 1% level both for all-motive and pro-poor land reforms, while the second lag is also positive and significant in the case of pro-poor reforms at the 10% level in the case of OLS and 1% level for Probit. The democratic or autocratic transition variable in period $t-j$ is an indicator variable showing whether such a transition took place or not in that period. Note that, as mentioned before, a democratic transition means an increase in the *Polity2* score of 5 or greater, while an autocratic transition represents a decrease in this score by 5 or higher. Based on the OLS results, a democratic transition in a particular year increases the likelihood of any-motive land reform in the next period by 7.4 percentage points, pro-poor land reforms in the next period by 3.3 percentage points and two periods later by 2.8 percentage points. Thus, the effect of a democratic transition takes the form of enactment of a pro-poor land reform within a year or two. It seems such enactments following any political transition are done by the end of the second year after the transition. As we will see in the rest of the paper, this result does not change much with changes in specification and data definition. An autocratic transition in any period seems to have no statistically significant impact on the likelihood of pro-poor land reforms in any future period. However, the results for any-motive land reforms show a positive

and significant coefficient of the first lag of autocratic transitions at the 10% significance level (column 2). Note, however, that any-motive land reforms are a collection of very heterogeneous reforms that can lead to very different economic outcomes, so we do not read too much into such coefficients.

We, however, believe that it is easier to interpret the average impact of the number of transitions over an interval of time, rather than look at the effect of each lag, especially since the time lags for impact may vary across countries and over time. Both in the case of any-motive and pro-poor reforms, the democratic transition variable, that measures the number of transitions in the last four years in columns (5) through (8), is positive and significant at the 1% level, while the number of autocratic transitions within the last four years is positive and significant only in columns (5) and (6) at the 10% and 5% levels respectively, showing its positive association with any-motive land reforms: an additional autocratic transition leads to a 1.6 percentage point increase in the likelihood of an any-motive reform. Based on the OLS results, an additional transition to democracy leads an increase in the likelihood of an any-motive reform by 2.4 percentage points (column 5) and a pro-poor land reform by 1.5 percentage points (column 7). It is interesting to note that, as expected, each estimated coefficient of the democratic transition (past 4 years) variable in columns (1) through (4) is roughly an average of the coefficients of the democratic transition variables with the four lags in analogous regression in columns (5) through (8).

We see from all the regression results in columns (1) through (8) that cumulative enactments, measuring the overall stock of reforms, lagged five years, have a negative effect on the likelihood of both any-motive and pro-poor land reforms and the coefficient is always statistically significant at the 1% level. Thus, as more reforms take place, the next reform becomes less likely. One interpretation is that it becomes more and more difficult politically to keep providing benefits to the same class of people. The other might be that the value of an

additional reform might show diminishing economic benefits even to the potential beneficiaries. Based on the OLS results, an increase in the stock of reforms by one reduces the likelihood of another any-motive reform by 3.6 percentage points and another pro-poor reform by 1.7 percentage points. Thus an additional reform makes the next reform less likely. Another interpretation of this result is that the expected waiting time for the next reform increases with every reform enacted. We will see this result repeatedly in the various results we present, including those on implementation.

In Table 2b, we study land reforms by specific motives, using the specification represented by equation (2). The democratic transition (past four years) variable is positive and significant at the 5%-10% levels separately in the cases of land reforms with the following motives: expropriation (with or without compensation) for future redistribution, redistribution of lands from absentee or big landlords to the landless, distribution of government owned lands to the landless, restitution and tenure security (enhancing security of tenure, especially for sharecroppers). All of these types of land reforms, with the exception probably of restitution, benefit the rural masses and it makes a lot of sense that any large movement toward being a democracy would lead to the enactment of such reforms, consistent with the prediction of a median-voter type model of redistribution, which is also one of the predictions of the various Acemoglu-Robinson models. An additional democratic transition during the last four years increases the likelihood of an expropriation-motivated land reform by 1 percentage point, redistribution-motivated reform by 0.8 percentage points, distribution-motivated reform by 1.3 percentage points, restitution-motivated reform by 0.5 percentage points and tenure security by 1.3 percentage points. For remaining motives, this variable is statistically insignificant, with the exception of the case of the “other” motive category where it is negative and significant. Because of the heterogeneous nature of “other” reforms it is hard to interpret the impact of democratic transition or any other variable on them. Autocratic transition is statistically

insignificant for each and every type of land reform, except for collectivization, where it is negative and significant at the 5% level. Most communist regimes were authoritarian, and they, however, were likely to start their journeys with collectivization. But they are not a large proportion of autocratic transitions. Other types of autocratic regimes are unlikely to be interested in collectivization. The five-year lagged cumulative enactment is negative and significant in the case of each and every motive, except for the case of restitution, where it is still negative but is statistically insignificant.

We have also run the regression represented by equation (1) separately for individual motives. The results are presented in Online Appendix Table 3. The first lag of democratic transition is positive and significant in cases of land reforms with three motives that would support the rural masses, namely, expropriation, redistribution and distribution. The first lag is also significant in the case of restitution. The second lag of democratic transition is positive and significant in the case of tenure security, which is also something that helps small farmers that form the main component of the rural masses. Not surprisingly, the second lag of democratic transition is negative and significant in cases of land reforms aiming at consolidation, nationalization and collectivization, motives which would not sit well with the average rural voter. The second lag of autocratic transition is negative and significant in the case of land reforms associated with distribution, consolidation, nationalization and collectivization. Unless the autocrat is a socialist or communist, there is no reason why he/she would be interested in nationalization and collectivization of farms. The autocrat would only bring about distribution motivated reforms if he or she cared about reducing inequality or increasing farm productivity. The five-year lagged cumulative enactment is again negative and significant throughout.

Online Appendix Table 4 presents equation (2) regressions using the democratic and autocratic transitions variables as defined in Cheibub, Gandhi and Vreeland (CGV) (2010). The data, in this case, start from 1945. The CGV democratic transition variable is positive and

almost significant at the 10% level in the case of pro-poor land reforms, and those motivated by expropriation and redistribution, while it is significant at the 5% level in the case of distribution. All of these types of land reforms are aimed at reducing poverty and inequality and are expected to be popular with the rural masses, in turn boosting the incumbent government's vote share. The CGV autocratic transition variable is insignificant for all types of land reforms. Once again, cumulative enactment is negative and significant throughout.

We next move to our main Table 3, which presents the results from the regression specification in equation (3). Here we define democracy as a state where the *Polity2* score is in [1, 10] and autocracy as one where the score is in [-10, 0].²³ The specification represented by equation (3) has elements of a transition matrix, based on these two states, as right-hand side variables: Autocracy→Autocracy (AA), Autocracy→Democracy (AD), Democracy→Autocracy (DA) and Democracy→Democracy (DD), with AA and DD indicating status quo or absorbing states. These variables in Table 3 represent the number of such transitions that occurred within the last four years. As explained earlier, the reference group is AA (the country remains an autocracy). The AD variable is estimated to be positive and significant at the 5% level in the case of any-motive as well as pro-poor land reforms. Each additional year of such a transition within the last four years increases the probability of an any-motive land reform by 2.3 percentage points and a pro-poor land reform by 1.7 percentage points (relative to the absorbing state AA during all four years). In the case of land reforms with specific motives, AD is positive and significant at or almost at the 10% level in the case of land reforms with redistribution, restitution and privatization motives, positive and significant at 5%

²³ Alternatively, in Online Appendix Table 5, we define democracy as a state where the *Polity2* score is in [7, 10] and autocracy as one where the score is in [-10, 6], while in Online Appendix Table 6, the ranges are [5, 10] and [-10, 5] respectively. In both cases, the variable AD, measuring the number of autocracy-to-democracy transitions in the past four years is significant for all-motive and pro-poor reforms as well as for the reforms aimed at expropriation and redistribution. While the opposite transition, DA is also positive and significant in Online Appendix Table 6 for these reforms, it is not so in Online Appendix Table 5, i.e., the DA effect is not robust to changes in these variable definitions.

level in the case of land reforms providing for greater tenure security and positive and significant at 1% level in the case of distribution-motivated land reforms. Each additional year of such an AD transition within the last four years increases the probability of each of these land reforms by 0.5-1.6 percentage points relative to the case where the transition is AA in all four years. While it is not clear exactly which group in society privatization and restitution of agricultural land will benefit, in the case of the other motives mentioned above they certainly benefit the rural masses. It is obvious that democratic governments will be interested in such reforms. These results are consistent with a key Acemoglu-Robinson (2008) prediction and with the median-voter prediction on redistribution in general. In the case of nationalization and collectivization, the AD transition displays a negative and significant effect. These reforms are generally undertaken in countries that are usually not associated with democracies, in particular in socialist and communist countries.

The DA variable is positive and significant at or almost at the 10% level in the case of pro-poor reforms, distribution-motive reforms as well as those that impose a landholding ceiling. This result conforms to predictions by Albertus (2015). The DA variable is negative and significant at the 5% level in the case of the collectivization motive. Note that this is relative to the case of four successive years of AA, which is the absorbing state of autocracy. Relative to that it is quite plausible that a new autocrat, who has recently toppled a democratic regime, would like to build his/her coalition and his/her mass support through pro-poor reforms, distribution-motive reforms as well as through imposing a landholding ceiling. This new autocrat would come to power after a democratic regime normally through a coup d'état and rarely in those instances the government would be communist, which could explain the negative impact on the likelihood of a land reform with a collectivization motive. A consolidated democracy (DD) is the most likely to enact an any-motive reform as indicated by its positive and significant coefficient (at the 5% level) and the fact that the coefficient

magnitude is the highest among all elements of the transition matrix. But motive by motive, we do not observe any effect. This is the case of a secure democracy that might already be done with any particular type of reforms and does not need to further build coalitions or support. The cumulative enactment variable measuring the stock of reforms has signs and magnitudes similar to those observed in Tables 2a and 2b earlier.

We now turn to political ideology transitions in our main Table 4. We include two new variables in the models of Tables 2a and 2b: leftward ideological transition (past 4 years) and rightward ideological transition (past 4 years), representing the number of such transitions in the last four years. We define the sum of Right→Left, Right→Center, and Center→Right movements as leftward transitions, and the sum of Left→Right, Left→Center, Center→Right as rightward transitions. We estimate this impact of a leftward transition with a positive and significant coefficient at the 1% level on pro-poor reforms as well as on those with expropriation and redistribution motives. In addition, it is positive and significant almost at the 10% level for any-motive reforms and those imposing landholding ceilings. All these results for leftward movements are anticipated since left-wing governments normally are pro-poor and inequality-averse. These results confirm a key Bardhan and Mookherjee (2010) prediction. Our empirical results also show that rightward ideological transitions do not have any impact on any type of land-reform enactment. The autocratic transition is insignificant except in the case of the any-motive reform, which, as we mention earlier, is a heterogeneous pot. The coefficient of democratic transition or of the cumulative enactment variable does not change much in sign, magnitude or significance.

5.2 Endogeneity of Land Reforms and Instrumental-Variables Estimation

Table 5 presents our instrumental-variable two-stage least squares (IV-2SLS) results. In the first two columns, both democratic and autocratic transitions are treated as endogenous for both any-motive and pro-poor land reforms, with democratic and autocratic leader deaths as

instruments. The first-stage test statistics in columns (1) and (2) show that the first stage does not work very well in these regressions. In columns (3) and (4), we again study any-motive and pro-poor land reforms, but treat only autocratic transition as endogenous, with autocratic leader death being the instrument. In this exercise the first stage provides evidence of a strong instrument. In terms of second-stage estimates, while democratic transition is positive and significant in the case of any-motive land reforms, autocratic transition is significant for pro-poor land reforms. Focusing specific motives (columns 5 to 8), autocratic transitions are positive and significant with expropriation, redistribution, distribution and tenure security motives, while democratic transitions are significant for distribution and tenure security. These results provide empirical support for Albertus's predictions.

We check the IV-2SLS estimation further by estimating the reduced form regressions of enactments in columns (3)-(8) of Table 5 in Online Appendix Table 7. As is well accepted in the IV-2SLS literature, if a relationship does not exist in the reduced form, the causal effect is not there. The reduced form regressions estimate autocratic leader death with a negative and significant impact on pro-poor land reform and reforms with expropriation and redistribution motives. The negative sign of autocratic leader's death here makes sense, because it gives rise to the positive effect of autocratic transitions on land reform in the second stage (i.e., in the case of a single endogenous variable with single instrument, the coefficient of endogenous variable in the second stage is the ratio of coefficients from the reduced form and the first stage).

Meanwhile, in these reduced-form regressions, the coefficient of democratic transition is positive and significant for all those motives as well as for any-motive and pro-poor land reforms, with the exception of the case of the redistribution motive, where it is still significant between 10% and 15% and the positive sign remains.²⁴ These results are qualitatively

²⁴The reason why democratic transition is insignificant in the structural equation under 2SLS in Table 6 but becomes significant in the reduced form under OLS might be the correlation between the exogenous right-hand side variable and the predicted value of the instrumented variable. This reason holds as long as long as our instrument is not correlated with the endogenous component of our endogenous variable. Since our analysis is over

consistent with our OLS results in Tables 2a and 2b, and show that the democratic transition effect is robust. Thus, overall, we have fairly strong support for the Acemoglu-Robinson prediction and at the same time a reasonable amount of support for Albertus's predictions. Throughout, the signs of the cumulative enactment variable remain qualitatively unchanged.

5.3 From Enactment to Implementation

In Table 6 we move from enactment of land reforms to their implementation. We have the same right-hand side variables as in Table 4 but in this case instead of four years we allow for eight years for each of these variables since implementation follows enactment with a lag. These extra four years are needed to arrive at any meaningful results regarding implementation. We present results with two specifications, namely equations (2) and (3) as well as equation (2) augmented with leftward and rightward ideological transitions. We study all-motive and pro-poor land-reform implementations. In columns (1), (2) and (3), democratic transition is positive and significant at the 1% level and in columns 6 it is positive and significant at the 10% level. Once again, there is support for the Acemoglu and Robinson (2008) prediction relevant to our empirical analysis. Adding ideological transition variables does not change the sign and magnitude in any of the cases and reduces significance in only one case. An additional democratic transition within the last eight year increases the likelihood of the implementation of any-motive reform by 1.2 percentage points and a pro-poor reform by 0.5 percentage points. Since a subset of enacted reforms gets implemented, it is not surprising that the effects are smaller in the case of implementation. Autocratic transitions have no effect on any type of reform. A leftward transition is positive and significant at slightly higher than the 10% level for the implementation of pro-poor reforms, with rightward movement not having any impact. This, once again, provides support for Bardhan and Mookherjee (2010). Among the variables

many years and across several countries, we would expect these deaths to be exogenous. Note that our results are robust to changing from autocratic leader death to simply leader death.

from the polity transition matrix, only AD is significant (at the 10% level) for any-motive reform implementation. Cumulative implementation (stock of land-reform implementations) until 9 years ago are all negative and significant at the 1% level. They are slightly smaller in magnitude than those of cumulative enactments in comparable enactment regressions. As argued in the case of cumulative enactments, implementations also might be subject to diminishing returns and become harder with each additional implementation.

The 2SLS regressions in columns (7) and (8) using autocratic leader death as instrument for autocratic transition, we estimate a positive and significant (at 10%) effect of autocratic transitions in the past eight years on the likelihood of implementing pro-poor land reforms.

5.4. The Impact of Different Types of Democratic and Autocratic Transitions

Democratic and autocratic transitions may be of different types, and they could have different coalition partners too. Autocratic transition could be a switch to a military rule following a coup. Coups typically constitute abrupt changes in the political order and inherently lack legitimacy. Although military regimes can command repression as a political tool, the mere nature of repression, however, would reduce their survival probability. Thus, they may resort to alternative and efficient ways to “buy off” people. Military transitions can also be inauguration of an autocratic civilian who heavily relies on military (e.g., someone who may wear a military uniform even if he did not have a military career, such as Saddam Hussein of Iraq), or installation of a figurehead civilian by the military (e.g., Gustavo Noboa of Ecuador). Similarly, we can have transitions to personal, royal, and party-based autocracies. Militaries may have different motivations for land reform than non-military autocracies. Besides, we can have transitions to presidential, parliamentary or mixed democracies.

We use the CGV definitions of the different types of democratic and autocratic regimes. The results are presented in Online Appendix Table 8. The transition variables are each the number of transitions of that particular type in the last four years. The main findings here are

that the transition to a presidential democracy has a positive and significant effect (at the 10% level) on each of the main reforms with inequality and poverty reducing motives, namely expropriation, redistribution and distribution, while the transition to a mixed democracy has a positive impact (at the 10% significance level) on the likelihood of tenure-security, which is also an inequality-reducing reform. The likelihood of nationalization-motivated reforms is negatively related at the 1% significance level to both the transition to parliamentary and presidential democracies. Most of the various types of dictatorship transitions do not seem to have much of an impact on land reforms. There are some exceptions though. Transition to a civilian dictatorship raises the probability of a redistribution-motivated reform and that of expropriation (with t-statistic 1.43).²⁵ The cumulative enactment variable is negative and significant at the 1% level across all types of land reforms.

We finally study the impact of democratic transitions as well as transitions into different kinds of autocracies (party-based, personal and military), using Geddes, Wright and Franz (2014) definitions, each installing left, right or centrist governments (i.e., matched with our political ideology data) on the likelihood of different types of land reforms. Online Appendix Table 9 shows that transitions to right-wing democracies impede any-motive, pro-poor and tenure-security and distribution motivated land reforms. Compared to these right-wing democratic transitions, transitions to left-wing democracies increase the likelihood of many of these types of reforms (the t-statistics hover around 1.5, though). Turning to autocracies, there are two key results. First, transitions to party-based right-wing autocracies reduce the likelihood of any-motive, pro-poor land reforms and tenure-security, expropriation, redistribution and distribution motivated land reforms. Transitions to party-based left-wing autocracies, on the

²⁵ Transitions to royal dictatorships negatively and significantly (at the 1% level) impact the likelihood of all-motive and pro-poor land reforms as well as tenure-security related ones. These results make sense as royal dictators would want to empower big landlords, who are viewed as part of the extended royalty or aristocracy and form the support base of the overall royal ruler. But there are only three royal dictatorship transition in the world, so one needs to be cautious in inferring anything from this particular result.

other hand, increase the likelihood of any-motive, pro-poor as well as expropriation and redistribution-motivated land reforms. Second, transitions to military left-wing autocracies decrease the likelihood of pro-poor land reforms, a result that differs from other types of autocracies. As we have seen before, many of the different types of democratic or autocratic transitions that install left-wing governments exert a positive effect on the likelihood of the various types of pro-poor and inequality reducing reforms. Overall, democratic transitions and those party-based autocratic transitions will lead to a greater likelihood of pro-poor and inequality-reducing land reforms if they are led by left-wing ideology.

6. Conclusions

We construct a unique and extensive annual dataset that codifies 372 major land reform enactments across 165 countries during a period of more than a century, 1900-2010. We also identify 12 motives associated with the introduction of the enactment. Moreover, we ascertain the implementation and pro-poor status of the enactments. Only 163 (i.e., less than half) of the 372 enactments were fully implemented and 140 were pro-poor given the stated objective of the enactment. With this novel dataset at hand, we examine the relationship between political transitions and land reform enactments. Our core objective is to identify the motivation of the political rulers in land reform enactment and, in particular, whom the political transitions rest on. We focus on two types of political transitions; democratic vs autocratic transitions, and ideological transitions (across left-, center- vs right-wing chief executives). Defining democratic (autocratic) transition as the change in the *Polity2* score being greater than or equal to (less than) 5 (-5) from one year to the next, we find that the period 1900-2010 witnessed 184 (133) democratic (autocratic) transitions around the globe. Moreover, there were 147 Left→Right and 145 Right→Left transitions during the entire period. Land reform enactments, democratic and autocratic transitions, as well as shifts in the political ideology of the chief

executive, exhibit strong variations across time and space in the world, which we exploit in detail.

Our analysis documents several important findings. First, democratic transitions are strongly associated with many types of land reforms, especially pro-poor ones and some specific types with motives related to inequality and poverty reduction. These results are robust to the controlling for ideological (leftward and rightward) transition variables and the existing stock of land reforms, addressing endogeneity concerns to the extent possible. They are also relatively robust to using alternative data and data definitions on democratic and autocratic transitions, and replacing reform enactments with implementations. While certain specifications show that autocratic transitions can also increase the likelihood of many of these types of land reforms, those results are not robust to change in data definitions, datasets, controlling for ideological transitions and replacing enactments with implementations.

A leftward ideological movement of the government has a positive impact on the likelihood of land reforms, especially pro-poor reforms as well as those specifically with expropriation and redistribution motives, and those enacting landholding ceilings. Rightward ideological transitions do not have any impact on any type of land-reform enactments.

While the above results are broadly consistent with the predictions of the theoretical models by Albertus (2015), Bardhan and Mookherjee (2010) and Acemoglu and Robinson (2001, 2006 and 2008), we further go on to study the impact of different kinds of democratic and autocratic transitions. The transition to a presidential democracy has a positive impact on each of the main reforms with inequality and poverty reducing motives, while transition to a mixed democracy increases the likelihood of reforms aimed only at tenure-security, also an inequality-reducing reform. While transitions to right-wing democracies impede any-motive, pro-poor and tenure-security and distribution-motivated land reforms, transitions to left-wing democracies increase the likelihood of many of these types of reforms. Transitions to party-

based right-wing autocracies reduce the likelihood of any-motive and pro-poor land reforms and a few inequality-reducing ones. Transitions to party-based left-wing autocracies, on the other hand, increase the likelihood of any-motive, pro-poor as well as expropriation and redistribution-motivated land reforms.

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Table 1. Descriptive Statistics					
	Mean	Max	Min	Std Dev	N
Enacted Land Reform (Any Motive)	0.031	1	0	0.173	11288
Implemented Land Reform (Any Motive)	0.019	1	0	0.127	11288
Cumulative Enactment (Any Motive)	1.357	7	0	1.299	11288
Cumulative Implemented (Any Motive)	0.702	4	0	0.980	11288
Pro-Poor Land Reform	0.012	1	0	0.108	11288
Land Reform (Landholding ceiling)	0.006	1	0	0.078	11288
Land Reform (Expropriation)	0.010	1	0	0.100	11288
Land Reform (Redistribution)	0.009	1	0	0.095	11288
Land Reform (Distribution)	0.004	1	0	0.065	11288
Land Reform (Restitution)	0.001	1	0	0.031	11288
Land Reform (Privatization)	0.001	1	0	0.033	11288
Land Reform (Tenure Security)	0.009	1	0	0.093	11288
Land Reform (Consolidation)	0.002	1	0	0.048	11288
Land Reform (Nationalization)	0.003	1	0	0.057	11288
Land Reform (Collectivization)	0.002	1	0	0.041	11288
Land Reform (CICRT)	0.003	1	0	0.056	11288
Land Reform (Other)	0.007	1	0	0.084	11288
Democratic Transition	0.018	1	0	0.132	10419
Autocratic Transition	0.013	1	0	0.112	10419
Democratic Transition (Past 4 Years)	0.072	3	0	0.296	9700
Autocratic Transition (Past 4 Years)	0.051	3	0	0.236	9700
Democracy → Democracy (Past 4 Years)	1.799	4	0	1.933	9701
Democracy → Autocracy (Past 4 Years)	0.045	2	0	0.208	9701
Autocracy → Democracy (Past 4 Years)	0.056	2	0	0.231	9701
Autocracy → Autocracy (Past 4 Years)	2.100	4	0	1.940	9701
Leftward Transition (Past 4 Years)	0.110	2	0	0.321	10481
Rightward Transition (Past 4 Years)	0.111	3	0	0.320	10481
Democratic Leader Death (Past 4 Years)	0.018	2	0	0.137	6749
Autocratic Leader Death (Past 4 Years)	0.020	1	0	0.140	6749

Table 2a. Democratic Transitions, Autocratic Transitions, and Major Land Reform Enactments (1900-2010)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Land Reform With Any Motive Enacted (1=Yes)	Land Reform With Any Motive Enacted (1=Yes)	Pro-Poor Land Reform Enacted (1=Yes)	Pro-Poor Land Reform Enacted (1=Yes)	Land Reform With Any Motive Enacted (1=Yes)	Land Reform With Any Motive Enacted (1=Yes)	Pro-Poor Land Reform Enacted (1=Yes)	Pro-Poor Land Reform Enacted (1=Yes)
Democratic Transition t-1	0.074*** (0.021)	0.629*** (0.140)	0.033** (0.014)	0.737*** (0.213)				
Democratic Transition t-2	0.023 (0.019)	0.221 (0.186)	0.028* (0.015)	0.653*** (0.234)				
Democratic Transition t-3	0.001 (0.018)	0.037 (0.270)	0.001 (0.011)	-0.121 (0.323)				
Democratic Transition t-4	0.001 (0.015)	0.024 (0.218)	-0.003 (0.009)	-0.184 (0.344)				
Autocratic Transition t-1	0.024 (0.019)	0.337* (0.196)	0.016 (0.014)	0.318 (0.321)				
Autocratic Transition t-2	0.001 (0.018)	0.067 (0.251)	0.016 (0.015)	0.433 (0.302)				
Autocratic Transition t-3	0.017 (0.020)	0.282 (0.221)	0.006 (0.013)	0.436 (0.394)				
Autocratic Transition t-4	0.026 (0.023)	0.364 (0.223)	0.006 (0.014)	0.022 (0.348)				
Democratic Transition (Past 4 Years)					0.024*** (0.008)	0.265*** (0.072)	0.015** (0.006)	0.367*** (0.112)
Autocratic Transition (Past 4 Years)					0.016* (0.010)	0.254** (0.114)	0.010 (0.007)	0.284 (0.183)
Cumulative Enactment t-5	-0.036*** (0.004)	-0.694*** (0.054)	-0.017*** (0.003)	-0.685*** (0.089)	-0.036*** (0.004)	-0.696*** (0.054)	-0.017*** (0.003)	-0.678*** (0.089)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimation	OLS	Probit	OLS	Probit	OLS	Probit	OLS	Probit
Clusters	158	158	158	158	158	158	158	158
Observations	9,700	9,700	9,700	9,700	9,700	9,700	9,700	9,700
R-squared	0.054	n.a.	0.058	n.a.	0.052	n.a.	0.056	n.a.

Based on OLS or Probit estimations using annual cross-country panel data for the period 1900 to 2010. The dependent variable takes 1 if a major land reform (of any motive) or propoor-type was enacted in year t. Democratic (Autocratic) Transition is defined as the change in the Polity2 score by greater (less) than 5 (-5). Cumulative enactment is the cumulated number of enactments since 1900 (or since independence) until year t-5. Robust standard errors clustered at country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

**Table 2b. Democratic Transitions, Autocratic Transitions, and Major Land Reform Enactments (1900-2010)-
Enactments by Motives**

	(1)	(2)	(3)	(4)	(5)	(7)	(6)	(8)	(9)	(10)	(11)	(12)
Land Reform With Motive Below Enacted (1=Yes)												
Motives →	Land hold. Ceiling	Expropr.	Redistrib.	Distrib.	Restitution	Tenure Security	Privatiz.	Consolidat.	National	Collective.	CICRT	Other
Democ. Trans (Past 4 years)	0.000 (0.003)	0.010** (0.005)	0.008* (0.005)	0.013** (0.005)	0.005* (0.003)	0.013** (0.005)	0.006 (0.004)	0.001 (0.002)	-0.001 (0.002)	0.002 (0.002)	0.003 (0.003)	-0.006*** (0.002)
Autoc. Trans. (Past 4 years)	0.006 (0.005)	0.009 (0.007)	0.008 (0.007)	0.005 (0.005)	-0.001 (0.001)	0.004 (0.005)	-0.001 (0.001)	0.004 (0.003)	0.001 (0.003)	-0.002** (0.001)	-0.003 (0.002)	0.005 (0.005)
Cum. Enactment t-5	-0.011*** (0.002)	-0.016*** (0.002)	-0.013*** (0.002)	-0.005*** (0.001)	-0.000 (0.000)	-0.011*** (0.003)	-0.001* (0.000)	-0.003*** (0.001)	-0.003*** (0.001)	-0.002** (0.001)	-0.002** (0.001)	-0.005*** (0.002)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimation	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Cluster	158	158	158	158	158	158	158	158	158	158	158	158
Observations	9,700	9,700	9,700	9,700	9,700	9,700	9,700	9,700	9,700	9,700	9,700	9,700
R-squared	0.049	0.058	0.051	0.038	0.039	0.041	0.049	0.036	0.035	0.032	0.029	0.034

Based on OLS estimations using annual cross-country panel data for the period 1900 to 2010. The dependent variable takes 1 if a major land reform of the motive provided in the third row was enacted in year t. Constant included. Democratic (Autocratic) Transition is the number of changes in the Polity2 score by greater (less) than 5 (-5) in the past four years. Cumulative enactment is the cumulated number of enactments since 1900 (or since independence) until year t-5. Robust standard errors clustered at country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 3. Transitions Across Democratic and Autocratic States, and Major Land Reform Enactments (1900-2010)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Land Reform With Any Motive Enacted (1=Yes)	Pro-Poor Land Reform Enacted (1=Yes)	Land Reform With Motive Below Enacted (1=Yes)									
Motive →			Landhold. Ceiling	Expropr.	Redistrib.	Distrib.	Restit.	Tenure Security	Privatiz.	Consolidat.	National	Collective.
Autoc→Democ (Past 4 Yrs)	0.023** (0.009)	0.017** (0.007)	-0.001 (0.004)	0.006 (0.005)	0.008 (0.005)	0.016*** (0.006)	0.005 (0.003)	0.013** (0.006)	0.007* (0.004)	0.002 (0.003)	-0.003*** (0.001)	-0.002** (0.001)
Democ→Autoc (Past 4 Yrs)	0.014 (0.011)	0.015* (0.009)	0.012* (0.007)	0.010 (0.009)	0.012 (0.009)	0.010 (0.006)	-0.001 (0.001)	0.003 (0.006)	-0.001 (0.001)	0.006 (0.004)	-0.002 (0.003)	-0.001** (0.001)
Democ→Democ (Past 4 Yrs)	0.003** (0.001)	0.001 (0.001)	0.000 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	-0.000 (0.000)	0.000 (0.001)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.001)	-0.000** (0.000)
Cum. Enact. t-5	-0.037*** (0.003)	-0.017*** (0.003)	-0.011*** (0.002)	-0.016*** (0.002)	-0.013*** (0.002)	-0.005*** (0.001)	-0.000 (0.000)	-0.011*** (0.003)	-0.001** (0.000)	-0.003*** (0.001)	-0.003*** (0.001)	-0.002** (0.001)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Cluster	158	158	158	158	158	158	158	158	158	158	158	158
Observations	9,701	9,701	9,701	9,701	9,701	9,701	9,701	9,701	9,701	9,701	9,701	9,701
R-squared	0.051	0.056	0.050	0.058	0.052	0.039	0.038	0.040	0.048	0.036	0.036	0.032

Based on OLS estimations using annual cross-country panel data for the period 1900 to 2010. In columns (1) and (2), the dependent variable takes 1 if a major land reform (of any motive) and propoor-type, respectively, was enacted in year t. In columns (3) to (12), the dependent variables takes 1 if a major land reform of the motive indicated in the third row was enacted in year t. A country is considered to be in a democratic regime if its Polity2=[1,10] and autocratic regime if Polity2=[-10,0] in a given year, and the transition is defined a switch between regimes. We count the number of such transitions within the past four years. Base: Autocracy→Autocracy (Past 4 Years). Cumulative enactment is the cumulated number of enactments since 1900 (or since independence) until the year t-5. Robust standard errors clustered at country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 4. Leftward and Rightward Ideological Transitions, and Major Land Reform Enactments (1900-2010)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Land Reform With Any Motive Enacted (1=Yes)	Propoor Land Reform Enacted (1=Yes)	Land Reform With Motive Below Enacted (1=Yes)	Land Reform With Motive Below Enacted (1=Yes)	Land Reform With Motive Below Enacted (1=Yes)	Land Reform With Motive Below Enacted (1=Yes)	Land Reform With Motive Below Enacted (1=Yes)
Motives →			Land holding ceiling	Expropr.	Redistrib.	Distrib.	Tenure Security
Democratic Transition (Past 4 Years)	0.024*** (0.008)	0.014** (0.006)	-0.000 (0.003)	0.009* (0.005)	0.007 (0.005)	0.013** (0.005)	0.012** (0.005)
Autocratic Transition (Past 4 Years)	0.020* (0.010)	0.012 (0.008)	0.007 (0.005)	0.010 (0.007)	0.009 (0.007)	0.006 (0.005)	0.005 (0.006)
Leftward Ideological Trans. (Past 4 Years)	0.011 (0.007)	0.017*** (0.005)	0.007** (0.004)	0.013*** (0.004)	0.015*** (0.004)	-0.001 (0.003)	0.004 (0.003)
Rightward Ideological Trans. (Past 4 Years)	-0.003 (0.005)	0.004 (0.003)	0.002 (0.003)	0.002 (0.003)	0.002 (0.003)	0.003 (0.003)	-0.003 (0.003)
Cumulative Enactment t-5	-0.038*** (0.004)	-0.018*** (0.003)	-0.010*** (0.002)	-0.016*** (0.002)	-0.013*** (0.002)	-0.005*** (0.001)	-0.013*** (0.003)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Cluster	157	157	157	157	157	157	157
Observations	9,352	9,352	9,352	9,352	9,352	9,352	9,352
R-squared	0.053	0.060	0.051	0.060	0.056	0.040	0.045

Based on OLS estimations using annual cross-country panel data for the period 1900 to 2010. The dependent variable takes 1 if a major land reform of any motive (column 1), a propoor type (column 2), or any land reform with motive in the third row (columns 3 to 7) was enacted in year t. Leftward transition includes Right→Left, Center→Left, Right→Center, and Unknown→Left transitions. Rightward transition includes Left→Right, Center→Right, Left→Center, and Unknown→Right transitions. We count the number of such transitions in the past four years. The regression also includes Left→Left, Center→Center, Left→Unknown, Right→Unknown, Center→Unknown, Unknown→Center, and Unknown→Unknown transitions (all in the past four years), but their coefficients are not reported. Robust standard errors in parentheses clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1.

Table 5. Democratic and Autocratic Transitions, and Major Land Reform Enactments -2SLS Estimations (1945-2000)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Land Reform with Any Enacted (1=Yes)	Pro-poor Land Reform Enacted (1=Yes)	Land Reform with Any Enacted (1=Yes))	Pro-poor Land Reform Enacted (1=Yes)	Land Reform with Motive Below Enacted (1=Yes)	Land Reform with Motive Below Enacted (1=Yes)	Land Reform with Motive Below Enacted (1=Yes)	Land Reform with Motive Below Enacted (1=Yes)
Motive →					Expropriation	Redistribution	Distribution	Tenure Sec.
Dem Trans (Past 4 yr)	-0.319 (0.345)	-0.065 (0.183)	0.022* (0.011)	0.007 (0.008)	0.003 (0.006)	0.001 (0.005)	0.014** (0.006)	0.015* (0.009)
Aut Trans (Past 4 yr)	0.269 (0.244)	0.224* (0.119)	0.076 (0.178)	0.182*** (0.054)	0.152*** (0.051)	0.127*** (0.048)	0.051* (0.031)	-0.065 (0.138)
Cum Enactment t-5	-0.066*** (0.018)	-0.027*** (0.009)	-0.053*** (0.006)	-0.024*** (0.005)	-0.021*** (0.004)	-0.019*** (0.003)	-0.007*** (0.002)	-0.019*** (0.005)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimation	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS
Cluster	157	157	157	157	157	157	157	157
Observations	5,885	5,885	5,885	5,885	5,885	5,885	5,885	5,885
Endogenously Treated	Dem Trans & Aut Trans	Dem Trans & Aut Trans	Aut Trans	Aut Trans	Aut Trans	Aut Trans	Aut Trans	Aut Trans
IV	Dem Leader Death & Aut Leader Death	Dem Leader Death & Aut Leader Death	Aut Leader Death	Aut Leader Death	Aut Leader Death	Aut Leader Death	Aut Leader Death	Aut Leader Death
<i>First Stage</i>								
Cragg-Donald	2.0	2.0	11.5	11.5	11.5	11.5	11.5	11.5
Wald F statistic								
Kleibergen-Paap rk Wald F-stat	0.8	0.8	21.9	21.9	21.9	21.9	21.9	21.9

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6. Implementation of Land Reforms (Past 8 Years)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Land Reform with Any Motive Implemented	Land Reform with Pro-poor Motive Implemented	Land Reform with Any Motive Implemented	Land Reform with Pro-poor Motive Implemented	Land Reform with Any Motive Implemented	Land Reform with Pro-poor Motive Implemented	Land Reform with Any Motive Implemented	Land Reform with Pro-poor Motive Implemented
Democratic Transition (Past 8 Years)	0.012*** (0.003)	0.005** (0.003)			0.012*** (0.004)	0.005* (0.003)	0.017 (0.014)	-0.005 (0.008)
Autocratic Transition (Past 8 Years)	-0.001 (0.005)	0.001 (0.003)			-0.001 (0.005)	0.000 (0.003)	-0.055 (0.124)	0.101* (0.061)
Autocracy-Democracy (Past 8 Years)			0.006* (0.004)	0.003 (0.003)				
Democracy-Autocracy (Past 8 Years)			0.000 (0.005)	0.002 (0.003)				
Democracy-Democracy (Past 8 Years)			-0.000 (0.000)	0.000 (0.000)				
Leftward Trans (Past 8 Years)					-0.001 (0.004)	0.003 (0.002)		
Rightward Trans (Past 8 Years)					-0.000 (0.003)	0.000 (0.002)		
Cumulative Implementation t-9	-0.021*** (0.003)	-0.010*** (0.003)	-0.022*** (0.003)	-0.010*** (0.003)	-0.025*** (0.003)	-0.010*** (0.004)	-0.040*** (0.006)	-0.012** (0.005)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimation	OLS	OLS	OLS	OLS	OLS	OLS	2SLS	2SLS
Clusters	157	157	157	157	156	156	153	153
Observations	8,966	8,966	8,967	8,967	8,628	8,628	5,241	5,241
R-squared	0.046	0.052	0.045	0.051	0.048	0.052	n.a.	n.a.

Based on OLS and 2SLS estimations using annual cross-country panel data for the period 1900 to 2010. The dependent variable takes 1 if a major land reform (of any motive) or propoor-type enacted in year t was implemented later (full-implementation, partial implementation, and no implementation taking 1, 0.5 and 0, respectively). Democratic and autocratic transitions, switches between regimes, and the types of democratic and autocratic regimes are defined as in previous tables, except that they are considered for the past eight years. The regressions in columns (5) and (6) include Left→Left, Center→Center, Left→Unknown, Right→Unknown, Center→Unknown, Unknown→Center, and Unknown→Unknown transitions (all in the past four years), but their coefficients are not reported. The 2SLS estimations in columns (7) and (8) treat only autocratic transitions as endogenous, with autocratic leader's death as being the instrument. Cumulative enactment is the cumulated number of enactments since 1900 (or since independence) until the year t-9. Robust standard errors clustered at country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table A1. A Sketch of Land Reform Enactments, Democratic and Autocratic Transitions, and Political Ideology Around the World, 1900-2010

	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2010	TOTAL
# Land Reform Enact.												
Europe	4	10	12	4	18	11	3	4	6	24	6	102
Africa	2	1	1	0	0	4	27	26	12	21	9	103
Asia (incl. Middle East)	2	0	2	3	5	23	11	17	5	19	9	96
Lat. Am. (incl. Mexico)	1	1	1	5	3	3	19	5	5	10	6	59
Oceania	0	1	0	0	1	1	1	2	1	2	0	9
US & Canada	1	0	0	1	0	0	0	1	0	0	0	3
TOTAL	10	13	16	13	27	42	61	55	29	76	30	372
# Democ. Transitions												
Europe	2	3	2	5	11	0	1	5	4	8	1	42
Africa	0	0	0	0	0	0	4	8	3	26	10	51
Asia (incl. Middle East)	2	0	0	0	4	3	6	7	9	11	7	49
Lat. Am. (incl. Mexico)	0	1	1	3	3	6	5	7	9	6	0	41
Oceania	0	0	0	0	0	0	0	0	0	1	0	1
US & Canada	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	4	4	3	8	18	9	16	27	25	52	18	184
# Autoc. Transitions												
Europe	1	2	4	7	4	1	2	0	0	3	0	24
Africa	0	0	0	1	0	2	9	8	6	8	5	39
Asia (incl. Middle East)	0	0	1	0	1	3	7	10	1	4	4	31
Lat. Am. (incl. Mexico)	3	1	1	5	4	1	7	8	2	3	2	37
Oceania	0	0	0	0	0	0	0	0	1	0	1	2
US & Canada	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	4	3	6	13	9	7	25	26	10	18	12	133

Democratic (autocratic) transition is defined as the change in the Polity2 score being greater than equal to (less than) 5 (-5) from one year t to the next.

Political Ideology	Left	Right	Center	Uncertain	Total Obs.
Europe	49.15%	26.96%	8.64%	15.25%	3601
Africa	34.24%	14.65%	0.34%	50.78%	2383
Asia (incl. Middle East)	39.69%	12.90%	2.94%	44.48%	3195
Lat. Am. (incl. Mexico)	23.77%	46.68%	7.77%	21.78%	2562
Oceania	24.83%	49.66%	14.43%	11.07%	298
US & Canada	56.31%	43.69%	0%	0%	222

# Ideological Transitions	Europe	Africa	Asia	Lat. Am.	Oceania	US&Can.	Total Obs.
Left _{t-1} →Left _t	1649	781	1219	537	60	113	4359
Left _{t-1} →Right _t	70	1	17	35	13	11	147
Left _{t-1} →Center _t	21	1	4	5	0	0	31
Right _{t-1} →Right _t	846	334	372	1107	129	85	2873
Right _{t-1} →Left _t	66	3	11	40	14	11	145
Right _{t-1} →Center _t	32	0	5	20	2	0	59
Center _{t-1} →Center _t	249	6	84	165	38	0	542
Center _{t-1} →Left _t	23	1	3	9	0	0	36
Center _{t-1} →Right _t	29	0	3	16	4	0	52

Appendix Table A2. Data Definitions and Sources	
Data Definition	Data Source
<i>Enacted Any-Motive Land Reform.</i> Whether a major land reform was enacted (1=yes, 0=no). (1900-2010)	Authors' compilation from various sources; see Coding Document.
<i>Enacted Pro-Poor Land Reform.</i> Whether the enacted major land reform was intended to benefit the poor (1=yes, 0=no). (1900-2010)	As above
<i>Motives</i>	
<i>Implemented Land Reform.</i> Whether there is evidence for implementation of the enacted land reform (1=full evidence, 0.5=partial evidence, 0= no evidence) (1900-2010)	As above
<i>Cumulative Enactment.</i> The number of major land reforms enacted until year t since 1900 (or since the independence until 2010)	As above
<i>Cumulative Implemented.</i> The number of implemented land reforms until year t since 1900 (or since the independence until 2010)	As above
<i>Democratic Transition.</i> Whether the change in the Polity2 score in year t is greater than 5 (1=yes). (since 1900, or since the independence, until 2010)	Computed out of the Polity2 score, Marshall, Jaggers and Gurr (2014)
<i>Autocratic Transition.</i> Whether the change in the Polity2 score in year t is less than -5 (1=yes). (since 1900, or since the independence, until 2010)	As above
<i>No. of Dem. Transitions in the Past 4 Years.</i> The number of democratic transitions (as defined above) in the past 4 years.	As above
<i>No. of Autoc. Transitions in the Past 4 Years.</i> The number of autocratic transitions (as defined above) in the past 4 years.	As above
<i>Democracy → Democracy.</i> Whether there has been a shift from democratic to democratic regime (1=yes) (the democratic regime is maintained), where democratic regime is defined as Polity2=[1,10]	As above
<i>Democracy → Autocracy.</i> Whether there has been a shift from a democratic regime to an autocratic regime (1=yes), where democratic regime is defined as above and autocratic regime as Polity2=[-10,0]	As above
<i>Autocracy → Democracy.</i> Similar to the definition above.	As above
<i>Autocracy → Autocracy.</i> Similar to the definition above.	As above
<i>The CGV Measure of Democracy</i>	Cheibub, Gandhi and Vreeland (CGV) (2010)
<i>The CGV Measure of Autocracy</i>	As above
<i>The GWF Measure of Democracy (1945-2010)</i>	Geddes, Wright, and Franz (GWF) (2014)
<i>The GWF Measure of Military Autocracy. (1945-2010)</i>	As above
<i>The GWF Measure of Personal Autocracy. (1945-2010)</i>	As above
<i>The GWF Measure of Party-based Autocracy (1945-2010)</i>	As above
<i>Left-wing.</i> Whether the political ideology of the chief executive is left-wing (1900-2010, or since independence) (1=yes).	Cruz et al. (2016) for the period 1975-2010, and authors' own collection of data prior to 1975
<i>Right-wing.</i> Whether the political ideology of the chief executive is right-wing (1900-2010, or since independence) (1=yes).	As above
<i>Center-wing.</i> Whether the political ideology of the chief executive is center-wing (1900-2010, or since independence) (1=yes).	As above
<i>Unknown-wing.</i> Whether the political ideology of the chief executive is uncertain/unidentified (1900-2010, or since independence) (1=yes).	As above

<i>Left → Right</i> . Whether there is a transition from left-wing to right-wing chief executive in a given year (1900-2010, or since independence) (1=yes)	As above
<i>Right → Left</i> . Similar to the definition above.	As above
<i>Left → Center</i> . Similar to the definition above.	As above
<i>Center → Right</i> . Similar to the definition above.	As above
<i>Right → Center</i> . Similar to the definition above.	As above
<i>Center → Left</i> . Similar to the definition above.	As above
<i>Center → Center</i> . Similar to the definition above.	As above
<i>Left → Left</i> . Similar to the definition above.	As above
<i>Right → Right</i> . Similar to the definition above.	As above
<i>Leftward Transition</i> . The sum of <i>Right → Left</i> , <i>Right → Center</i> , <i>Center → Left</i> transitions.	As above
<i>Rightward Transition</i> . The sum of <i>Left → Right</i> , <i>Left → Center</i> , <i>Center → Right</i> transitions.	As above
<i>Democratic Leader's Death</i> . Whether a leader died in year t due to exogenous reasons (illness, surgery complication, etc). (1=yes). The leader is considered democratic if the country's <i>Polity2</i> score is greater than or equal to 1 in the year of death. (1945-2000)	Jones and Olken (2005)
<i>Autocratic Leader's Death</i> . Same as above. The leader is considered autocratic if the country's <i>Polity2</i> score is less than or equal to 0 in the year of death. (1945-2000)	As above

All information relates to year t , unless otherwise mentioned.