Universidad de San Andrés

Departamento de Economía

Maestría en Economía

Land reform, ethnicity and political participation: Evidence from Peru

Ronny CONDOR

Mentor: Tommy MURPHY

Buenos Aires, Argentina

Febrero, 2025

Tesis de Maestría en Economía de

Ronny CONDOR

Reforma agraria, etnicidad y participación política: Evidencia desde Perú*

Resumen

Este artículo examina los efectos de la Reforma Agraria de 1969 en Perú sobre la representación política de los grupos étnicos marginados en las elecciones locales. Utilizando datos electorales de 1963 a 1983, empleo un análisis de apellidos y un algoritmo de detección del color de piel para identificar los grupos étnicos. Usando un análisis de diferencias en diferencias, muestro que una mayor exposición a la reforma agraria aumenta la candidatura de los grupos étnicos marginados, pero no tiene efecto sobre su éxito electoral. Exploro posibles canales y encuentro que la creación de partidos políticos de origen campesino podría ser un mecanismo plausible para la presencia de más candidatos de los grupos étnicos marginados.

Palabras clave: reforma agraria, etnicidad, votación, Perú.

Land reform, ethnicity and political participation: Evidence from Peru

Abstract

This paper examines the effects of Peru's 1969 Land Reform on the political representation of marginalized ethnic groups in local elections. Using electoral data from 1963 to 1983, I employ surname analysis and a skin color detection algorithm to identify ethnic groups. Using a diff-in-diff framework, I show that greater exposure to land reform increases the candidacy of marginalized ethnic groups, but has no effect on their electoral success. I explore potential channels and find the creation of political parties of peasant origin could be plausible mechanisms for the presence of more candidates from marginalized ethnic groups.

Keywords: land reform, ethnicity, voting, Peru.

JEL Codes: Q15, N56, J15, D72

*Esta tesis recibió el Premio Investigador Joven en la Reunión Anual de la Asociación Argentina de Economía Política (AAEP). Quiero agradecer a Tommy Murphy por su invaluable apoyo, enseñanzas y comentarios que permitieron la realización de esta tesis. Agradecimientos especiales a Juan Diego Barnes, Rodrigo Martin, Samuel Arispe y Paula Armas por sus aportes. Finalmente, mi eterno agradecimiento a Guiliana Campos por andar conmigo al lado del camino.

1 Introduction

By the mid-20th century, Peru was characterized by high land inequality, with 1% landowners controlling 80% of the land, allowing a small elite to maintain significant economic and political power (Ankersen and Ruppert, 2019; Albertus, 2015). This elite resisted land reform efforts and enacted policies that favored themselves, perpetuating the concentration of land and power (Masterson, 1991). Despite 48% of the population speaking an indigenous language in 1960, indigenous communities remained marginalized in local politics and longstanding conflict with landowners since colonial times (Kay, 1982; Cant, 2018). By the early 1960s, discontent had grown and culminated in large-scale protests. Peasant communities organized to overthrow the semifeudal and servitude-based relations that still persisted. This activism sparked a shift in the political environment, where indigenous groups began to demand a more active role in decision-making.

It was within this context of escalating rural mobilization and growing demands for change that the Peruvian state initiated a sweeping land reform—one of the most disruptive national policies of the 20th century. By dismantling semifeudal land systems and servitude structures, the reform not only altered the local economy but also could allowed marginalized groups to engage in political mobilization and participation in local politics (Trelles, 2016). In that sense, studying the impact of Peruvian land reform on political participation is crucial to understand how structural policies can empower historically marginalized groups, including specific ethnic groups or social communities. Particularly for Peru, where ethnic diversity is vast, political underrepresentation perpetuates inequalities. Leaders with shared backgrounds and local knowledge are better equipped to address specific community needs (Chattopadhyay and Duflo, 2004), and voter participation often increases when candidates reflect the identities of their constituents (Washington, 2006; Barreto, 2007; Fraga, 2016). A greater diversity of actors in local politics, from different ethnic backgrounds, promotes the representativeness of democracy. Although the main objective of Peru's agrarian reform was not explicitly to achieve a more democratic society, the reform introduced elements that fostered cooperativism and strengthened peasant identity. Analyzing in detail the Peruvian

land reform provides information on how redistributive policies can reshape local governance and contribute to inclusive development and equitable governance in multicultural societies.

This paper examines the impact of Land Reform on the representation of marginalized ethnic groups in local elections in Peru. I compiled data on local election participants from 1963 to 1983 for this analysis. For land reform variables, I utilized data and digitized maps of Land Reform zones from Albertus et al. (2020). Identifying individual ethnic group is inherently challenging. To address this, I employed two complementary methods. First, from a historical perspective, I used surnames as proxies for the ethnic clans of political actors. Following the methodology of Artiles (2023), I analyzed dictionaries of native languages, such as Quechua and Aymara, to determine whether a surname has linguistic roots in a native language. The second approach was observational. I analyzed nearly 12,000 photographs of candidates using a machine learning algorithm called Classification Algorithm for Skin Color (CASCo) developed by Rejón Piña and Ma (2023). This tool classified photos into ethnic categories such as mestizo or Afro-descendant, representing groups often marginalized in political spheres. To the best of my knowledge, this study is the first in Peru to apply a machine learning algorithm to measure ethnicity in a political context, offering a novel methodological contribution to the study of ethnicity.

This paper study how the land reform exposure affects political-ethnic outcomes. The natural measure of land reform exposure is the distance to the Agrarian Zones' central offices, however it has potential endogeneity concerns. These offices were typically located in larger and more developed cities, raising concerns about potential omitted variable bias. For instance, cities closer to these offices may also have greater access to educational programs, which could influence political participation decisions. I took advantage of the fact that, for the Peruvian case, the application of the reform allows us to generate a quasi-experimental design, due to the intersection of the territorial limits of the reform and the department's boundaries. The treated districts are those located within the agrarian zones and the department that hosts the agrarian office. On the other hand, the control districts are those that belong to a department other than where the agrarian office is located. Historical evidence suggests that

the treated areas had greater exposure to the reform, since there was greater coordination between local authorities and the Ministry of Agriculture, in addition to greater knowledge of the terrain and the landowners. This design allows the analysis of the impact of the land reform in areas with different degrees of exposure.

By integrating various data sources at the district level, including local elections between 1963 and 1983, I estimate the effect of land reform exposure using a difference-in-difference approach. I found that treated districts shows an increase between 3 and 5 percentage points in the share of indigenous candidates based on surnames, but has no significant effect on their electoral success. Using the skin-color algorithm, land reform has no significant effects on electoral participation and success. In addition, I tested the presence of parties of peasant origin, as a potential mechanism explaining the political organization of more candidates with indigenous origin. Although I do not have data of the member's occupations, I use the name of the political party to identify the group it represents. Using key words, I was able to identify whether a political party has peasant origins. I found that agrarian reform increased the percentage of peasant parties in the elections and also the probability of finding a political party in the district by 3 percentage points.

My research is related with the literature of land reforms and their potential ability to alter political landscapes. For example, in Chile, the municipalities more affected by land reform showed a decreasing political support to left wing party (González, 2013). Despite not preventing the rise of Chilean left government, the land reform shows how it can strategically be used in politics. In Mexico, the way of land reform was applied, through property rights, influenced in the preferable pro-market voting behavior (De Janvry et al., 2014) and the decreasing vote share in the incumbent party (Larreguy et al., 2015). Similarly, Di Tella et al. (2007) found that squatters granted property rights in the outskirts of Buenos Aires were more likely to support politicians advocating free-market policies. In addition, redistribution policies may foster clientelism. For example, Caprettini et al. (2021) showed that towns affected by Italian land reform increased their support for the incumbent party and saw a rise in public sector employment, a common form of patronage. This paper builds on these

findings by exploring the impact of Peru's land reform on the political representation of marginalized ethnic groups, offering new insights into the socio-political consequences of land redistribution policies.

More broadly, this work engages with a fundamental debate in political economy: the role of economic institutions in altering the distribution of political power. As shown in theoretical contributions by Acemoglu and Robinson (2000, 2008) and Lizzeri and Persico (2004), institutions that redistribute resources or secure property rights can catalyze changes in political participation, elite competition, and the structure of representation. Recent empirical work has also shown that asset redistribution and property formalization can change political preferences, break clientelistic ties, and empower new social actors (Banerjee et al., 2002; Albertus et al., 2020; Yoder, 2020). This work also aligns with research on the long-term political effects of historical institutions, which shows how past economic arrangements can shape civic norms, trust, and political behavior across generations (Nunn and Wantchekon, 2011; Lowes and Montero, 2021). By situating Peru's land reform within this broader literature, the paper not only contributes to our understanding of land reform, but also speaks to wider processes of democratization, state-building, and the reconfiguration of political power in post-colonial societies.

2 Historical context

2.1 Before the Land Reform

In the mid-twentieth century, Peru exhibited pronounced inequality in land ownership. According to the 1961 Census, the top 1 percent of landowners controlled 80 percent of the land, whereas 83 percent of farmers held plots of five hectares or less, collectively constituting just the 6 percent of the land (Albertus, 2015, p. 194). The agrarian structure was characterized by a servitude system rooted in colonial landownership, where indigenous and peasant labor was controlled through institutions such as *encomienda* and *hacienda*. Land inheritance over several generations perpetuated the economic and political dominance

of certain groups or families. This arrangement resulted in a labor system where peasants were subjected to exploitation and harsh working conditions. The servitude relations ignited strong peasant mobilizations in the early 1960s. These large-scale mobilizations were distinguished by the organization, leadership, and methods of the movement, contrasting sharply with revolts of colonial times (Caballero, 1981, p. 360).

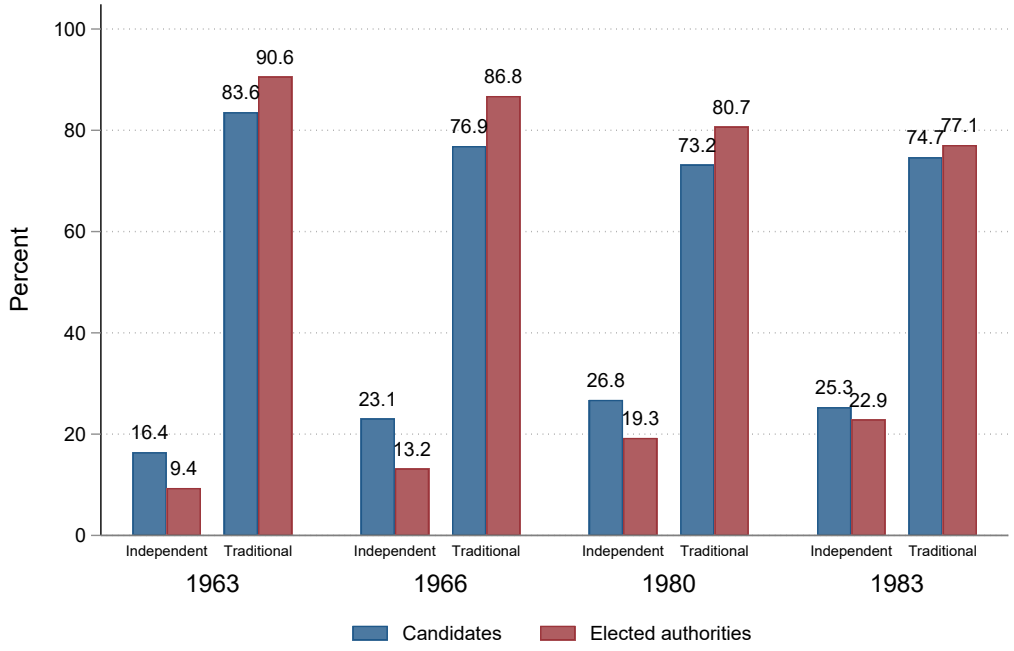
The peasant mobilizations, which at least generated awareness in a certain sector of the society, were ignored by politicians. Land-owners had not only economic power, but a strong influence in politics at both local and national levels. Prior to Velasco's government, land reform proposals faced resistance from top policymakers. For instance, in 1956, a commission to discuss the creation of an agrarian reform law[1] was led by a prominent landowner. Predictably, no real reform materialized. In the 1960s, government efforts for land reform were thwarted by congressional opposition, resulting in ineffective legislation that redistributed only a minimal amount of land. The main objective of previous land reform efforts in Peru was to calm the peasant protests, prevent them from becoming more violent and capture political peasant leaders (Kay, 1982; Valderrama, 1976).

In the 1960s, the political power was concentrated on traditional parties, military movements, and popular leaders. For example, in the 1963 presidential elections, 98% of the votes went for only three traditional parties. However, alternative political movements emerged at the local level, potentially offering better representation for the voters in those areas. Comparing the 1963 and 1983 elections shows a clear increase in the percentage of candidates and elected officials from independent parties (see Figure 1). In 1963, candidates affiliated with independent political movements made up 16.4 percent, while in 1983 their share rose to 25.3 percent—an increase of 8.9 percentage points. For elected candidates, the increase is even more notable: their share went from 9.4 percent in 1963 to 22.9 percent in 1983.

The names of these new movements are not arbitrary. An analysis of the names of independent political parties shows that most of them included the word "progressive",

[1]In 1956, Peru's President Manuel Prado exemplified oligarchic governance. His family's wealth, primarily from the agro-export sector and ownership of a major Peruvian bank, positioned him as a staunch supporter of agribusiness and large landowners (Masterson, 1991).

Figure 1: Distribution of candidates by type of political party and electoral year



popular and *peasant* (see Figure 2). This phenomenon is unprecedented, as peasant-origin parties had not previously participated in elections. Additionally, it is not only related to the party's names; the ethnic composition of the parties also differs. As shown in Table 1, independent parties feature a higher percentage of candidates with indigenous roots compared to traditional ones.

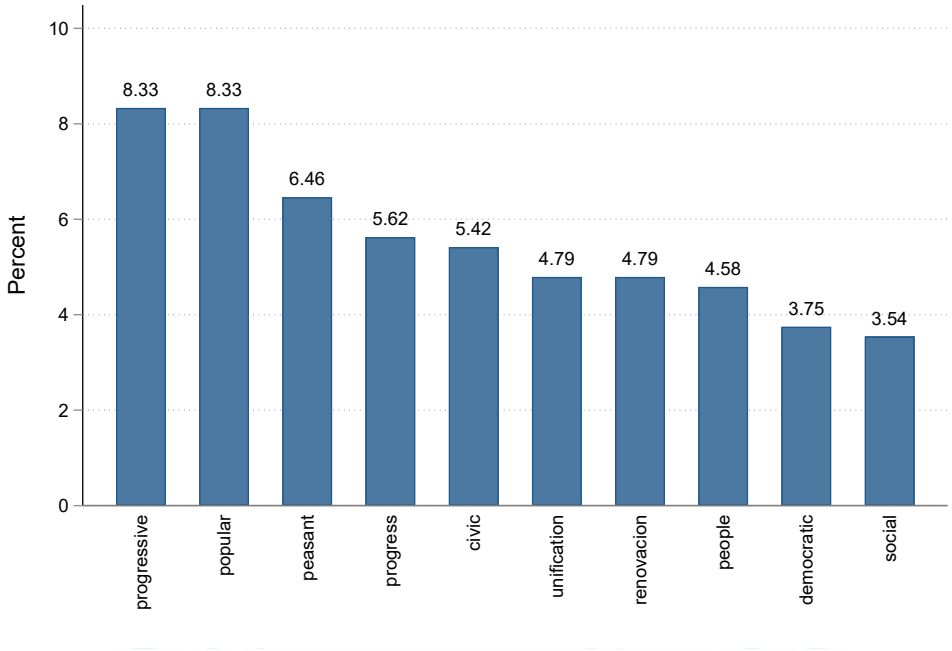
A discrepancy in ethnic representation may exist between voters and political leaders.

Table 1: Percentage of indigenous candidates at national level

	Independent	Traditional	Diff.	p-value	Obs.
Indigenous candidates (1963)	49.796	50.035	-0.239	0.837	13,613
Indigenous candidates (1966)	52.202	49.919	2.283**	0.011	17,540
Indigenous candidates (1963-1966)	51.347	49.972	1.375*	0.053	31,153

Notes: Indigenous candidates were identified based on their surnames, using dictionaries of indigenous languages as referenced by Artiles (2023).

Figure 2: Top 10 of most used words in the names of independent political parties (1963-1966)



Notes: This figure shows the most commonly used words in the names of independent political parties in the 1963 and 1966 elections. The numbers should be interpreted as the percentage of occurrence of the respective word in the names of the political parties. For example, 6.46% of these parties included the word peasant in their name. To facilitate the visualization of the figure, we have only considered the 100 most common words to calculate the shares and also the less frequent words were grouped in a category "Others" (44.38%), which is not shown in this figure. A summary of main words used in the independent political parties names could be found in the Figure A1.

Notably, districts with higher percentages of individuals who speak an indigenous mother tongue, such as Quechua or Aymara, tend to elect fewer officials with indigenous roots as mayors or councilors. In districts with a higher prevalence of indigenous language speakers (between 90-100% of total population), only 42.8% and 46.5% of officials had an indigenous root in the 1963 and 1966 elections, respectively. This could be due to structural barriers, such as historical exclusion from political networks, lower access to campaign resources, or the persistence of clientelistic practices that favor non-indigenous candidates. As discussed previously, this misalignment between the ethnic composition of voters and elected officials could significantly impact the provision of public goods, voter turnout, and conflict dynamics.

2.2 The nature of the Land Reform implementation

Since 1960, prior to Velasco's major land reform, the Peruvian Agrarian Research and Promotion Service (SIPA) promoted agricultural development through technological innovations. To this end, SIPA established thirteenth agrarian zones[2] across the country, each characterized by similar ecological, social, infrastructure, and market access attributes, which served as sites for agricultural research and experimentation (INIA, 2018, p. 61). These agrarian zones, initially intended for research, converted in the main political tool for the nationwide land reform.

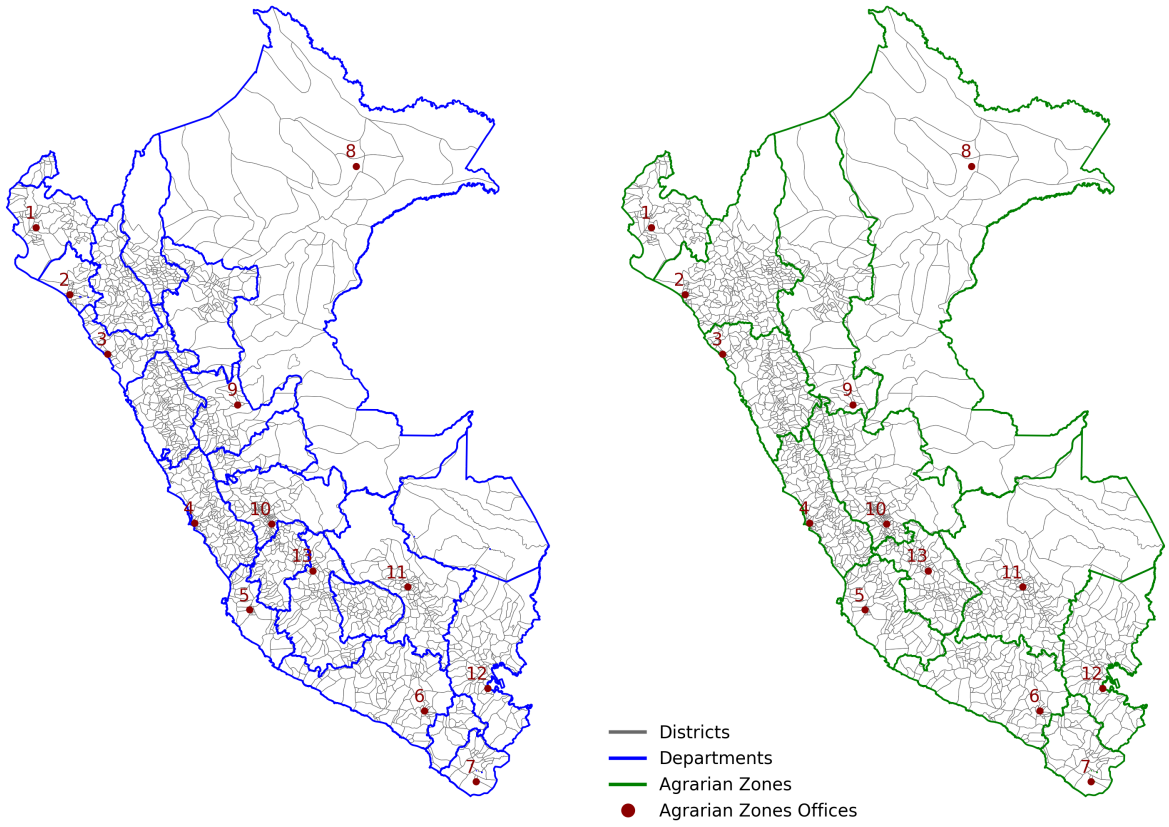
The agrarian zones functioned as administrative and operational hubs for implementing land reform. Unlike other land reforms in Latin America, the Peruvian government effectively minimized the potential for violent resistance by establishing administrative hubs beforehand and prioritizing the expropriation of large landowners. Furthermore, the establishment of a limited number of agrarian zones facilitated more centralized management (Albertus, 2020). In summary, these agrarian zones became fundamental components for the expropriation and redistribution of the land reform.

In the 1960s, there was very little precision about Peru's rural areas and topography

[2]Originally, only twelve agrarian zones were created. In 1974, a thirteenth agrarian zone was established. This is crucial for my identification strategy, as I will use only the invariant agrarian zones to avoid bias arising from post-treatment administrative changes.

(Albertus and Popescu, 2020). The agrarian zones were delineated prior to the First Agrarian Census of 1961, resulting in an implementation without comprehensive and detailed knowledge of the field. Consequently, for practical reasons rather than as a precise aspect of the agrarian reform, the central offices of these agrarian zones were located in the most well-known, explored, and developed cities within each zone. Figure 3 illustrates the administrative division of the thirteen agrarian zones created, along with the locations of their respective offices. The boundaries of these agrarian zones do not align with departmental borders; in some instances, a single agrarian zone encompasses multiple departments.

Figure 3: Departments and Agrarian Zones



In some cases, the agrarian central offices were established in the departmental capitals, typically the most important cities within each department (the largest administrative unit). This centralization within agrarian zones led to an uneven geographic implementation of land reform. Given the infrastructural constraints of that period, physical distance played a crucial role in government presence, monitoring, and policy dissemination. Districts farther from the agrarian central office had lower exposure to land redistribution efforts.

As shown in Figure 4, there is a negative correlation between the distance to the central office and the percentage of land expropriated, both for total and private land areas. This spatial variation is partly explained by administrative overlaps between agrarian zones and departments. Peru had 25 departments but only 13 agrarian zones, meaning that a single agrarian zone could encompass multiple departments. For instance, Zone 10 covered areas spanning three departments.

This overlap is key to understanding differences in the intensity of the reform. In our framework, a treated zone is defined as one where the central agrarian office was located. These treated zones[3] were more likely to experience smoother and faster coordination between local governments and the Ministry of Agriculture. Districts in the treated areas experienced a higher degree of land reform activity compared to those in the control zones[4].

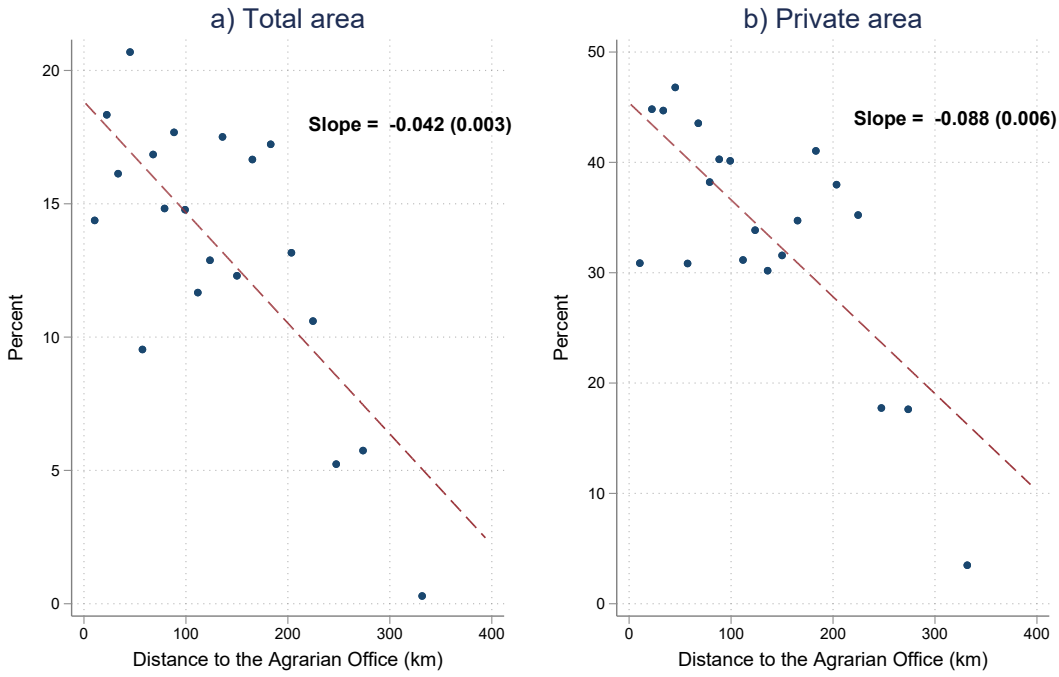
2.3 Pathways to political empowerment

The land reform was not merely an economic policy; it has also triggered profound transformations in the political and social landscape of the countryside. Understanding the mechanisms by which this process occurred is key to explaining the observed increase in indigenous candidacies in post-reform elections. Three main pathways could have fostered indigenous political participation: institutional recognition, organizational capacity, and state

[3]Previous studies use the terminology 'core' and 'periphery.' In this study, I adopt the more commonly used terms 'treated' and 'control' for consistency with the empirical literature.

[4]Historical records suggest that the reform's influence was indeed greater in treated areas (Echevarria, 1979; Matos Mar et al., 1980). However, in terms of land expropriated, we see that this was not necessarily the case. While treated districts had a higher percentage of land expropriated, in some agrarian areas these differences were not significant (see Table A1).

Figure 4: Land redistribution and distance to central agrarian offices



embeddedness. These mechanisms are not mutually exclusive and may reinforce each other in practice.

Institutional recognition

By granting formal property rights to peasant communities, the reform represented a symbolic and legal recognition of rural populations as legitimate actors. This shift transformed former tenants or communal workers into *titulados*—landholders with enforceable claims. Such formalization of land tenure reduced uncertainty, enhanced autonomy, and potentially encouraged civic engagement. Beyond land ownership, this institutional turn also carried symbolic weight: peasants were now recognized as citizens with rights, not subjects of feudal arrangements. For example, the importance of the Agrarian Court and the land allocation processes is highlighted, where indigenous and peasant groups that previously had no voice took advantage of these state bodies to file land claims and obtain justice from former

landowners (Seligmann, 1995).

In addition, the reform promoted the creation and consolidation of indigenous organizations that had leaders recognized by the Government. The legal recognition of native communities granted collective land rights to previously untitled peoples, forcing them to settle in permanent communities and introducing them into a state institutional framework. Based on historical evidence and testimonies, one of the main consequences of agrarian reform was the creation of indigenous organizations (of indigenous communities such as *awajun* and *wampi*) that have survived over time and are currently actively involved in national politics (Villalobos Ruiz, 2016; Trelles, 2016).

Finally, this institutional recognition was supported with political propaganda disseminated at the national level (see Figure A3). Political propaganda was not an isolated event but also a well-planned element. Through political speeches and strong rhetoric, the government sought to gain greater support from certain marginalized social groups, mainly in the rural sector (Puente, 2019; Hurtado, 2017).

Organizational capacity through cooperatives

An additional component of the reform is cooperativism, especially used for land redistribution. The government uses an associative model for land adjudication, whereby groups of peasants form cooperatives. Nearly two-thirds of the expropriated land was awarded to cooperatives, which served as a means to engage the farming population more directly (Alvarez and Caballero, 1980). Members of these cooperatives participated in officer elections, open assemblies, vigilance, and administrative tasks (Cant, 2018, 2021). This structure often provided marginalized populations their first opportunity for political participation, thus playing a crucial role in involving peasants in political life, democracy, and economic decisions. Based on interviews with peasant leaders, it is suggested that cooperatives did foster local leadership and socio-economic improvements. For example, some cooperatives survived the fall of the regime and continued to operate democratically, allowing peasants to market collectively and gain a political voice in their communities (McClintock, 2014).

State embeddedness via bureaucratic contact

Exposure to the land reform also increased the presence of the state in rural areas. Interaction with technicians of the Ministry of Agriculture, National System of Support for Social Mobilization (SINAMOS, in Spanish), and the Agrarian Courts during the redistribution process familiarized peasants with state procedures, institutional channels, and administrative structures (Pasara, 2015). Districts located closer to the agrarian offices likely had more frequent contact with reform officials and were more exposed to state messaging and oversight. This proximity could have cultivated a better understanding of formal political processes and built networks that facilitated subsequent electoral participation (Albertus and Popescu, 2020).

While these pathways are conceptually distinct, they often operated jointly in reform-affected areas. For instance, land title distribution was frequently mediated through cooperatives, whose formation was supervised by local agrarian officials. Together, these dynamics contributed to a broader process of political incorporation and identity transformation among indigenous rural populations. In Figure A5, the context and dynamics of the land reform are summarized. The reform definitely reshaped the country's political dynamics, with newly empowered peasant and indigenous communities asserting their rights and demanding greater representation.

3 Empirical strategy

My analysis sits on the fact that distance matters for the implementation of land reform. Districts far away to an agrarian office tend to have lower participation and representation of people with indigenous roots in local elections (see Figure A8). However, this relation is endogenous and there are omitted variables. As mentioned earlier, the location of agrarian offices was an institutional and strategic decision. Areas surrounding agrarian offices might have a higher accumulation of human capital, which could lead to increased participation of people in local politics. On the other hand, districts far away from agrarian offices may be

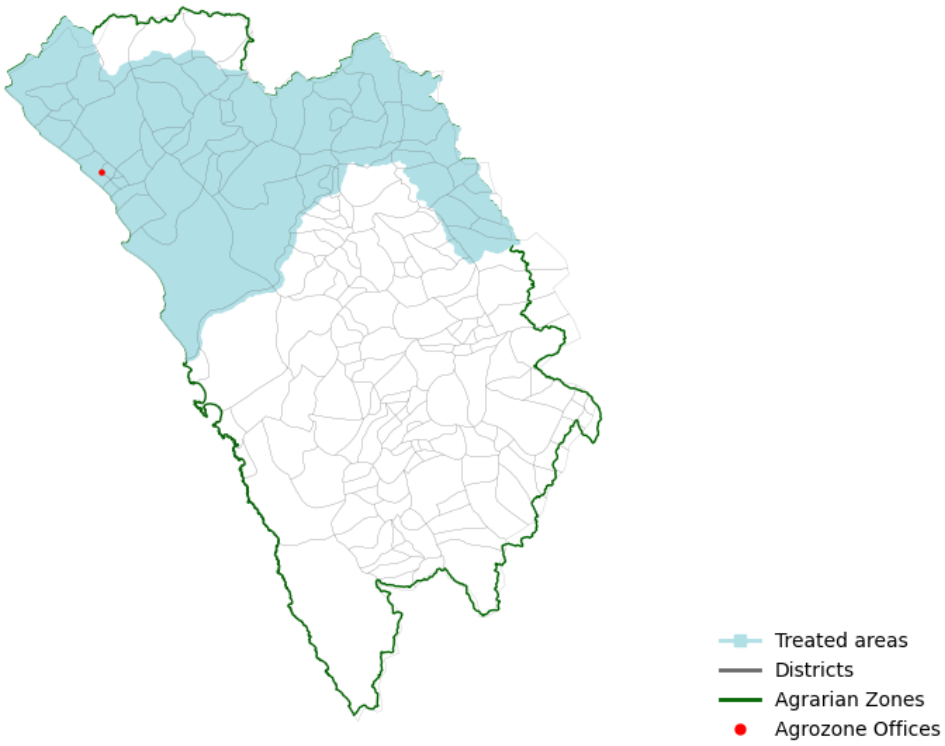
associated with lower income levels, potentially resulting in less political participation due to limited resources and time availability.

I use the imperfectly defined treatment boundaries to address endogeneity concerns. Following Albertus (2020), treated districts are those within both an agrarian zone and the department where the agrarian office was located. Since agrarian zones do not align with departmental borders, some districts within the same zone had lower exposure to land reform. For example, Agrarian Zone 3 includes La Libertad, Ancash, and Cajamarca, but the agrarian office was in La Libertad (see Figure 5). This setup enables a quasi-experimental approach under the assumption that, absent reform, districts near and far from the office would have followed similar trends. However, treatment assignment is not fully exogenous, as office locations were influenced by pre-existing economic and political factors. Despite this limitation, the structure of agrarian zones provides useful variation in exposure to land reform, helping to estimate its impact.

This treatment definition was employed in prior studies of land reform in Peru (Albertus, 2020; Albertus and Popescu, 2020). However, this classification of zones is imperfect for several reasons. Some districts in core areas are also departmental capitals, so they are naturally different from other areas. In addition, some areas are very particular due to their geography, such as the Amazonian areas where agrarian legislation was hardly implemented. To enhance empirical identification, I constrain the sample to districts meeting five specific criteria: (i) the major land legislation was applied, (i) the boundaries of the Agrarian Zones remain unchanged during the analysis period, (iii) the Agrarian Zones does not align precisely with departmental boundaries, (iv) peripheral area is not inside a international border zone, and (v) is not in Lima.

The first criterion excludes Zones 8 and 9, which cover jungle areas in the Amazon with minimal reform activity. The second excludes the original Zone 10, which was later divided into Zones 10 and 13. The third omits Zone 12, which corresponds exactly with the department of Puno, thus confounding zone effects with departmental effects. The fourth criterion eliminates Zone 1, located on an international border. The rationale is

Figure 5: A visual example of treated areas based on the definition of Albertus (2020)



Notes: Treated areas are identified using the definition of Albertus (2020). This map show only the treated areas inside the Agrarian Zone 3. A visualization of all the treated areas in Peru could be found in Figure A6. Based on that Albertus's definition, zones in sky blue are treated because they belong to the department of La Libertad, which also hosted the agrarian central office. In white, the control districts belong to Ancash and Cajamarca, departments without an agrarian central office.

that border zones tend to be peripheral by definition due to state presence, trade dynamics, and geopolitical concerns that are independent of agrarian reform. Including them could therefore introduce bias by conflating effects driven by border-specific factors with those of the reform. Finally, Zone 4, which includes Lima, is excluded due to its unique political and administrative characteristics as the national capital.

Additionally, I exclude all districts corresponding to departmental capitals from the analysis. This decision was initially driven by data availability, as electoral data for these districts were missing. However, their exclusion is also methodologically appropriate: departmental capitals often host the agrarian offices and tend to have distinct characteristics — including higher infrastructure, stronger political networks, and disproportionate administrative presence — that could bias the analysis. By omitting these districts, the comparison between treated and control groups becomes more internally valid, focusing on more comparable rural districts with similar conditions.

To reinforce the validity of this identification strategy, it is essential to understand why districts within the same agrarian zone but outside the department hosting the agrarian office serve as an appropriate counterfactual. The location of the central offices was largely a matter of administrative convenience, often placed in departmental capitals with better infrastructure, and not due to targeted political or social conditions. Historical records suggest that implementation intensity decreased with distance due to logistical constraints in communication and policy delivery, not because of structural differences between districts. In addition, the Table 2 shows that treated and control districts are similar in observable pre-reform characteristics, such as literacy, land area, and state presence. To mitigate endogeneity concerns, I further restricted the sample by excluding districts with confounding attributes (e.g., border zones, Amazon areas, Lima). These methodological decisions ensure that, absent the land reform, both groups would have followed similar political trajectories[5]. Therefore, the difference in exposure to the reform is plausibly exogenous and stems primarily from geographic proximity, not systematic pre-existing differences.

[5]An assumption further supported by the parallel trends observed in the event study graphs (Figure 10 and Figure 11)

Table 2: Balance table

	(1) Control		(2) Treatment		(3)
	Mean/SE	N	Mean/SE	N	p-value
Total candidates	18.46	381	19.56	200	0.075*
	(0.29)		(0.55)		
Male candidates	17.21	381	17.86	200	0.263
	(0.28)		(0.52)		
Political parties	1.69	351	1.36	191	0.100
	(0.17)		(0.12)		
If a peasant-based party exists	0.00	381	0.01	200	0.243
	(0.00)		(0.01)		
Illiteracy (%, 1961)	0.52	381	0.53	200	0.805
	(0.01)		(0.02)		
Illiteracy (%, 1972)	0.39	381	0.38	200	0.345
	(0.01)		(0.01)		
Slope (in percentage)	0.12	381	0.11	200	0.000***
	(0.00)		(0.00)		
Elevation (thds. of meters)	2.77	381	2.51	200	0.033**
	(0.05)		(0.11)		
Land area (hds. sq. km.)	3.82	381	6.16	200	0.123
	(0.57)		(1.40)		
Private land area (ths. ha.)	9.78	381	9.97	200	0.923
	(1.07)		(1.65)		
State personnel	2.41	381	2.56	200	0.117
	(0.05)		(0.08)		

Notes: The measure of slope in percentage terms is the terrain's incline as a percentage, calculated by the vertical change over horizontal distance. Higher values indicate steeper slopes.
* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

Even the previous justification, my approach is more conservative than those used in previous studies. The reform's implementation allows for classifying areas based on their

level of exposure to agrarian reform. However, even after applying the five criteria of sample restriction, the issue of endogeneity cannot be fully addressed as unobserved factors may still introduce bias into the results. The analysis is conservative in wanting to estimate the immediate effect (or those closest to the reform) and not see medium or long term effects. After the reform, an armed conflict occurred in the country and this is closely linked to the agrarian reform (Albertus, 2020). To avoid these confounding factors, I only focus on trying to show the closest effects: two local elections after the reform. Given the limitations in data availability and periodicity, the most appropriate strategy is to estimate a difference-in-differences model to identify the potential effect of agrarian reform on political outcomes.

$$PolEthnic_{dt} = \delta\, D_{dt} + \lambda_t + \mu_d + \epsilon_{dt}, \tag{1}$$

Specifically, I estimated a two-way fixed effects (TWFE) model as described in Equation 1. Here, $PolEthnic_{dt}$ denotes the political-ethnic outcome variable for district d at time t. The dataset covers four time periods ($t = 1963, 1966, 1980, 1983$), each corresponding to a political election. The treatment indicator, D_{dt}, equals 1 if district d is treated at time t and 0 otherwise. The parameter of interest is δ, which captures the treatment effect. Finally, λ_t and μ_d represent time and district fixed effects, respectively.

Although I have shown that some observable characteristics of treated and control districts are balanced, unobservable characteristics may still differ. Showing that, previous to the land reform, there are no differences in the outcome variables between treated and control districts could make more credible the parallel trends assumption. To explore the pre-trends, I estimated a dynamic TWFE model as follows:

$$PolEthnic_{dt} = \sum_{k \neq -1} \beta_k, \text{TimePeriod}_{dt}^{k} + \lambda_t + \mu_d + \epsilon_{dt} \tag{2}$$

The variable $\text{TimePeriod}_{dt}^{k}$ is an indicator for each time period k relative to the intervention, with $k = -1(1966)$ as the omitted baseline period. The coefficients β_k measure the average

treatment effect for each relative time period. In addition to providing evidence that the parallel trends assumption holds, this model also allows us to explore whether there are dynamic effects if we analyze the coefficients for each specific period.

A valid concern regarding the identification strategy is whether geographic distance can be considered exogenous to migratory dynamics. That is, we must ensure that the reform did not induce changes in population structure. For instance, if we knew that a significant number of people migrated to areas where the reform was more intensively implemented, our identification strategy would be seriously undermined. Although there is historical and qualitative evidence suggesting that some cooperatives did experience migration of technical staff to support their organization (Mayer, 2009), such instances are insufficient to claim that migratory patterns were substantially altered. The most robust and quantitative evidence supporting the notion that the land reform did not influence inter-district migration rates is provided by Albertus (2020). Using census data from 1993 and 2007, this study shows that peasants did not disproportionately migrate to treated areas—those with greater reform intensity.

Although the reform began in 1969 and the available election data only starts in 1980, I have applied the most rigorous approach possible within these constraints. This limitation is acknowledged, yet the analysis remains necessary to assess the plausibility of the identifying assumption. By working with the earliest available electoral outcomes, I aim to approximate post-reform dynamics and contribute meaningfully to understanding the reform's longer-term political implications.

4 Data

I gathered data from four municipal elections in Peru (1963, 1966, 1980, 1983) sourced from INFOGOB, a Peruvian Governance Observatory[6]. Figure A2 shows how INFOBOG's website looks like. I scraped the website to compile a comprehensive dataset that includes

[6]INFOGOB provides data on elections, politicians, and political parties. For more details, visit https://infogob.jne.gob.pe/

district locations, candidate names and surnames, political parties, vote counts, and election outcomes. While the candidate's curriculum vitae is available for more recent elections, this information is not accessible for the period under analysis. However, for some candidates, face photographs were available, which I used to develop an ethnicity measure. Next, I will explain in detail the two measures of ethnicity employed in this paper.

4.1 Ethnicity identification

4.1.1 Surname origin

The initial approach entails a historical analysis of ethnicity. Surnames are viewed as cultural inheritances transmitted across generations. In Peru, as a result of colonial evangelization, surnames are regarded as ethnic names, indicative of communal ties and a shared racial, linguistic, and religious heritage (Carpio and Guerrero, 2021).

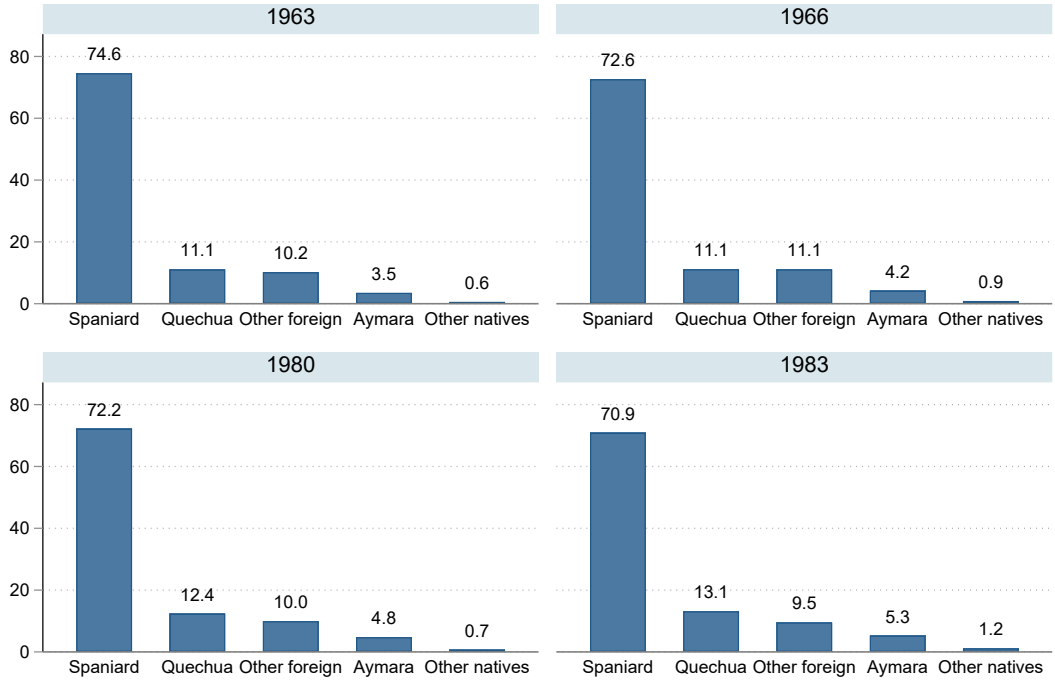
The goal is to classify surnames as either native or foreign to construct a measure of ethnic ancestry. The principal native languages in Peru are Quechua and Aymara, followed by Amazonian languages. Foreign influence mainly stems from Spanish, but there are also Asian, Italian, or Arabic influences. To achieve surname classification, I followed the procedure outlined in Artiles (2023), which analyzes many dictionaries on the linguistic roots of native languages and Spanish. For instance, the dictionary by González Holguín (1993) was used for Quechua, Bertonio (1879) for Aymara, and Carraffa and Carraffa (1926) for Hispanic roots[7].

Using these dictionaries we can identify the origin of each surname. For example, the surname *Alccahua* is classified as Quechua, while the surname *Aldazabal* is classified as Spanish. After identifying the linguistic origin of each surname, I classify the native ancestry of each candidate using two definitions: (i) the candidate has at least one surname of native origin (Quechua, Aymara, or another Amazonian language), or (ii) the candidate has both surnames of native origin. Figure 6 shows the distribution of candidates by year according to their ethnic origin based on their surname. The largest proportion of candidates are of

[7]These are not the only dictionaries used; in fact, for Quechua, sources from different regional dialects were analyzed. For more detail, refer to the appendix in Artiles (2023).

Spanish origin, followed by those of Quechua origin.

Figure 6: Ethnic groups based on surname roots by election year



Notes: The surnames identification is based on Artiles (2023). The "Other foreign" category includes Chinese, French, Italian, among others.

4.1.2 Skin tone

The second approach to defining ethnicity focuses on an observable characteristic: skin color. Many methods exist in the literature, with one commonly used approach involving interviewers rating individuals on a scale from black to white. This method's efficacy in ethnic classification is influenced by the interviewer's ability to discern ethnic backgrounds and may even be impacted by the interviewer's own ethnicity (Hill, 2002). To achieve a more objective measurement of skin color, I employ a image-based algorithm that utilizes face detection and skin segmentation techniques developed by Rejón Piña and Ma (2023). This novel algorithm has been previously applied in a similar context, showing ethnic inequalities in the Mexican legislature (Rejón Piña, 2024). The Mexican case is a particularly relevant

background because Peru also has a high degree of ethnic mixing and a strong indigenous presence. As far as I know, this is the first work to use machine learning techniques to measure ethnic diversity in a political context in Peru.

The Classification Algorithm for Skin Color (CASCo) uses facial detection, skin segmentation, and k-means clustering techniques to classify a photograph into one of the predefined color categories. The process begins by detecting the face in the image and then identifies the two dominant skin colors using k-means clustering. Finally, CASCo assigns the photograph to the most suitable color category by comparing the dominant colors with a list of predefined categories, employing the Delta E distance [8] to determine the closest match. Formally,

$$c^* = \arg\min_{c \in C} \sum_{d \in D} \rho_d \cdot \Delta E_{00}(d, c) \tag{3}$$

where C is the set of color categories; D is the set of detected dominant colors in the specified portrait; ρ_d is the proportion of color d and $\Delta E(d, c)$ is the Delta E distance between color d and c. Note that $\sum_{d \in D} \rho_d = 1$.

For this analysis, the set of skin colors is defined by the Project on Ethnicity and Race in Latin America (PERLA)[9]. The machine learning algorithm I employ analyzes photographs (see Figure 7) and categorizes each into one of the eleven skin color tonalities.

In total, I analyzed more than 12,000 available photos for elections from 1963 to 1983, covering 15% of total candidates. The average accuracy[10] of the skin-detection algorithm was 89.5, with a minimum and maximum value of 77 and 98, respectively.

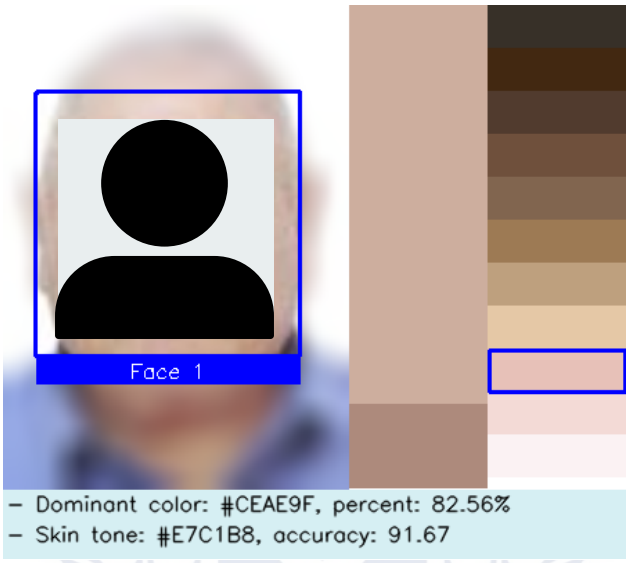
As depicted in Panel A of Figure 8, the algorithm's precision in identifying distinct skin tones needs to be improved, likely due to the constrained quality of the photographs. For analytical clarity, I follow the previous work of Campos-Vazquez and Medina-Cortina

[8] The Delta E distance (ΔE) is a metric that quantifies the difference between two colors in a color space. The smaller the ΔE value, the more similar the colors are.

[9] PERLA is based on Princeton University since 2008 has reshaped the understanding of ethnic issues and inequalities in Latin America with its innovative approach to ethnicity and race classification (Telles et al., 2013). More information here.

[10] Accuracy is the complement of the Delta E distance, representing the difference between the dominant color and the assigned color category. For example, if the Delta E distance is 5, the accuracy is 95%.

Figure 7: Classification Algorithm for Skin Color (CASCo): an example



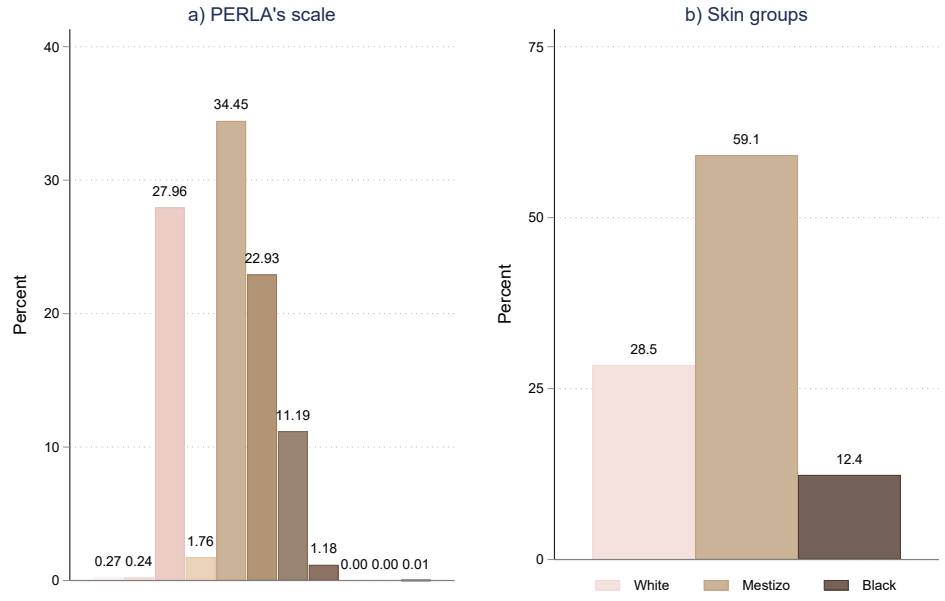
Notes: This algorithm identifies the dominant skin color and using clusters groups them into one of the 11 categories of the PERLA's color palette. For more technical details about the code, please visit the Github repository .

(2019), who also uses PERLA's skin colors, and I re-categorized individuals into three ethnic groups: white, black, and mestizo. Panel B of Figure 8 illustrates the distribution of these ethnic groups, revealing a predominant proportion of mestizo candidates, followed by white candidates, with a notably lower percentage of black candidates[11].

The proposed ethnicity measures are complementary. While surnames allow us to identify a person's ethnic origin, the skin color algorithm allows us to identify how this person is currently viewed. In addition, skin color better captures the process of mestizaje. For example, a person with an indigenous surname could be white and be recognized within that ethnic group, regardless of the history of her ancestors. Figure 9 shows the evolution of each of the ethnicity measures, as well as the differences between each of them. As can be seen, most politicians identify as mestizos and there is no substantial change in all measures over time.

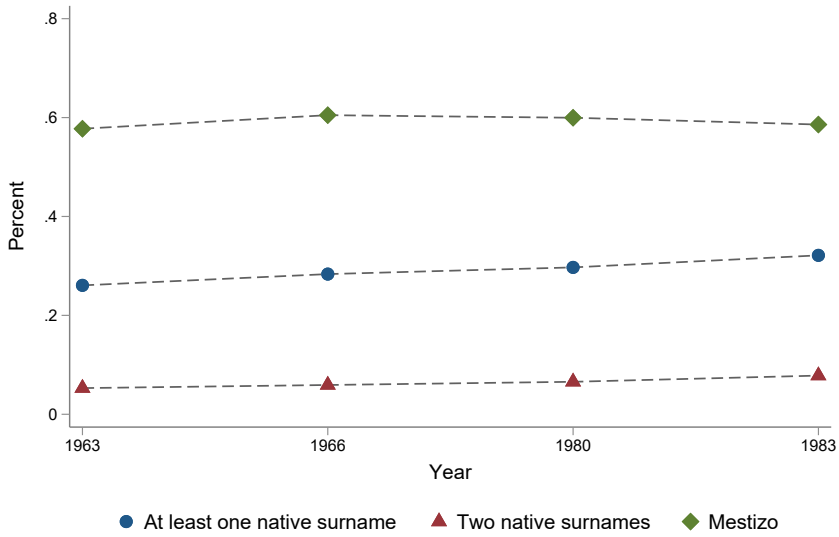
[11]The geographic distribution of the skin color measure could be see in Figure A7.

Figure 8: Distribution of political candidates by skin color (1963-1983)



Notes: Based on Campos-Vazquez and Medina-Cortina (2019), three groups were created: White (PERLA 1-3), Mestizo (PERLA 4-6) and Black (PERLA 7-11).

Figure 9: Evolution of candidates ethnicity



4.2 Land reform variables

For the land reform variables, I used the maps of the agrarian zones created by the Ministry of Agriculture and digitalized by Albertus (2020). Using the digitalized maps, I was able to calculate distances from each district to other points of borders. In addition, Albertus (2020) examined all supreme decrees, supreme resolutions, and ministerial resolutions that led to the expropriation of individual properties between 1969 and 1980 at district level. I used the share of land redistributed by district for some descriptive analysis as shown in the 4. This dataset also includes a rich set of variables that I primarily used to check the balance between treated and control districts (Table 2). The data is sourced from various records, such as the Population Censuses (1961, 1972), the Agrarian Census of 1972, and the Food and Agriculture Organization's Global Agro-Ecological Zones database, among others.

5 Results

Table 3 presents the main findings. The results reveal a significant positive association between exposure to land reform and the proportion of candidates with indigenous surnames. Specifically, the share of candidates with at least one indigenous surname increased by 5 percentage points, while the share of candidates with both indigenous surnames increased by 3 percentage points. Although a positive relationship is also observed for the share of elected candidates with indigenous backgrounds based on surnames, these association is not statistically significant. Using the alternative measure of ethnicity based on skin color, the positive relationship persists. The land reform increased the share of mestizo candidates and elected mestizos, but the increase is not statistically significant. Overall, these findings suggest that Peru's land reform may have contributed to greater representation of political actors with indigenous backgrounds, at least in the ballots.

One possible explanation for the absence of a statistical significant effect on the skin-detection measure lies in the differences with the surnames-based measure. Table 3 shows considerable differences in the averages: 74% of individuals are classified as mestizo, compared

to only 21% identified as having at least one indigenous surname. The mestizo classification may more accurately capture the blending of ethnic groups than the surname-based measure. For instance, individuals classified as non-indigenous by their surname might still be identified as mestizo based on their skin color. These measures are complementary, offering valuable insights into the ethnic dimensions of political candidacy. Future research could delve deeper into the historical evolution of Peru's political landscape and its ethnic diversity, leveraging these and other ethnic classification methods.

Table 3: Effects on political-ethnic outcomes

Outcome Variable	Mean (pre-reform)	Coefficient
At least one indigenous surname		
Candidate	0.2102	0.0492***
		(0.0186)
Elected	0.1415	0.0282
		(0.0213)
All indigenous surnames		
Candidate	0.0322	0.0329***
		(0.0102)
Elected	0.0208	0.0282
		(0.0213)
Mestizo		
Candidate	0.7425	0.0271
		(0.0623)
Elected	0.5509	0.0837
		(0.0673)

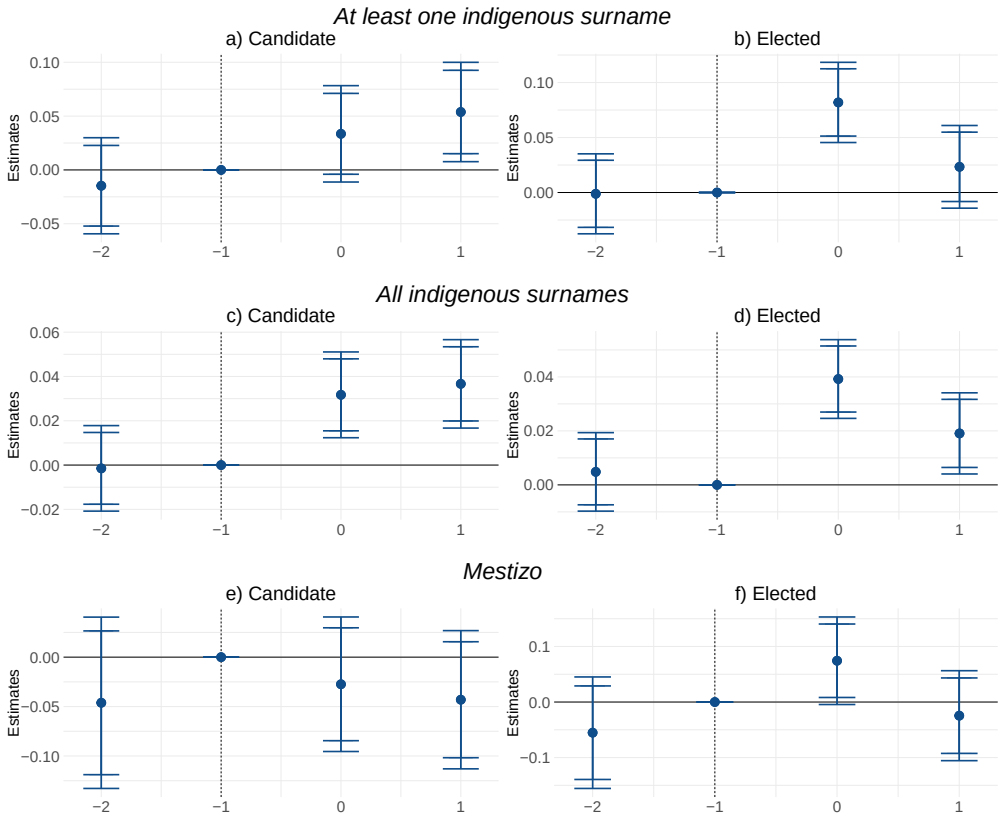
Notes: * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

The analysis of the dynamic TWFE model provides deeper insights into the results. Figure 10 presents the event study analysis. The first key observation is that the parallel trends assumption appears to hold, as the coefficient for the pre-reform period is close to zero in all estimates.

For each indicator, we see interesting and distinct dynamics. For example, in the case of the percentage of Indigenous candidates (Panels a, c, and e), the patterns are similar to the aggregate effects shown in Table 3. It is particularly notable that in the first local election

after the reform (1980), the percentage of indigenous elected candidates increases significantly across all three indicators. However, this percentage drops sharply in the next election (1983), making the aggregate effect non-significant, as also reflected in Table 3. Despite these observations, the evidence is not strong enough to suggest a significant impact on the election of indigenous candidates, but it does help to support the pre-trends assumption.

Figure 10: Event Studies: Land reform and political-ethnic outcomes



Notes: The event study plots show the point estimate and 90% and 95% confidence intervals. The reference period is $t = -1, \text{year} = 1966$

Although the main analysis centers on indigenous candidates, the evidence suggests that this may reflect a broader political transformation. When examining the effects of land reform on the number of political parties and party system fragmentation at the district level, we find intriguing patterns that support the notion of a restructured political landscape. As shown in Table 4, land reform significantly increased the number of political parties participating in

elections. However, there is no statistically significant effect on party system fragmentation. This finding is consistent with the previous results: new political movements—particularly those with indigenist roots—emerged and participated in elections, yet they failed to secure electoral victories. In other words, while the reform expanded political supply by facilitating the entry of new actors into the political arena, it did not immediately translate into greater electoral success or institutional consolidation for these groups.

Table 4: Effects on political indices

	(1)	(2)
	Number of parties	Political fragmentation
Treated	0.162**	0.062
	(0.073)	(0.057)
Mean (pre-reform)	1.967	1.668
Observations	1816	1703

Notes: * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

As I showed before, the most substantial impact of land reform in post-reform elections lies in candidate nomination rather than the election of indigenous candidates: there is greater representation on the ballot, but not necessarily in positions of power. Several mechanisms could explain these outcomes. Historically, land redistribution was implemented through a cooperative model. Agrarian cooperatives grouped peasants from the same geographic area and involved administrative activities, elections, and assemblies to decide land use, likely serving as their first experience with democratic processes (Cant, 2018). This political experience within the cooperatives could have encouraged peasants to engage in local politics and assume roles beyond land management. In other words, peasants might have started to believe in their potential political influence, leading to increased electoral participation.

Testing these mechanisms is challenging. Ideally, information on candidates' occupation would be available. Given current data limitations, I analyze the party's identity through party names, assuming that these names are indicative of the group's interests. I classified a political party with peasant origins if key words[12] are found in its name. I aim to determine

[12]Some keywords are "peasant", "agrarian", "agriculture", and "communnity".

if the presence of such parties in a district can explain the relationship between agrarian reform and the increased number of indigenous candidates.

Table 5: Effects on peasant parties

Outcome Variable	Mean (pre-reform)	Coefficient
Share of peasant political party	0.0007	0.01609**
		(0.0070)
If a peasant political party exists in the ballot	0.0015	0.0306**
		(0.0155)

Notes: * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

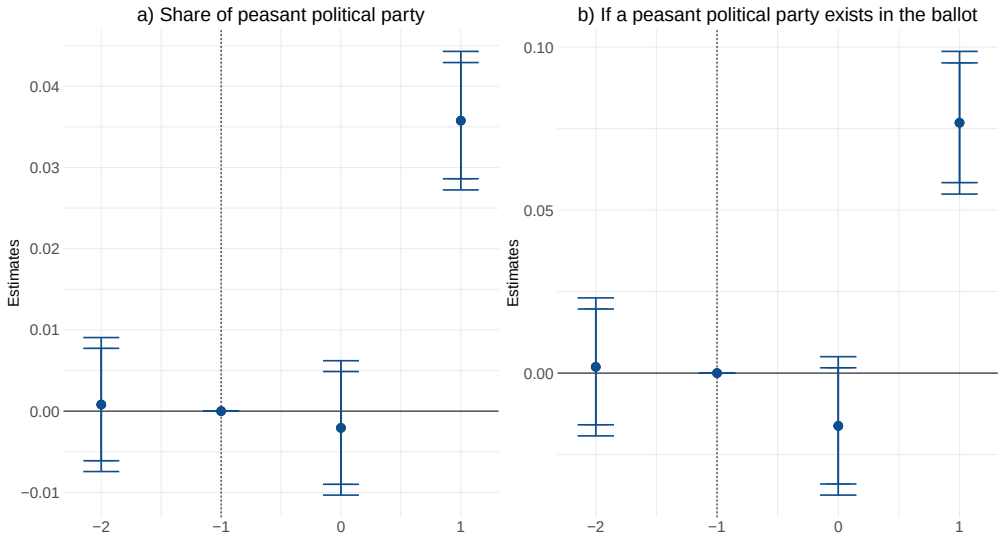
Table 5 demonstrates a correlation between land reform exposure and participation by peasant-based political parties. Before the land reform, peasant-based parties were almost entirely absent from electoral ballots. However, after the reform, districts with greater exposure experienced a 1 percentage point increase in the share of peasant political parties and a 3 percentage point increase in the likelihood of having a peasant-based political party on the ballot. This result is supported by the event study in Figure 11, where we see evidence in favor of the parallel trends assumption. We also observe that the significant effect comes mainly from the election of 1983, suggesting that political movements may take more time to materialize due to the need for greater organization.

6 Conclusions

To this day, agrarian reform is nostalgically remembered by a segment of the population, primarily as one of the national policies that sought to uplift peasants and Indigenous peoples and grant them a significant role in society. However, the topic remains controversial. There are numerous arguments suggesting that agrarian reform devastated the national economy, leading to a recession. Yet, its effects on other spheres of society continue to be a subject of debate.

This paper examines the impact of land reform in Peru on the political representation of marginalized ethnic groups in local elections. I compiled a unique dataset of local politicians

Figure 11: Event Studies: Land reform and peasant parties



Notes: The event study plots show the point estimate and 90% and 95% confidence intervals. The reference period is $t = -1, \text{year} = 1966$

spanning the years 1963 to 1983. A key methodological contribution of this study is the implementation of two innovative approaches to identifying ethnic backgrounds. The first method relies on surname and language-root detection, while the second employs a machine learning algorithm for skin tone analysis. These methodologies enable the paper to offer fresh insights into the effects of land reform on political and ethnic outcomes.

The results reveal that exposure to land reform, significantly increased the representation of candidates with indigenous surnames. Districts treated by land reform saw an increase between 3 and 5 percentage points in the share of candidates with indigenous surnames. Using the second technique of ethnic identification, the skin color detection, I found that land reform has non-significant effects. In addition, I found no strong evidence that land reform has a role over the electoral success of indigenous candidates over the two measures: marginalized ethnic groups are present in the ballot, but not in the exercise of power.

The mechanisms that explain these results merit further investigation in the future. Historical evidence suggests that cooperatives played an important role in the beginning of democratic and political life for many peasants. While we do not have information on the

activities of cooperatives, we do a similar exercise where we assume that political parties are also a space for political life and that party names reflect the political beliefs of their members. I find that districts more exposed to agrarian reform increase the probability that a party with peasant origin will run in elections. In conclusion, the 1969 Land Reform in Peru played a significant role in enhancing the political representation of marginalized ethnic groups, particularly in areas with higher exposure to the reform.

Supplementary Appendix

Figure A1: Names of independent political parties (1963-1966)

Notes: The most prominent words in the names of independent political parties include *campesino* (peasant), *trabajadores* (workers), *progresista* (progressist), and *popular* (popular).

Figure A2: INFOGOB website

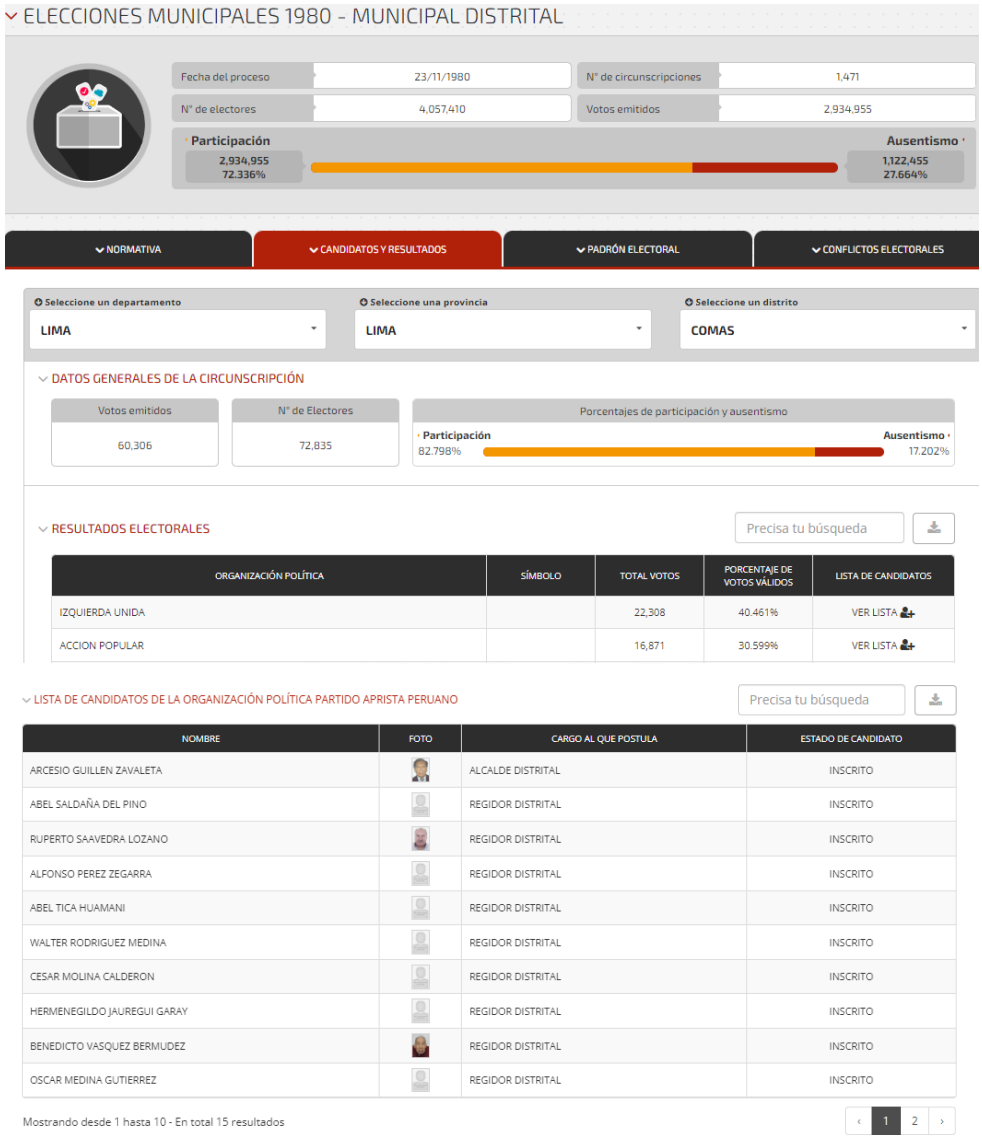


Figure A3: Political propaganda of land reform

Notes: Between 1969 and 1980, approximately 200,000 posters across 20 editions were distributed nationwide. These posters were part of the government's effort to promote a specific narrative of the reform and sustain public support for its goals. For more details about the visual communication of land reform, check Cant (2012).

Figure A4: PERLA's color palette and skin groups based on Campos-Vazquez and Medina-Cortina (2019)

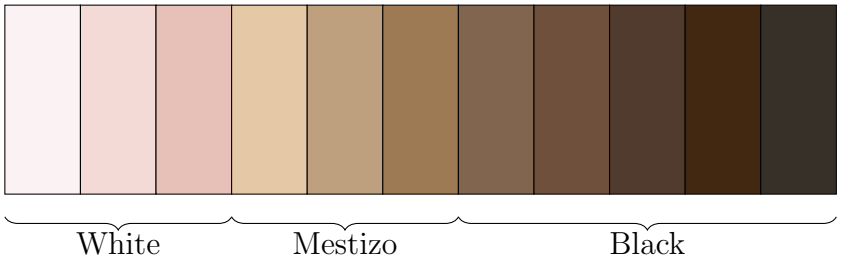


Figure A5: Theoretical framework

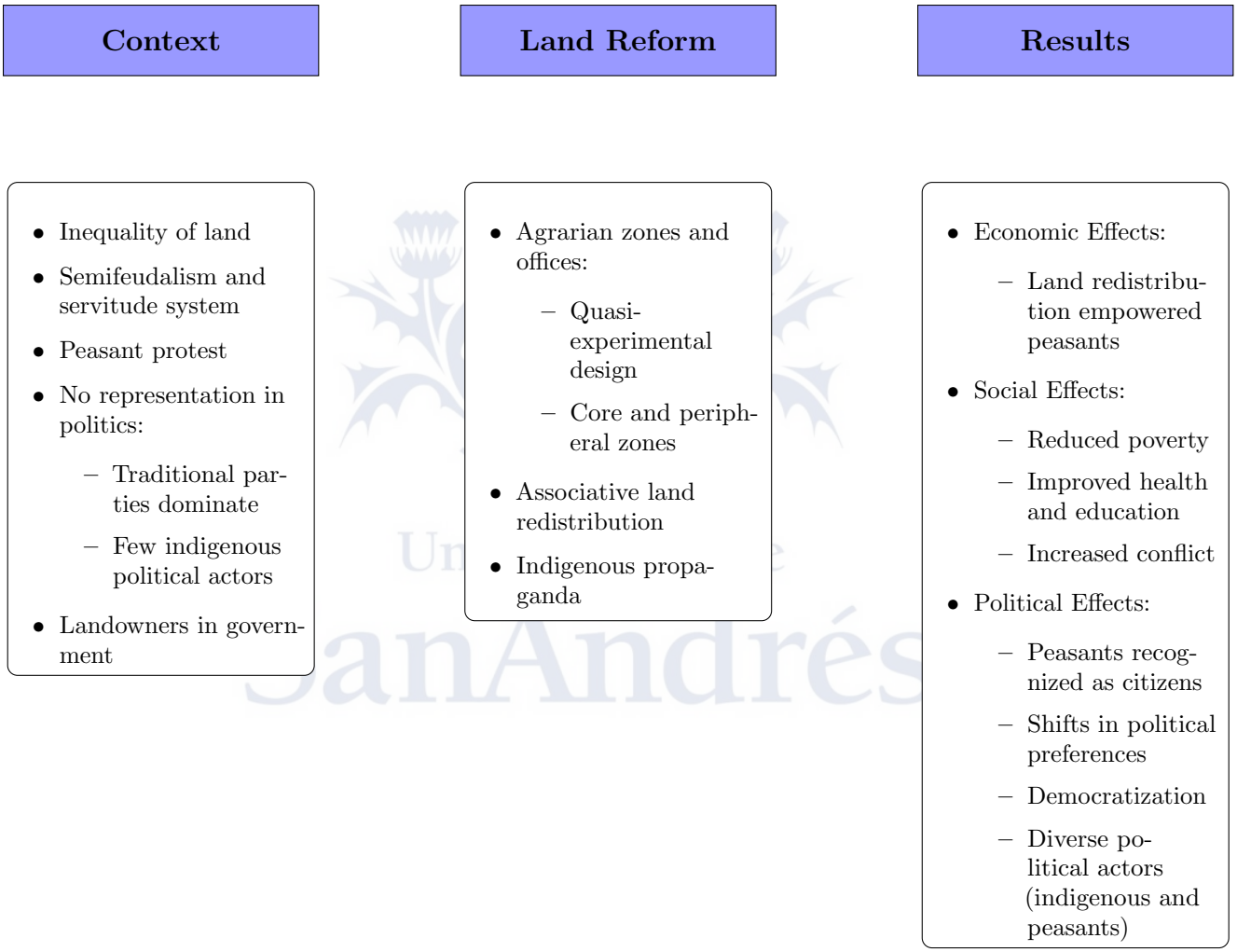
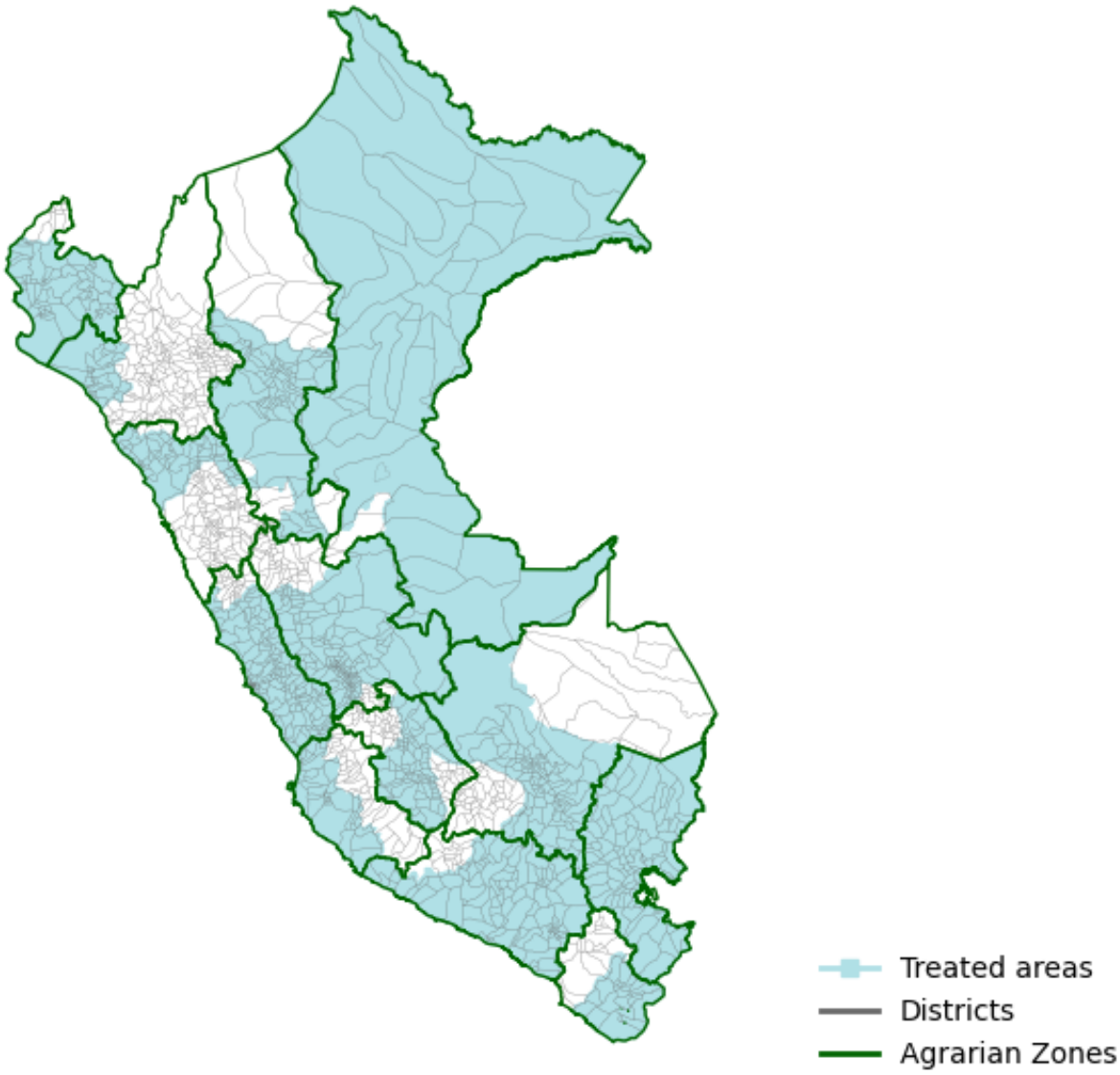


Figure A6: Treated areas based on the definition of Albertus (2020)



Notes: Treated areas are identified using the definition of Albertus (2020). Based on that Albertus's definition, zones in sky blue are treated because they belong to a department which hosted the agrarian central office. In white, the control districts belong to a department without an agrarian central office.

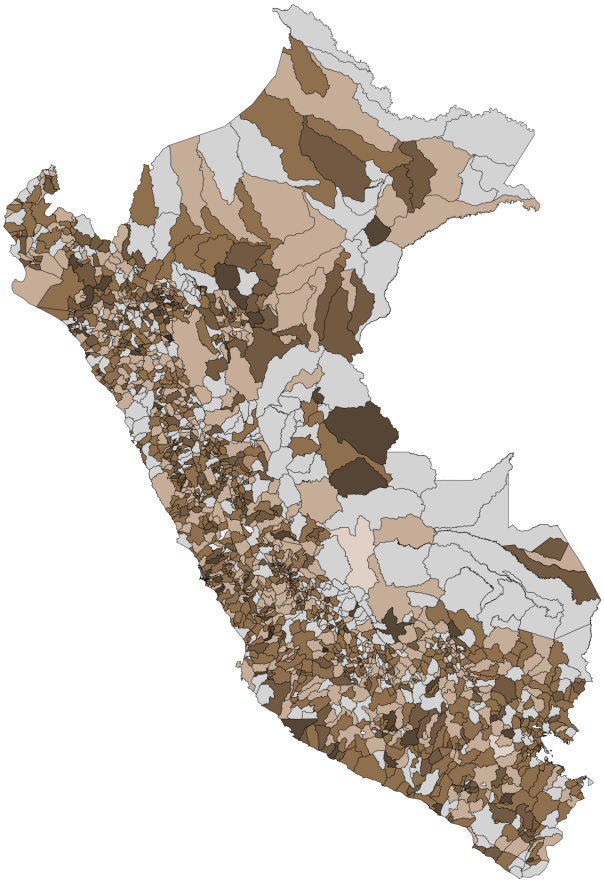
Table A1: Percentage of land redistributed according to group, by Agrarian Zone

	Control	Treated	Diff.	p-value	Obs.
National level	0.130	0.134	-0.004	0.555	5,275
Zone 1	0.269	0.253	0.016	0.788	218
Zone 2	0.134	0.233	-0.099***	0.001	723
Zone 3	0.228	0.348	-0.121***	0.000	608
Zone 4	0.036	0.059	-0.024	0.124	640
Zone 5	0.069	0.064	0.005	0.819	275
Zone 6	0.010	0.032	-0.023	0.120	405
Zone 7	0.022	0.032	-0.011	0.392	127
Zone 8	0.000	0.006	-0.006	0.586	95
Zone 9	0.000	0.003	-0.002	0.131	311
Zone 10	0.102	0.064	0.038***	0.005	732
Zone 11	0.072	0.287	-0.215***	0.000	454
Zone 12	0.000	0.345	-0.345*	0.074	300
Zone 13	0.167	0.100	0.066***	0.004	387

Notes: If Albertus's definition were appropriate at the national level, a higher percentage of land redistributed would be expected in the zones targeted by the agrarian reform, this means, the treated zones. However, this expectation holds true only for specific agrarian zones, such as zones 2, 3, 11 and 12. It should be noted that agricultural zone 12 coincides exactly with the department of Puno, so there are no control districts for this zone, which is why we did not include it in the analysis.

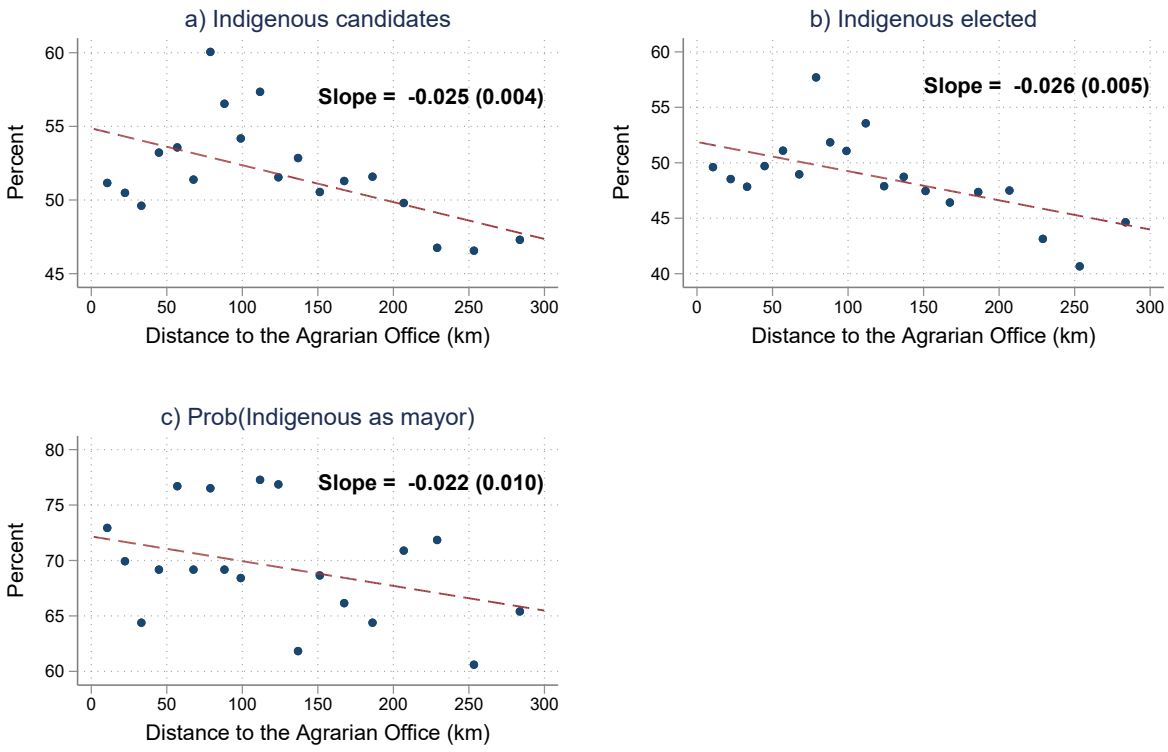
* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

Figure A7: Distribution of skin tone by district (1963-1980)



Note: This maps consider the mode of skin scale (based on PERLA's color palette) of each district.

Figure A8: Relation between distance to agrarian office and political-ethnic outcomes



References

Acemoglu, D. and Robinson, J. A. (2000). Why did the west extend the franchise? democracy, inequality, and growth in historical perspective. *The Quarterly Journal of Economics*, 115(4):1167–1199.

Acemoglu, D. and Robinson, J. A. (2008). Persistence of power, elites, and institutions. *American Economic Review*, 98(1):267–293.

Albertus, M. (2015). *Autocracy and redistribution*. Cambridge University Press.

Albertus, M. (2020). Land Reform and Civil Conflict: Theory and Evidence from Peru. *American Journal of Political Science*, 64(2):256–274.

Albertus, M., Espinoza, M., and Fort, R. (2020). Land reform and human capital development: Evidence from Peru. *Journal of Development Economics*, 147:102540.

Albertus, M. and Popescu, B. (2020). Does equalizing assets spur development? Evidence from large-scale land reform in Peru. *Quarterly Journal of Political Science*.

Alvarez, E. and Caballero, J. M. (1980). *Aspectos cuantitativos de la reforma agraria, 1969-1979*. Instituto de Estudios Peruanos.

Ankersen, T. T. and Ruppert, T. (2019). Tierra y libertad: the social function doctrine and land reform in latin america. *Léon Duguit and the Social Obligation Norm of Property: A Translation and Global Exploration*, pages 207–252.

Artiles, M. (2023). Within-group heterogeneity in a multi-ethnic society.

Banerjee, A. V., Gertler, P. J., and Ghatak, M. (2002). Empowerment and efficiency: Tenancy reform in west bengal. *Journal of political economy*, 110(2):239–280.

Barreto, M. A. (2007). isí se puede! latino candidates and the mobilization of latino voters. *American Political Science Review*, 101(3):425–441.

Bertonio, L. (1879). *Vocabulario de la lengua aymara*, volume 1. BG Teubner.

Caballero, J. M. (1981). Economía agraria de la sierra peruana: antes de la reforma agraria de 1969.

Campos-Vazquez, R. M. and Medina-Cortina, E. M. (2019). Skin color and social mobility: Evidence from mexico. *Demography*, 56(1):321–343.

Cant, A. (2012). 'land for those who work it': A visual analysis of agrarian reform posters in velasco's peru. *Journal of Latin American Studies*, 44(1):1–37.

Cant, A. (2018). Agrarian reform and "development". In *The Andean World*, pages 325–339. Routledge.

Cant, A. (2021). *Land without masters: agrarian reform and political change under Peru's military government*. University of Texas Press.

Caprettini, B., Casaburi, L., and Venturini, M. (2021). Redistribution, Voting and Clientelism: Evidence from the Italian Land Reform.

Carpio, M. A. and Guerrero, M. E. (2021). Did the Colonial mita Cause a Population Collapse? What Current Surnames Reveal in Peru. *The Journal of Economic History*, 81(4):1015–1051.

Carraffa, A. G. and Carraffa, A. G. (1926). Diccionario heráldico y genealógico de apellidos españoles y americanos. *(No Title)*.

Chattopadhyay, R. and Duflo, E. (2004). Women as policy makers: Evidence from a randomized policy experiment in india. *Econometrica*, 72(5):1409–1443.

De Janvry, A., Gonzalez-Navarro, M., and Sadoulet, E. (2014). Are land reforms granting complete property rights politically risky? Electoral outcomes of Mexico's certification program. *Journal of Development Economics*, 110:216–225.

Di Tella, R., Galiant, S., and Schargrodsky, E. (2007). The formation of beliefs: evidence from the allocation of land titles to squatters. *The Quarterly Journal of Economics*, 122(1):209–241.

Echevarria, J. A. (1979). A development programming model for the peruvian agricultural sector.

Fraga, B. L. (2016). Candidates or districts? reevaluating the role of race in voter turnout. *American Journal of Political Science*, 60(1):97–122.

González, F. (2013). Can Land Reform Avoid a Left Turn? Evidence from Chile after the Cuban Revolution. *The B.E. Journal of Economic Analysis & Policy*, 13(1):31–72.

González Holguín, D. (1993). Vocabulario de la lengua general de todo el perú, llamada lengua quichua, o del inca. *Corporación Editora Nacional, Proyecto Educación Bilingüe Intercultural*.

Hill, M. E. (2002). Race of the interviewer and perception of skin color: Evidence from the multi-city study of urban inequality. *American sociological review*, 67(1):99–108.

Hurtado, L. (2017). Velasco, nationalist rhetoric, and military culture in cold war peru. In *The Peculiar Revolution: Rethinking the Peruvian Experiment Under Military Rule*, pages 171–196. University of Texas Press.

INIA (2018). Rol del inia en el proceso histórico de la investigación agraria en el perú.

Kay, C. (1982). Achievements and contradictions of the Peruvian agrarian reform. *The Journal of Development Studies*, 18(2):141–170.

Larreguy, H., Marshall, J., and Trucco, L. (2015). Breaking clientelism or rewarding incumbents? evidence from an urban titling program in mexico. *Unpublished manuscript, Harvard University*.

Lizzeri, A. and Persico, N. (2004). Why did the elites extend the suffrage? democracy and the scope of government, with an application to britain's "age of reform". *The Quarterly Journal of Economics*, 119(2):707–765.

Lowes, S. and Montero, E. (2021). Concessions, violence, and indirect rule: evidence from the congo free state. *The Quarterly Journal of Economics*, 136(4):2047–2091.

Masterson, D. (1991). Militarism and politics in latin america.

Matos Mar, J., Mejía, J. M., et al. (1980). Reforma agraria en el perú. *Perú problema; 19*.

Mayer, E. (2009). *Ugly stories of the Peruvian agrarian reform*. Duke University Press.

McClintock, C. (2014). *Peasant cooperatives and political change in Peru*. Princeton University Press.

Nunn, N. and Wantchekon, L. (2011). The slave trade and the origins of mistrust in africa. *American economic review*, 101(7):3221–3252.

Pasara, L. (2015). El proceso de velasco y la organización campesina. *Apuntes: Revista de Ciencias Sociales*, (8):59–80.

Puente, J. (2019). The military grammar of agrarian reform in peru: Campesinos and rural capitalism. *Radical History Review*, 2019(133):78–101.

Rejón Piña, R. (2024). The colours of lawmaking: ethno-racial descriptive representation in mexico. *Ethnic and Racial Studies*, 47(4):785–808.

Rejón Piña, R. A. and Ma, C. (2023). Classification Algorithm for Skin Color (CASCo): A new tool to measure skin color in social science research. *Social Science Quarterly*, 104(2):168–179. Publisher: Wiley Online Library.

Seligmann, L. J. (1995). *Between Reform and Revolution: Political Struggles in the Peruvian Andes, 1969-1991*. Stanford University Press.

Telles, E. et al. (2013). Project on ethnicity and race in latin america (perla). *Pigmentocracies: Ethnicity, Race and Color in Latin America*.

Trelles, A. (2016). Consecuencias inesperadas de la reforma agraria: Participación política campesina en la provincia de andahuaylas. *Revista Argumentos*, pages 43–50.

Valderrama, M. (1976). 7 años de reforma agraria peruana 1969-1976.

Villalobos Ruiz, J. (2016). La creación de la comunidad nativa y sus efectos en la vida política de los pueblos awajún y wampis. *Revista Argumentos*, 10.

Washington, E. (2006). How black candidates affect voter turnout. *The Quarterly Journal of Economics*, 121(3):973–998.

Yoder, J. (2020). Does property ownership lead to participation in local politics? evidence from property records and meeting minutes. *American Political Science Review*, 114(4):1213–1229.