Persistent Specialization and Growth: The Italian Land Reform*

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Abstract

The impact of land redistribution on structural transformation is ambiguous. While large landowners may hinder industrialization by restricting access to education, larger farm scale can facilitate mechanization and productivity growth. This study uses novel fine-grained data to examine the long-term effects of the 1950 Italian land reform, which redistributed land from large to small landowners. Employing two difference-in-differences strategies, we find that redistribution slowed industrialization, with agglomeration forces emerging as a key mechanism, whereas education played a limited role. The reform's effects on agricultural specialization persisted for at least 50 years, and expropriated areas experienced significantly lower income growth between 1970 and 2000.

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1 Introduction

The distribution of landownership has historically played a pivotal role in shaping economic development, influencing labor allocation (Matsuyama, 1992), investment decisions (Besley and Ghatak, 2010), and structural transformation. Governments have implemented land redistribution policies with the dual objectives of enhancing economic efficiency and reducing social inequalities. However, the long-term consequences of such policies remain debated, particularly regarding their impact on industrialization and local economic growth. The existing literature presents mixed evidence: while concentrated landownership is associated with restricted educational opportunities and delayed structural transformation (Galor et al., 2009), large landowners may promote mechanization and agricultural productivity through economies of scale (Foster and Rosenzweig, 2022) or exert monopsony power over local labor markets which reduces agricultural employment (Martinelli, 2014). Although past studies have examined the effects of landownership inequality within the agricultural sector (Besley et al., 2016; Smith, 2021), its long-run implications for structural transformation and overall economic growth remain less understood. This paper investigates whether a large-scale land reform in Italy influenced sectoral employment composition in the short run and affected long-term development trajectories.

In the 1950s, the Italian government implemented a land reform aimed at (i) redistributing wealth, (ii) increasing agricultural efficiency, and (iii) securing political consensus. Using a newly digitized dataset on expropriations at the municipal level and pre- and post-reform socioeconomic indicators, we analyze the reform's impact on sectoral employment. To identify causal effects on structural transformation, we employ multiple difference-in-differences models, tracking the share of individuals employed in agriculture and manufacturing across several census waves. These models account for time-invariant municipal characteristics and shared time trends, with the absence of pre-treatment differential trends supporting the validity of our approach.

We find that municipalities with higher redistribution intensity experienced a sizable and persistent increase in agricultural employment, with a corresponding decline in manufactur-

ing. Fifty years after the reform, treated areas exhibited an agricultural employment share of 16%, approximately 45% higher than control areas. These results are robust to multiple sensitivity checks, including conditioning on key predictors of the reform using a doubly robust approach.

What explains these occupational patterns? Contrary to the view that land redistribution fosters human capital accumulation (Galor et al., 2009; Albertus et al., 2020), we find no significant effects on educational attainment (i.e., literacy rate and college completion). Instead, we show that treated areas became less densely populated and experienced more dispersed housing, suggesting that weakened agglomeration forces may have slowed industrialization (Breinlich et al., 2014; Martin and Ottaviano, 2001). We also explore additional mechanisms that could have contributed to these patterns. Moreover, we argue that the long-term effects of the reform on sectoral composition were reinforced by increased intergenerational occupational persistence. Using Italian survey data, we provide suggestive evidence of a relationship between landownership and occupational inheritance.

Finally, given the ambiguous relationship between agricultural specialization and income levels, we assess whether the reform fostered or hindered local economic prosperity. Using digitized historical income estimates, we measure growth at the municipal level from 1970 to 2000, matching treated and control municipalities based on pre-reform land inequality, geography, and soil fertility. Our findings indicate that areas affected by land redistribution experienced significantly lower long-run growth, approximately 20 percentage points lower between 1970 and 2000, compared to a baseline growth rate of 183%. These results are consistent across linear specifications and propensity score methods.

Our first contribution relates to the empirical literature on structural change and economic growth and development (Bustos et al., 2016, 2020; Porzio et al., 2022). We leverage a specific historical event that represented a labor-increasing shock to productivity and find that it increased participation in agriculture. We also find remarkable persistence and provide suggestive evidence of the driving mechanisms.

Historically, land reforms have included policies focused on different aspects, such as

redistribution (Albertus et al., 2020, Adamopoulos and Restuccia, 2020, Albertus, 2025), land titling formalization (De Janvry et al., 2015), land granting (Mattheis and Raz, 2021), or changes in the organization of production (Montero, 2022); implementation quality has also shown meaningful variation (Besley et al., 2016; Galán, 2024; Lipton, 2009). According to historical accounts, the Italian land reform was focused on land redistribution and carefully implemented, making its consequences particularly interesting. Supporting the aforementioned accounts, we find that low productivity and high inequality predict the intensity of expropriation and that the reform was successful in persistently reducing the latter. Our long-term perspective allows us to observe that the impact on agricultural employment persists over fifty years.[1]

Finally, we add to the growing literature on agricultural policies in Italian history – land reform (Marciani, 1966; King, 1973; Caprettini et al., 2021) and Mussolini's Battle of Grain (Carillo, 2021). Most recently, Albertus (2023) studies one of the affected regions and compares 2011 well-being measures on the two sides of the land reform boundaries. More broadly, in the context of land ownership distribution in Italy, Martinelli Lasheras and Pellegrino (2024) documents a negative relationship between land inequality and structural transformation during the country's post-war growth but highlights its non-linearity in farm size. Comparing the evolution of treated and untreated areas through newly-digitized expropriation and income data we show how the land reform, which decreased the average size of farms, dramatically slowed the structural transformation process over time. The persistence of this finding is consistent with the creation of occupational choice distortions within small-farm-owning families.

The rest of the paper is organized as follows. Section 2 reviews the historical background,

[1] In the Philippines, where a ceiling on land holdings and a prohibition of transfers were imposed, Adamopoulos and Restuccia (2020) shows reductions in average farm size and agricultural productivity, arguing that land transfers could have dramatically mitigated these negative impacts. In our context, a ban on transfers was imposed and soon lifted, whereas no ceiling on farm size was ever implemented (see Section 2). Although 7 percent of the original land recipients did not own any land by 1960 (King, 1973) and 17 percent by 1974 (Angeli and INSOR, 1979), we observe persistent reductions in the share of large farms, higher agricultural and industrial employment, and negative long-term effects on income in reformed areas. This suggests that even when land transfers are permitted, inefficiently small farms are likely to persist, and markets may fail to produce an optimal reallocation of resources.

mainly discussing the land reform after WWII. Section 3 illustrates our data, and section 4 presents our identification strategy. Section 5 illustrates the main results, discusses their robustness, and analyzes the potential mechanisms. Section 6 investigates the relationships between land reform and economic growth in the long run. Finally, Section 7 contains some concluding remarks.

2 Historical Framework

Background

Following World War II, rural agricultural workers in Italy, particularly in the South, faced severe economic hardship, with working conditions resembling a quasi-feudal system. Regional disparities were stark: while Calabria's per capita income was approximately half the national average, Piedmont's reached 174% (Ginsborg, 2003). A Communist Party regional assembly in 1949 highlighted the extent of underdevelopment in Calabria: 90% of municipalities lacked proper school buildings, 85% had no drainage systems, and 81% lacked aqueducts. Moreover, nearly half the population was illiterate (Ginsborg, 2003).

By the late 1940s, worsening economic conditions and systemic inequalities led to widespread land occupations by agricultural workers. These movements were fueled by deep-seated grievances against absentee landowners, whose inaction and exploitative labor arrangements had persisted for decades.[2] These conditions triggered violent clashes with the police as the government sought to contain the unrest (Ginsborg, 2003).

Crafting the law

To avoid further escalation of social unrest, the Christian Democrats (i.e., the ruling party since the 1948 elections) decided on a redistributive plan and, in the first semester of 1950, presented a land reform to the Parliament (N. 977). Reformed areas were identified with

[2] Martinelli (2014) suggests that large landowners enjoyed sizable market power over labor workers. King (1973) notes that "The southern landlord generally contributed nothing more than the land to the contract, and the peasant had to pay rents in cash or kind that ranged from 25% to 60% of the value of the crop. [...] The majority of latifondisti were absentee landlords, [...] only visiting their estates for hunting purposes."

the help of agrarian technicians. A modified proposal was enacted in October: law n.841, called *Legge Stralcio*[3] (Bagnulo, 1976). The expropriation rule (see Appendix Figure A1) used measures of inequality and productivity to assess the amount of land to be taken from each landowner, aligned with the reform's stated objectives of promoting redistribution and fostering economic development. As a result, the new law targeted expropriations exclusively on large, inefficient plots. An implicit objective of the reform was to contrast the rhetoric of the Italian Communist Party, which led and fomented many of the revolts and land occupations (Ginsborg, 2003).

On the Ground: The Implementation

The reform that was enacted had a broad scope, potentially impacting 8.5 million hectares, approximately one-third of the country's total land area, as shown in Appendix Figure A2.[4] Ultimately, nearly 700,000 hectares were redistributed to approximately 120,000 families. The responsibility for implementing the reform at the local level was assigned to the *Enti di riforma* (reform bodies), with one authority assigned to each designated reform area. These institutions were responsible for managing applications and overseeing the reform process.

To be eligible, applicants had to be actively working in agriculture, with priority given to residents of the municipality where the land was located. The reform bodies established ranking criteria based on the demographic composition and social structure of agriculture in each region, leading to variations across different areas. However, a common approach was to prioritize agricultural groups with the lowest income levels. Rural workers who were allocated a plot could purchase it through a loan repayable over 30 years. Initially, early repayment and land rental or sales were not permitted, but these restrictions were formally lifted in 1967 (King, 1973). The redistributed plots varied in size: smaller plots, known as *quota*, were intended to supplement household income, while larger plots, called *podere*, were meant to support independent farming operations. However, the land allocation procedures

[3] *Legge Stralcio* translated to "excerpt of law", alluded to the fact that more would be done to address the social and distributional issues of the affected areas.

[4] Evidence of politically-driven manipulation of reform boundaries in the South justifies our decision to exclude southern municipalities from the analysis. For further details, see Section 4.

differed across regions, resulting in inconsistencies in implementation.[5]

Expropriated landowners also faced certain restrictions to prevent a swift return to the pre-reform status quo: they were prohibited from purchasing land for six years. Additionally, the implementation of the reform included measures to prevent landowners from evading expropriation or exploiting the process for personal gain. Two key provisions ensured this. First, land distribution decisions were based on ownership records from 1949, preventing landowners from artificially dividing their estates among family members or engaging in fraudulent land transfers. Second, compensation was determined using 1947 tax returns Bandini, 1952, ensuring that payments reflected historical valuations rather than inflated market prices. Expropriated landowners were compensated with 25-year fixed-rate government bonds at approximately one-third of the market value, according to Marciani (1966).

To address concerns that the reduction in operational scale due to expropriations might hinder investment capacity and productivity, assignees were required to join cooperatives for twenty years from the signing of the sales contract (Bandini, 1952). Ideally, these cooperatives would undertake high-cost investments in equipment and infrastructure to support the processing and commercialization of agricultural products. However, in practice, this requirement served more as a means of education and training than as an essential economic measure (Angeli and INSOR, 1979). One cooperative, Coldiretti, would later play an important role in shaping agricultural policy and dynamics at the national level. However, its reach and the services it provided were not exclusive to reformed areas or to landowners.

A Short-Term Assessment

The implementation of the Italian land reform of the 1950s attracted considerable attention. Prinzi (1956) and Rossi-Doria (1958) described the implementation process and its short-term effects. King (1973) and Angeli and INSOR (1979) provide an overall assessment of the success of the reform in attaining its main goals 20 years after the law was signed. According to

[5]Several scholars, like Ginsborg (2003) and King (1973), remarked that political ideology played a role and that applicants with known communist sympathies were penalized. Caprettini et al. (2021) argues that this was less prevalent in the Center and North of Italy.

Angeli and INSOR (1979), 83% of the original 120,000 firms were operating in 1974, and 80% of them were still cultivated by the original assignees or their descendants.[6] Rural workers grew their possessions: an additional 170,000 hectares of land not affected by the reform were cultivated in 1974.

As opposed to the mechanic effects on land distribution, the effects on productivity are ambiguous due to the countervailing effects of land improvement, agency realignment, and scale reduction. However, the available evidence suggests that the reform significantly improved productivity in the affected areas. King (1973) shows that productivity growth in the reformed areas was higher than the national average between 1953 and 1963 (see Appendix Table A1), likely due to the change in ownership structure and land investments.

3 Data

Our newly built dataset combines information on all recorded episodes of expropriation with a comprehensive set of historical information on Italian municipalities, described below. Descriptive statistics for our preferred sample, discussed in Section 4.2, are reported in Table 1; additional details on the construction and sources of several variables are in Appendix Section C.

Expropriation

Our novel dataset includes each single land expropriation realized following the 1950 *Legge Stralcio* extracting the first and last name of the expropriated landowner, municipality, and size of the expropriation from the original expropriation documents.[7] The official Italian government gazette published these documents between 1950 and 1953.

Our primary measure of expropriation is built by aggregating the expropriation data at the municipality level (i.e., the sum of total expropriated lands in each municipality) and

[6] Already in 1960, an official inquiry of the Ministry for Agriculture found that 7% of the assignment contracts had been canceled, in roughly half the cases by the assignee and in a quarter mutually. Only one quarter of the cancellations were related to expulsions. The most common reasons for the cancellations, accounting for 64% of the total, were shifts to other more remunerative occupations and causes related to dislike of living in the country, apathy, and professional incapacity.

[7] For an example, see Appendix Figure C1.

dividing it by the municipality's total area in 1951.[8] This measure, called *percent expropriation*, is expressed in percentage points and constitutes one of our two treatment variables. To the best of our knowledge, we are the first to collect and use precise information about the intensity of expropriation for all reformed areas. We also create a dummy variable to analyze the extensive margin of expropriation. Appendix Table A2 reports descriptive statistics of the expropriation data for each treated region.

Land Distribution and Agricultural Income

We also digitized data about the land distribution and agricultural income in Italy in 1948 from Tables 1 and 2 in Medici (1948)'s study. Giuseppe Medici collected this data at the municipal level for the Italian Institute for Agricultural Economics.

Socioeconomic and Political Variables

In our analysis, we rely on a broad set of socioeconomic indicators from decennial censuses, such as sectorial employment, resident population, and share of college graduates. We use municipality-level data from the 1936-2001 Italian national censuses collected by the Italian Institute of National Statistics (ISTAT). We also digitized data on municipal-level income per capita in 1970 from the Historical Archive of Banco di Roma. We combined it with the same variable produced in 2000 by the Ministry of Economics and Finance to build a measure of economic growth between 1970 and 2000.

We calculate each municipality's average land suitability based on the wheat land suitability measured by the Food and Agriculture Organization (FAO) with the Global Agro-Ecological Zoning (GAEZ) project. We also digitize and use data from the decennial Italian agrarian censuses of 1970, 1990, and 2000 collected by ISTAT to measure inequality in land distribution. We complete our dataset with electoral data collected by the Ministry of Interior on the national elections from 1946 to 1987.

[8] While dividing by the size of the cultivated areas might capture more accurately the share of usable land available, historical and empirical evidence suggest that the decision of how much land to cultivate is likely endogenous (see Section 2 and Martinelli, 2014).

4 Empirical Strategy

4.1 Model

The panel structure of the data allows us to follow treated and untreated municipalities over time and estimate a difference-in-differences model under the assumption of parallel trends. The chosen model is:

$$y_{it} = \delta_i + \gamma_t + \sum_{\tau \in \{1936, \mathcal{T}^{post}\}} \alpha_\tau \times d_\tau \times E_i + \varepsilon_{it} \tag{1}$$

where y_{it} is the economic outcome (e.g., agricultural employment) in municipality i in the year t; E_i represents either a treatment dummy or the percentage of expropriated lands; d_t are time dummies; δ_i and γ_t denote a full set of municipality and time fixed effects, respectively; $\mathcal{T}^{post}$ is the set of years after treatment. This model controls for common changes over time in the sectoral composition of employment through γ_t and for time-invariant, municipality-level characteristics through δ_i. We can now test for the presence of differential pre-trends (α_{1936}) and for dynamic effects over time (α_τ for $\tau \in \mathcal{T}^{post}$). All coefficients are relative to 1951, whose coefficient is normalized to 0.[9] Our favorite specification uses two-way clustered standard errors at the municipality and year levels to account for potential serial correlation at the municipal level and within census waves.

4.2 Sample Definition

Our main analysis focuses on central and northern Italy municipalities, excluding the southern regions. This choice is driven by the contemporaneous implementation of the "Cassa del Mezzogiorno" policy, which determined massive public transfers to southern municipalities to boost industrialization in underdeveloped areas between 1952 and 1992 (see Colussi et al., 2021 for more details), and that might bias our estimates. In the Appendix, we replicate our

[9] The reform law was approved on 28 July 1950 and pre-dates the 1951 census, set to represent a snapshot of the country as of November 4th, 1951. The implementation of the 1950 law, however, required some time: only 13 out of 1,143 of the digitized expropriation decrees related to the areas of interest were issued before the census, and the first was issued on August 30th, 1951. The actual reallocation likely took several months.

main specifications using southern municipalities and show that parallel trends are unlikely to hold based on a pre-trend analysis (see Appendix Table A4).[10] Differential trends predate the discussed industrial policy and are consistent with strategic inclusion or exclusion of southern municipalities from the reform, as evidenced by the archival work in Caprettini et al. (2021).

We estimate our model using two control group definitions. In our preferred sample, we compare all treated municipalities to non-treated ones in provinces with at least one treated unit. This control group is geographically proximate to the treatment group and is similarly affected by any region- and province-level policy. We consider this our preferred sample because it allows us to include all treated municipalities, thus providing greater statistical power and estimation precision.

The top panels in Figure 1 show how land inequality and plot size changed in the treated and control areas after the land reform for our preferred sample. We can observe partial convergence of the two areas, consistently with a successful reform implementation. Appendix Table A5 reports the corresponding difference-in-differences estimates. The bottom panels display the evolution of agriculture and manufacturing employment for the two municipality groups in the raw data. Our approach compares the evolution of the variables in the two groups and formally tests whether their trends diverged following the land reform.

For the secondary control group definition, we employ a matching approach. The combination of Difference-in-Differences with matching has been introduced and discussed in Heckman et al. (1997), Heckman et al. (1998), Smith and Todd (2005), and Stuart et al. (2014). In the first step, we estimate the propensity score using a logit model based on the following baseline characteristics: pre-reform land productivity, the Gini index of land plot sizes, the number of factories per 1,000 inhabitants, soil suitability for wheat, the size of the cultivated area, total resident population in 1951, total number of land plots, municipal elevation, distance from the coastline, squared distance from the coastline, longitude, and latitude.[11]

[10] Percoco (2018) uses a different identification strategy to study land redistribution in three Southern Italy regions, finding results different from the ones in this paper.

[11] Productivity is measured as total agricultural income divided by hectares used for agriculture, both obtained from Medici (1948) for 1948. The same source provides plot size distributions, enabling the calculation of the Gini

Notably, pre-reform land productivity and the Gini index of land plot sizes are directly related to the extent of the expropriation (see Section 2 and Online Appendix Figure A1). In the second step, we use a nearest-neighbor matching approach to find a similar non-treated municipality for each treated one, based on the propensity score estimated in the first step.

This approach addresses concerns that treated municipalities are systematically closer to the coastline than those in the control group, a factor that might be relevant if proximity to ports influences the growth of the industrial sector. While the control group for our preferred sample is, on average, 17 kilometers farther from the coastline than the treatment group, matching produces a control group that is less than 1 kilometer farther. Additionally, this matching procedure attenuates concerns about the proximity of treatment and control municipalities, given that 42% of the municipalities in the matched control group are in provinces that didn't experience any expropriation. However, this matching approach requires us to drop over 30% of the sample due to the unavailability of our chosen productivity measure.[12] Finally, six treated municipalities are not matched as their propensity scores are outside of the common support. This leaves us with a sample consisting of 60 treated and 60 untreated municipalities. Table A3 in the Online Appendix shows the balance of the matched sample and of our preferred sample.

4.3 Identification

The identification of our model relies on the parallel trends assumption underlying the difference-in-differences approach (Angrist and Pischke, 2008). This assumption requires that, in the absence of the reform, the variables of interest would have evolved similarly across all municipalities. The bottom panels of Figure 1 provide a visual inspection of trends, indicating that both the level and evolution of key variables were highly similar between treatment and control areas before the reform in our preferred sample. This similarity likely stems from the control group selection criteria, which include only untreated municipalities

index.

[12] Medici (1948) lacks information on the agricultural income for 19 treated municipalities in the Lazio region and 11 in the Tuscany region.

located in provinces where at least one expropriation occurred. A map of the expropriated municipalities in treated provinces is in Figure 2. To formally test for differential pre-trends, Table 2 evaluates the first assumption for both the preferred and matched samples. We find no statistically significant deviations from parallel trends prior to the reform, supporting the validity of our research design.

As discussed in Section 2, reform areas were chosen based on the recommendation of expert agronomists and the prevalence of large and inefficient land ownership. Consistent with expectations, Appendix Table A6 confirms that land inequality is the strongest predictor of expropriation, followed by average land productivity. Additionally, in Section 5.1, we employ the doubly-robust approach proposed by Sant'Anna and Zhao (2020) and implemented in Callaway and Sant'Anna (2021). The results remain largely unchanged.

Finally, we demonstrate that alternative identification strategies based on border discontinuities would suffer from low statistical power in this context. While the land reform was implemented within well-defined areas, municipalities near provincial borders experienced only limited expropriations. Thus, we could not identify a significant discontinuity in expropriations at the border (see Appendix Figure D1 and Appendix Table D1).

5 Reform Effects on Sectoral Composition

Table 2 presents the results of estimating Equation (1) with the Treated Provinces Sample (columns 1-4) and the Matched Sample (columns 5-8). For each sample, the share of individuals employed in agriculture is used as the dependent variable in the first two columns, and the share in manufacturing is used in the second two columns. For each sample and outcome combination, we report results using a binary definition of treatment first and then a continuous one.

We find strong positive effects on agricultural employment. Column (1) shows that areas subject to expropriation had 5.3 percentage points higher agricultural employment in 1991, compared to an average of 11% in control areas. The effects emerge shortly after the reform and grow over time, indicating that while the agricultural sector contracted overall,

treated areas retained a larger share of agricultural workers. Column (2) replaces the treatment dummy with the fraction of municipal land expropriated, revealing a similar pattern, confirming that the intensity of expropriation is closely linked to agricultural specialization.

Columns (5) and (6) replicate this analysis for the Matched Sample, yielding consistent results, though estimates are slightly smaller in magnitude. The estimated effect of expropriation on agricultural employment remains positive and statistically significant, though somewhat attenuated relative to the Treated Provinces Sample.

Conversely, columns (3) and (4) assess the impact on manufacturing employment, showing a negative effect of similar magnitude to that observed in agriculture. The largest decline occurs in 1981, followed by a gradual attenuation. These findings suggest that the land reform led to a relative contraction in manufacturing employment in treated areas. In the Matched Sample (columns 7-8), a similar negative trend is observed, though estimates are smaller and less persistent.

Overall, our findings indicate that treated areas experienced a significant short-term increase in agricultural employment, which persisted over subsequent decades.[13] The magnitude of this effect is proportional to the extent of expropriation, reinforcing the role of land reform in shaping sectoral composition.[14] Simultaneously, the observed increase in agricultural employment was offset by a corresponding decline in manufacturing employment. In the matched sample, the attenuated effects in the most recent years can likely be attributed to the smaller sample size and reduced statistical power, which limits our ability to detect persistent long-run effects.

5.1 Robustness

In this section, we perform robustness checks to address potential threats to our identification strategy. We test for robustness using alternative model specifications, samples, and

[13] We obtain consistent results when splitting the sample around the median of the share of agricultural workers in 1951. Results are available upon request.

[14] A Sobel-Goodman mediation analysis on the specification in column (1), including the percentage of expropriated land, suggests that approximately 73% of the effect of land reform on agricultural employment is mediated by expropriation.

inference assumptions. We perform our robustness checks using the treated province sample, as it provides better power for our analyses.

First, using province fixed effects, and including controls at the municipality level does not meaningfully affect magnitudes and significance patterns. Results are reported in Appendix Table A7.

We then show that our evidence is not driven by the inclusion in our sample of the administrative center of each province (see Appendix Table A8). Administrative centers are often the most populated town in the province and might have different economic dynamics. Estimated coefficients are virtually unchanged with respect to the baseline models.

Our treatment's geographical nature suggests that the expropriation intensity might be spatially correlated. Appendix Table A9 reports the baseline estimates with standard errors that account for spatial correlation using the procedure developed in Conley (1999)'s study. Specifically, columns (1) - (8) replicate odd columns of Table 2, with different distance cutoffs.[15] While standard errors are generally larger, overall significance patterns persist, especially for manufacturing.

To relax the assumption of unconditional parallel trends, we use the doubly robust estimator proposed by Sant'Anna and Zhao (2020) and condition on several predictors of expropriation, including land inequality and productivity (see Table A6). This estimator is consistent if the correct underlying model is a propensity score or an outcome regression model. Results for average treatment effect on the treated are largely unaffected and very close to the main specification (see Appendix Table A10).

Finally, we provide an additional check addressing the differences in average distance to the coastline between treated and untreated municipalities in the treated province sample. To rule out that this might drive the main results, we show their robustness to excluding municipalities near the coast. Appendix Table A11 replicates our main specification for samples where a progressively larger number of municipalities is excluded. Point estimates remain

[15] We choose bandwidths of 5 and 15 kilometers. The small dimension of Italian municipalities implies that over 30% of the municipalities in reformed provinces have their center within 5km of another municipality's center, and over 90% meet the same condition with a 15km bandwidth.

within the initial confidence intervals, and significance is only marginally lowered, as expected following the decrease in the number of included municipalities. This, together with our findings from the matched sample, where we find substantial balance in the distance from the sea, supports our findings as not being driven by factors unrelated to the reform.

5.2 Mechanisms

In this section, we explore potential mechanisms underlying the persistent effects observed in both agriculture and manufacturing. To maximize statistical power, we use our preferred sample, which includes all treated municipalities and considers all untreated municipalities within provinces affected by the land reform as the control group.

Education

Many studies have documented a positive relationship between land distribution and human capital development. Galor et al. (2009) develop a model in which economies with more equal land distribution implement public education earlier than economies characterized by more unequal distribution. Cinnirella and Hornung (2016) provides evidence of a negative relationship between landownership concentration and education in 19th-century Prussia. Albertus et al. (2020) show that a land reform implemented in Peru hindered human capital accumulation through "intergenerational rural stasis."

Using municipal-level data on educational outcomes, we provide evidence that the Italian land reform had small and short-lived effects on educational patterns. Columns (1)–(4) of Table 3 present the results of our baseline models, using educational outcomes as the dependent variables. In columns (1)–(2), we examine the percentage of illiterate individuals at the municipal level, as reported in the decennial censuses. The estimated coefficients are consistently negative and statistically significant, suggesting that the reform was associated with a reduction in illiteracy rates. However, the magnitude of this effect is modest, with treated areas experiencing a 0.28 percentage point decline in illiteracy from a baseline of 12% in 1951.

Columns (3)–(4) report the estimated effects of the reform on the percentage of individ-

uals with completed higher education. We find no systematic evidence that expropriation influenced higher education attainment. Furthermore, the relationship between education outcomes and the intensity of expropriation appears weak, as reflected in the results of column (3).

Agglomeration

Breinlich et al. (2014) point out that industrialization necessitates local agglomeration. In Table 3, columns (5)–(8) report the estimates of Model 1 using population density and rurality as outcome variables.[16] Both measures indicate that the reform led to a decline in density and agglomeration, potentially explaining our main findings on industrialization. Differences in the share of the population living in urban areas may have significantly affected local economic growth by constraining industrial development in reformed municipalities.

Redistribution may have initially spurred fertility or in-migration before ultimately dampening both. Angeli and INSOR (1979) notes that both treated and rural untreated areas experienced significant population declines between 1951 and 1971. While data limitations prevent us from distinguishing between fertility and migration effects,[17] Angeli and INSOR (1979) provides anecdotal evidence suggesting that the land reform did not fundamentally alter the migration patterns that characterized rural areas during this era.

Agglomeration can generate long-term persistence (for an example spanning centuries, see Bleakley and Lin, 2012). The Italian land reform may have disrupted agglomeration forces, slowing industrialization, which in turn further weakened local agglomeration dynamics.

Scale

Another mechanism proposed in the literature relates to scale effects. Adamopoulos and

[16] Population density is calculated as the ratio between the decennial population reported in the relevant census and the municipality's area in 1951, winsorized at 1%. Rurality is measured as the percentage of the total municipal population living in what the Italian Census classifies as case sparse (i.e., houses dispersed across the municipality's territory without forming a residential nucleus).

[17] Census data categorize individuals by age groups (below 15 years, 15-64 years, and 65+ years) but do not record their birth municipality. Analyzing these age distributions does not yield meaningful insights, and results are available upon request. To the best of our knowledge, no municipality-level data on internal migration exist for this period.

Restuccia (2020) examine the effects of land reform in the Philippines, where, unlike in our context, a ceiling was imposed on landholdings, leading to a decline in agricultural productivity. In Italy, while the reform reduced average land size (see Figure 1), no formal ceiling on ownership was ever implemented. Moreover, existing evidence suggests that productivity increased rapidly in reformed areas (see discussion of King, 1973 in Section 2). Additionally, Martinelli (2014) argue that in pre-reform Italy, large landowners exercised local monopsony power, optimally hiring fewer workers than they would in a perfectly competitive labor market. This suggests that land redistribution may have led to an increase in agricultural employment by shifting production to smaller farms that hired more labor.

Foster and Rosenzweig (2022) propose and empirically test a model featuring a U-shaped relationship between productivity and plot size, which can reconcile our findings with those of Adamopoulos and Restuccia (2020). Their theory also suggests that smaller agricultural firms would employ relatively larger amounts of labor – often within the household – due to frictions in the labor market and economies of scale in agricultural machines. Additionally, Martinelli (2014) argue that in pre-reform Italy, large landowners exercised local monopsony power, optimally hiring fewer workers than they would in a perfectly competitive labor market. This suggests that land redistribution may have led to an increase in agricultural employment by shifting production to smaller farms that hired more labor.

While we cannot directly test the scale hypothesis in our historical setting, we provide suggestive evidence that the reform reduced average land size (see Figure 1), potentially affecting sectoral composition in line with prior literature. Furthermore, results on intergenerational transmission of occupations, presented later in this section, suggest that labor market frictions may have increased reliance on family labor, consistent with theories linking scale and productivity.

Land Productivity

One explanation for the observed divergence relates to the land improvement initiative carried out by the Italian Government alongside the land redistribution. Ginsborg (2003) high-

lights how the largest component of expenditures for land improvement (which represented 55% of the total, see Appendix Figure A3) was devoted to housing construction, while efforts to implement irrigation plans in some regions were largely unsuccessful. We also find that, while time-invariant soil suitability was lower in reformed areas, employment was similar to control areas before the land reform. Matching treated and control municipalities based on soil characteristics or pre-reform land productivity does not meaningfully affect estimates (see Table A10).

Additional evidence of increased land productivity comes from the different uses of the lands after the reform. According to Marciani (1966), in treated areas, arable land increased from 53.4% before the reform to 67.5% in 1963, while pasture and uncultivated decreased from 35.4% to 16%. This change in distribution favored the expansion of cereal cultivation, paired with a significant increase in reared cattle quantity and quality, two higher-return land uses.

Occupational Inheritance

Occupational inheritance is a channel supported by anecdotal evidence (Angeli and INSOR, 1979)[18] and by studies in different contexts[19] that can explain the persistence of sectoral specialization beyond the first few years.[20] If children of agricultural workers are more likely to work in the same sector when their parents are landowners, land redistribution might have affected their occupational choices: a crucial aspect of the reform was to create many self-employed, land-owning, agricultural workers whose land could be inherited by their children.

To show that occupational inheritance is affected by landownership in our context, we

[18] Angeli and INSOR (1979) also argues that the land reform affected the age structure of landowners: according to a nationwide 1976 investigation, expropriated municipalities had more young male workers. Specifically, in municipalities without expropriations, men aged 14-49 working in agriculture were 37.9%, compared to 47.9% in municipalities with more than 20% of the entire territory expropriated.

[19] Dunn and Holtz-Eakin (2000), among others, shows the transmission of self-employment. Corak and Piraino (2011) show that intergenerational transmission of employers is positively related to the presence of self-employment income. Lo Bello and Morchio (2021) highlights parental professional networks' role in occupational choices. Fernando (2022) shows that Indian firstborns that inherit agricultural land display reduced migration and entry into non-agricultural sectors.

[20] Indeed, not all the above-discussed mechanisms have the potential to explain the observed persistence in agricultural specialization: for example, economies of scale are unlikely to deliver persistence independently, given that an optimal scale could be achieved through land markets.

analyze data from the Italian Survey on Household Income and Wealth, which sampled Italian citizens in both treated and untreated areas in the period 1977-2016. This survey not only allows us to identify the occupational sector of young adults and their parents but also reports whether each person owns the land they are working.

The outcome of interest of our analysis is a binary indicator for employment in agriculture, while the main independent variable is a binary indicator of whether an individual's father ever worked in agriculture as a business owner; we build and include the same variable for other sectors. Finally, we control for the sector where the father was last employed, the year of the survey, and the respondent's age. We include males aged 20 or older and estimate the following linear probability model:

$$agr_{it} = \beta_1 agr\_owner_i + \beta_2 other\_owner_i + \sum_s \theta_s \{father\_sector_i = s\} + \theta_t + \rho age_i + e_i \quad (2)$$

Columns (1) and (2) of Table 4 show that ownership of land is positively related to occupational transmission in the agricultural sector. Male children of agricultural workers have almost 40% higher probability of staying in agriculture when their parents own the land they are working on. On the contrary, we find that parental business ownership in other sectors is linked to a lower probability of employment in agriculture.[21]

6 Reform Effects on Long-Run Economic Growth

Both scale reduction and occupational inheritance mechanisms are related to inefficient outcomes. Foster and Rosenzweig (2022) argue that if all Indian farms were at the minimum scale required to maximize the return on land, farm workers' income would rise by 68%. Caselli and Gennaioli (2013) argue that dynastic management, i.e., passing ownership and control of a firm from one generation to the other within a family, is a substantial driver of cross-country TFP differences. On the other hand, evidence of monopsony pre-reform (Martinelli, 2014), faster agricultural productivity growth in reformed areas (King, 1973), and the

[21] Results are very similar when extending the analysis to include female respondents.

reduction of agency problems might lead to faster economic growth in reformed areas. Thus, the long-term effects of land reform on income growth remain an open empirical question.

To assess the impact of the reform on economic growth, we analyze municipal income per capita. Due to the lack of pre-reform income data, we employ a matching approach to estimate the reform's effects on income in 1970 and its growth from 1970 to 2000. We apply Coarsened Exact Matching (CEM) (Blackwell et al., 2009) to identify comparable units based on regional affiliation and the Gini Index of land ownership in 1948, calculated using Medici (1948). We further match municipalities based on a measure of productivity: pre-reform agrarian income from Medici (1948) best proxies productivity but is unavailable for a large share of municipalities. On the other hand, soil suitability for wheat has broader coverage but is a more indirect proxy. Belonging to the same region allows for comparability of regional economic policies and increases precision. Land distribution and productivity are the key factors determining expropriation intensity for municipalities included in the reformed area: matching on these variables is meant to fulfill the "backdoor criterion" and provide identification. While Exact Matching only compares treated and control units with the *same* covariate values, Coarsened Exact Matching compares municipalities in the same region with *similar* productivity and ownership distribution. This facilitates the inclusion of continuous variables.

Table 4, columns (3)-(6), reports the estimated effects of land reform on 1970 income levels and income growth from 1970 to 2000. Columns (3) and (4) show that land reform had small and statistically insignificant effects on 1970 income, regardless of the chosen matching variable. However, column (5) suggests a negative and statistically significant effect on long-term growth, implying around 20p.p. lower growth over 30 years, compared to an average of 183% growth in the studied sample. Matching on pre-reform productivity instead of wheat suitability in column (6) halves the number of available observations but leaves the effect's magnitude unaffected and only reduces significance to 10%.[22] These findings suggest that any short-term economic benefits of the reform were ultimately outweighed by its negative

[22]Linear specifications and propensity score methods also yield negative and statistically significant effects on growth. Results are available upon request.

impact on long-run income growth.

7 Conclusions

This study examines the long-term effects of Italy's post-WWII land reform, a large-scale redistribution effort with social, economic, and political objectives. Using administrative records, we construct a novel dataset that captures redistribution intensity at the municipal level, allowing for a detailed empirical analysis of its consequences.

First, we exploit this measure to evaluate the reform's impact on sectoral composition. Using a difference-in-differences framework, we find robust evidence that land redistribution led to a persistent increase in agricultural employment and a corresponding decline in manufacturing employment. The reform had limited effects on human capital accumulation but contributed to a negative impact on agglomeration, with treated municipalities exhibiting persistently lower population density than untreated ones. A reduction in average farm size may have further reinforced labor absorption in the agricultural sector. The persistent effects on structural change motivate an investigation of transmission mechanisms. Survey-based evidence suggests that the new ownership structure and intergenerational occupational persistence played a crucial role in shaping these outcomes.

Lastly, we assess the reform's impact on long-term economic development. We use a matching estimator and provide evidence of a negative relation between land reform exposure and income growth in the period 1970-2000. These findings suggest that, while the reform may have had short-term benefits in terms of wealth redistribution and economic development, its negative long-run effects ultimately dominated.

From a broader perspective, our results contribute to the ongoing debate on large-scale redistribution programs. We highlight how short-term redistributive gains may come at the cost of long-term economic distortions. In the Italian case, an initial reduction in inequality and poverty was followed by lower industrialization levels and slower economic growth in subsequent decades. While generalizing from historical case studies requires caution, our findings suggest that land redistribution can exacerbate pre-existing labor market frictions

and structural inefficiencies, ultimately hindering long-term economic growth.

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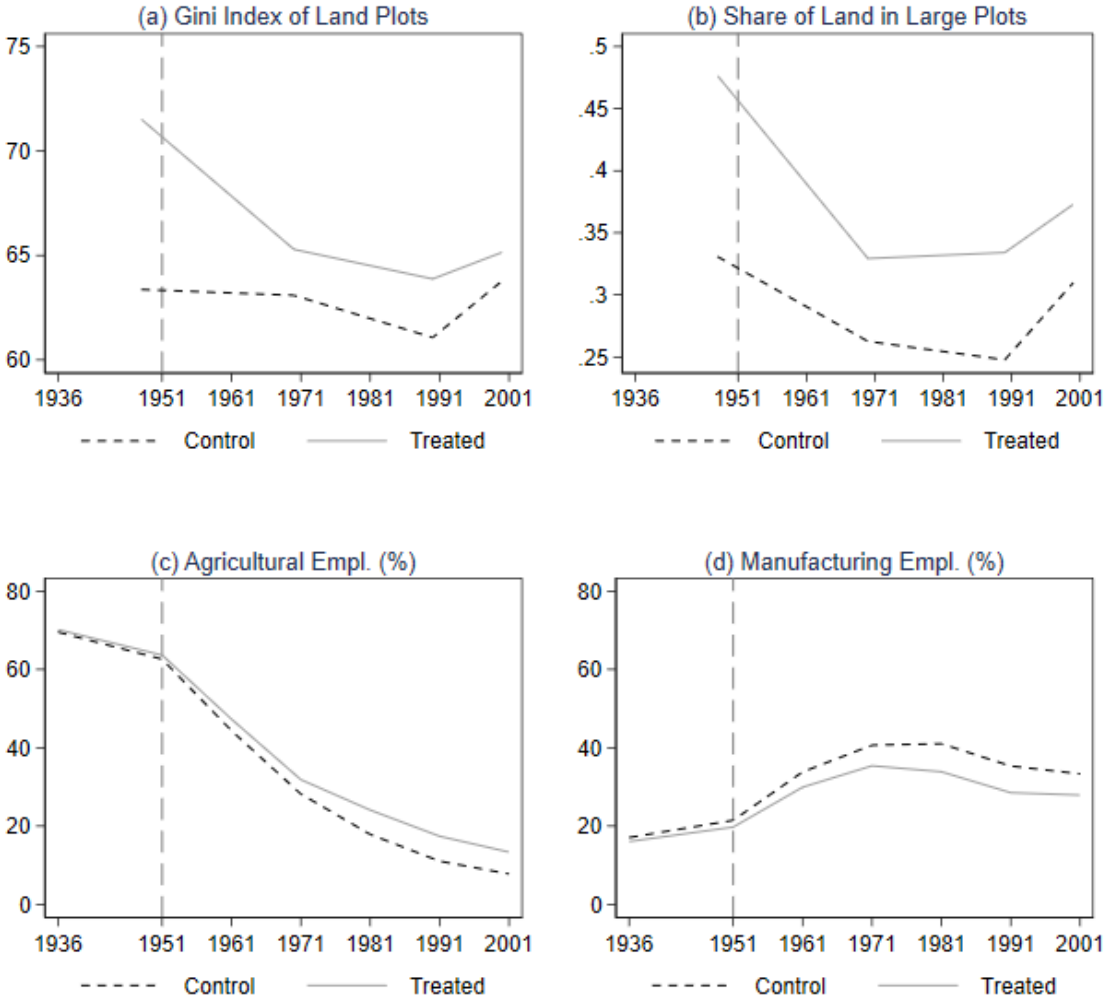
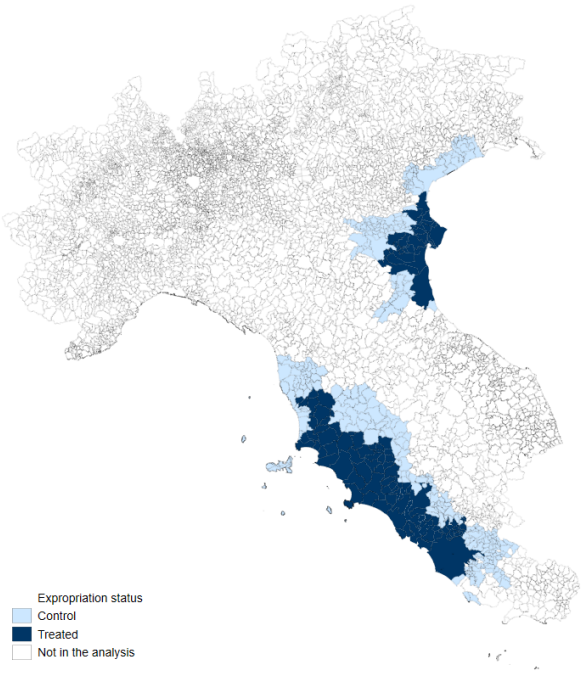
Paper Figures and Tables

Figure 1: Time series averages for treated and control areas



Panels (a) and (b) display the average Gini Index and share of land belonging to plots larger than 10 hectares, respectively, calculated using data from Medici (1948) and the Agricultural Censuses of 1970, 1990, and 2000. Panels (c) and (d) display the average employment share of agriculture and manufacturing, respectively, as measured by the Population Census for 1936-2001.

Figure 2: Expropriated municipalities in treated provinces



Note: In dark blue, municipalities included in the land reform; in light blue, municipalities in provinces where at least one municipality was expropriated. Light blue municipalities will comprise the main control group in our difference-in-differences analysis. *Source: Legge Stralcio*.

Table 1: Descriptive Statistics for Preferred Sample

	Mean	Min	Max	Std. Dev.	Observations
Expropriation					
Expropriation Dummy	0.23	0.00	1.00	0.42	411
Land Expropriated (%)	0.04	0.00	0.4	0.08	411
Census					
Empl. Agriculture (% - 1951)	62.87	2.96	91.65	19.56	410
Empl. Manufacturing (% - 1951)	21.07	1.32	79.48	13.60	410
Illiteracy Rate (1951)	0.12	0.03	0.25	0.04	411
Higher Education Rate (1951)	1.99	0.39	12.47	1.24	410
Population (Thousands - 1951)	12.83	0.24	1651.75	83.50	411
Population Density (1951))	159.16	17.99	1140.80	139.65	411
Rurality Measure (% - 1951)	36.29	0	87.15	24.87	410
Geography					
Gini Index - Land Dist. (1948)	76.95	47.80	93.42	9.29	411
Land Suitability (Wheat)	3193.89	249.93	7752.41	2054.71	411
Municipality Area (1951)	68.21	3.50	1285.30	96.31	411

Notes. Percentage of land to be expropriated depending on total taxable income (vertical dimension) and average income per hectare (horizontal dimension). Landowners with higher income and lower productivity per hectare were expropriated higher land shares.

Table 2: Difference-in-Differences, Agriculture, and Manufacturing Employment

	Treated Provinces Sample				Matched Sample			
	Agriculture		Manufacturing		Agriculture		Manufacturing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Agr. %	Agr. %	Man. %	Man. %	Agr. %	Agr. %	Man. %	Man. %
1936	-0.299	-4.768	0.692	5.732	-1.651	-9.492	0.894	4.255
	(0.627)	(4.457)	(0.534)	(3.851)	(0.925)	(5.995)	(0.977)	(6.509)
1961	1.917***	15.77***	-2.177***	-16.24***	2.012***	15.10***	-2.699***	-15.16***
	(0.365)	(2.481)	(0.354)	(1.901)	(0.462)	(2.898)	(0.400)	(1.893)
1971	2.627**	16.98*	-3.543***	-21.45***	3.687**	20.57*	-4.398***	-20.17**
	(0.928)	(7.246)	(0.737)	(5.382)	(1.231)	(8.809)	(1.112)	(7.521)
1981	5.190***	36.10***	-5.433***	-29.16**	6.092**	42.19***	-5.703**	-23.55
	(1.292)	(9.134)	(1.131)	(8.120)	(1.869)	(11.09)	(1.943)	(12.89)
1991	5.328**	34.66**	-5.079***	-23.50**	4.225	26.22	-4.433*	-12.40
	(1.523)	(10.78)	(1.299)	(9.026)	(2.297)	(14.55)	(2.197)	(14.38)
2001	4.544**	27.44**	-3.695**	-13.82	2.613	12.26	-3.857	-5.828
	(1.531)	(10.83)	(1.302)	(9.364)	(2.390)	(15.28)	(2.160)	(14.73)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mun. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2867	2867	2867	2867	839	839	839	839
ATT	3.92***	26.19**	-3.99***	-20.83**	3.73**	23.27*	-4.22**	-15.42
s.e.	(1.04)	(7.64)	(0.83)	(6.10)	(1.46)	(9.51)	(1.39)	(9.53)
Treatment	Binary	Cont.	Binary	Cont.	Binary	Cont.	Binary	Cont.

Notes. Columns (1), (3), (5), and (7) estimate Model (1) using a binary definition of treatment; Columns (2), (4), (6), and (8) estimate Model (1) using a continuous definition of treatment. Year and municipality fixed effects are always included. The average of the estimated coefficients in years 1961, 1971, 1981, 1991 and 2001 and the standard errors (in parentheses) are reported in the bottom panel of the table. Clustered standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Mechanisms

	Education				Agglomeration			
	Illiteracy %		Higher Educ. %		Pop. Density		Rurality	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treat. margin:	Ext.	Both.	Ext.	Both.	Ext.	Both.	Ext.	Both
1936					-0.325	2.288		
					(4.643)	(22.26)		
1961	-0.00281***	-0.0131***	0.0762	0.344	-6.362***	-18.09***	1.691***	10.96***
	(0.000481)	(0.00159)	(0.148)	(0.747)	(0.147)	(0.811)	(0.411)	(1.548)
1971	-0.00383***	-0.0194***	0.290***	0.627	-19.69***	-84.03**	4.907***	22.95***
	(0.000732)	(0.00329)	(0.0527)	(0.330)	(5.309)	(26.71)	(0.396)	(1.985)
1981	-0.00471	-0.0278*	-0.187	-1.956	-27.83**	-119.8**	8.029***	32.97***
	(0.00238)	(0.0120)	(0.237)	(1.214)	(8.107)	(39.50)	(1.318)	(5.936)
1991	-0.00518	-0.0374*	0.0980	-2.425	-29.64**	-129.5**	8.954***	34.33***
	(0.00325)	(0.0174)	(0.548)	(2.925)	(9.521)	(47.54)	(1.620)	(7.144)
2001	-0.00679	-0.0465*	-0.702	-6.788*	-34.38**	-152.7**	10.57***	39.20***
	(0.00359)	(0.0193)	(0.619)	(3.271)	(10.20)	(50.60)	(1.697)	(7.447)
Mun. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean Dep. Var.	0.0537	0.0537	11.05	11.05	11.00	168.1	25.24	25.24
SD Dep. Var.	0.0467	0.0467	10.36	10.36	185.9	185.9	19.47	19.47
Observations	2466	2466	2460	2460	2874	2874	2460	2460

Notes. Columns (1), (3), (5), and (7) estimate Model 1 with a binary treatment; Columns (2), (4), (6), and (8) estimate Model 1 with the percentage of expropriated lands as treatment. Year and municipality fixed effects are always included. The dependent variables are reported in the column headings. Clustered standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Probability of Agricultural Employment and Long-Run Income and Growth Effects

	Persistence		Long-Run Outcomes			
Dep. Var.	Agr. Employment		1970 Income		1970-2000 Growth	
	(1)	(2)	(3)	(4)	(5)	(6)
Owner (Agriculture)	0.0783***	0.0719***				
	(0.0143)	(0.0140)				
Owner (Other Sector)	-0.0183*	-0.0168*				
	(0.0098)	(0.0094)				
Reform Dummy			12.25	8.922	-0.211**	-0.193*
			(154.7)	(195.5)	(0.0815)	(0.101)
Region FE	No	Yes				
Matching Var.			Region, Gini, & Wheat	Region, Gini, & Productivity	Region, Gini, & Wheat	Region, Gini, & Productivity
Mean Dep. Var. (Father in Agr.)	0.185	0.185				
Mean Dep. Var. (Father in Oth. Sect.)	0.0630	0.0630				
Mean Dep. Var.			4821	4791.2	1.832	1.688
SD Dep. Var.			1113.9	1077.6	0.603	0.490
Observations	4433	4433	341	150	331	149

Notes for columns (1)-(2). Data from the Bank of Italy's Survey on Household Income and Wealth (SHIW). Our sample consists of males older than 19 surveyed 1977-2016. Standard errors clustered at the household level in parentheses. Both columns include controls for age, survey year, and father's last employment sector (6 categories). *Notes for columns (3)-(6).* Coarsened Exact Matching estimates for the effect of the land reform on income levels in 1970 and on growth in 1970-2000. Observations matched based on the administrative region (exact matching), Gini of landownership, and either soil suitability to wheat or pre-treatment productivity proxied by the ratio of total taxable agricultural income in the municipality to its cultivated surface obtained from Medici (1948). Columns (3)-(6) always include controls for the matching variables. Columns (4) and (6) control for the coarsened variables used in matching. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Online Appendix for *Persistent Specialization and Growth: The Italian Land Reform*

by Riccardo Bianchi-Vimercati, Giampaolo Lecce and Matteo Magnaricotte.

by Riccardo Bianchi-Vimercati, Giampaolo Lecce and Matteo Magnaricotte.

A Additional Figures

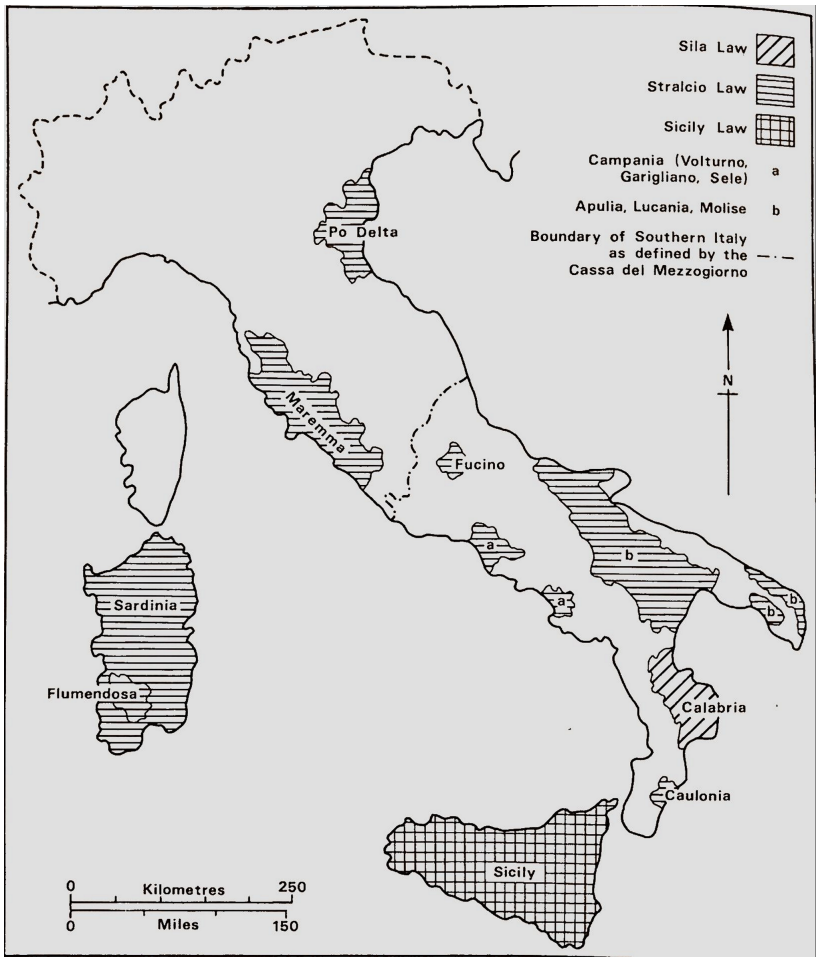
Figure A1: Expropriation Rule for the *Legge Stralcio*

Percentuali di scorporo riferite agli scaglioni di reddito imponibile

Scaglioni di reddito imponibile totale (Lire)	Imponibile medio per Ha. (Lire) 1000 e oltre	900	800	700	600	500	400	300	200	100 e meno
Fino a 30.000	—	—	—	—	—	—	—	—	—	—
Da oltre 30.000 a 60.000	—	—	—	—	—	0	15	30	55	70
» 60.000 a 100.000	—	—	—	—	0	10	30	60	70	85
» 100.000 a 200.000	35	40	47	55	60	65	70	75	84	90
» 200.000 a 300.000	45	50	55	60	65	70	75	80	87	95
» 300.000 a 400.000	52	57	60	65	70	75	80	85	90	95
» 400.000 a 500.000	60	64	66	71	76	80	85	90	95	95
» 500.000 a 600.000	64	70	76	78	80	85	90	95	95	95
» 600.000 a 700.000	68	74	79	82	85	90	95	95	95	95
» 700.000 a 800.000	72	78	82	85	90	95	95	95	95	95
» 800.000 a 900.000	76	82	86	90	93	95	95	95	95	95
» 900.000 a 1.000.000	82	86	90	93	95	95	95	95	95	95
» 1.000.000 a 1.200.000	90	92	95	95	95	95	95	95	95	95
Oltre 1.200.000	95	95	95	95	95	95	95	95	95	95

Notes. Percentage of land to be expropriated depending on total taxable income (vertical dimension) and average income per hectare (horizontal dimension). Landowners with higher income and lower productivity per hectare were expropriated higher land shares.

Figure A2: Areas interested by the land reform



Source: King (1973)

Figure A3: Breakdown of the expenses of the *Enti di riforma* in the 1950s

Tab. 41 - **Risultanze finanziarie per l'insieme degli Enti di riforma (*a*) a fine del decennio 1950-51 / 1959-60.**

Categorie di entrata	Importi milioni di lire	Importi %	Categorie di uscita	Importi milioni di lire	Importi %
Assegnazioni per compiti istituzionali	512.760	84,2	Trasformazione fondiaria	340.006	55,8
			Assistenza e cooperazione	41.903	6,9
Redditi patrimoniali e entrate diverse	51.571	8,5	Acquisizione di macchine e scorte	38.661	6,3
Debiti verso banche	33.856	5,5	Anticipazioni per opere di bonifica eseguite in concessione	2.281	0,4
Totale entrate	**598.187**	*98,2*	Crediti verso assegnatari e cooperative	26.395	4,3
Disavanzo	10.867	1,8	Spese generali, di amministrazione e per oneri patrimoniali	138.101	22,7
			Interessi passivi	21.707	3,6
Totale a pareggio	**609.054**	*100,0*	**Totale uscite**	**609.054**	*100,0*

(*a*) Eclusa la Sezione speciale per la riforma fondiaria dell'Ente autonomo del Flumendosa.

FONTE: Nostra elaborazione dei dati tratti dalle Relazioni della Corte dei conti al Parlamento (ATTI PARLAMENTARI, *cit.*).

Notes. Left column reports revenues; right column reports expenses. Among expenses, 55.8% is attributed to land transformation: historical reports (Ginsborg, 2003) report that most of the resources for land transformation were used to build new housing on the redistributed plots. General administrative costs of the reform accounted for 22.7% of the total. Source: Parliamentary Acts.

B Additional Tables

Table A1: Gross Saleable Production per Hectare

Year	Po Delta	Maremma	Fucino	Campania	A-L-M	Calabria	Sardinia	Total	Average (Italy)
1953	189	83	345	156	66	57	10	71	134
1954	182	81	275	133	55	60	15	73	129
1955	245	92	288	216	61	65	18	86	136
1956	226	97	292	242	63	80	20	90	133
I957	195	87	287	284	78	86	33	94	136
1958	247	110	379	280	89	98	48	114	151
1959	266	114	362	308	113	95	53	124	156
1960	246	107	375	330	92	98	56	116	151
1961	264	115	381	315	124	118	55	132	164
1962	265	135	414	411	138	129	59	148	165
1963	293	123	370	554	146	135	56	153	161
% yearly growth	**4**	**4.9**	**3.2**	**13.4**	**11.5**	**9.5**	**19.9**	**8.5**	**2.6**

Notes. Gross saleable production per ha. on assigned reformed lands (figures in '000 lire, constant prices). *Source*: King (1973).

Table A2: Expropriation Data Statistic

Region	**Number of municipalities**	**Number of expropriations**	**Expropriated area (hectares)**	
			Total	Average
Main sample regions				
EMILIA-ROMAGNA	13 (44)	200	36,339.38	2,795.34
LAZIO	40 (180)	341	68,647.16	1,716.18
TOSCANA	38 (123)	540	127,102.97	3,344.81
VENETO	9 (93)	71	9,490.20	1,054.47
Other regions				
ABRUZZO	8 (108)	18	19,331.85	2,416.48
BASILICATA	45 (131)	353	64,000.12	1,422.22
CALABRIA*	81 (262)	279	43,795.82	-
CAMPANIA	18 (262)	132	9,046.44	502.58
MOLISE	12 (84)	55	5,416.46	451.37
PUGLIA	60 (258)	1,107	129,158.08	2,152.63
SARDEGNA	113 (377)	240	45,554.93	403.14
Total	**437**	**3,336**	**557,883.41**	**-**

Notes: Values in parenthesis report the overall number of municipalities in the treated provinces (i.e., provinces with at least one expropriation in their territory).

Table A3: Treatment and Control Balance for Treated Province and for Matched Samples

Panel A: Treated Province Sample

	Control	Treatment	p-value
N	315	96	
Productivity	342.7	184.8	<0.001
Gini of Land Ownership	77.5	82.6	<0.001
Distance from Coast (km)	33.1	15.9	<0.001
1951 Population	4450	5432	0.006
Factories per 1000 residents	32.3	35.4	0.008
Wheat Soil Suitability	3838.5	1905	0.16

Panel B: Matched Sample

	Control	Treatment	p-value
N	60	60	
Productivity	217.8	186.1	0.41
Gini of Land Ownership	81.6	82.4	0.52
Distance from Coast (km)	16	15.3	0.55
1951 Population	6446	6947	0.43
Factories per 1000 residents	31.8	32.6	0.20
Wheat Soil Suitability	3257.9	2029.1	0.79

Notes. This table reports average values for several relevant dimensions in the two samples used for our difference-in-differences specifications. Averages are calculated separately for municipalities with at least one expropriation and municipalities unaffected by the reform. We test the difference between treatment and control along each dimension and report the resulting p-value.

Table A4: Replication of Table 2 for Municipalities in the South of Italy

	Agriculture		Manufacturing	
	(1)	(2)	(3)	(4)
Treat. margin:	Ext.	Both	Ext.	Both
1936	-1.282***	-13.19***	1.137***	10.69***
	(0.341)	(2.652)	(0.261)	(2.006)
1961	-0.0922	6.528***	0.763**	0.108
	(0.256)	(1.412)	(0.249)	(1.570)
1971	-1.485**	4.293	1.420**	1.549
	(0.475)	(3.386)	(0.423)	(3.569)
1981	-1.045	3.303	2.687***	8.822
	(0.683)	(6.076)	(0.660)	(5.544)
1991	1.383	14.50*	0.922	0.426
	(0.721)	(6.218)	(0.645)	(5.434)
2001	3.294***	23.28***	0.458	-0.0260
	(0.695)	(5.811)	(0.634)	(5.363)
Year FE	Yes	Yes	Yes	Yes
Mun. FE	Yes	Yes	Yes	Yes
Observations	9794	9738	9794	9738
ATT	0.41	10.38**	1.25**	2.18
s.e.	(0.46)	(4.17)	(0.42)	(3.66)

Notes. The analyzed sample includes only treated provinces in the south of Italy and replicates the models in Table 2. Column (1) estimates Model (1) exploiting the treatment dummy; Column (2) estimates Model (1) exploiting the percentage of expropriated lands. Year and municipality fixed effects are always included. Clustered standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A5: Effect of Land Redistribution on Land Inequality

	Gini Index		Share of Large Plots	
	(1)	(2)	(3)	(4)
Treat. margin:	Ext.	Both	Ext.	Both.
1970	-5.950***	-37.18***	-0.0790***	-0.484***
	(0.881)	(3.706)	(0.0123)	(0.0600)
1990	-5.347**	-35.39***	-0.0593**	-0.392**
	(1.021)	(3.587)	(0.0145)	(0.0742)
2000	-6.781***	-40.45***	-0.0826**	-0.466**
	(1.126)	(3.854)	(0.0151)	(0.0810)
Mun. FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	1580	1580	1580	1580

Notes. Columns (1) and (3) estimates Model 1 exploiting the treatment dummy; Columns (2) and (4) estimates Model 1 exploiting the percentage of expropriated lands. Baseline period is 1948. Data for 1948 obtained from Medici (1948); data for later years from the General Italian Census of Agriculture. Year and municipality fixed effects are always included. Clustered standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A6: Predicting Land Reform Intensity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Expr.	Expr.	Expr.	Expr.	Expr.	Expr.	Expr.	Expr.	Expr.	Expr.	Expr.	Expr.	Expr.	Expr.	Expr.	Expr.	Expr.	Expr.
Political Variables																		
Δ*PCI%*	0.096**																0.033	0.047
	(0.042)																(0.042)	(0.045)
Δ*DC%*		0.017															0.007	0.014
		(0.045)															(0.040)	(0.048)
Δ*Turnout*			0.288*														0.196	0.282*
			(0.154)														(0.162)	(0.163)
				Socioeconomic Variables														
Δ*Agr.%*				0.001													0.000	0.002
				(0.000)													(0.001)	(0.001)
Δ*Man.%*					-0.001*												0.000	0.001
					(0.000)												(0.002)	(0.002)
Employm. %						14.709*											10.460	14.486
						(8.495)											(11.089)	(10.784)
Δ*Pop.Density*							-0.000										-0.000	0.000
							(0.000)										(0.000)	(0.000)
Illiterate %								0.203**									0.198	0.152
								(0.099)									(0.140)	(0.139)
Land Gini									0.214***								0.203***	0.042
									(0.038)								(0.057)	(0.066)
Education										-0.003							-0.008**	-0.006
										(0.003)							(0.004)	(0.004)
											Geographical and Land Variables							
Wheat											-0.019						-0.097	-0.070
											(0.019)						(0.093)	(0.102)
Maize												-0.027					0.097	0.206
												(0.029)					(0.153)	(0.156)
Elevation													-0.016				-0.066**	-0.051
													(0.015)				(0.032)	(0.038)
Latitude														-0.005*			-0.015**	-0.007
														(0.003)			(0.006)	(0.006)
Longitude															-0.016***		-0.008	-0.013*
															(0.004)		(0.006)	(0.007)
Productivity																-0.006***		-0.010***
																(0.001)		(0.003)
N	411	411	407	407	407	410	408	411	411	410	411	411	411	411	411	334	403	329
Within R2	0.012	0.000	0.004	0.003	0.004	0.009	0.000	0.012	0.058	0.002	0.002	0.002	0.002	0.005	0.021	0.052	0.125	0.181

Notes. The outcome is the percentage of total land expropriated in the municipality. Whenever information is available for more than one pre-treatment observation, we use the change as a predictor, as indicated by the use of Δ. Predictors in columns (1)-(3) are from the Ministry of Interior for the national elections of 1946 and 1948; those in columns (4), (5), and (7) come from the national censuses of 1936 and 1951; those in columns (6), (8), and (9) come from the national census of 1951. The land Gini Index in column (10) comes from Medici (1948). Predictors in columns (11) and (12) come from FAO GAEZ. Productivity is proxied by the ratio of total taxable agricultural income in the municipality to its cultivated surface in 1936 obtained from Medici (1948). In column (18), we include all available predictors. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A7: Replication of Table 2 with a Different Set of Controls

	Agriculture		Manufacturing	
	(1)	(2)	(3)	(4)
Treat. margin:	Ext.	Both	Ext.	Both
1961	0.876	13.89**	-1.319	-14.46**
	(1.100)	(5.219)	(1.034)	(4.305)
1971	1.373	15.67**	-2.252	-17.29**
	(1.200)	(5.508)	(1.122)	(4.614)
1981	3.233**	27.33***	-4.199**	-21.97***
	(1.141)	(4.875)	(1.061)	(4.430)
1991	3.493**	25.58***	-3.574**	-17.79***
	(1.015)	(4.493)	(0.916)	(4.170)
2001	2.180*	18.34***	-2.734**	-15.26**
	(0.957)	(4.312)	(0.866)	(4.060)
Year FE	Yes	Yes	Yes	Yes
Prov. FE	Yes	Yes	Yes	Yes
Observations	2460	2460	2460	2460

Notes. Columns (1) and (3) estimates Model (1) exploiting the treatment dummy; Columns (2) and (4) estimates Model (1) exploiting the percentage of expropriated lands. Year and province fixed effects are always included. Municipality latitude, longitude, wheat soil suitability, illiteracy rate, share of educated people and the percentage of the population living in *case spare* (scattered houses) are always included. Clustered standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A8: Robustness: Excluding Administrative Centers of Each Province

	Agriculture		Manufacturing	
	(1)	(2)	(3)	(4)
Treat. margin:	Ext.	Both	Ext.	Both
1936	-0.345	-5.061	0.567	4.840
	(0.620)	(2.761)	(0.511)	(2.566)
1961	1.860***	15.26***	-2.153***	-13.28***
	(0.404)	(1.508)	(0.373)	(0.785)
1971	2.551**	17.87**	-3.462***	-17.13***
	(0.926)	(4.986)	(0.717)	(3.369)
1981	5.135***	31.54***	-5.328***	-20.19**
	(1.267)	(5.834)	(1.114)	(6.014)
1991	5.225**	28.49***	-5.018***	-14.94*
	(1.485)	(7.251)	(1.305)	(7.077)
2001	4.381**	23.22**	-3.631**	-8.847
	(1.477)	(7.535)	(1.311)	(7.439)
Year FE	Yes	Yes	Yes	Yes
Mun. FE	Yes	Yes	Yes	Yes
Observations	2797	2797	2797	2797

Notes. The sample does not include the administrative centers of each province. Year and municipality fixed effects are always included. For more details, see footnote of Table 2. Clustered standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A9: Robustness: Using Conley Standard Errors

	Treated Provinces Sample				Matched Sample			
	Agriculture		Manufacturing		Agriculture		Manufacturing	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Agr. %	Agr. %	Man. %	Man. %	Agr. %	Agr. %	Man. %	Man. %
1936	-0.299	-0.299	0.692	0.692	-1.651	-1.651	0.894	0.894
	(0.972)	(1.360)	(0.801)	(1.151)	(1.124)	(1.142)	(1.022)	(1.142)
1961	1.917*	1.917	-2.177**	-2.177	2.012	2.012	-2.699**	-2.699**
	(1.097)	(1.916)	(0.894)	(1.574)	(1.293)	(1.453)	(1.191)	(1.331)
1971	2.627	2.627	-3.543***	-3.543**	3.687*	3.687	-4.398**	-4.398*
	(1.597)	(2.507)	(1.214)	(1.669)	(2.125)	(2.497)	(1.946)	(2.315)
1981	5.190***	5.190*	-5.433***	-5.433***	6.092**	6.092**	-5.703**	-5.703*
	(1.935)	(3.024)	(1.528)	(2.084)	(2.632)	(3.049)	(2.570)	(3.116)
1991	5.328**	5.328*	-5.079***	-5.079*	4.225	4.225	-4.433	-4.433
	(2.092)	(3.221)	(1.744)	(2.646)	(2.913)	(3.341)	(2.790)	(3.470)
2001	4.544**	4.544	-3.695**	-3.695	2.613	2.613	-3.857	-3.857
	(2.178)	(3.201)	(1.795)	(2.693)	(3.116)	(3.572)	(2.810)	(3.606)
Observations	2868	2868	2868	2868	839	839	839	839
Bandwidth (km)	5	15	5	15	5	15	5	15
ATT	3.92**	3.92	-3.99***	-3.99**	3.73*	3.73	-4.22**	-4.22*
s.e.	(1.65)	(2.62)	(1.24)	(1.72)	(2.23)	(2.58)	(2.09)	(2.55)
Treatment	Binary	Binary	Binary	Binary	Binary	Binary	Binary	Binary

Notes. Estimation of Model 1 using a treatment dummy and Conley standard errors with different bandwidths. Comparable estimates with clustered standard errors are available in Table 2 in columns (1) and (5) for agriculture and (3) and (7) for manufacturing. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A10: Replication of Columns (1) and (3) of Table 2 Controlling for Expropriation Predictors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ATT Agr. %	3.921***	3.454**	3.017**	3.259*	3.583***	2.709*	5.055***
	(1.480)	(1.635)	(1.488)	(1.800)	(1.359)	(1.457)	(1.731)
ATT Man. %	-3.985***	-4.650***	-2.719**	-3.543**	-3.904***	-3.241***	-3.543***
	(1.175)	(1.334)	(1.179)	(1.438)	(0.964)	(0.924)	(1.329)
Observations	2460	2460	2460	2460	2430	2430	1980
Gini	No	Yes	No	Yes	Yes	Yes	Yes
Geolocation	No	No	Yes	Yes	Yes	Yes	Yes
Others	No	No	No	No	Yes	Yes	Yes
Soil Quality	No	No	No	No	No	Yes	Yes
Productivity	No	No	No	No	No	No	Yes

Notes. Estimates of Model 1 using binary treatment using the doubly-robust difference-in-differences estimator proposed by Sant'Anna and Zhao (2020) and implemented in the `did` package by Callaway and Sant'Anna (2021). Reported coefficients are the average of treatment effects estimated post-reform. Columns control for different combinations of reform predictors, as shown in Table A6. *Geolocation* controls include latitude and longitude; *Others* include 1951 employment, 1951 literacy rate, share of college-graduated residents in 1951, PCI vote share change, electoral turnout change, and municipal elevation. Soil quality controls include suitability for wheat and maize, according to FAO GAEZ. Productivity is proxied by the ratio of total taxable agricultural income in the municipality to its cultivated surface in 1936 obtained from Medici (1948). Clustered standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A11: Robustness: Excluding Coastal Municipalities

	Agriculture			Manufacturing		
	(1)	(2)	(3)	(4)	(5)	(6)
ATT	3.921**	3.114**	2.744*	-3.985***	-4.088***	-4.445**
	(1.216)	(1.246)	(1.280)	(0.974)	(1.077)	(1.207)
Pre-Trends	-0.299	-0.0146	0.138	0.692	0.593	0.526
	(0.646)	(0.656)	(0.734)	(0.564)	(0.515)	(0.489)
Distance	0	10000	15000	0	10000	15000
N Observations	2867	2539	2378	2867	2539	2378
N Treated Municipalities	96	78	67	96	78	67
N Treated Provinces	10	9	8	10	9	8

Notes. Each column excludes municipalities whose centroid is within the chosen distance (reported in meters at the bottom) from the coastline. The first (fourth) column with distance equal zero corresponds to the first (fourth) column of Table 2. Year and municipality fixed effects are always included. For more details, see footnote of Table 2. Clustered standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

C Data: Description and Sources

Expropriation Data

Treatment variables have been digitized from original expropriation documents (i.e., *Gazzetta Ufficiale*). In each expropriation, we collected information on the first name and the last name of the beneficiary, municipality, and size of the expropriation. Figure C1 reports an example.

Figure C1: Example of reported expropriation in *Gazzetta Ufficiale*

DECRETO DEL PRESIDENTE DELLA REPUBBLICA 18 dicembre 1952, n. 3300.

Trasferimento in proprietà all'Ente per lo sviluppo dell'irrigazione e la trasformazione fondiaria in Puglia e Lucania Sezione speciale per la riforma fondiaria - di terreni di proprietà di Torre Maria fu Gioacchino, nel comune di Grottole (Matera).

IL PRESIDENTE DELLA REPUBBLICA

Visti gli articoli 77, comma primo ed 87, comma quinto, della Costituzione della Repubblica;

Viste le leggi 12 maggio 1950, n. 230; 21 ottobre 1950; n. 841; 18 maggio 1951, n. 333; 2 aprile 1952, n. 339 e 16 agosto 1952, n. 1206;

In virtù della delegazione concessa dagli articoli 5 della legge 12 maggio 1950, n. 230 ed 1 e 2 della legge 21 ottobre 1950, n. 841;

Visto il proprio decreto 7 febbraio 1951, n. 67;

Visto il piano particolareggiato di espropriazione compilato dall'Ente per lo sviluppo dell'irrigazione e la trasformazione fondiaria in Puglia e Lucania — Sezione speciale per la riforma fondiaria —, nei confronti di Torre Maria fu Gioacchino, per i terreni ricadenti nel comune di Grottole (provincia di Matera);

Udito il parere, in data 26 novembre 1952, espresso dalla Commissione parlamentare nominata a norma degli articoli 5 della legge 12 maggio 1950, n. 230 ed 1 e 2 della legge 21 ottobre 1950, n. 841;

Sentito il Consiglio dei Ministri;

Sulla proposta del Ministro Segretario di Stato per l'agricoltura e per le foreste;

Decreta:

Art. 1.

E' approvato il piano particolareggiato di espropriazione compilato dall'Ente per lo sviluppo dell'irrigazione e la trasformazione fondiaria in Puglia e Lucania — Sezione speciale per la riforma fondiaria —, nei confronti di Torre Maria fu Gioacchino, relativo ai terreni ricadenti nel comune di Grottole (provincia di Matera), per una superficie di ettari 51.26.31, specificamente descritti nell'elenco n. 1 allegato al presente decreto.

Art. 2.

I terreni indicati nel precedente articolo sono trasferiti in proprietà all'Ente per lo sviluppo dell'irrigazione e la trasformazione fondiaria in Puglia e Lucania — Sezione speciale per la riforma fondiaria.

Art. 3.

E' ordinata l'immediata occupazione, da parte dell'Ente predetto, dei terreni indicati nel precedente articolo 1.

Art. 4.

L'elenco dei terreni, con l'indicazione dell'indennità di espropriazione offerta, munito del visto del Ministro proponente, forma parte integrante del presente decreto, che entra in vigore il giorno stesso della sua pubblicazione nella *Gazzetta Ufficiale* della Repubblica Italiana.

Il presente decreto, munito del sigillo dello Stato, sarà inserto nella Raccolta ufficiale delle leggi e dei decreti della Repubblica Italiana. E' fatto obbligo a chiunque spetti di osservarlo e di farlo osservare.

Dato a Roma, addì 18 dicembre 1952

EINAUDI

DE GASPERI — FANFANI

Visto, *il Guardasigilli*: ZOLI

Registrato alla Corte dei conti, addì 15 *gennaio* 1953
Atti del Governo, registro n. 69, *foglio n.* 108. — PALLA

Income Data

Income 1970 is an estimation of the average net income at the municipal level in 1970. Incomes are expressed in 2000 euros. The data are from Bocca and Scott (1974).

Income 2000 is an estimation of the average net income at the municipal level in 2000. It has been computed as the ratio between the overall taxable income over the number of taxpayers in each municipality. Incomes are expressed in 2000 euros. The data were downloaded from the Ministry of Economy and Finance.

Other Control Variables

Rurality is the percentage of the population living in *nucleo abitato* (i.e., a tiny nucleus of houses in the territory of the municipality) or in *case sparse* (i.e., houses spread over the territory of the municipality but without forming a residential nucleus) over the total population at municipal level. The data are from "ottomilacensus.istat.it".

Share of People with Completed Higher Education is the share of people in the population (aged 6 and above) that completed at least high school. The data are from "ottomilacensus.istat.it".

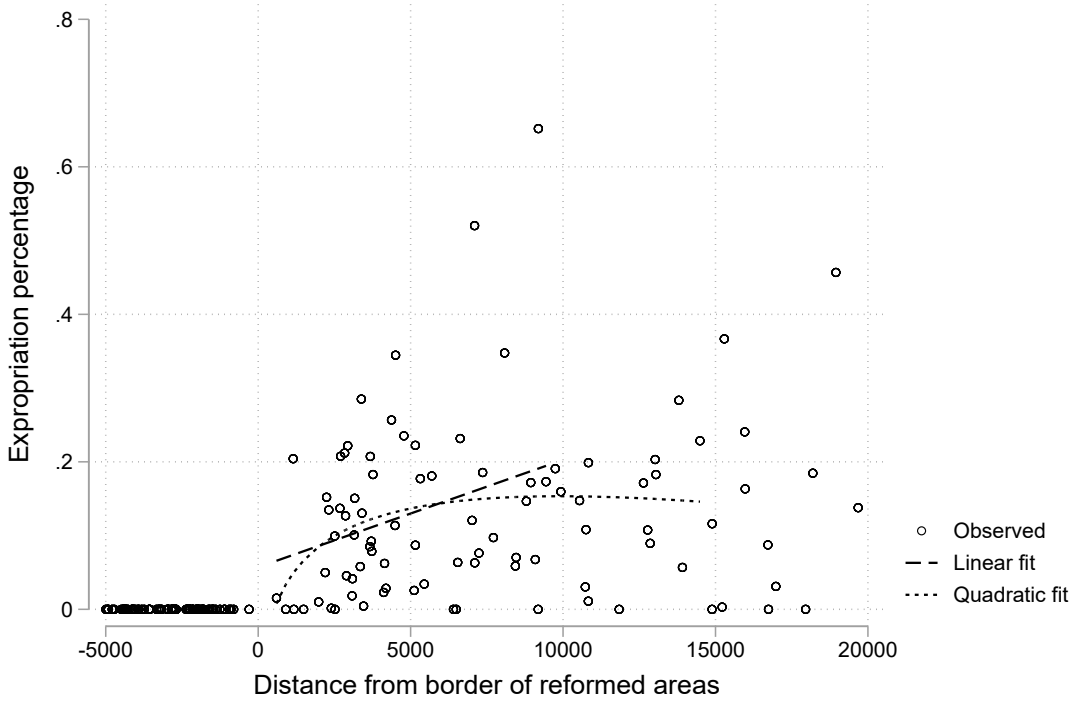
Illiteracy Rate is the share of people in the population (aged 6 and above) that is illiterate. The data are from "ottomilacensus.istat.it".

D Additional Results: Regression Discontinuity

In this section, we provide evidence that justifies excluding a regression discontinuity design for our empirical strategy. Our main treatment variable is the percentage of expropriated land of each municipality. Looking at the spatial distribution of expropriated land can in-

form us on the magnitude of the discontinuity at the border of municipalities that were part of reformed areas. Figure D1 shows the scatter plot of the expropriation data, ranked by distance from the closest border of the reformed areas. The figure also displays a linear and quadratic fit within the bandwidths chosen by the procedure described in Calonico et al. (2017), shown in Table D1. A visual inspection of the plot reveals the absence of a sharp discontinuity at the border for our main treatment variable. Therefore, employing a regression discontinuity design based on the distance from reformed areas would not capture the underlying variation we want to capture well.

Figure D1: Expropriation percentage and distance from the border of reform areas



Notes. The y-axis represents the percentage of land in the municipality expropriated by the reform; the x-axis reports distance from the reform border, where negative values mean municipalities were not treated. The positive slope of the linear and quadratic fits of the data and the small discontinuity around 0 suggest that a Regression Discontinuity Design would be statistically underpowered to identify the effects of land redistribution.

In Table D1, we formally test the discontinuity in the percentage of expropriated land using distance from the border of reformed areas as our running variable. We do so for

a linear and a quadratic specification, which correspond to the two fitted lines displayed in Figure D1. In line with state-of-the-art techniques on regression discontinuity designs (Cattaneo et al. (2019)), the Table reports the conventional estimate of the local treatment effect at the discontinuity, with the corresponding optimal choice for the bandwidth. The Table also shows conventional and robust standard errors, where the latter accounts for bias. The expropriation percentage does not display a significant discontinuity at the threshold (except for the case of a linear fit with conventional standard errors, which is significant at the 10% level).

Table D1: Regression Discontinuity

	Expropriation %	
	Linear	Quadratic
Treatment	0.049	0.016
Conventional s.e.	(0.029)	(0.042)
Robust s.e.	(0.037)	(0.049)
Bandwidth (m)	9539	14549
Observations	1449	1449

Notes. Treatment is a binary variable taking value of 1 for municipalities within the reform borders. Outcome is the percentage of land expropriated by the reform. The two columns control for linear or quadratic effects of distance from the reform border. Estimates of the change in outcome at the discontinuity are not significant at standard thresholds when using the bias-robust standard errors implemented by the `rdrobust` package by Calonico et al. (2014). This suggests that a Regression Discontinuity Design would be statistically underpowered to identify the effects of land redistribution.