BANCA D'ITALIA
EUROSISTEMA

Quaderni di Storia Economica

(Economic History Working Papers)

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March 2024

number 52

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ISSN 2281-6097 (online)

Designed by the Printing and Publishing Division of the Bank of Italy

Land Inequality and Long-Run Growth: Evidence from Italy

Pablo Martinelli Lasheras* and Dario Pellegrino**

Abstract

This paper explores the role of landownership distribution in shaping the Italian post-WWII long-run growth experience (1951-2001). By exploiting an extraordinarily high-quality sub-national dataset, we find a strong and robust negative relationship between private landownership inequality and different measures of economic development and structural change during the Economic Miracle. Our results show that a relatively egalitarian agrarian milieu was conducive to the most successful growth model in post-WWII Italy: the 'industrial districts', the flexible network of small and medium-sized enterprises whose origins can be traced back to the 1950s. Widespread access to property and family farming was key to accelerating structural transformation. We find the effect of land inequality to be driven by the compression of the resources available to the lower-middle rural class. The intensity of sharecropping and rent-paying tenancy among non-owning farmers is also associated with higher growth, mitigating the growth-depressing effects of land inequality. The growth-enhancing effects of access to property are limited by minimum asset value levels and fade above a certain threshold, consistent with the existence of credit constraints and poverty traps that shape structural transformation in the long run.

JEL Classification: O1, O4, N3, Q1, R1
Keywords: land inequality, wealth distribution, structural change, long-run economic growth

Contents

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1 Introduction*

The role of inequality in shaping economic growth is a hotly debated topic. The academic debate is far from settled, due to the heterogeneity of possible mechanisms and their paramount measurement challenges (Baselgia and Föllmi, 2022). Empirical and theoretical research on the role of land inequality has gained centrality in this literature, not only because of the prominent role of the agriculture in early stages of the development. Land is a non-reproducible asset intensively used in the primary sector. Its distribution is one of the most defining characteristics of the economic structure of pre-industrial societies, with wider ramifications into the distribution of political power and the nature of its institutions. Tackling the role of land inequality is essential in understanding the drivers of the development process, but it provides insights that may be relevant also for the policy debate in advanced economies, as it allows to proxy a structural component of inequality, which is related to wealth transmission and is pre-determined with respect to market mechanisms.
We contribute to this growing literature on the effects of land inequality by exploring the role of landownership distribution in shaping the Italian post-WWII long-run growth experience (1951-2001). Both regional inequality (with the secular North-South developmental divide) and the role of latifundia have been hot topics in Italian economic history, and in this paper we provide a systematic exploration of their relationship. A key limitation of the literature on land inequality is that historical data are often not available or of poor quality, and hence scholars need to rely on proxy measures. To our knowledge, our paper is the first one to study the impact of land inequality on long-run growth at a fine-grained level of geographical disaggregation for a now-developed country using an exceptionally precise measure of historical landownership concentration (see in section 3).

Unlike other contributions, which explore the very first steps in the process of economic growth (generally heavily concentrated in few early industrial core areas), our focus is on a subsequent period, when modern economic growth spreads from this initial heartland to the majority of the country, although with varying degrees of intensity and timing. By doing so, we abstract from key determinants of early industrial localization such as agglomeration forces and natural resources availability, as well as other historical legacies associated to pre-Unitarian polities.

Our paper is the first study of the impact of landownership concentration, spanning the whole development process in a country eventually becoming an advanced industrial economy and operating during the whole period under mature capitalist, democratic and largely centralized institutions. Unlike other studies focusing on the relationship between land inequality and elite

* Disclaimer and Acknowledgements: The views expressed in this paper are those of the authors and do not necessarily reflect those of the Bank of Italy. We thank participants at the Eternal City Economic History Worksop, at an internal seminar of the Bank of Italy, at the IV Agricliometrics Conference (Madrid), at the Figuerola Institute Annual Workshop (Madrid), at the EHES Congress (Groningen), at the EHS Conference (Warwick) and at the World Cliometric Congress (Dublin). We also thank Federico Barbiellini Amidei, Fabrizio Balassone, Federico Cingano, Guido de Blasio, Giacomo Gabbuti, Matteo Gomellini, Salvatore Morelli, Roberto Torrini, Paolo Sestito and an anonymous referee for useful suggestions. We thank Eleonora Costantino for editorial assistance. Pablo Martinelli Lasheras acknowledges funding from Excellency Project of the Autonomous Community of Madrid V PRICIT, as well as from the research projects HAR2016-76814-C2-1-P (AEI/ FEDER UE) funded by the Spanish Ministry of Economy and Competitiveness, and PID2019-104869GB-I00, funded by the Spanish Ministry of Science, Innovation and Universities.

capture of local institutions, our exceptional historical setting helps us isolating the purely economic effects of initial wealth inequality.

Our findings provide strong evidence that land inequality adversely affected economic growth by slowing down the process of structural change at the very local level. Crucially, our results are not driven by the arguably most important post-war rural policy intervention, the 1950s land reform. Without engaging in a full assessment of the reform outcomes, we observe that higher levels of land inequality are consistently associated with lower growth rates, even if we confine our analysis to non-reform areas. Since variation in land inequality levels across the country is not clear-cut, this hardly explains the North-South divergence, which at any rate had peaked at the beginning of our period of analysis.

Rather, our results suggest that a relatively egalitarian agrarian milieu was the cradle of the most successful economies of the second post-war. This is associated with the rise of the so-called "Third Italy", the homeland of the industrial districts - the flexible network of small and medium enterprises whose origins can be traced to the 1950s. Structured along the Via Emilia, the Adriatic corridor and the stretch of hilly areas between the Alps and the Po Valley in eastern Lombardy and in Veneto, this area sustained innovation and economic growth when the 1970s crisis severely hit the large (and, often, state owned) industry-led growth model.

Our evidence is consistent with the hypothesis that the concentration of rural wealth resulted in credit constraints for asset-poor peasants, limiting investment in physical and entrepreneurial capital in presence of indivisibilities, as suggested by the theoretical literature surveyed below.

The paper proceeds as follows. In the section 2, we review the literature on the potential mechanisms linking inequality with economic growth, with a particular emphasis on land inequality. We also identify how this literature fits the broader debate on Italian development and motivate why Italy provides an exceptional case for drawing broader implications. In section 3, we discuss our data and sources and present our main dependent and independent variables. In section 4, we make explicit our empirical strategy and explain the rationale for our instrumental variable approach. In section 5, we present the bulk of our empirical findings, taking into account heterogeneity across time and geography, the potential role of the agrarian reform, further robustness checks and exploring potential explanatory channels. In section 6 we conclude.

2 Literature Review: land inequality, economic development and the Italian experience

The growing attention to the effects of land inequality in the process of economic growth is the combination of several strands of literature, focusing on different mechanisms.
Beginning in the 1990s, models with heterogeneous agents and credit market imperfections introduced inequality as a determinant of modern economic growth. Initial wealth distribution can shape long-run growth in presence of capital market failures by determining risk-bearing propensity, occupational choices and entrepreneurship (Banerjee and Newman, 1991, and Banerjee and Newman, 1993), investment in physical capital (Piketty, 1997) or in human capital (Galor and Zeira, 1993 and Benabou, 1996). Most of these early models predict a long-run negative impact of wealth inequality.

This theoretical literature soon gave rise to an empirical research agenda, initially focused on exploiting cross-country variation. Absence of systematic data on wealth distribution at the national level led scholars to use imperfect measures of land (farm size) inequality. In an influential early empirical study, Deininger and Squire (1998) found a negative cross-country effect of land inequality on growth. Banerjee and Duflo (2003) nuanced these results by suggesting that the relationship between inequality and growth is non-linear, with stronger negative effects at early stages of development, which even turn positive at higher levels of income in Barro (2000).

The focus on countries as units of observation paved the way to another strand of literature focusing on the nation-wide political economy effects of inequality, operating through conflict, instability and policies. There are different theoretical predictions associated with this channel. High inequality can lead to an excess of demand for growth-inhibiting redistributive policies (Alesina and Rodrik 1994; Persson and Tabellini 1994). Furthermore, inequality may jeopardize social cohesion, leading to high levels of political instability and insecure property rights (Perotti 1996; Keefer and Knack 2002), social unrest and civil wars (Blattman and Miguel, 2010) and more incidence of crime (Fajnzylber et al., 2002), in turn adversely affecting growth.

Overall, cross-country studies have found a negative (reduced form) relationship between inequality and growth, although there is substantial variation in the magnitude of the results (and even in their sign). Cross-sections have tended to find stronger negative effects than panel data: this might be attributed to inter-country heterogeneity, omitted variables associated to national characteristics and international heterogeneity in data quality, or by effects of inequality operating on the long-run. Wealth inequality, and in particular land distribution, has tended to dominate in terms of negative impact on growth respect to income inequality[1].

Easterly (2007) suggested that most of the conflicting findings of the empirical literature were driven by a confusion between what he called structural inequality (unambiguously bad for growth), that is the result of inherited, historical events and/or the distribution of political power, and market inequality (which could be positively associated with growth)[2]. Thus, land inequality is expected to be a better proxy of structural inequality compared to income inequality.

Land inequality became increasingly prominent in the literature focusing on the political economy channel by its impact on institutions in the early stages of economic development. Engerman and Sokoloff (1997; 2000) made the very influential argument that Latin American sluggish growth in the last two centuries is a consequence of extreme levels of economic inequality originated in colonial times and transmitted to post-independence polities. High levels of land inequality provided the rural elite with the economic means and the political incentives to capture institutions, resulting in a self-perpetuating stagnant equilibrium. This argument was extended and formally tested by Acemoglu et al. (2002), who popularized the

[1] For an in-depth picture of empirical studies on inequality-growth link see the literature survey in Baselgia and Föllmi (2022) and Neves and Silva (2014), and the meta-analysis in Neves et al. (2016).

[2] The distinction between structural and market inequality resembles the one between inequality of opportunities and of outcomes, as for instance proposed by Roemer (1998). Nevertheless, they do not completely overlap: indeed, even sheer market inequality, if left unchecked, could drive unequal opportunities for individuals born in poorer households and/or geographical areas, with a detrimental effect on growth.

concept of extractive élite and extractive institutions in a following influential book (Acemoglu et al. 2012).

In a seminal paper bridging the credit market failure and the political economy channels, Galor et al. (2009) explicitly introduced land inequality in a two-sector model, linking it to the onset of Modern Economic Growth. By combining capital market imperfections with the elite's endogenous taxation and spending choices, they show that more egalitarian landownership regimes respond earlier to the rise in the demand for human capital by providing growth-maximizing educational policies. Since human capital is more complementary to physical capital (intensively used in the industrial sector) than to land (intensively used in agriculture), human capital investment accelerates structural change, increasing wages and reducing rents.

Galor et al. (2009) provided a strong and micro-founded theoretical prediction holding at subnational level and linking land inequality with a delayed onset of economic development via education, along with the first empirical evidence of such a channel (exploiting US state-level variation). This stemmed a new wave of national studies that avoided the huge inter-country heterogeneity and allowed exploiting detailed datasets hardly available at the international level.

Landownership inequality had a negative effect on education (Cinnirella and Hornung 2016) and delayed the demographic transition (Becker, Cinnirella, and Woessmann 2012) in nineteenth-century Prussia. Similar negative effects on education have been found for 19th century Spain (Beltrán Tapia and Martinez-Galarraga, 2018), with persistent negative developmental outcomes into the 20th century (Oto-Peralías and Romero-Ávila, 2016). But conflicting findings for Britain (Goñi, 2018, and Clark and Gray, 2014) or spatially heterogeneous effects across states in 1890s USA and across countries in early 1900s European regions (Baten and Hippe, 2018, focusing on numeracy) suggest that the link between human capital and inequality might be context-specific. Moreover, land inequality can also be correlated with lower levels of provision of public goods other than education, such as welfare spending, and even local institutional quality, as found by Wigton-Jones (2020) in Brazil from 1920 to the end of the 20th century.

Other studies of the institutional channel focus on the (sometimes persistent) negative effects of extractive agrarian institutions associated to high levels of land inequality. Gary et al. (2022) provide quantitative evidence of how the reintroduction of serfdom in 18th century Denmark, by limiting labourers' exit option, distorted factor payments. Bertocchi and Dimico (2014) find persistent effects of slavery in present-day US counties, mostly acting through human capital accumulation. Banerjee and Iyer (2005) also find persistent negative effects of colonial land tenure regimes empowering landlords in post-independence India, which they largely attribute to local political equilibria and investment decisions leading to under-provision of public goods.

Some research has focused on the growth-enhancing consequences of the liquidation of traditional agrarian institutions, with examples spanning from landed élites' emigration and land redistribution in post-Revolutionary France (Finley et al., 2021 and Franck and Michalopoulos 2017), to early 16th century England following the dissolution of the monasteries (Heldring et al., 2021), and 19th century Denmark following the pro-peasant liberal land reforms that favoured the emergence of a rural middle class (Boberg-Fazlić, et al., 2022), as well as Imperial Russia after the abolition of serfdom in 1861 (Markevich and

Zhuravskaya 2018) and the Stolypin reform granting private property rights to peasants (Castañeda and Markevich 2019).

Another mechanism is associated with the direct impact of land inequality on agricultural productivity even under fully modern and capitalist institutions, with indirect effects on economic development (Vollrath, 2007). Agricultural and development economists have tried to make sense of the so-called Inverse Size-Productivity Relationship (ISPR) - a (much debated) empirical regularity – with similar tools to those employed in the previous growth literature. Different combinations of market failures (Barrett et al.2010; Carter 1984 and 2000; Feder 1985; Foster and Rosenzweig, 2022) can prevent farmers to adjust to the optimal operational size and to efficiently allocate labour across farms, explaining why there is a tendency in developing economies for larger farms to exhibit systematically lower levels of land productivity.

Although the very existence of the ISPR is disputed (Benjamin 1995; Lamb 2003), efficiency gains have been major goals (beyond and in addition to political aims) of redistributive land reforms. Those pro-peasant land reforms are widely considered a key component in the successful growth of several East Asian countries (Studwell 2013; Alesina and Rodrik 1994; De Gregorio and Lee 2004). Yet, literature on the effects of land reform provides mixed evidence as the results are heavily dependent on the actual implementation (Lipton, 2009).

In this paper we contribute to this literature by exploring the role of land inequality in shaping development across Italy. Italy after the 1950s provides an interesting case for several reasons. First, the country was a semi-industrialized one, meaning that it still had a sizeable agricultural sector but could produce high-quality statistics. Second, it was a centralized, democratic and capitalist economy. Unlike many of the papers focusing on the effects of 'traditional' institutions and on local political economy constraints, these features provide an ideal environment to focus on the purely economic effects of wealth inequality in market economies. Third, post-1950s Italy was a nationally integrated and increasingly open economy, with falling transportation costs and falling barriers to international trade. This allows us to consider demand conditions as exogenous from the point of view of local economies, focusing on the supply-side implications of land inequality for the development process. Last but not least, Italy has a long history of uneven regional development.

Land inequality was indeed one of the major malefactors of traditional Italian historiography. It received major responsibility for the long-run divergence between the Northern and Southern sections of the country. Marxist historians (Sereni 1947) attributed Southern latifundia lack of capitalist dynamism (allegedly being feudal residuals), and the liberal historiography (Romeo, 1959) shared this negative view at the local level but considered it a necessary ill for increasing savings (and therefore the investment rate) at the national level. Both interpretations were functional to the ongoing post-war political debate, and focused on the pre-war period. With the land reform and industrialization in the 1950s and 1960s, first, and with the methodological renewal of Italian economic history, since the 1980s-1990s, the terms of the debate have shifted. Interest in the impact of land distribution on growth faded.

Today scholars attach greater importance to determinants of the regional divide such as social capital, market access, infrastructure, resource endowments and human capital (see Federico, Nuvolari and Vasta, 2019, for a useful discussion). Few studies have recently explored the role of land inequality in human capital accumulation (Cappelli, 2016; Mariella, 2022) in pre-

WWI period and in agricultural efficiency during the interwar period (Martinelli, 2014a). Martinelli (2014b) has also explored the geography of land productivity in 1930, suggesting that the North-South agricultural gap was more an outcome of uneven industrialization than a cause of it.

Here we provide a fresh look at this topic, by inspecting the role of inequality in shaping post-WWII growth trajectories and connecting the Italian case with the modern growth and development literature on inequality. We do so by going at a very local level and exploiting a new database on land inequality and the agricultural conditions in Italy before the onset of the Economic Miracle. Our look is novel, since this is the first study to use a precise measure of land inequality in the Italian setting. It is also a fresh look since we focus on a relatively late period of Italian development. And yet, during these decades of unprecedented economic development, structural transformation permeated most of the country and brought to an end almost a century of ever-growing regional inequality, when industrialization had been almost exclusively confined to the core industrial enclaves of the so-called industrial triangle - the North-Western regions of Piedmont, Liguria and Lombardy (Brunetti and Felice 2017; Iuzzolino, Pellegrini, and Viesti 2013).

In this paper we show that the agrarian roots of post-war Italian development have been unduly overlooked. Although policymakers during the Golden Age of economic growth (1950s-1970s) focused very prominently on the developmental role of large-sized industries (either private or public), since the 1970s scholars increasingly identify the central role of the small - and medium-sized industrial enterprises as one of the most salient traits of the Italian experience of modern economic growth after WWII[3].

These small enterprises were organised in 'industrial districts' (Becattini 1979; 2000), areas of heavy sectoral specialisation where individual companies were connected to a wider local network of suppliers, who witnessed a dense circulation of skills and unwritten knowledge. They were much more flexible to changes in international market conditions than large enterprises (often compromised by massive fixed investments) and had access to well-functioning networks of local credit institutions and supportive political systems.

These industrial districts blossomed with particular vigour in the so-called 'Third Italy' (Bagnasco, 1977), comprising both 'white' (the heavily catholic *Triveneto*) and 'red' (the left-leaning Emilia and Central Italy) regions. For different reasons, small and medium enterprises were able to draw support from both sides of a strongly polarized political spectrum: the Marxist left saw them as a convenient countervailing force to big business, while the Christian Democrats appreciated them as bulwark of traditional family values (Brusco and Paba 2014). Supported by sympathetic local private and public institutions, industrial districts made of this Third Italy the most successful growth story of the second half of the 20th century.

Industrial districts were characterised by a social structure pre-eminently rural until the 1950s-1960 and, crucially, dominated by the independent family farm, both dimensions from which they drew several growth-promoting resources (Bagnasco, 1988). Being able to rely on extensive family labour and local cooperation, the family farm proved to be fertile ground of transformative entrepreneurial and organizational capabilities. Widespread access to property

[3] For figures on the evolution of entrepreneurial activity in Italy at the regional level in the post-WWII decades see Barbiellini Amidei et al. (2022).

provided the financial means (and the insurance mechanisms) necessary to enable risk-taking creative destruction to happen on a mass scale. In the rest of the paper we provide quantitative evidence that it was in the egalitarian milieu of the peasant community, characterized by lower landownership inequality and/or by sharecropping contracts, that such abilities flourished the most.

3 Data and sources: measuring inequality

The main source for land distribution in Italy at the beginning of our period is a national inquiry carried out by the National Institute of Agrarian Economy (INEA, a public agency) in 1945-1946, in order to provide policymakers with accurate information for the impending land reform.

The quality and detail of such an inquiry have remained unparalleled, not only in Italian statistical history but even at the world level. Surveyors collected cadastral information on every single landed property in the country (with the exception of few and geographically scattered areas where the Cadastre had not yet been completed). Properties belonging to the same individual were cumulated at different levels of disaggregation, from the municipality to the national level. We use as a reference the agrarian zone level, a statistical unit developed in interwar Italy comprising several municipalities with similar agricultural characteristics and representative of local labor markets. There were 775 of them when the inquiry was conducted. Hence, this unit of analysis resembles in size, number and spirit the present-day *Sistemi Locali del Lavoro*. The results of the INEA inquiry were published in tabular form in 15 volumes (13 regional monographies and two national introductions) between 1946 and 1948[4]. In this analysis, we exclude the most industrialized/urbanized agrarian zones, by taking out the ones within the 5 left percentiles of the agricultural labor share distribution[5]. Excluding the ones without land value, we are left with a 713 zones sample.

An advantage of these data, compared to most of related literature (like the benchmark country-level dataset of Deininger and Squire, 1996) is that they allow us to compute land distribution taking into account whole ownerships, rather than individual farms, and the value of the properties, rather than its mere size in hectares. Hence, the large estates made up of several family farms leased to sharecropper families (*poderi*), a characteristic feature of Central Italy, are considered as a single property, since all the value of the land belonged to a single landowner. This is a far more reliable measure of the true underlying distribution of rural wealth than the fragmented picture that would come from counting farming units – the usual procedure in most agricultural censuses. Our dataset also allows distinguishing between private properties and entities' properties (land held in non-personal private ownership, mostly common land in the mountains)[6]. We therefore rely on private land value inequality as a more meaningful measure of rural wealth distribution.

[4] For further details on the inquiry and the construction of the inequality indexes, as well as on the geography of land inequality, see Martinelli (2016).

[5] Corresponding to approximately less than 10 per cent of agricultural labour share. However, the main results are confirmed if we consider the 10th percentile as a minimum agricultural labour share cut-off or if we include all the agrarian zones in the sample.

[6] Entities' properties encompassed mostly public ownership, but also church and other charitable organizations, and business companies. Unlike the published data at municipality level, tables at agrarian zone level allow to separate personal private from entities' properties. For details see Martinelli (2016).

As a benchmark measure of inequality, we stick to the Gini coefficient, the most popular of these metrics. We observe a noticeable degree of geographical variation (Figure 1): contrary to the conventional wisdom concerning *latifundia*, Southern Italy was not uniformly more unequal than in the North. On average, relatively higher levels of landownership inequality can be found in three areas: a limited part of the Po Valley, in the irrigated plains of eastern Piedmont and western Lombardy as well as in the Po Delta, in most of Central Italy from the Apennines to the Tyrrhenian Sea, an area with a high intensity of sharecropping, and in an imaginary arc of Southern latifundia, stretching from Northern Puglia to Sicily. We also see that having high land inequality is a good predictor for being selected into the land reform. Yet, crucially for our analysis, there was substantial variation in the levels of land inequality among non-reform areas.

In order to measure economic growth, we rely on private employment growth (Figure 2). Data are drawn from ISTAT Industry and Services Censuses from 1951 to 2001. We focus on private employment from this source for both theoretical and practical reasons. Public employment might be driven by nationwide public service offer or by compensative redistributive policies, thus being independent of or even inversely associated to economic growth. By excluding this form of employment, we can better study the relationship between inequality and structural change unmediated by the operation of non-market forces. In addition, unlike the Population Census, the Industrial and Service Censuses record, along with employment, the number of private firms. Hence we can use alternative measures of economic development based on these variables.

In 1951, land was still the main asset of the largest sector of the economy in terms of employment: agriculture employed more than 44.3 per cent of the overall workforce. Two thirds of our agrarian zones were still essentially agricultural economies (with agriculture employing more than 50% of the labor force), and in another 18% of them agriculture was still employing a very substantial share (between 30% and 50%) of locals. Agriculture was a tiny sector in just 5% of agrarian zones, where agriculture accounted for less than 15% of the local labor force[7]. Anything shaping the agricultural economy in 1951 was therefore bound to have economy-wide impact in most of our sample.

4 Empirical strategy

The aim of our analysis is to detect whether inequality predicts growth and to possibly assess whether this relationship can be attributed to causality. Our empirical strategy relies on controlling for potential covariates which may be associated with inequality and thus drive omitted variable bias. As a further check, we instrument land inequality with a historical shock to land distribution and exploit exogenous soil determinants of landownership patterns, following an established literature approach (Easterly 2007, Cinnirella and Hornung, 2016). We resort to a standard local growth equation: calling $emp_{i,t}$ the number of employees working in area *i* at time t, the growth between 1 and 1+T can be modeled as[8]:

[7] Most of them were regional and administrative capitals. The vast hinterland of Milan was the only area of widespread industrialization in 1951. Other vertices of the so-called industrial triangle (Turin and Genoa) were of a much more limited extension.

[8] If we measure growth rate as $g=(emp_{t+1}-emp_t)/ emp_t$, for g small enough, g is approximated by $\ln(emp_{t+1}/emp_t)$. In our case, as the overall time span is large, this does not apply. Nevertheless, for T periods, where T is large

$$ln\left(\frac{emp_{i,T+1}}{emp_{i,1}}\right) = \beta_g Inequality_{i,1} + \gamma X_{i,1} + \varepsilon_{i,T+1} \quad (1)$$

As we underlined in the literature section, the relationship between inequality and growth is ambiguously affected by multiple and contrasting mechanisms. Conversely, land inequality should narrow the scope towards a structural component of inequality, which should take out the inequality component related to market mechanisms and incentives to efforts. Thus, our expectation is for a negative association, except for a potential positive association due to savings and capital accumulation[9].

As we will discuss in the next section, we try to mitigate the potential omitted variable bias by controlling for climate and the physical environment, initial levels of structural change, economic development, and initial agricultural conditions, as well as geographic dummies. In order to check whether the inequality-growth nexus might be attributed to some residual omitted variable, we follow an instrumental variables strategy. We instrument land inequality with two instrumental variables: the prevalence of silt in the texture of local soils and the local incidence of a past shock to land markets - the sudden and short-lived wave of land sales from large landowners to small peasants taking place amid the turmoil of the post-war years known in Italy as 'Red Biennium' (1919-1920).

Using lagged values of land inequality would be a straightforward instrumental variables strategy, but lack of data prevents us from doing so. We therefore exploit historical changes in land distribution that contributed to the formation of land inequality patterns in 1940. After WWI, almost one million hectares were sold from large landowners to small owner operators. This was the largest redistribution in Italian land markets before the implementation of the post-WWII state-sponsored land reform. The major drivers of this process were context-specific, involving a combination of war-time taxation and labour regulation, shocks to relative prices, and increasing social unrest in the Italian countryside that generated a quasi-revolutionary situation.

We rely on data on the share of land sold from non-working landlords to owner operators at agrarian zone level published in a 15-volume survey (Lorenzoni, 1938) and gathered at the agrarian zone level, sometimes from sub-national tables and sometimes from the main text, by Martinelli and Domènech (2023). We expect a higher share of total land sold by large landowners to peasants during 1918-1924 to be negatively correlated with overall land inequality in 1940s. Even if those changes to land distribution could have had an impact on local economic conditions, by 1951 they should already have taken place, and, since we will control for those economic conditions at the beginning of our period of analysis, we expect the effect of post-WWI land sales to impact post-WWII growth exclusively by shaping initial land inequality.

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enough, *as* ln empt+Tempt = $\sum_i ln$empt+1empt *where t=1 …N,* ln empt+Tempt */T* approximates the arithmetic average of g_t.

[9] If propensity to save is higher among wealthier households, higher savings rate will be a consequence of inequality. On the other side, if in some areas rich households save/invest more than in others, higher savings rates would amplify existing inequality. Thus, as savings spur growth through capital accumulation, higher saving would be respectively an omitted variable or a causal channel in the relationship between inequality and growth.

Terrains with soil textures dominated by silt exhibit high levels of humidity retention, which is a crucial factor in resistance to droughts. In the presence of a given climatic shock, peasants in areas with poorer silt endowments are exposed to a greater economic shock, in turn leading to distress sales. Higher frequency of small peasants' distress sales should be related to an equilibrium with higher share of land in hands of large landowners (financially much better equipped to deal with risk and also having the necessary liquidity to buy peasants' distressed assets). We therefore expect a negative relationship between silt prevalence and land inequality. With this factor we aim to capture exogenous sources of variation in land distribution independent from the war- and unrest-induced changes to land distribution 30 years before the beginning of our period of analysis.

5 Empirical findings

5.1 Baseline results

Table 1 shows our benchmark results on the effects of land inequality on employment growth. Column 1 controls for physical and climatic variables (altitude, slope, average annual rainfall and temperature). The inclusion of these variables in this parsimonious specification is straightforward: we know that urbanization and structural change processes entailed relative decline of internal areas (often mountain, Accetturo et al., 2019) and that climate has an impact on agrarian, industrial and services sectors at different stages of the development process. The coefficient of land inequality is negative and statistically significant.
In column 2 we provide a better characterization of the initial structure of the local economy. We control for initial sectoral specialization, namely by the labor share in agriculture and in the secondary sector, for the employment rate and for population density, all in 1951. Furthermore, we add dummies for the five Italian macro-areas[10]. The coefficient of land inequality slightly increases after the inclusion of these controls.

In column 3 we expand our inspection of the role of initial economic conditions by focusing on the agricultural sector. First, we capture the variety of the class structure of rural Italy in 1936 by including occupational categories: share of sharecroppers, rented tenants, wage labourers and labourers with mixed contracts (often representing combinations of wage labour with precarious forms of tenancy and short-term and product-specific sharecropping). The omitted category is owner operators.

In absence of more refined measures of land inequality, scholars usually are forced to rely on such occupational categories to measure historical access to landownership. Our results show that such practice might be problematic, since different categories of the landless population exhibit very different patterns once we account for landownership distribution. While rural wages labourers do not have predictive power, it is noteworthy how both the tenants and the sharecroppers strongly predict future employment growth. On the other side sharecropping and (to a lesser extent) renting are positively associated to land inequality. Thus, these variables are the main responsible for the doubling the magnitude of the effect of inequality. The most straightforward interpretation of this finding is to consider sharecropping and renting as forms of "proto-entrepreneurship", entailing for not-owning farmers both higher risks and incentives to effort compared to wage earning. A substantial qualitative literature has

[10] Namely, North-West, North-East, Center, South, and Islands.

discussed the role of sharecropping in fostering the development of flexible medium-small enterprises during this period (Becattini 1979; Moroni 2004; Musotti 2001). A multifaceted description of the sharecropping model emerges from it, which encompasses entrepreneurial attitudes, enlarged families as a basic productive organization, dense social cooperative networks and the engagement of farmers in manufacturing activities that fostered a smoother structural transition towards industrialization (the so-called "urbanized countryside"). We support this qualitative analysis by providing quantitative evidence of a sharecropping-growth correlation.

In column 4 we further explore the role of initial agricultural conditions. First, we control for (log) level of average agricultural property values around 1940 (the same variable whose distribution we are using to measure land inequality). Second, we include a measure of agricultural productivity, namely initial agricultural labour productivity, computed at the agrarian zone level by Martinelli (2014b)[11].

The negative sign of agricultural labour productivity strengthens the hypothesis that the association between land concentration and the dependent variable reflects the role of wealth distribution, rather than structural characteristics of the agricultural production. Inequality may still have impacted overall growth by shaping the subsequent performance of the agricultural sector, but we find revealing that we cannot find trace of any such cumulated effect at the onset of our period. On the other side, higher farm asset values are good predictors of future growth, maybe because their potential role as collateral. Since one might suspect that the effect of inequality might vary depending on the farm value levels, in column 5 we further inspect the relationship between rural wealth levels and wealth distribution by interacting farm values with land inequality, finding that both channels are independent of each other.

In column 6 we control for regional dummies. These dummies allow to assess the role of inequality within areas which are more homogeneous in terms of institutional traditions and cultural norms, considering the legacy of Italian historical partition in regional states. Empirical literature has often found the link between inequality and growth to attenuate once regional dummies are taken into account, suggesting the existence of region-specific omitted variables. Thus, it is rather reassuring to notice how the coefficient of interest is stable, confirming a large negative economic effect of land inequality, with a semi-elasticity of 2.1[12]. This number entails that a standard deviation increase in inequality (7 percentage points of Gini) explains around 24% of the standard deviation of employment growth, resulting in a decrease of average yearly employment growth rate 0.3%. The effect of sharecropping is also confirmed in explaining intra-regional growth: one standard deviation in the share of sharecroppers, is associated to 0.28 standard deviations of employment growth.

[11] This variable is the logarithm of the ratio of agricultural output in 1929 to the number of family members whose family head was employed in agriculture, as provided by the Population Census of 1931. As such, it is an imperfect measure of labour productivity: The distribution of actual agricultural employment could differ from the distribution of family members, especially because of different levels of female participation in agricultural productive tasks. Since the latter varied regionally and according to the local environment, we hope that our geographic controls represent a partial solution to the measurement error of this variable.

[12] We also explored a potential U-shaped relationship between inequality and growth by regressing all specification of Table 1 on a second-order polynomial of land inequality. In all cases we rejected the hypothesis of non-linearity.

We provide a visualization of the clear negative relationship between inequality and growth (without and with all controls) in Figure 3. Overall, from OLS results it emerges that the association between inequality and growth strengthens adding controls for observables. Assuming that the selection of observable variables is proportional to the selection on the unobservable ones, as suggested by Altonji et al. (2005) and Oster (2019), would imply an even more pronounced negative impact of inequality.

In Table 2, we show the IV estimates: for each instrumental variable we report the most parsimonious and most demanding specification in terms of covariates (corresponding respectively to columns 1 and 6 of Table 1). In col. 5 and 6 we employ simultaneously the two instrumental variables. We report the first stage F statistics to check for weak identification. Results are consistent with OLS findings, pointing to a significant negative effect of inequality on growth. Figure 4 displays the conditional correlation between each instrument and land inequality, as well as their reduced form relationship with employment growth.

The share of land sold by landowners during the Red Biennium land sales wave significantly predicts inequality in the first stage in the parsimonious specification (col. 1), with a first-stage F above the 10 rule of thumb. Conversely, adding the covariates (col. 2), the first stage F and the significance of the second stage inequality coefficient collapse, although the instrument retains statistical significance in the first stage and the sign and magnitude of the estimated coefficient of land inequality is surprisingly similar to the one obtained using our other instrument with the same set of covariates (col. 4). On the other side, the silt prevalence instrument significantly predicts inequality, even conditional on the full set of covariates (col. 4 and 5).

Using each of them separately, we find a strong and significant effect of inequality on growth, which is robust to both the specifications. Using both instruments jointly (col. 6), we confirm the estimated effect on inequality. We test for over-identification with Hansen test and the resulting statistic is close to zero (with a p-value for over-identification close to 1). That reassures us on the exclusion restriction hypothesis. Intuitively, both instruments point consistently to the same direction, i.e. a noticeable negative effect of inequality on growth.

The point estimate of the inequality coefficient in col. 6 is 4.7, more than twice the size of the comparable OLS regression (col. 6 of Tab. 1). According to this number, a standard deviation in inequality is associated to around 0.54 standard deviations of lower employment growth. We may suspect a downward bias in the OLS, possibly driven by an endogenous process of savings and investments. Nevertheless, as confidence intervals of IV and OLS (with 5 per cent significance) overlap, we cannot make a definite case about it.

We can further explore the dynamics of employment growth by decomposing it into the growth rate of the number of firms (firm creation) and the growth rate of employment per firm (firm size), which by construction, add up to the former. Lack of collateral to start new activities (and/or undertake new investments) and (informal) extractive institutions can impact development by either hampering firm creation (excluding the capital-poor with good ideas from the economic process) and prevent small firms from achieving larger scale (depriving

them from the necessary investment funds). In Table 3 we show that land inequality had a role in both mechanisms[13].

In panel B we use as dependent variable the average family income (resulting from tax returns and published by the Ministry of Finance), finding, again, a negative, significant and sizeable effect of past land inequality on present-day incomes. Interestingly, including private employment growth as an additional regressor explains away the effect of inequality in the OLS specification (col 2 in Panel B) and decreases its magnitude in the IV one, suggesting a mediating role for the former.

In Table 4 we expand our exploration of the developmental consequences of land inequality by focusing on alternative measures of economic development[14]. In panel 1 (col. 1 and 2) we find a negative effect on population dynamics (in all likelihood driven more by internal migration than by an effect on vital rates). In columns 3 and 4 we use as dependent variable the increase between 1951 and 2001 in the share of workforce in manufacturing sector. Unlike our preferred measure of employment from the Industrial Censuses, the Population censuses include employment in public administration, which can be unrelated (or negatively correlated, in presence of compensatory public employment) to local economic dynamism. Even in this case, we find a strong and significant negative effect of land inequality.

Finally, we test for heterogeneity across time. We compute employment growth for each decade between 1951 and 2001 and run separately our benchmark estimate. Results (corresponding to the specification in col. 6 of Table 1) are shown graphically in Figure 5. We find that the impact of inequality is stronger during the first 30 years of our analysis, in particular during the 50s and the 70s. From 1981 on, the estimated effect is smaller, and not statistically different from zero.

5.2 Spatially heterogeneous effects, territorial divides and the rise of the 'Third Italy'

Spatial heterogeneity is particularly relevant for the Italian debate about the long-run drivers of the North-South economic divide. We mentioned before that traditional historiography alleged a negative long-run effect of *latifundia* in the South. The extent to which inequality might be able to explain this divide is thus a compelling empirical question.
Inequality might contribute to explain this gap if it was higher on average in the South or if its effect was stronger in the South. The first is not the case, as the variation of inequality we find in our data is within these macro-areas rather than between them, the South being on average only slightly more unequal. In order to test the second case, i.e. heterogeneous coefficients, we first run our baseline regressions interacting land inequality with macro-area dummies, and

[13] Two-thirds ca. of the effects of land inequality operated through the firm creation channel according to the OLS full specification (compare coefficients in col. 2 and 4 with the coefficient of land inequality in col. 6 Tab. 1). In the IV specification both coefficients are roughly of the same magnitude, but the coefficient on firm growth is estimated with low precision and barely above conventional significant levels (p-value 0.122), so we cannot be conclusive in the relative strength of either channel. At any rate, a positive relationship of agrarian equality with firm creation did not come at the price of smaller average firms (or vice-versa).

[14] We also replicated OLS Table 1 estimates and the most complete IV in terms of instruments and covariates replacing the Gini coefficient with the Theil index. We do not show the full results, but qualitatively our results are confirmed. Standardized coefficients are in the same order of magnitude of Gini index.

the run separately the regression for each of the 5 macro areas. In Table 5 we show our findings.

We do not see any systematic difference for the effect of inequality pointing to a higher effect in the South. No single macro-area interaction term (and, for that matter, no single macro area dummy, whose coefficients are not shown in the table) turns out to be statistically significant. When we restrict the analysis to macro areas, the coefficient of land inequality in the (continental) South is actually larger than in the most industrialized area of the country (North-West), but this is not the case for the macro area encompassing the islands of Sicily and Sardinia. All in all, we do not see an apparent contribution of land inequality in explaining the North-South growth gap after 1951.

The most salient result of the heterogeneous spatial analysis is that land inequality seems to have a stronger effect in the North-East and Center, the so called "Third Italy", encompassing areas of the country that had a very high growth rate in this period, compared to the national average, thanks to an economic structure based on flexible medium-small enterprises (the so-called industrial districts). We see that the estimated effect of inequality in this area is even higher than the national average. Nevertheless, in many districts of Central Italy the drag on growth posed by land inequality was attenuated or even counterbalanced by the prevalence another good predictor of economic growth, namely the widespread incidence of sharecropping contracts[15]. In the "Third Italy" agrarian zones sharecropping accounts for an average 40 per cent of agrarian employment (compared to 20 per cent on national average), being over 50 per cent in large parts of it, often the most unequal ones in terms of land inequality (roughly correspondingly to Tuscany and Umbria, see Fig. 1). As we saw in the previous sub-section, sharecropping was strongly associated to employment growth. That contributes to explain a relatively high growth, even in areas with relatively high land inequality. Lower levels of inequality and widespread diffusion of the sharecropper family explain the even more intense growth in density of industrial districts in places like the Marche. Conversely, sharecropping was uncommon in Southern Italy, where lack of access to landownership meant more often being a day labourer.

All in all, while land ownership inequality significantly explains growth rates among agrarian zones, analysing it jointly with status of non-owning farmers provides a better account of the two main tales of regional growth in post-WWII Italy, that is a South still "lagging behind", and a "Third Italy" quickly converging to the richest regions. The agrarian zones of the latter were characterized by either a relatively egalitarian ownership distribution or growth-enhancing sharecropping (or both of them). On the other side Southern Italy, the negative effect of unequal distribution of property rights was compounded by the status of wage earners of most of non-owners among farmers.

In Table 6 we further explore the role of rural egalitarianism based on the family farm in the rise of the industrial district, the defining feature of economic development in the Third Italy during the second half of the 20th century. Industrial districts were defined by the ISTAT as local labour markets disproportionally specialized in manufacturing activities of the same

[15] The spread of sharecropping agreements in Central Italy dates back to the late Middle Age. On this regard, Ackerberg and Botticini (2000) show that already in 15th century Tuscany those contracts emerged to solve moral-hazard problems and capital market imperfections, reducing the costs of monitoring farmers' efforts while favoring capital provision (seed, livestock and draft animals) by the landlords.

branch and dominated by small and medium firms. In column 1 and 2 we show that higher initial levels of land inequality are correlated with a lower share of population working in the manufacturing sector of an industrial district in 2001, as defined by the ISTAT. In columns 3 and 4 we use as dependent variable a dummy taking value of 1 if the agrarian zone included at least one municipality belonging to an industrial district, and 0 otherwise. Again, the probability of having an industrial district in an agrarian zone is reduced by higher levels of rural wealth inequality.

5.3 The role of the land reform

The 1950s land reform, the largest state-sponsored land redistribution in post-unitary history, was done shortly after our inequality indexes we computed. The reform redistributed land beyond certain size and/or value thresholds, with compensation for expropriated landowners[16]. The reform has been criticized for being enacted too late, in a period when agriculture was becoming less and less important[17], for being limited to just few parts of the country (see Fig. 1), and even for poor and differentiated implementation.
Up until now, quantitative attempts to estimate the effect of the reform have found modest positive or none effect of it on economic growth[18]. A rigorous policy evaluation of the consequences reform would require a specific effort which is beyond the scope of our paper. However, one might think that our results can be capturing some negative effect on growth of land reform implementation, since the latter was heavily correlated with initial land inequality. Hence, we perform some quantitative exercises to check how our findings might have been influenced by the reform.

On average, the most initially unequal areas were more likely to be treated with the reform (see Fig. 1). Thus, if reform redistribution reduced structural inequality and promoted local growth, we might underestimate the impact of inequality. In column 1 of Table 7, we add a dummy for the reform and an interaction with the Gini coefficient to our more demanding baseline specification (column 6 in table 1). If the reform alleviated the negative effects of inequality, we would expect the coefficient of the interaction to have a positive sign, i.e. redistribution made ex-ante inequality matter less for future growth. Conversely, we see a non-significant (and negative) coefficient.

We can only speculate on the reasons behind these results. We are only considering the extensive margin of the reform, and this might be a poor measure of treatment intensity. Policy implementation may have had negative impacts counterweighting the (potentially) beneficial effects of redistribution. Land rights were severely constrained to reform beneficiaries (who

[16] For details on the reform implementation, see Caprettini et al. (2019).

[17] For instance, Halter et al. (2014) show how the negative effects of inequality materialize on the long-run.

[18] Three recent papers have tried to assess the effects of the agrarian reform. Caprettini et al. (2019) perform a spatial regression discontinuity analysis, with the aim of looking for the effects on political consensus. They do find increased support for the ruling party which implemented the reform, the Christian Democrats, but they do not observe any impact on economic performances. Albertus (2023), which follows a similar empirical strategy, and Bianchi-Vimercati et al. (2023), following a Diff-in Diff identification, find evidence of slower structural change in reform areas. Percoco (2018) performs a matching exercise, finding modest positive effect on employment dynamics. The first two papers focus on Northern land reform districts, while the third focuses on the continental South. The heterogeneity of their results suggests that the effects of land reform effects were heavily dependent on local determinants of implementation.

were only granted full property after many years), limiting their ability to use it as a collateral. Receiving land might have substituted traditional patronage networks by new ones associated to post-land reform assistance and management agencies (as the electoral analysis in Caprettini et al., 2019, suggests). We might even suspect that the timing of the reform, contemporaneous to the nation-wide structural change, had deleterious effects, as it slowed down transition from agriculture, as suggested by the experience of the Maremma land reform area studied by Albertus (2023).

If the latter was the case, keeping in mind a positive association between inequality and selection into the reform, a spurious negative association between inequality and growth might emerge. In order to rule out that this might affect our results, we test our baseline analysis on the sub-sample of agrarian zones not experiencing the reform. Although areas not affected by the reform were on average less unequal, the variation in the Gini index is still substantial. Results are in line with the full sample analysis and confirm that the overall negative impact of land inequality on post-war growth was not driven by any specific effect associated to the land reform

5.4 Inequality decomposition, credit constraints and alternative mechanisms

In this subsection we explore potential underlying mechanisms behind our findings on inequality. We begin by testing the role of education, social capital, and political economy, i.e., the different channels suggested by the literature that could be broadly labelled as 'institutional'. We then inspect the role of agricultural specialization. Finally, we decompose the effect of land inequality to identify what parts of the landownership distribution is driving the correlation with growth. Our reading of this available evidence points out to a paramount effect of credit constraints induced by high levels of inequality.

Human capital accumulation is one of the most debated potential links between inequality and growth. In Table 8 we replicate our baseline estimates (reproduced here in column 1) adding illiteracy in 1951, the share of high-school graduates in 1951 and the growth of both variables in the 1951-2001 period as controls (column 2): the relationship between inequality and growth does not change significantly. IV results (not shown here) are analogous. Actually, this does not come as a surprise: since the 1911 education reform, the primary school system in Italy became increasingly centralized, levelling down territorial gaps in funding and organization (Cappelli and Vasta, 2020; Bertola and Sestito, 2013). This has arguably brought down the scope of local variation in education due to willingness of local elites to fund education. Illiteracy rates variation in 1951 is thus likely driven by the residual effect of older age-cohorts, with little effect on economic performances from 1951 on. Although education levels are associated with Italian growth at the local level (Giffoni et al., 2019), subsequent rates of human capital accumulation were also driven by state policies and seem to bear little relation with local agricultural conditions and with wealth inequality.

In column 3 we test for the role of social capital. Inequality may indirectly affect economic growth by jeopardizing social cohesion and trust among individuals. Empirical literature has confirmed that social capital has promoted economic growth in Italy in the second half of the XX century (Albanese and De Blasio 2016; Andini and Andini 2019) and turnout in political elections has emerged as the most workable proxy for the former[19]. We compute this variable

[19] See Albanese and De Blasio (2016) for a discussion about political turnout as a social capital proxy.

for the 1946 election, the first democratic election in the post-WWII period. As a further check, we test whether there is some association between land inequality and three other proxies of historical social capital. First, we take mutual aid and charities densities computed by Cappelli (2017) for 1911[20]. Second, we take dummies for Middle Age City-States, which Guiso et al. (2016) found to predict civicness on the long-run. Electoral turnout and mutual aid societies predict positive employment growth, while charities have no correlation with it. Somewhat surprisingly, Medieval City-States exhibit a negative coefficient. But the coefficient of land inequality is merely affected by a slight decline (and in the IV specification it even increases).

In column 4 we add a measure of local political preferences, (the vote share of the Communist and Socialist parties in the 1946 elections). Political preferences and voting patterns remained stable during the Italian First Republic. They might have shaped local political decisions, or investment decisions by the national government. Land inequality was indeed positively correlated with left-wing votes, and we do find a negative correlation between leftist vote share and subsequent growth. Yet, the addition of this variable reduces the coefficient of land inequality by a mere 10%.

Many of these institutional mechanisms might have a complex relationship with land inequality, and their coefficients shall therefore be interpreted with caution. They might also be imperfect measures of the true underlying variable. But the fact that the magnitude of the coefficient of land inequality is hardly affected by the inclusion of any of them suggests that there is a direct effect of a different nature driving the robust correlation between inequality and structural change.

In column 5 we control for local agricultural specialization in 1929, with the output shares of 11 groups of products from Martinelli (2014)[21]. Land inequality might shape productive decisions (as implicit in the Inverse Size Productivity Relationship literature) and therefore can have an impact on the productive mix. Since we are already controlling for initial levels of output per hectare and farm values (along with contract structure), any effect of specialization shall be unrelated to initial agricultural productivity.

Specialization can have a residual effect on post-1951 growth by two ways. First, in the context of the Common Agricultural Policy, specific agricultural policies might have provided differential support for some products over others. Second, variation in product-specific income-elasticities implies that some zones might have experienced stronger growth in the demand for their product mix than others. In both cases, initial specialisation could translate into differential positive income shocks to local economies.

Results show that specialisation in products likely to have a high income-elasticity of demand (animal products, vegetables, wine, olive oil, fruits and citrus) had actually a positive relationship with private non-agricultural growth. The inclusion of product specialisation translates into the largest reduction in the coefficient of land inequality (by ca. 30%).

[20] Data provided by Cappelli (2017) are the provincial level. Concerning communal experience, the sample is restricted within the Center-North of the country.

[21] Corn, other cereals, citrus, fruits, industrial crops, olive oil and related products, wine and related products, pulses, potatoes, vegetables and animal products. The omitted category is wheat, the most important product at the national level.

Given that the Italian economy was fairly integrated in the second half of the 20th century, we find implausible that positive income shocks to local agriculture translated into positive demand shocks to local industry and services. Rather, we interpret these results as suggestive of positive supply shock to the local non-agricultural sector, compatible with the existence of credit constraints to potential rural entrepreneurs. Specialisation-induced positive income shocks in more egalitarian rural areas might have helped in lifting the capital constraints faced by family farmers, in turn funding the foundation and growth of the network of small and medium enterprises that constituted the core of the 'industrialized countryside' of Italian industrial districts.

In column 6 we simultaneously include all the aforementioned potential channels and still find a robust, direct and large correlation between inequality and growth[22]. Overall, this result, along with our reading of the interplay between agricultural specialization and inequality, is compatible with the other major theoretical prediction highlighted by the literature (see section 2), namely inequality constraining indivisible investments in the presence of capital market imperfections, à la Galor and Zeira (1993). Although it is difficult to provide direct tests of such mechanism (especially in observational studies), we provide further evidence consistent with it by exploring the role of different tails of the wealth distribution, as suggested by Litschig and Lombardi (2019).

We rely for this exercise on the fact that the Gini coefficient can be approximated by a decomposition into additive terms representing the shares owned by different segments of the distribution, as shown by Theil (1967). The Gini coefficient has a clear interpretation in terms of the Lorenz curve, which describes the cumulative share of land owned by different quantiles of owners. By entering as regressors the share of land values owned by these different quantiles instead of the Gini index we can inspect which segments of the distribution are responsible for the overall effect of inequality. This inspection helps illustrating the underlying mechanism.

Intuitively, we can think of a given level of inequality originating either in the upper tail or in the lower tail of the distribution. If such inequality is explained by inequality in the upper tail of the distribution, higher inequality happens by the very rich becoming richer at the expense of the share of all other quantiles of the distribution. If inequality is explained by the lower tail of the distribution, inequality is generated by the lower quantiles having their incomes compressed. Poverty traps and credit constraints are only found when the latter effect predominates (i.e., lower tail inequality capturing the effect of overall inequality). Conversely, when upper tail inequality predominates, the effect can be plausibly related to the elite having the incentives and the resources to actively suppress growth-promoting activities – or to its severe misallocation of a large share available resources. Instead of partitioning the land distribution into quintiles, as in Litschig and Lombardi (2019), we prefer to define different

[22] We also performed a series of robustness checks (not shown in the paper but available upon request) that confirms our results. Overall, all these exercises confirm the relationship between land inequality and growth. First, we use alternative measures of inequality: the Theil index of land values and the (less accurate) Gini and Theil inequality indexes computed on land size, i.e. hectares, disregarding its unitary value. We try to saturate the model adding interaction between regional dummies and areas observables, allowing our covariates to have region-specific explanatory power. In order to (roughly) address concerns associated to potential spatial effects, we clustered errors by province. Any of these checks alters the qualitative (and, to a large extent, quantitative) conclusions presented in the paper.

quantiles of the land distribution based on broad categories that had a clear economic interpretation in the context of a developing rural economy. In choosing those quantiles, we follow the categories defined by the introductory report to our main source on land distribution (INEA, 1956, pp. 120).

Properties yielding land rents below 1,000 lire (at 1937-1939 prices) were tiny plots of very poor peasants, often insufficient for a viable independent agricultural activity (*proprietà particellare*)[23]. Their owners needed to supplement their incomes with off-farm work. Independent family farms (*piccola proprietà contadina*) had properties with land rent values between 1,000 and 10,000 lire. Although these families might have engaged to various degrees in the labour market, these farms were large enough as to absorb much of the labor supply of the family and rely primarily on it for production. Medium-sized farms had land rents between 10,000 and 100,000 lire. These forms of capitalist agriculture relied on hired labour, but the wide size of the interval could have included also forms of 'kulak' agriculture: well-off farmers working on their own land and supplementing family labour by hiring wage labour to various degrees. Properties with rents over 100,000 lire were large properties. The land reform law targeted all such properties in the land reform districts.

This decomposition exercise helps identifying the forms of redistribution that might foster growth – at least from a theoretical point of view (since implementation has its own problems).

In Table 9 column 1 we show the results of our inequality decomposition exercise. In column 1, the omitted category is the share of medium-sized capitalist properties (from 10 to 100 thousand lire). Because we are holding all other quartiles constant and controlling for average values, an increase in the share of land value owned by properties in any quartile should be interpreted as reducing the share owned by medium-sized farms (the omitted category). Results show that the negative effect of inequality on growth is driven by the low densities of independent peasant properties, rather than by high densities of very large estates.

Agrarian zones which had a standard deviation larger share of total land value in the hands of 'peasant properties' (1 to 10 thousand lire) at the expense of medium-sized farms experienced a growth rate 0.28% point higher on an annual base – virtually the same magnitude found in Table 1 for the Gini coefficient.

In columns 2 to 4 we modify the definition of 'family farm' to account for alternative thresholds, since the transition between a family farm and capitalist farm can be smooth. Some of the capitalist medium-sized properties could potentially also be eligible for some form of partial expropriation under the land reform law (those with rents over 30,000, provided they had very low levels of rent per hectare).

Hence we further split the group of medium-sized properties in order to explore a potential role for the wealthy peasantry. Since the original data was grouped into intervals of 10 to 20 thousand lire and 20 to 40 thousand lire, we choose 20 thousand as the most conservative definition of 'affluent peasant farming'. Since farms close but below 10,000 lire could have been similar to the 'kulak' farms between 10 thousand and 20 thousand lire, in column 3 we

[23] 1000 Lire at 1938 prices are roughly equivalent to 1000 Euro in 2022. For further details, see the ISTAT explanation at https://www.istat.it/it/files//2023/07/Nota_informativa_valore_moneta_2022.pdf.

use restrict our definition of peasant family farms, using 5 thousand lire as the upper threshold for this category. Farms between 5 and 20 thousand lire are considered of low-to-medium size.

An increase of total land value going to family farms between 1 and 5 thousand lire at the expense of land held in medium-sized properties is again associated with an acceleration of growth rates. Also 'kulak' agriculture (properties with rents between 5 and 20 thousand lire) is associated with faster growth. Instead, an increase of the share of land in very large estates at the expense of capitalist medium-sized properties has no differential effect on growth.

In columns 3 and 4 we reproduce the regression by rearranging the definition of 'kulak' peasantry. Now, we stick to the original definition of independent family farms as those between 1 and 10 thousand lire and add a category of 'lower medium' size (10 to 20 thousand). Only the independent family farm seems to be correlated with faster growth. Distributions where the lower tail of 'capitalist' agriculture is denser are not correlated with faster employment growth.

In column 4 we use large properties as the omitted category, just to highlight how all the action is concentrated in the first part of the land distribution. In this column, each coefficient can be interpreted as the effect of inflating the share of any group at the expense of the very large properties. Unsurprisingly, results confirm those obtained in column 3.

These results are supportive of the credit constraints channel, a mechanism gaining further support from the very interesting result represented by the coefficient of the share of minuscule properties (below 1 thousand lire). Although the density of this category is associated with lower levels of inequality, it does not seem to be correlated with faster growth. An increase in the share of too small plots, either at the expense of large estates or medium-sized farms, has no effect on growth.

We further explore this non-linearity by exploiting all available intervals of property sizes. The INEA inquiry, after some re-elaboration (see Martinelli, 2016), provides 13 intervals. We define a new variable classifying land owned in just two quantiles: below and above a certain interval limit (or threshold). We then run 12 regressions with the full set of controls changing the thresholds and observe how the coefficient changes. For the sake of simplicity, we plot the estimated coefficients in Figure 6.

The interpretation of these coefficients is straightforward. A positive coefficient suggests that areas having a larger share of land in properties above a given threshold are associated with faster growth, and vice versa. The coefficients could also be interpreted as the marginal growth effects of redistributing land value across different threshold – although these mental exercises should be made with caution.

Results in Figure 6 show clearly the non-linear effects of rural property on growth. Large properties are bad for growth, but not linearly across the whole land distribution. Areas with a large share of micro-properties exhibit lower growth that areas with larger farms. The growth-enhancing effect of larger properties seems to vanish at around 1 thousand lire (precisely the conventional lower bound for independent family farms). As we move the threshold upwards, the coefficient falls and turns negative. In interpreting the changes in the magnitudes of coefficients, we must bear in mind that the omitted category is also changing.

Above 10 thousand lire, more land in larger farms is clearly related with lower growth rates. The negative coefficient remains quite stable until very large intervals (when the reduced number of observations does not allow to estimate the coefficient with precision). The coefficient of the share of land held in properties over 5 thousand lire is also negative, but its confidence interval overlaps with that of 2 thousand lire.

The results point out to one of the potential sources of failure of land reforms. If land is redistributed to as many beneficiaries as possible, the resulting holdings might not be large enough as to provide a viable agrarian business – and much less enable a sustained transition out of the agricultural sector. Egalitarian land distributions were positively associated with growth – but only where such equality was formed around a rural middle class. Earlier studies have shown similar long-run positive effects of the family farm on local agricultural growth – for example, in Denmark during the long 19th century (Boberg-Fazlić et al., 2022). Here we show that this positive effects of the family farm on growth go well beyond the efficiency of the primary sector and can shape over the very long-run the developmental geography of a country by shaping the timing of its transition to modern economic growth.

These results are compatible with credit constraints in imperfect capital markets in the presence of indivisibilities of investment assets. As pointed out by the development literature relying on experimental evidence, the indivisibility of investment assets requires a minimum size of cash transfers to make the route out of poverty sustainable (Balboni et al., 2022, Banerjee and Duflo, 2014). We believe that our results witness the existence of these threshold effects in the process of structural transformation.

Historical literature on industrial assets has identified several channels by which those indivisibilities might have operated – although at this stage we cannot provide empirical evidence on any of them. The most obvious one is associated with the sale value of a farm. If industrial and service activities require set-up costs, only rural families whose farm can be sold for at least such a value will make the transition.

Another effect can be associated with family diversification strategies. Fuà (1983) suggested that family farms in industrial districts encouraged entrepreneurship because family members leaving the family to establish a new non-agricultural business could always rely on the latter as an employer of last resort in case of failure. Only farms of a minimum size could provide the flexibility to operate in such a way. Farm size might be associated with yet another indivisibility of the structural transformation process: plant size. Again, Fuà (1983) suggested that many of the small industrial enterprises had its origin on workshops directly built on owner operator's land. For too small farms, it might be physically impossible to build even a rudimentary structure suited for non-agricultural activities.

Similarly, credit cooperatives require a minimum asset size in order to make joint liability viable under reasonably manageable peer supervision costs (Suesse and Wolf, 2020). Excessive land fragmentation might undermine both, just as excessive land concentration. Finally, threshold effects in property values can shape the access to formal private credit. In presence of credit market imperfections and economies of scale in the provision of credit services, banking the geographically dispersed rural poor might become extraordinarily expensive, and the cost of credit to rural borrowers will be inversely proportional to the value of their assets. Below certain minimum values of collateral, the cost of formal credit might become so high as to effectively exclude from credit markets potential borrowers.

6. Concluding remarks

Land distribution has emerged in economic literature as a leading proxy of structural inequality, and thus as a hindrance to economic development. In this paper, using a sample of more than 700 agrarian zones, we assess the relationship between land inequality and employment growth in Italy in the second half of the XX century. This was a period of structural transformation, during which Italy transitioned from being mostly agrarian to a leading advanced economy. We find a negative land inequality-growth link with a high-quality sub-national dataset measuring private land value distribution. This allows us to rule out issues of omitted country level-policies or measurement heterogeneity, recurrent in the empirical literature relying on cross-country variation.
The robustness of our results points towards the existence of a causality running from inequality to growth.

In addition to landownership distribution, our evidence suggests a relevant role for the contractual arrangements that allowed peasants to climb the agricultural ladder, fostering the entrepreneurship of non-owner farmers. Conditional on land inequality, the prevalence of sharecropping and fixed rent tenancy is correlated with economic growth. This contributes to explain the intense growth in the so-called "Third Italy" (corresponding to Central and North-Eastern Italy) and the lower growth of the South, where non-owner farmers were mostly wage earners.

Our investigation focused on potential explanatory channels. The results suggestively point toward to an explanation linked to imperfections in the credit markets.

Contrary to what we would expect from literature, we do not find any noticeably mediating role of basic or even higher education, arguably because of the existence of a public and centralized education system since the early 20th century. We don't find either the effect of inequality to be explained by proxies of social capital or political preferences. Our results are not driven by any effect associated to the extensive margin of land reform implementation in the 1950s, but rather by variation in land inequality levels across non-reform areas. A fraction of our results can be explained by initial agricultural specialisation induced by land inequality, but the bulk of the effect of inequality is unaccounted for any of these channels.

An inequality decomposition exercise suggests that the negative effect of land inequality is driven by the compression of resources available to the independent peasantry – i.e., to the rural lower middle class. Land concentration reduces the growth potential of the local economy and the speed of its structural transformation, but the same does extreme land fragmentation, suggesting sizeable credit constraints in presence of investment indivisibilities. Growth is maximized where land distribution is predominantly shaped around autonomous family farms with an economic size above a minimum threshold.

The significant negative effect of inequality on plants dynamics and firm size points towards an effect on entrepreneurial activity and access to investment, which might further support the hypothesis of credit market imperfections.

Overall, our results point out to the crucial role of an egalitarian rural milieu dominated by the family farm in the emergence of the Italian industrial districts, the network of dynamic small and medium sized manufacturing firms which, after emerging in the 1950s, took over the lead

of economic development after the crisis of the Fordist model towards the end of the Golden Age of economic growth.

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Figures and Tables

Figure 1

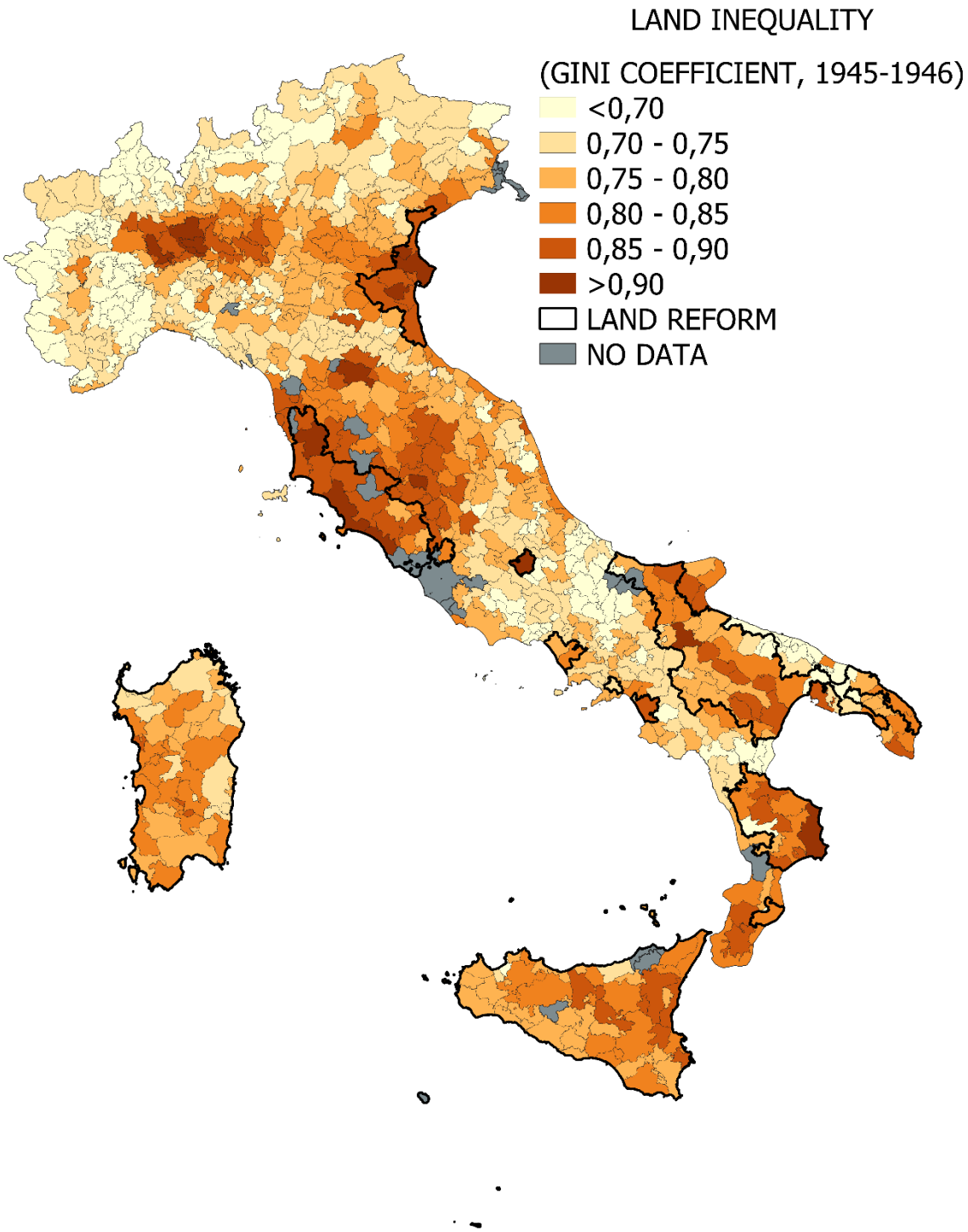

LAND INEQUALITY
(GINI COEFFICIENT, 1945-1946)
<0,70
0,70 - 0,75
0,75 - 0,80
0,80 - 0,85
0,85 - 0,90
>0,90
LAND REFORM
NO DATA

Figure 2

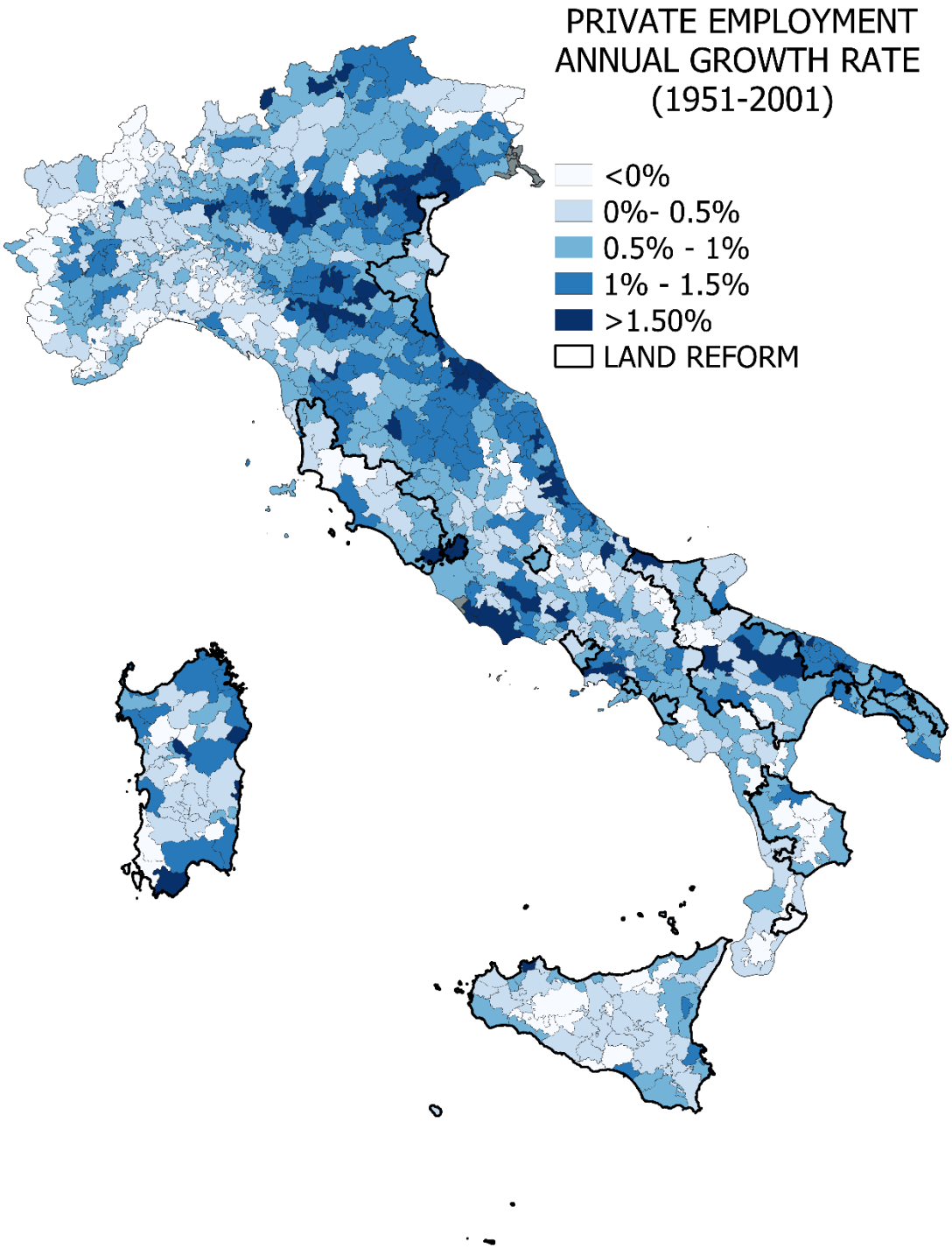

PRIVATE EMPLOYMENT
ANNUAL GROWTH RATE
(1951-2001)
<0%
0%- 0.5%
0.5% - 1%
1% - 1.5%
>1.50%
LAND REFORM

Figure 3. Landownership inequality (1940s) and employment growth (1951-2001): binscatter plots of the unconditional and conditional relationship.

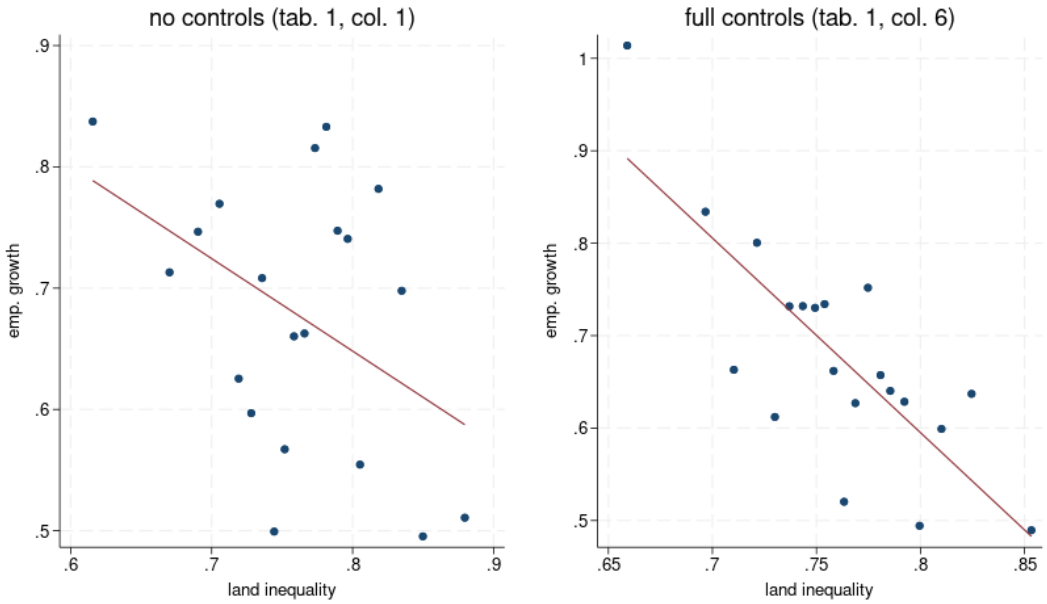


Figure 4. Instrumental variable strategy. Land sold during the red biennium and share of silt soil as instruments: first stage and reduced form correlations.

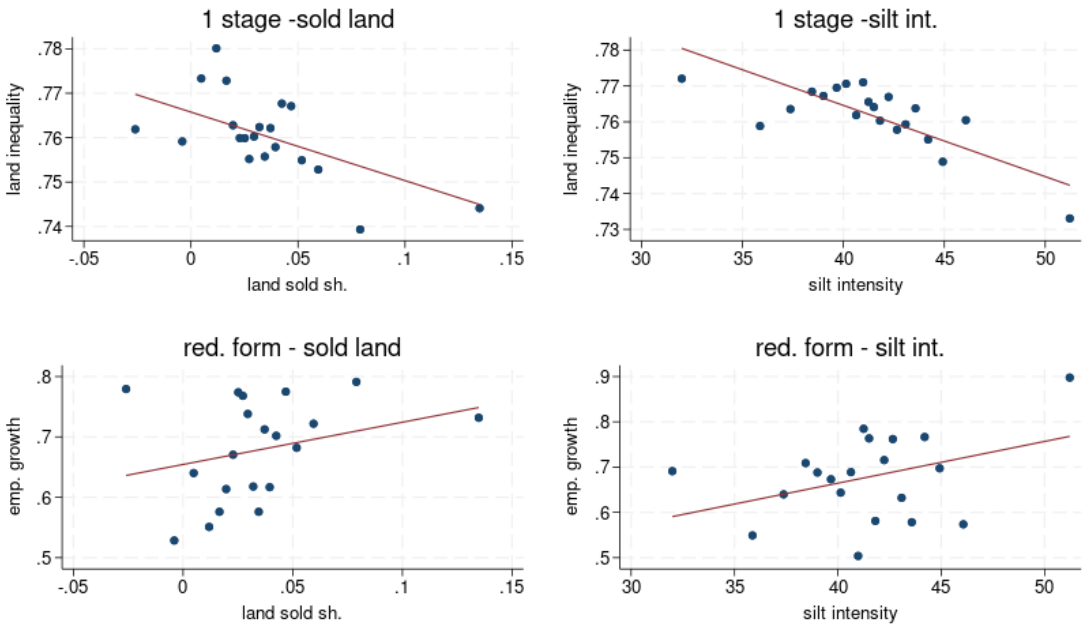


Figure 5. Heterogeneous effects over time of land inequality.

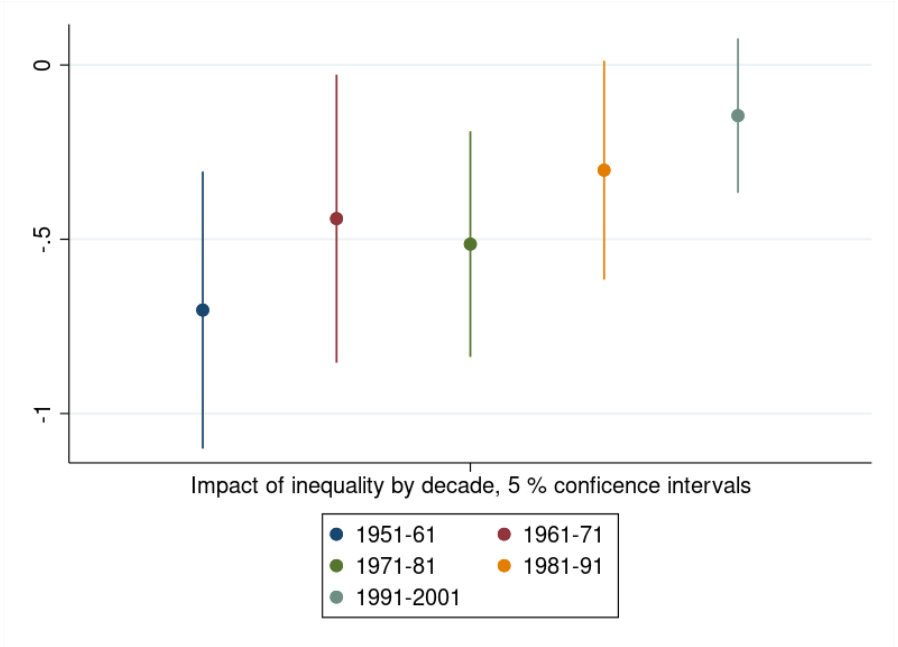
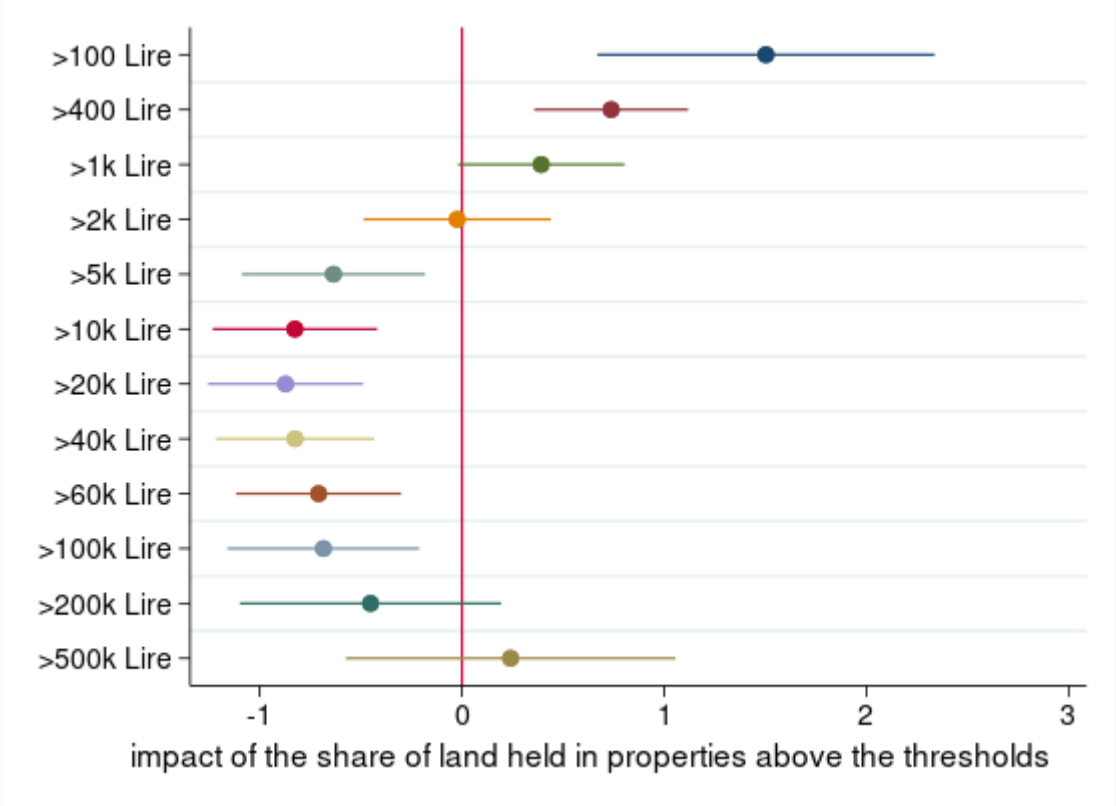


Figure 6. Decomposing the impact of inequality on long-run growth.



The graph displays the point estimates (with 10 per cent confidence intervals) obtained by regressing employment growth in 1951-2001 by the share of land value held in properties above each of the thresholds indicated in the left, along with all the controls in Table 1, column 6 (except the Gini coefficient).

Table 1. Main results OLS – Land inequality and private employment growth

Dependent variable:	Private employment growth (1951-2001)					
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	OLS	OLS	OLS	OLS
Gini land inequality	-0.763***	-0.889***	-1.588***	-1.964***	-1.891***	-2.105***
	(0.280)	(0.272)	(0.393)	(0.371)	(0.460)	(0.421)
Gini * Farm value					-0.017	
					(0.070)	
Tenants (%)			1.072***	0.820***	0.849***	0.426
			(0.260)	(0.252)	(0.292)	(0.295)
Sharecroppers (%)			0.880***	0.626***	0.652***	0.829***
			(0.197)	(0.196)	(0.248)	(0.206)
Wage Labourers (%)			0.314	0.181	0.210	0.008
			(0.219)	(0.204)	(0.253)	(0.227)
Mixed contracts (%)			0.054	0.009	0.016	-0.284
			(0.345)	(0.340)	(0.346)	(0.338)
Farm value				0.114***	0.122***	0.110***
				(0.030)	(0.038)	(0.030)
Agr. Lab. productivity				-0.120*	-0.118*	-0.091
				(0.065)	(0.066)	(0.063)
Environment	YES	YES	YES	YES	YES	YES
Initial development	NO	YES	YES	YES	YES	YES
Macro Area FE	NO	YES	YES	YES	YES	NO
Regional FE	NO	NO	NO	NO	NO	YES
Constant	2.266***	2.129***	2.738***	2.475***	2.448***	2.283***
	(0.351)	(0.447)	(0.484)	(0.446)	(0.442)	(0.544)
Observations	713	713	713	713	713	713
R^2	0.220	0.281	0.317	0.331	0.331	0.381
Adjusted R^2	0.214	0.267	0.300	0.313	0.312	0.350
F	28.087	16.538	15.407	16.341	15.599	12.800

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

'Environment' includes average altitude, average slope of terrain, average annual rainfall, average annual temperature. 'Initial development conditions' includes share of employment in agriculture (1951), share of employment in manufacturing (1951), population density (1951), employment rate (1951).

Table 2. IV results – Land inequality and private employment growth

Dependent Variable	Private employment growth (1951-2001)					
	(1) IV	(2) IV	(3) IV	(4) IV	(5) IV	(6) IV
Gini land inequality	-7.588**	-4.536	-3.130**	-4.644**	-3.780***	-4.763**
	(3.234)	(3.289)	(1.263)	(2.172)	(1.221)	(1.969)
Tenants		0.442		0.743*		0.760*
		(0.311)		(0.438)		(0.417)
Sharecroppers		1.064***		1.290***		1.314***
		(0.387)		(0.458)		(0.433)
Wage labourers		0.432		0.669		0.701
		(0.615)		(0.616)		(0.569)
Mixed contracts		0.046		0.029		0.044
		(0.552)		(0.404)		(0.396)
Environment	YES	YES	YES	YES	YES	YES
Initial development	NO	YES	NO	YES	NO	YES
Initial agricultural conditions	NO	YES	NO	YES	NO	YES
Macro area FE	NO	NO	NO	NO	NO	NO
Regional FE	NO	YES	YES	YES	YES	YES
Constant	7.113***	3.298**	3.962***	3.761***	4.431***	3.834***
	(2.295)	(1.510)	(0.916)	(1.409)	(0.886)	(1.317)
Observations	713	713	710	710	710	710
R^2	-0.323	0.348	0.163	0.349	0.130	0.347
F	20.999	11.870	27.294	12.117	28.173	12.023
First Stage Statistics: instrumenting Gini land inequality						
Post-WWI land sales wave	-0.177***	-0.154***			-0.114**	-0.108**
	(0.052)	(0.052)			(0.052)	(0.047)
Silt Soil (%)			-0.003***	-0.002***	-0.003***	-0.002***
			(0.000)	(0.000)	(0.000)	(0.000)
Kleibergen-Paap rk Wald F	11.527	8.645	45.438	23.825	24.386	13.823
Hansen Test p-value					0.080	0.898

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

Table 3. Decomposing the effect of land inequality: firm creation and firm size

Dependent variable:	Firm number growth			Firm size growth		
	(1) OLS	(2) OLS	(3) IV	(4) OLS	(5) OLS	(6) IV
Gini land inequality	-0.049	-1.289***	-2.253	-0.714***	-0.815***	-2.510**
	(0.333)	(0.344)	(1.456)	(0.241)	(0.237)	(1.131)
Environment	YES	YES	YES	YES	YES	YES
Initial development	NO	YES	YES	NO	YES	YES
Initial agr. conditions	NO	YES	YES	NO	YES	YES
Regional FE	NO	YES	YES	NO	YES	YES
Observations	713	713	710	713	713	710
R^2	0.204	0.461	0.451	0.087	0.390	0.369
Adjusted R^2	0.198	0.433	0.424	0.080	0.360	0.338
F	29.700	18.750	18.923	11.976	13.660	12.386

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

Table 4: Land Inequality and other developmental outcomes				
PANEL A				
Dependent variable:	Population growth 1951-2011		Change in manufacturing employment share	
	(1)	(2)	(3)	(4)
	OLS	IV	OLS	IV
Gini land inequality	-0.977***	-2.390**	-0.154***	-0.431*
	(0.253)	(1.124)	(0.048)	(0.230)
All controls	YES	YES	YES	YES
Observations	713	710	713	710
R^2	0.540	0.522	0.809	0.801
Adjusted R^2	0.517	0.498	0.799	0.791
F	22.036	21.744	88.475	85.481
PANEL B				
Dependent variable:	Average family income in 2000 (000s €)			
	(OLS)	OLS	IV	IV
Gini land inequality	-3.058***	-0.799	-23.671***	-19.988***
	(1.076)	(0.965)	(5.649)	(5.624)
Private employment growth (1951-2001)		1.073***		0.776***
		(0.090)		(0.138)
All controls	YES	YES	YES	YES
Observations	713	713	710	710
R2	0.815	0.854	0.703	0.759
Adjusted R2	0.806	0.846	0.688	0.747
F	128.552	138.564	76.651	88.820

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Land inequality and private employment growth – testing spatial heterogeneity						
Dependent variable:	Private employment growth (1951-2001) in					
	Italy	North-West	North-East	Center	South	Islands
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	OLS	OLS	OLS	OLS
Gini land inequality	-2.998***	-1.354	-2.653**	-2.147***	-1.976**	0.314
	(1.088)	(1.373)	(1.105)	(0.802)	(0.811)	(1.362)
North-East # Gini land inequality	-0.477					
	(1.347)					
Center # Gini land inequality	1.150					
	(1.160)					
South # Gini land inequality	1.390					
	(1.171)					
Islands # Gini land inequality	1.756					
	(1.325)					
All controls	YES	YES	YES	YES	YES	YES
Observations	713	155	127	140	203	88
R^2	0.385	0.371	0.490	0.505	0.455	0.445
Adjusted R^2	0.350	0.288	0.405	0.431	0.396	0.320
F	12.201	6.698	7.550	7.560	9.025	4.917

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

Table 6. Land inequality and the presence of industrial districts				
Dependent Variable:	Manufacturing Employment in Industrial Districts (%)		Industrial District Dummy	
	(1) OLS	(2) IV	(5) OLS	(6) IV
Gini land inequality	-0.100***	-0.359**	-0.641*	-3.938**
	(0.037)	(0.182)	(0.338)	(1.801)
All controls	YES	YES	YES	YES
Observations	713	710	713	710
R^2	0.432	0.392	0.395	0.308
Adjusted R^2	0.403	0.361	0.364	0.273
F	12.411	11.567	32.213	21.057

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

Table 7. Land Inequality, employment growth and the 1950s Land Reform					
Dependent Variable	Private employment growth (1951-2001) in				
	Italy	Non-Reform Provinces			
	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS
Gini land inequality	-1.948***	-0.444	-0.667**	-2.035***	-2.297***
	(0.465)	(0.324)	(0.309)	(0.460)	(0.516)
Land Reform	0.018				
	(0.594)				
Gini land inequality # Land Reform	-0.189				
	(0.736)				
Environment	YES	YES	YES	YES	YES
Initial development	YES	NO	YES	YES	YES
Initial agricultural conditions	YES	NO	NO	YES	YES
Macro area FE	NO	NO	YES	YES	NO
Regional FE	YES	NO	NO	YES	YES
Constant	2.209***	2.065***	1.391***	1.754***	1.438**
	(0.561)	(0.397)	(0.530)	(0.565)	(0.634)
Observations	713	553	553	553	553
R^2	0.383	0.235	0.303	0.370	0.425
Adjusted R^2	0.350	0.228	0.287	0.349	0.389
F	12.352	21.763	15.786	17.170	13.861

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

Table 8. Land inequality and employment growth: exploring mechanisms

Dependent variable:	Private employment growth (1951-2001)					
	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS
Gini land inequality	-2.105***	-1.968***	-1.872***	-1.848***	-1.558***	-0.946**
	(0.421)	(0.382)	(0.421)	(0.435)	(0.423)	(0.393)
Human Capital:						
Illiteracy (1951)		-0.122***				-0.114***
		(0.030)				(0.026)
Illiteracy growth (1951-2001)		-0.148***				-0.142***
		(0.035)				(0.031)
High-School (1951)		-0.156***				-0.134***
		(0.032)				(0.035)
High-School growth (1951-2001)		0.038***				0.044***
		(0.007)				(0.007)
Social Capital:						
Electoral turnout (1946)			3.272***			3.723***
			(0.914)			(0.801)
Medieval Free City			-0.211***			-0.117*
			(0.065)			(0.068)
Mutual aid societies (1911)			0.345***			0.213**
			(0.101)			(0.098)
Charities (1911)			-0.016			0.071
			(0.106)			(0.100)
Political Economy:						
Leftwing vote (PCI-PSI, 1946)				-0.569***		-0.651***
				(0.191)		(0.183)
Agricultural specialization:						
Corn					0.730	0.646
					(0.931)	(0.788)
Other cereals					0.068	-0.225
					(0.387)	(0.346)
Citrus					0.909***	0.340
					(0.334)	(0.267)
Fruits					1.225***	0.731***
					(0.263)	(0.239)
Industrial crops					0.006	-0.414
					(0.389)	(0.344)
Olive oil					0.681***	0.150
					(0.256)	(0.285)
Wine					0.981***	0.624***
					(0.224)	(0.198)
Pulses					2.121*	0.270
					(1.221)	(1.148)
Potatoes					-0.626	-1.051*
					(0.715)	(0.620)
Vegetables					0.980**	0.675*
					(0.440)	(0.406)
Animal products					0.892***	0.657***
					(0.221)	(0.217)
All controls	YES	YES	YES	YES	YES	YES
Observations	713	713	699	706	713	699
R^2	0.381	0.462	0.415	0.390	0.423	0.540
Adjusted R^2	0.350	0.431	0.382	0.359	0.384	0.502
F	12.800	19.014	13.496	13.270	11.672	17.422

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

Table 9. Different property quantiles and employment growth				
Dependent variable:	Private employment growth (1951-2001)			
	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	OLS
Land value in properties below 1k Lire (%)	0.369	0.700	0.693	0.290
	(0.361)	(0.434)	(0.446)	(0.429)
Land value in properties from 1k to 5k Lire (%)		1.105***		
		(0.339)		
Land value in properties from 5k to 20k Lire (%)		1.173**		
		(0.574)		
Land value in properties from 1k to 10k Lire (%)	0.900***		1.116***	0.713**
	(0.288)		(0.347)	(0.311)
Land value in properties from 10k to 20k Lire (%)			1.163	0.760
			(0.941)	(0.691)
Land value in properties from 20k to 100k Lire (%)				-0.403
				(0.476)
Land value in properties above 100k Lire (%)	0.009	0.413	0.403	
	(0.340)	(0.452)	(0.476)	
All controls	YES	YES	YES	YES
Constant	0.667	0.330	0.333	0.736
	(0.770)	(0.796)	(0.797)	(0.846)
Observations	713	713	713	713
R^2	0.374	0.376	0.376	0.376
Adjusted R^2	0.341	0.342	0.342	0.342
F	12.755	12.398	12.397	12.397

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

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