Persistent Specialization and Growth:

The Italian Land Reform[*]

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1   Extended Abstract

The structure of property affects economic outcome through bargaining (Hart and Holmström, 1987), consumption patterns (Matsuyama, 1992), investment choices (Goldstein and Udry, 2008), and other channels. In the agricultural sector, redistribution policies are often meant by governments as a tool to improve economic productivity and to gain popular consensus. These goals are typically short-run in nature, and many studies have analyzed the consequences of reforms in the first years after their implementation (De Janvry et al., 2015, Montero, 2020, Besley and Burgess, 2000). Research studying long-run effects of changes in land ownership structure often focuses on outcomes in the agricultural sector (Besley et al., 2016), so that knowledge about effects on overall development in affected areas is still limited.

   This paper studies the short- and long-run impact on local economic structures and growth of a large-scale land redistribution reform. In the 1950s, the Italian government,

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implemented a reform based on land redistribution and improvement with three main objectives: (i) redistributing wealth, (ii) increasing agricultural efficiency, and (iii) gaining political consensus.

We exploit a unique dataset based on newly digitized data on expropriation at the municipal level, as well as on pre- and post-reform socioeconomic variables, to show the effects on sectoral composition of employment. To identify the causal impact of the reform on the structural transformation, we implement a difference-in-differences model, tracking the share of individuals employed in agriculture and in manufacturing at the municipal level through several census waves. Areas with higher incidence of redistribution experienced a sizable and significant increase in the share of workers employed in agriculture; correspondingly, the share of workers employed in the manufacturing sector decreased. The effects of the reform are sizable and persist for four decades following the implementation of the reform: 40 years after the reform, the share of agricultural workers in treated areas is 16% on average, 45% higher than the corresponding share in control areas. These results are not sensitive to an array of robustness exercises, addressing potential issues coming from sample and specification choices. In particular, we find that the identified relationship between expropriations and agricultural specialization holds when focusing only on treated municipalities.

What mechanism can explain these long-term patterns? We first test the effects on educational attainments, a channel highlighted by the previous literature. While some studies suggest positive effects (Galor et al., 2009), others find negative ones (Albertus et al., 2020), we do not find important effects on education, consistent with a context where education is publicly provided and easily accessed by the population.

Instead, we attribute the persistent effects on the sectoral composition to an increased intergenerational transmission of occupation. Children of agricultural workers become more likely to be agricultural workers themselves when their parents own the land they work. The land reform increased the number of landowners and affected occupational choices of their descendants. We provide evidence of the effects of property on occupational choices of children by exploiting Italian survey data. Lack of agglomeration in urban centers is an additional factor that might have hindered the development of the industrial sector (Martin and Ottaviano, 2001): we identify an adverse impact of the land reform on population density and urban agglomeration.

Finally, we ask whether the reform led to higher or lower growth, as agricultural specialization has ambiguous implications for average income in a municipality. To answer this question, we contribute a new measure of income growth at the municipality level for the period 1970-2000 and use it to estimate the impact on long-run growth. Matching treated and control municipalities based on their pre-treatment land inequality, geography, and land fertility, we show that municipalities affected by land redistribution experienced lower long-run growth. We find 20p.p. lower growth between 1970 and 2000 in treated areas, compared to a 183% baseline in the relevant sample. Linear specifications and propensity score methods confirm this finding.

The paper contributes to several strands of literature. First, our paper contributes to the empirical literature on structural change and economic growth (see Bustos et al., 2016 and Bustos et al., 2020 for recent examples). We leverage a specific historical event that represented a labor-increasing shock to productivity and show that it increased participation to agriculture. We also provide long-run estimates, showing remarkable persistence, and provide suggestive evidence of the mechanisms driving it. Similar to Mattheis and Raz (2021), our findings suggest the the land redistribution policy implemented in Italy generated distortions that had persistent impacts on the industrial structure.

Second, it speaks to the large body of evidence documenting the effects of land reforms. Historically, land reforms have included policies focused on different aspects, such as redistribution (Albertus et al. (2020)), land titling formalization (De Janvry et al. (2015)), or changes in the organization of production (Montero (2020)). Importantly, reforms vary in the thoroughness of implementation (see the case of India in Besley et al., 2016). We analyze a reform that was focused on land redistribution, and that according to historical accounts was carefully implemented. Our paper is among the first to estimate long-run effects of a reform with such characteristics.

Finally, we speak to a growing literature on agricultural policies in Italian history (Marciani, 1966, King, 1973, and Caprettini et al., 2021 on the land reform; Carillo, 2021 on Mussolini's Battle of Grain). We use previously unavailable data to provide evidence of effects beyond political gain from the reform, offer precise causal estimates of the effects on the sectoral composition and economic development of reformed areas.

Empirical strategy

The panel structure of the data allows us to follow the two groups (treated and untreated municipalities) over time and estimate a difference in differences model under the assumption of parallel trends with a model of the type:

$$y_{it} = \gamma_t + \delta_i + \alpha_{36} \times d_{36} \times E_i + \sum_{\tau \in \mathcal{T}^{post}} \alpha_\tau \times d_\tau \times E_i + \varepsilon_{it} \tag{1}$$
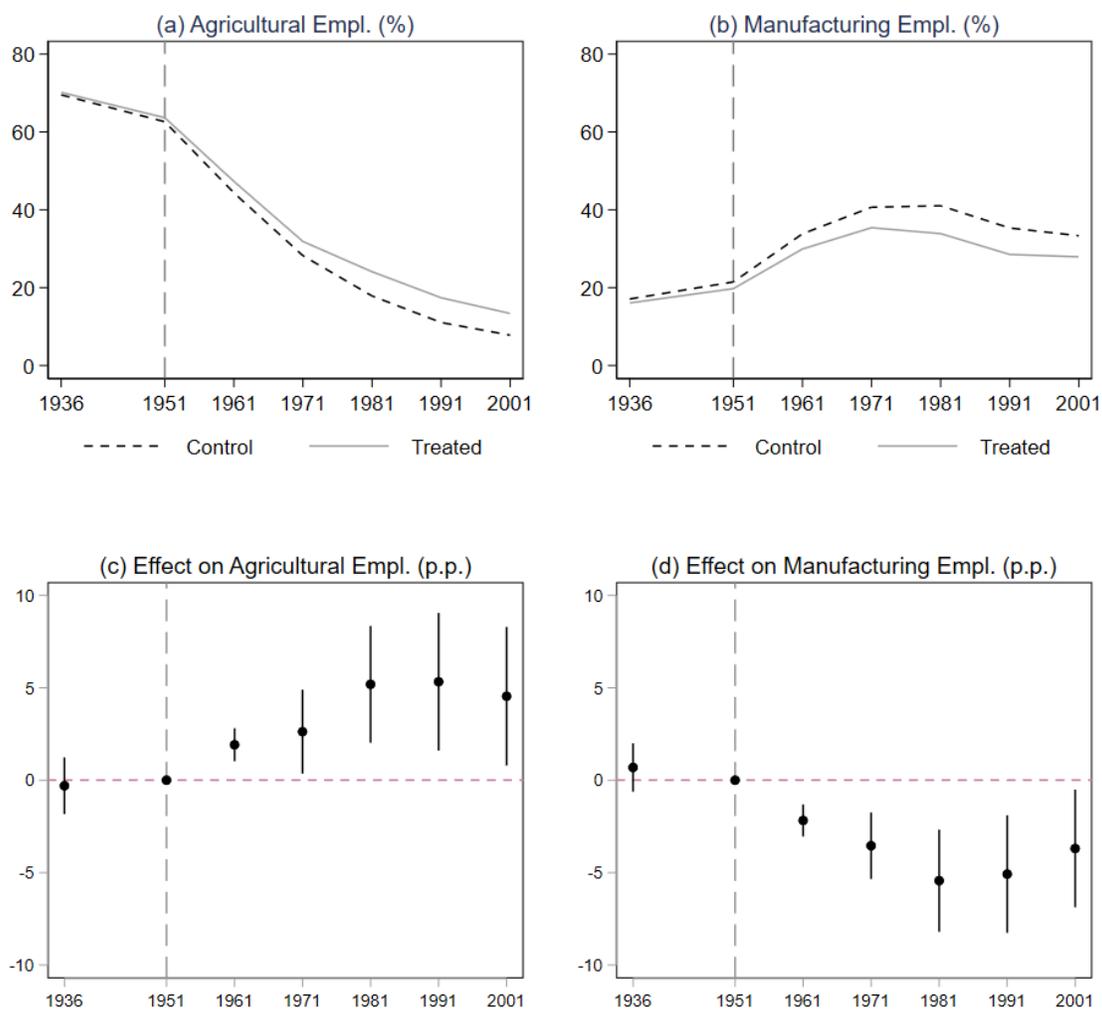
where y_{it} is the economic outcome (e.g. agricultural employment) in municipality i in the decade t; E_i represents either a treatment dummy or the percentage of expropriated lands; d_t are time dummies; γ_t and δ_i denotes a full set of time effects and full set of municipality fixed effects, respectively; $\mathcal{T}^{post}$ is the set of years after treatment. This model controls for common changes over time in the sectoral composition of employment through d_t and for the level of each municipality through δ_i. We can, finally, test for the presence of differential pre-trends (α_{36}) and for dynamic effects over time (α_τ). To account for potential correlation over time and across waves of the census, our favorite specification clusters standard errors both at the municipality level and at the year level.

Our sample does not include southern Italian regions, hence our analysis focuses only on municipalities in the Center-North. This choice is driven by the contemporaneous implementation of "Cassa del Mezzogiorno" policy, which determined a massive public funding to southern municipalities to boost industrialization in underdeveloped areas (see Colussi et al., 2021 for more details). The coexistence of these two projects might have biased our estimates, hence we restrict our sample to areas that are not affected by the industrialization policies.[1]

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[1]Our choice of using a restricted sample is consistent with Caprettini et al. (2021). The authors exclude southern regions for identification reasons. In a non reported Table we replicate our main specifications and show that parallel trends are unlikely to hold for the southern regions based on a pre-trend analysis.

Figure 1: Raw Data and Diff in Diff Estimates for Extensive Margin

Panels (a) and (b) display the average employment share of agriculture and manufacturing, respectively, as measured by the Population Census. Panels (c) and (d) report the estimated effect of the reform on employment shares in agriculture and manufacturing, respectively. The coefficients are estimated using a Difference in Differences design, under the parallel trends assumption.

Figure 1 top panels show the evolution of employment in agriculture and manufacturing for the two groups of municipalities in the raw data. While the panels at the bottom report the estimated effect of the reform on employment shares in agriculture and manufacturing.

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