

Local Specialization and Growth: The Italian Land Reform

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April 19, 2023

CEPR

International Macro History Online Seminar Series

Motivation

- How does land distribution affect sectoral composition and growth?
- The evidence about the effects of land distribution on industrialization and overall development is ambiguous.
- Concentrated land ownership has been associated with lower provision of education (Galor et al., 2009), slowing down structural change.
- Other work has shown that larger landowners typically employ a lower amount of labor, either because of higher mechanization (Foster and Rosenzweig, 2022) or because of local monopsony power (Martinelli, 2014).
- This paper studies the impact of a large-scale land reform implemented by the Italian government in the 1950s on local industrial structure and long-run economic growth.

Research Question and Results Preview

1) How did the **1950s Italian land reform** affect **long-run sectoral composition** of the reformed areas?

- Using newly digitized data on expropriations, we provide evidence that areas with higher incidence of expropriations reported a higher share of workers employed in agriculture.
- The effects of the reform are sizable and persist for five decades following the implementation of the reform.
- Potential mechanisms: education, scale and agglomeration.
- Persistent effect due to the occupational inheritance.

2) Does **local specialization** in agriculture affect **long-run growth**?

- Using a matching estimator we provide evidence that the municipalities affected by land redistribution experienced lower long-run growth.

Outline

- 1 The 1950 Italian Land Reform
 - Institutional details and implementation
- 2 Data
- 3 Empirical Analysis
 - Effects on Sectorial Composition
 - Mechanisms and Occupational Inheritance
 - Effects on Income Growth
- 4 Conclusions

The Land Reform Institutional Setting: Build-Up

- After WWII, multiple times rural workers occupied plots of uncultivated land, especially in the South of Italy.
- Grievances were linked to the abundance of absentee landowners. quote
- 1950 *legge stralcio*: promoted by ruling DC party
 - newly adopted Constitution declared that private property can be expropriated for general interest reasons.
 - 9 million hectares potentially interested by the reform.



The Land Reform Institutional Setting: expropriations

- The main (declared) goal of the land reform was to reduce land inequality with an eye for productivity improvement.
- Specific **table** used for determining the expropriation amount (except for Sila where the focus was on 'unimproved' arable land).
- Expropriated landowners were compensated with 25-years fixed-rate government bonds
 - Expropriation decisions based on the land distribution as of 1949.
 - Value of the compensation below market value and based on the tax returns of 1947.

The Land Reform Institutional Setting: re-assignment

- The *enti di riforma* were in charge for the assignment of the expropriated land
 - farmers who were assigned a plot could purchase it through advantageous long-term loans.
- Approximately 120,000 families received a part of the 700,000 hectares expropriated.
 - assigned either a *quota* or a *podere*
 - had to participate to cooperatives for a long period of time.



Data

Data

- Original expropriation documents (digitized) – individual-level data on expropriations (1950–1953).
- Income level 1970 (digitized) and 2000 – Historical Archive of Banco di Roma and MEF.
- Municipality characteristics (population, illiteracy rate, sectorial employment) – Italian Census data (1936–2001).
- Land distribution in 1948 (digitized) – INEA (National Institute of Agrarian Economics).

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

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

IL PRESIDENTE DELLA REPUBBLICA

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

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

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

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

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

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

Sentito il Consiglio dei Ministri;

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

Decreta:

Art. 1.

E' approvato il piano particolareggiato di espropriazione compilato dall'Ente per lo sviluppo dell'irrigazione e la trasformazione fondiaria in Puglia e Lu-

cania — Sezione speciale per la riforma fondiaria —, nei confronti di Torre Maria fu Gioacchino, relativo ai terreni ricadenti nel comune di Grottole (provincia di Matera), per una superficie di ettari 51.26.31, specificamente descritti nell'elenco n. 1 allegato al presente decreto.

Art. 2.

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

Art. 3.

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

Art. 4.

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

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

Dato a Roma, addì 18 dicembre 1952

EINAUDI

DE GASPERI — FANFANI

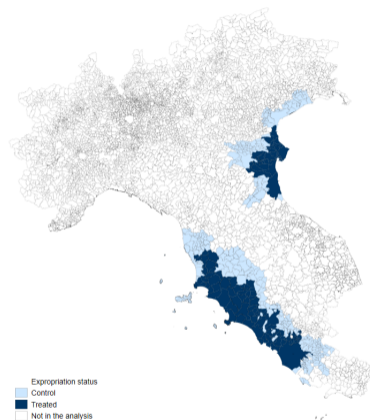
Visto, il Guardasigilli: ZOLI

Registrato alla Corte dei conti, addì 15 gennaio 1953

Expropriation Data - Percent of Expropriated Land

We aggregate expropriations at the municipality level

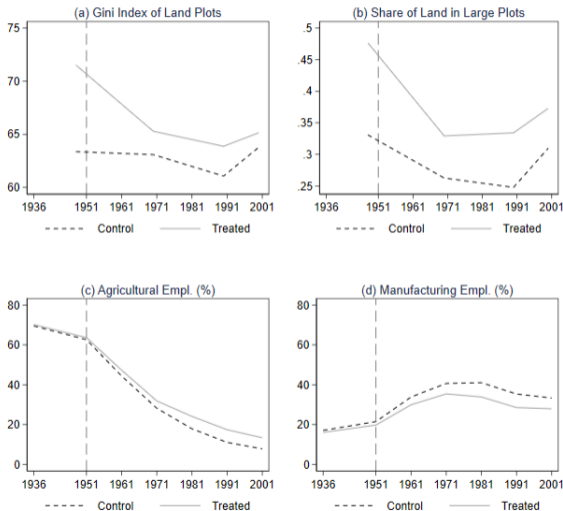
- main treatment variable: **percentage of expropriated land**
- average expropriation percentage \sim 15%;
50p: 14%; 90p: 32%



Regional Data

Empirical Analysis

Preliminary Evidence



Effects on Sectorial Composition: Empirical Specification

We estimate the following regression on municipalities in provinces with at least one expropriation:

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

where:

- y_{it} is the economic outcome in municipality i in the decade t ;
- γ_t s denote a full set of time effects;
- δ_i s denote a full set of municipality fixed effects;
- d_{τ} are time dummies
- \mathcal{T}^{post} is the set of years after treatment.

We exclude south of Italy from our sample Pre-trends

Effects on Sectorial Composition

Treat. margin:	Agriculture			Manufacturing		
	(1) Ext.	(2) Both	(3) Intensive	(4) Ext.	(5) Both	(6) Intensive
1936	-0.299 (0.627)	-4.597 (2.755)	-9.110 (5.531)	0.692 (0.534)	4.957 (2.626)	5.797 (4.706)
1961	1.917*** (0.365)	15.11*** (1.423)	19.67*** (2.613)	-2.177*** (0.354)	-13.14*** (0.741)	-11.49*** (2.539)
1971	2.627** (0.928)	17.51** (4.932)	18.34* (7.571)	-3.543*** (0.737)	-16.93*** (3.402)	-6.700 (5.193)
1981	5.190*** (1.292)	31.01*** (5.881)	26.58** (9.452)	-5.433*** (1.131)	-20.04** (6.065)	5.726 (9.663)
1991	5.328** (1.523)	28.04*** (7.335)	17.02 (11.96)	-5.079*** (1.299)	-14.73* (7.080)	16.16 (12.02)
2001	4.544** (1.531)	22.85** (7.639)	11.64 (12.55)	-3.695** (1.302)	-8.655 (7.423)	17.32 (12.49)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Mun. FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2867	2867	672	2867	2867	672

Robustness Checks

- Robust to removing the administrative center of each province. **Seats**
- Conley standard errors (5-20 km) produce similar significance patterns. **Conley**
- Robust to the use of additional set of controls and province fixed effects. **Additional Controls**
- Robust to the use of the doubly robust estimator (Sant'Anna and Zhao, 2020) **Different Estimator**

Mechanisms

So far we have not discussed the potential mechanisms that might explain lower levels of industrialization

- Education - we do not detect any relationship between educational attainments and intensity of expropriation.
- Agglomeration - Intensity of expropriation is negatively associated to population density (i.e. the reform reduced density and agglomeration).
- Scale - smaller agricultural firms employ larger amounts of labor (see Adamopoulos and Restuccia, 2020)

Mechanisms: Education and Agglomeration

Education is not correlated with the reform, while we detect an adverse impact of the land reform on the population density of Italian municipalities.

Treat. margin:	Education						Agglomeration					
	Illiteracy %			Higher Educ. %			Pop. Density			Rurality		
	(1) Ext.	(2) Both	(3) Intensive	(4) Ext.	(5) Both	(6) Intensive	(7) Ext.	(8) Both	(9) Intensive	(10) Ext.	(11) Both	(12) Intensive
1936							-0.325 (4.643)	2.288 (22.26)	9.909 (39.44)			
1961	-0.00281*** (0.000481)	-0.0131*** (0.00159)	-0.00451 (0.00541)	0.0762 (0.148)	0.344 (0.747)	0.0888 (1.392)	-6.362*** (0.147)	-18.09*** (0.811)	21.24*** (3.890)	1.691*** (0.411)	10.96*** (1.548)	10.98*** (2.074)
1971	-0.00383*** (0.000732)	-0.0194*** (0.00329)	-0.0101* (0.00478)	0.290*** (0.0527)	0.627 (0.330)	-1.505 (0.921)	-19.69*** (5.309)	-84.03** (26.71)	-9.989 (42.34)	4.907*** (0.396)	22.95*** (1.985)	7.927 (3.952)
1981	-0.00471 (0.00238)	-0.0278* (0.0120)	-0.0232 (0.0195)	-0.187 (0.237)	-1.956 (1.214)	-3.216 (1.721)	-27.83** (8.107)	-119.8** (39.50)	-16.87 (60.51)	8.029*** (1.318)	32.97*** (5.936)	0.592 (9.250)
1991	-0.00518 (0.00325)	-0.0374* (0.0174)	-0.0439 (0.0289)	0.0980 (0.548)	-2.425 (2.925)	-7.625 (4.792)	-29.64** (9.521)	-129.5** (47.54)	-23.11 (72.59)	8.954*** (1.620)	34.33*** (7.144)	-5.930 (10.25)
2001	-0.00679 (0.00359)	-0.0465* (0.0193)	-0.0509 (0.0318)	-0.702 (0.619)	-6.788* (3.271)	-10.60* (5.220)	-34.38** (10.20)	-152.7** (50.60)	-33.39 (76.38)	10.57*** (1.697)	39.20*** (7.447)	-10.57 (11.18)
Mun. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean Dep. Var.	0.0537	0.0537	0.0574	11.05	11.05	11.00	168.1	168.1	99.62	25.24	25.24	23.98
SD Dep. Var.	0.0467	0.0467	0.0471	10.36	10.36	10.52	185.9	185.9	134.9	19.47	19.47	16.77
Observations	2466	2466	576	2460	2460	576	2874	2874	672	2460	2460	576

Persistent Channels

The persistent effect of the land reform might have been explained by occupational inheritance (e.g. Fernando 2022)

- We use the Survey on Household Income and Wealth (SHIW) collected between 1977 and 2016 by the Bank of Italy.
- We test whether young adults are employed in the same sector as their father.
- We show that ownership of land is indeed positively related to higher occupational transmission
- Children of agricultural workers have more than twice the probability to stay in agriculture when their parents own land

Occupational Inheritance: SHIW

	Men only		Men and Women	
	(1) Transmission	(2) Transmission	(3) Transmission	(4) Transmission
Business Owner (Agriculture)	0.0809*** (0.0265)	0.0758*** (0.0271)	0.0643*** (0.0180)	0.0544*** (0.0185)
Business Owner (Other Sector)	0.00181 (0.0145)	-0.00371 (0.0142)	-0.000862 (0.0108)	-0.00838 (0.0104)
Region FE	No	Yes	No	Yes
Observations	11653	11653	21416	21416
Mean (Agr.)	0.0608	0.0608	0.0413	0.0413
Mean (Oth.)	0.393	0.393	0.374	0.374

Effects on Economic Growth

So far we have not determined the impact on long-run economic growth

- We construct a proxy of income per capita at municipal level in 1970 and 2000.
- We use Coarsened Exact Matching based on region, wheat soil suitability and pre-reform land inequality.
- Our results suggest that even though the reform might have had some positive effects on economic development in the first years from implementation, it had negative effects on income growth in the long run.

Effects on Economic Growth

	1970 Income		1970-2000 Growth	
	(1)	(2)	(3)	(4)
Dummy Expropriation	6.802 (159.7)	12.25 (154.7)	-0.203** (0.0841)	-0.211** (0.0815)
Soil Suitability		24.56*** (5.651)		-0.00917*** (0.00196)
Gini Index		10.78 (10.43)		-0.00317 (0.00450)
Constant	4836.9*** (121.3)	3358.5*** (801.2)	1.878*** (0.0584)	2.363*** (0.348)
Mean Dep. Var.	4821	4821	1.832	1.832
SD Dep. Var.	1113.9	1113.9	0.603	0.603
Observations	341	341	331	331

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Conclusions

Conclusions

- We exploit newly digitized data on land expropriated by the 1950 Italian land reform to highlight the effect on sectoral composition.
- Using a difference in differences model, we find robust evidence that the reform generates an increase in the number of workers employed in the agricultural sector. While the result cannot be explained by change in educational attainment, we find a significant negative effect of the reform on agglomeration.
- Our findings suggest that occupational inheritance played a relevant role in the persistence of the effect.
- We use a matching estimator and provide evidence of a negative correlation between the reform and income growth in the period 1970-2000.

Thank you!

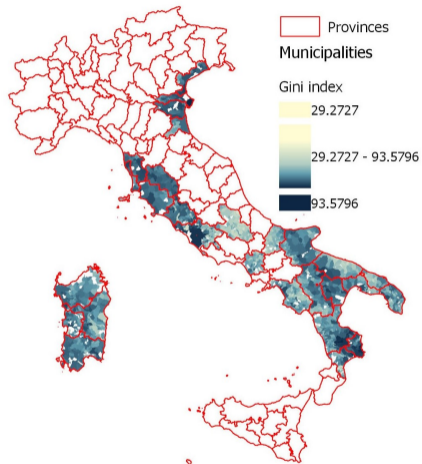
Absentee Landowners

“The southern landlord generally contributed nothing more than the land to the contract, and the peasant had to pay rents in cash or kind that ranged from 25% to 60% of the value of the crop. [...] The majority of *latifondisti* were absentee landlords, [...] only visiting their estates for hunting purposes.”

King (1973)

[Back](#)

Land Distribution Data - Gini Coefficient



Expropriation Table

Percentuali di scorporo riferite agli scaglioni di reddito imponibile

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

Expropriation Data

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

Pre-Trends in the South

	Agriculture			Manufacturing		
	(1) Ext.	(2) Both	(3) Intensive	(4) Ext.	(5) Both	(6) Intensive
Treat. margin:						
1936	-1.282*** (0.341)	-13.19*** (2.652)	-12.26** (3.763)	1.137*** (0.261)	10.69*** (2.006)	9.321** (2.962)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Mun. FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9794	9738	2193	9794	9738	2193

Robustness - Excluding Province Seats

	Agriculture			Manufacturing		
	(1) Ext.	(2) Both	(3) Intensive	(4) Ext.	(5) Both	(6) Intensive
Treat. margin:						
1936	-0.345 (0.620)	-5.061 (2.761)	-9.873 (5.462)	0.567 (0.511)	4.840 (2.566)	6.911 (4.621)
1961	1.860*** (0.404)	15.26*** (1.508)	20.91*** (2.761)	-2.153*** (0.373)	-13.28*** (0.785)	-12.38*** (2.654)
1971	2.551** (0.926)	17.87** (4.986)	20.43** (7.596)	-3.462*** (0.717)	-17.13*** (3.369)	-8.551 (5.181)
1981	5.135*** (1.267)	31.54*** (5.834)	29.19** (9.396)	-5.328*** (1.114)	-20.19** (6.014)	3.450 (9.671)
1991	5.225** (1.485)	28.49*** (7.251)	20.01 (11.88)	-5.018*** (1.305)	-14.94* (7.077)	14.22 (12.10)
2001	4.381** (1.477)	23.22** (7.535)	14.96 (12.45)	-3.631** (1.311)	-8.847 (7.439)	15.58 (12.57)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Mun. FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2797	2797	644	2797	2797	644

Robustness - Conley SE

	Agriculture				Manufacturing			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1936	-4.597 (3.782)	-4.597 (4.353)	-4.597 (4.806)	-4.597 (4.365)	4.957* (2.735)	4.957 (3.278)	4.957 (3.692)	4.957 (3.743)
1961	15.11*** (5.275)	15.11** (6.356)	15.11** (7.632)	15.11* (9.025)	-13.14*** (3.989)	-13.14*** (4.861)	-13.14** (5.829)	-13.14* (6.732)
1971	17.51** (8.135)	17.51* (9.467)	17.51 (11.07)	17.51 (12.68)	-16.93*** (5.912)	-16.93** (6.918)	-16.93** (7.677)	-16.93** (8.541)
1981	31.01*** (8.857)	31.01*** (10.64)	31.01** (12.63)	31.01** (13.60)	-20.04*** (7.771)	-20.04** (9.342)	-20.04* (10.36)	-20.04* (11.19)
1991	28.04*** (9.702)	28.04** (11.80)	28.04** (13.82)	28.04* (15.26)	-14.73* (8.896)	-14.73 (11.01)	-14.73 (12.05)	-14.73 (12.78)
2001	22.85** (10.51)	22.85* (12.55)	22.85 (14.43)	22.85 (15.68)	-8.655 (9.549)	-8.655 (11.71)	-8.655 (13.11)	-8.655 (14.35)
Bandwidth	5	10	15	20	5	10	15	20

Robustness - Different Controls

	Agriculture			Manufacturing		
	(1) Ext.	(2) Both	(3) Intensive	(4) Ext.	(5) Both	(6) Intensive
Treat. margin:						
1961	0.876 (1.100)	13.89** (5.219)	19.25* (7.857)	-1.319 (1.034)	-14.46** (4.305)	-14.74** (5.476)
1971	1.373 (1.200)	15.67** (5.508)	18.06* (8.668)	-2.252 (1.122)	-17.29** (4.614)	-11.93 (6.222)
1981	3.233** (1.141)	27.33*** (4.875)	28.81** (7.448)	-4.199** (1.061)	-21.97*** (4.430)	-3.206 (5.846)
1991	3.493** (1.015)	25.58*** (4.493)	20.24** (7.809)	-3.574** (0.916)	-17.79*** (4.170)	1.287 (5.574)
2001	2.180* (0.957)	18.34*** (4.312)	14.15 (7.543)	-2.734** (0.866)	-15.26** (4.060)	-0.635 (5.242)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Prov. FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2460	2460	576	2460	2460	576