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Abstract

Land reforms sacrifice property rights in the name of a fairer distribution. The trade-off they imply makes their study of interest to Economic Historians: do the benefits of reduced land inequality justify the violation of property rights? The discussion about land reforms factors in both the social and efficiency consequences of land inequality. The debate preceding the Portuguese Agrarian Reform echoes these concerns and culminated in an anti-latifundia sentiment crystallized in the legislation used to justify the land occupations of 1974 to 1976. The aim of this paper is to critically assess the efficiency arguments used to justify the occupations. Was land productivity lower in latifúndio counties? A unique dataset drawn from primary sources was specially assembled to answer this question. Through standard OLS regression, this study finds that the number of agriculture journeyman per employer landowner has a statistically significant effect on agricultural productivity after controlling for geographical and soil characteristics. It also finds that introducing literacy as a control causes the effect of land inequality to disappear leading to the conclusion that policies aimed at improving human capital would have been just as effective as a land reform. Further, this study also identifies the crop mix selected as the proximate channel of transmission. Farmers in the region with the highest levels of land inequality favoured less valuable crops, like wheat. An arid climate combined with a lack of irrigation infrastructure and wheat protectionism justify this preference.

Keywords: Land Inequality, Agricultural Productivity, Portuguese Land Reform, Human Capital, Crop Mix

“Sure, cried the tenant men, but it’s our land... We were born on it, and we got killed on it, died on it. Even if it’s no good, it’s still ours.... That’s what makes ownership, not a paper with numbers on it.”

John Steinbeck, *The Grapes of Wrath*

I. Introduction

This paper contributes to the study of the theoretical link between equity and efficiency. It does so through its study of the Portuguese Agrarian Reform, a land occupation movement that occurred in the southern region Alentejo after the 25th of April Revolution in 1974. The Agrarian Reform was the product of the political instability of the revolutionary period, but it was also the result of an ongoing debate about the social and efficiency consequences of the prevalence of large estates ‘latifúndios’ in the South. This research studies the effect of the high levels of land inequality on agricultural land productivity to critically evaluate the arguments presented to justify the reform. With this aim, a unique dataset gathered from primary sources was assembled to test whether the number of agriculture journeymen per employer landowner has a statistically significant effect on agricultural productivity after controlling for geographical and soil characteristics, labor availability, modernization, and human capital characteristics.

The results of this exercise have implications for our understanding of the effect of land inequality on agricultural productivity as well as on long term economic growth and regional development. Land reforms highlight a deep contradiction within Economic History. On one hand, it is somewhat accepted that secure property rights are essential for high-income levels and growth. Similarly, the most recent consensus stresses that high levels of inequality are detrimental to those well-being measures. Land reforms oppose the two – they harm property rights in order to promote equality. The study of these phenomena is thus of great importance for those interested in the grand prize of Economic History – pinpointing the ultimate factors of economic performance.

Theoretical literature distinguishes between income inequality (after-tax available income for consumption and saving) and asset inequality (inequality in access to asset ownership). Asset inequality captures the ex-ante equality of opportunity. In rural societies, land ownership is often a prerequisite for access to profitable entrepreneurial opportunities. Given so, it is no

surprise to see land distribution as a centrepiece of the political debate about inequality across time and space.

The political debate about land redistribution can be framed in terms of its efficiency and equity dimensions. Land redistribution is desirable from an efficiency standpoint if either large estates are less productive than smaller ones (static) or if regions with higher levels of land inequality register lower productivity levels (aggregate). Also, it is desirable from an equity standpoint if higher levels of land inequality are detrimental for overall living standards.

Looking at the efficiency dimension, authors have focused on the effect of land concentration on the productivity of the agricultural sector, often measured as agrarian product per area cultivated. The empirical literature about the static efficiency of different types of farms is abundant but not quite conclusive. Are large estates more efficient than small estates? While some authors praise the incentive advantages of small family farms, others highlight how large-scale managerial farms could afford labor division, frontier technology adoption and had better access to credit. Empirically, researchers have found evidence of an inverse farm size productivity relationship (IFSPR) at the aggregate level and in various developing countries.¹ The debate regarding the existence and causes of this inverse productivity puzzle is ongoing.

Looking at the equity dimension, widespread concern on the consequences of asset inequality led to the creation of several theoretical models that explore the link between asset inequality, distributional differences in living standards, and economic growth. Deininger and Olinto distinguish three classes of inequality-growth models: redistributive political economy models, capital market imperfections models, social stability and economic efficiency models.² Most of these models focus on how the interaction between inequality and a faulty element (myopic voters, credit constraints, unequal public goods provision) hinders long-run economic growth. Martinelli explores a more direct link focusing on how concentration in landownership gives landowners more market power than in the competitive equilibrium result leading to suboptimal allocation and growth.³

Land inequality is a multidimensional and complex phenomenon. The debate surrounding land distribution is often a source of domestic conflict, political views morph into ‘facts’ and

¹ The following section exposes the contours of this debate with the due references

² Klaus W. Deininger, Pedro Olinto and World Bank, *Asset Distribution, Inequality, and Growth*, Policy Research Working Papers 2375 (Washington, DC: World Bank, Development Research Group, Rural Development, 2000)

³ Pablo Martinelli, "Latifundia Revisited: Market Power, Land Inequality and Agricultural Efficiency. Evidence from Interwar Italian Agriculture." *Explorations in Economic History* 54, no. C (2014): 79-106

lead to violent uprisings. No wonder land reforms are so closely related to political revolutions. In Europe, the first recent wave of land reforms started after the First World War in Eastern Europe. Land reform was at the top of political agenda in the newly formed nations (Poland, Yugoslavia, Czechoslovakia, Romania, Hungary, Bulgaria) and frequently occurred at the expense of previous Russian and German landlords. The second wave of land reforms took place after the Second World War.⁴ The subject of this paper, the Portuguese Agrarian Reform, is situated in this second wave and occurred from 1974 to 1976.

The Portuguese Agrarian Reform took place in the southern region of Portugal, Alentejo, after the 25th of April Revolution in 1974. A total of 40,2% of the cultivation area of Alentejo, already the largest region of Portugal, was occupied during this period.⁵ The legal basis for the occupations stressed ‘economic sabotage’ and the under-exploitation of latifúndio estates as the justification for the movement. The goal of this study is to test the veracity of these arguments. Was land productivity lower in latifúndio counties? What is the effect of high levels of land inequality on the efficiency of the agricultural sector?

Even though the Agrarian Reform occurred in 1974, its conceptual foundations are much older. The debate about land distribution in Portugal goes back at least to the 17th century. The communist manifesto used to justify the agrarian reform was written by the secretary-general of the Portuguese Communist Party, Álvaro Cunhal in 1964. In his writings, Cunhal mostly uses data and evidence from the 1940s, 1950s, and 1960s.⁶ By 1974, a lot had changed. Yet, despite all the improvements in living standards that took place, the memory and conceptual framework used to justify the land occupations all dated back to mid-century Portugal.⁷

Accordingly, the original dataset assembled is a cross-section centered in the year of 1960, the first year for which agrarian product is available at county level and the year closer to the publication of Cunhal’s manifesto. This paper tests the veracity of the arguments when they were first presented. The dataset was assembled from multiple official statistical sources, including *Recenseamentos Gerais da População*, *Anuários Demográficos and Estatísticas Agrícolas*. It also draws information about agrarian structures from Silva Martins and about agrarian product from two works published by the Centro de Estudos Agrários of the

⁴ Giovanni Federico, *Feeding the World, an Economic History of Agriculture, 1800-2000*, (Princeton: Princeton University Press, 2005) p.149-152

⁵ António Barreto, *Anatomia De Uma Revolução : A Reforma Agrária Em Portugal, 1974-1976*. A Reforma Agrária; v. 7. (Lisboa: Publicações Europa-América, 1987) p. 219

⁶ Álvaro Cunhal, *Contribuição Para O Estudo Da Questão Agrária*, Coleção Reforma Agrária (Lisboa: Edições Avante!, 1976)

⁷ Maria Antónia Pires de Almeida, "The Agrarian Reform under the Portuguese Revolution, 1974–76: Its Roots and Reversal" *Studies in People's History* 3, Vol. 6 no. 2 (2016) p.65-66

Gulbenkian Foundation for Science in 1968 and 1974.⁸ Given so, this study owes a great deal to the extraordinary empirical work of these Portuguese intellectuals.

The paper proceeds as follows. Section II surveys the literature and places the Portuguese case into both the literature about the inverse productivity puzzle and about the effects of land inequality. Section III provides the historical context of the Portuguese Agrarian Reform after the 25th of April Revolution. Section IV presents the dataset assembled and characterizes the variables, intertwined with qualitative remarks about the Agrarian Question in Portugal. Section V presents the model and discusses its results. Section VI concludes.

II. Literature Review

The empirical relation between land productivity and farm size has been under intense discussion by economists since Chayanov documented that small Russian farms were more efficient than larger ones.⁹ The empirical literature about the static efficiency of different types of farms is abundant but not quite conclusive. Vollrath found evidence of an inverse farm size productivity relationship (IFSPR) at the aggregate level.¹⁰ Studies focusing on a single country or region have also found evidence of this effect.¹¹ The methodology used to estimate whether this effect is present mostly uses household-level data with some studies focusing on the aggregate differences between countries or regions. Nevertheless, evidence regarding the existence of an IFSPR is not yet conclusive, several authors have accused the need to better account for omitted variables and how those might be driving the results.¹²

⁸ J. Silva Martins, *Estruturas Agrárias em Portugal Continental*, (Lisboa: Prelo Editora SARL, 1973)

Mário Pereira and Fernando Estácio, *Produtividade do Trabalho e da Terra no Continente*, (Lisboa: Fundação Calouste Gulbenkian Centro de Estudos de Economia Agrária, 1968)

Mário Pereira, *Alguns Elementos para a Caracterização da Assimetria Regional Agrária Portuguesa*, (Lisboa: Fundação Calouste Gulbenkian Centros de Estudos de Economia Agrária, 1974)

⁹ A. V. Chayanov et al, *The Theory of Peasant Economy*, Translation Series (American Economic Association 1966)

¹⁰ Dietrich Vollrath, "Land Distribution and International Agricultural Productivity", *American Journal of Agricultural Economics* 89, no. 1 (2007): 202-16

¹¹ Amartya Sen, "An aspect of indian agriculture", *Economic Weekly*, 14, (1962): 243-266

C. B. Barrett, "On price risk and the inverse farm size-productivity relationship", *Journal of Development Economics*, 51(2), (1996): 193-215

Dwayne Benjamin, "Can Unobserved Land Quality Explain the Inverse Productivity Relationship?" *Journal of Development Economics* 46, no. 1 (1995): 51-84

M. R. Carter, "Identification of the inverse relationship between farm size and productivity: An empirical analysis of peasant agricultural production" *Oxford Economic Papers*, 36, (1984): 131-145.

P. Collier, "Malfunctioning of African rural factor markets: Theory and a Kenyan example" *Oxford Bulletin of Economics and Statistics*, 45(2), (1983): 141-172

R. Heltberg, "Rural market imperfections and the farm size-productivity relationship: Evidence from Pakistan. *World Development*", 26(10), (1998): 1807-1826.

¹² Russell Lamb, "Inverse Productivity: Land Quality, Labor Markets, and Measurement Error." *Journal of Development Economics* 71, no. 1 (2003): 71-95;

Dwayne Benjamin, "Can Unobserved Land Quality"

Why might there exist an IFSPR? The agricultural sector does not present any evidence of decreasing returns to scale per se. When explaining this enigma, some authors stress how the price of the different factors of production varies with the size of the landholding due to market failures, moral hazard issues, and risk aversion. Other authors contest this view of unobserved differences in households being the source of the inverse relationship and instead propose unobserved differences in land characteristics as the culprit.

The first type of explanation for the existence of an inverse productivity puzzle noted that the price and productivity of factors of production may not be scale constant. Sen describes an imperfect labor market with surplus labor where the 'real cost of labor' is lower than the market wage rate. In this case, family-based farmers apply more labor than they would if they had to pay the market wage rate for their labor.¹³ In fact, Carter's analysis of Indian agriculture finds that labor input in small farms is employed 36% above the optimal level that maximizes profit.¹⁴

A second type of explanation for distortions in the shadow prices of the productive factors stresses supervision and moral hazard. Feder notes that hired workers are more productive if subject to more supervision by the farm owners. In a world where access to credit depends on the size of the farm, large estates will be able to hire more workers, but each will be less productive as the supervision ability stretches. Assuming that agents are rational, they should buy and sell land until they reach optimality. However, land market failures stop the reallocation. Multiple market failures and principal-agent problems can thus be the source of the inverse size productivity relationship.¹⁵

The third type of explanation highlights failures in insurance markets and uncertainty regarding output and output prices. Agriculture is a particularly uncertain sector since atmospheric and natural conditions determine crop yields and final production. In an environment of incomplete insurance markets, small farmers cannot hedge against these risks and instead chose to work harder in their own fields.¹⁶ Furthermore, small farmers wish to

¹³ Amartya Sen, "Peasants and Dualism with or without Surplus Labor." *Journal of Political Economy* 74, no. 5 (1966) p. 425-50

¹⁴ Michael R. Carter, "Identification of the Inverse Relationship between Farm Size and Productivity: An Empirical Analysis of Peasant Agricultural Production" *Oxford Economic Papers* 36, no. 1 (1984) p.144

¹⁵ G. Feder, "The relation between farm size and farm productivity: The role of family labor, supervision and credit constraints" *Journal of Development Economics* 18 (1985): 297-313

¹⁶ T. N. Srinivasan, "Farm Size and Productivity: Implications of Choice under Uncertainty" *Sankhya The Indian Journal of Statistics* 34 (1972): 409-20

avoid exposure to price fluctuations in the market by overapplying labor and producing the goods themselves.¹⁷

In opposition to explanations that stress distortions in the price and productivity of factor prices, some authors emphasize unobserved differences in plot quality. Land is heterogeneous and land quality affects the productivity of the plot. Even so, empirical estimations on the causes of the inverse productivity puzzle often omit soil quality variables. Assunção and Braido reject unobserved heterogeneity in households' incentives in favor of an explanation centered on plot quality. Using a dataset from the International Crops Research Institute for Semi-Arid Tropics they show that land productivity is inversely related to plot size.¹⁸ As is shown in the following section, this was not the case in Portugal. The least fertile plots (due to lack of precipitation and soil characteristics) were located in Alentejo, the region where average plot size was higher.

Inequality in land ownership may in itself be a source of inefficiency. In fact, a strand of literature suggests that unimodal (equitable) agrarian structures might be more productive than bimodal (unequal) agrarian structures.¹⁹ Land inequality can have negative long-term effects on growth through its effect on agricultural productivity or through other non-efficiency channels of transmission.

Land inequality is closely tied with the relations of production that develop in the agricultural sector. Byres, and afterward Dyer, propose that the intensity of factor utilization depends on such relations. Relations of production in agriculture normally take the form of tenurial contracts and class differentiation is dependent on land ownership. Peasant class differentiation creates an exploitative environment where the lower strata peasants are forced to intensify labor input to ensure survival.²⁰ This line of thought closely resembles what the Portuguese Marxist authors have written about the agricultural sector in the South. This argument is an interesting explanation for the inverse productivity puzzle for it also predicts its weakening. As agricultural technology develops, the introduction of machinery is scale-

¹⁷ C. B. Barrett, "On price risk and the inverse farm size-productivity relationship" *Journal of Development Economics*, 51(2) (1996): 193-215

¹⁸ Juliano Assunção, Luis Braido, "Testing household-specific explanations for the inverse productivity relationship", *American Journal of Agricultural Economics*, 89(4) (2007): 980-990

¹⁹ Thomas P. Tomich, Peter Kilby, and Bruce F. Johnston, *Transforming Agrarian Economies: Opportunities Seized, Opportunities Missed* (Cornell Paperbacks. Ithaca: Cornell University Press, 1995)

²⁰ T. J. Byres, "Agrarian Transition and the Agrarian Question" *Journal of Peasant Studies* 4, no. 3 (1977): 258-74

G. Dyer, *Class, State, and Agricultural Productivity in Egypt: A Study of the Inverse Relationship between Farm Size and Land Productivity*, Library of Peasant Studies, No. 15. (London: Frank Cass, 1997)

dependent which gives large farms a technological edge that offsets the effect of higher input intensity in small farms.

Land inequality can have long-term effects on growth and living standards when other market failures are present. Capital market imperfections models focus on barriers in access to financing opportunities. Lenders demand collateral, a requisite that asset-destitute individuals cannot meet and that blocks their access to possibly profitable investments.²¹ This model highlights another channel of transmission between inequality and output level/growth. Access to credit was widely discussed by the Portuguese authors. Cunhal exposes a situation where small farmers in need of small loans are forced to pledge land and houses as mortgage. Judging by the author's description, the problem in Portugal was not barriers in access to credit but unfavorable contract conditions often resulting in evictions and land loss.²²

This also applies to human capital investments: individuals with the same capabilities may not have equal opportunities for realizing educational potential. Inequality in landownership can be a barrier to the emergence of institutions that promote human capital accumulation. Incentives are not aligned, landed elites have no interest in promoting education for it would lead to wage demands and labor mobility.²³ With the caveat that this effect is only relevant as long as large landowners have the political capital (and will) to block the implementation of education reforms. Arguably, a more convincing channel between land inequality and educational attainment is wealth. In the presence of credit market imperfections, initial wealth determines the ability to invest in human capital and persists across generations.²⁴

This effect is a bit more difficult to identify in the Portuguese case. In 1940, the Estado Novo government announced the 'Plano dos Centenários' – a regime push for universal primary education which included plans for the construction of 6060 primary education buildings located across the country. There were explicit guidelines stating that the primary school network should ensure that no student would need to walk more than 3km to access a school.²⁵ By 1960, the cross-section year, the effects of this policy should already be somewhat evident. Even so, the cumulative effect of inequality in access to education during the years prior to the 1940s would still be visible.

²¹ Deininger et al, *Asset Distribution, Inequality, and Growth* p.6-7

²² Cunhal, *Contribuição para o estudo da questão agrária* vol.2 p.131

²³ Oded Galor, Omer Moav, and Dietrich Vollrath, "Inequality in landownership and the emergence of human-capital promoting institutions and the great divergence", *Review of Economic Studies* n.76 (2009): 143-179

²⁴ Oded Galor, Joseph Zeira, "Income Distribution and Macroeconomics." *The Review of Economic Studies* 60, no. 1 (1993): 35-52.

²⁵ Lúcia Santos, A. M. Cordeiro, "Rede escolar do 1º Ciclo do Ensino Básico em Portugal: evolução a partir de meados do século XX e principais fatores condicionantes no âmbito do planeamento e gestão", *Cadernos de Geografia*, n. 33 (2015) p.196

In sum, this section presented an overview of the main theoretical models connecting landownership concentration with agricultural efficiency and other non-efficiency channels with long term distributive and productive effects. There is evidence on the aggregate level that inequality in land ownership negatively impacts agricultural productivity. The explanations for that inverse farm size productivity relationship either stress unobserved differences in household or in land characteristics. Further, even if the data does not identify a direct effect between land inequality and productivity there might still be an indirect effect through the human capital or credit market channel, in which the human capital channel is more likely to exist in the Portuguese case.

III. The Portuguese Agrarian Reform

The 20th century was profoundly transformative for Portugal. After the political and social instability of the First Republic (1910-1926), the 28th of May coup instituted a military dictatorship in 1926. The military dictatorship was followed by the rise of António de Oliveira Salazar, the leader of the “Estado Novo” dictatorial regime in Portugal. Salazar becomes President of the Council of Ministers in 1932 and stays in power until 1968. Following Salazar doctrine, Marcello Caetano rules until 1974. After almost half a century of autocratic rule, the 25th of April coup organized by the Movement of Armed Forces (MFA) reinstated democracy in 1974.

The Revolution shifted the balance of power. All members associated with the regime were removed from power, and the authors of the revolution – the Movement of Armed Forces – became the temporary rulers until democratic elections could be held. New parties began to form, and old parties surfaced from decades of underground activity. The main actors of the Portuguese political system were the Communist Party (PCP), the Socialist Party (PS), the Popular Democratic Party (PPD) and the Central Democratic Party (CDS). As one of the oldest parties in Portugal and with the assistance of international organizations, PCP was the quickest to mobilize and managed to open 126 “work centers” across the country in the year 1974. For comparison, PS opened less than 30 during the same period. The rise of the communist party

is accompanied by the proliferation of syndicates and unions. These became significant pressure groups and had influence over labor in the rural areas, especially in the South.²⁶

The ‘Estado Novo’ regime was conservative, corporatist and leaned towards fascism.²⁷ Despite censorship and repression, criticism against the regime never disappeared. One of the main topics of discussion concerned the prevalence of ‘latifúndios’ in the South. The belief that the agricultural possibilities of the country were not being fully exploited due to absenteeism and insufficient investment in modernization gained momentum as a movement against the large landowner. Other motivations were also present; after all, many large landowners of the South were known supporters of ‘Estado Novo’ regime, not to mention the political ideology of the rising Communist Party. The southern part of Portugal, the Alentejo region, became the stage for the most extremist social manifestations and land occupations.

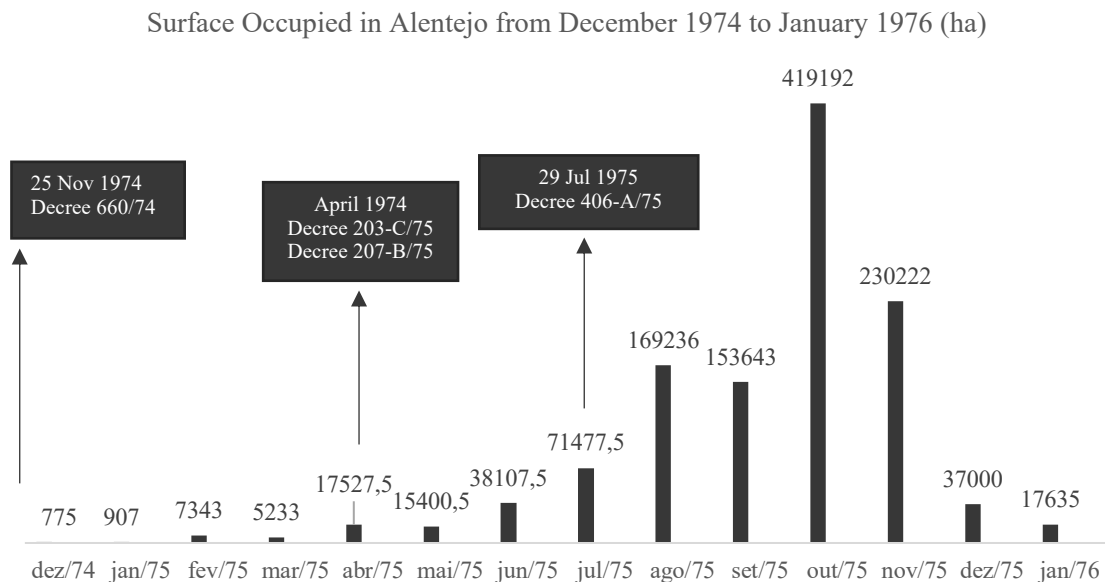


Figure 1. Surface occupied in Alentejo from December 1974 to January 1976 in hectares and timing of related legislation. Source: M. J. Macedo, *A Reforma Agrária em Números* ²⁸

The first defining moment of the Agrarian Reform is the enactment of Decree nº 660/74 in November 1974. This decree authorized government intervention in private companies in case of financial difficulties, “economic sabotage” or poor management. The term economic sabotage refers to unjustified threats of labor dismissal, unjustified closures, abandonment of facilities, divestment, non-compliance of previous liabilities, defalcation, amongst other

²⁶ Barreto, *Anatomia*, p. 98-103

²⁷ José Miguel Sardica, *O Século XX Português*, (Lisboa: Texto Editores Lda, 2011) p.75-79

²⁸ M. J. Macedo, *A Reforma Agrária em Números*, (1981) cited in António Barreto, *Anatomia* p.216

actions considered negligent.²⁹ The post-revolution period was tumultuous for the economic agents, many of which had ties to the previous political regime, and the decree legitimized direct political control over antagonistic business owners. In agriculture, the first land transfers occurred within the scope of this decree. Occupants accused landlords of ‘economic sabotage’, as defined in Decree n° 660/74, and enjoyed the support of MFA.³⁰

The legal basis for the occupations started to develop with Decree n° 203-C/75 and Decree n° 207-B/75 of April 1975. The first included the economic plan of the provisory government with attachment 3 describing the Agrarian Reform Program.³¹ The second extended Decree n° 660/74 by defining what qualifies as “economic sabotage” and what sanctions are to be applied if verified.³² With legislative support, the speed of occupations increased as syndicates and agricultural laborers took ownership of the movement and started conducting it.

The effective laws of the agrarian reform were only published in July 1975 under Decree n° 406-A/75 – the Oliveira Baptista’s Law.³³ If during the first seven months of 1975, already 156 000ha were occupied, during the last five months occupations increased by almost a factor of ten to 1 009 400ha. In addition to land occupations, by the end of 1975, 865 estates were expropriated – a surface area of 342 000ha.³⁴

The expropriated land was converted into collective production units (UCP), a form of cooperatives. Throughout the period, about 500 UCPs were established constituting one-fifth of the country’s farmland. The communist influence is visible in the new names adopted by these units: Red Star, Che Guevara, Left Wins, etc.³⁵ Administration of these estates was facilitated by the approval of Decree n° 251/75 which allowed UCPs to access emergency credit for wage payments to the workers that were hired collectively through the syndicates.³⁶

By the end of 1975, criticism against how the agrarian reform was conducted rose. Small landowners, organized in Leagues, started to freely voice their complaints in manifestations targeting rural and urban masses. Non-communist parties took the cue and pointed out several

²⁹ Decreto-lei 660/74, de 25 de Novembro, Presidência do Conselho de Ministros, Diário do Governo n.º 274/1974, 1º Suplemento, Série I de 1974-11-25

³⁰ Américo L. Leal, *O Rosto da Reforma Agrária*, (Editorial «Avante!», S.A., Lisboa 2005) p. 56-61

³¹ Decreto-Lei n.º 203-C/75, de 15 de Abril, Ministério para o Planeamento e Coordenação Económica - Gabinete do Ministro, Diário do Governo n.º 88/1975, 2º Suplemento, Série I de 1975-04-15

³² Decreto-lei 207-B/75, de 17 de Abril, Conselho da Revolução, Diário do Governo n.º 90/1975, 2º Suplemento, Série I de 1975-04-17

³³ Decreto-lei 406-A/75, de 29 de Julho, Ministério da Agricultura e Pescas, Diário do Governo n.º 173/1975, 1º Suplemento, Série I de 1975-07-29.

³⁴ Barreto, *Anatomia*, p.216-228

³⁵ Barreto, *Anatomia*, p.110-112

³⁶ Decreto-lei 251/75, de 23 de Maio, Ministério da Agricultura e Pescas, Diário do Governo n.º 119/1975, Série I de 1975-05-23; Eugénio Rosa, *A reforma agrária em perigo*, (Lisboa: Editorial Caminho SARL, 1977) p.41-44

mistakes and illegal occupations. Discontentment on how the agrarian reform was conducted gradually led to demands for its reversal.

IV. Sources and the Portuguese Agrarian Question

From the historical description above, a couple of things should be clear. The first is that improving agricultural productivity was part of the motivating forces behind the land occupations that occurred in the South of Portugal from 1974 to 1976. The Decree nº 406-A/75 explicitly acknowledges that one of the motivations for the Agrarian Reform was:

*“the imperative need to free the productive forces from the strangulation produced by the unequal forms of land ownership that thwart the development of such forces”*³⁷

The consensus was that the Portuguese agriculture lied below its production possibilities frontier. The goal of the land reform was to redistribute the large latifúndio holdings to the laborers who effectively worked the land – “a terra a quem a trabalha”.³⁸ While there is an important political economy dimension to the Portuguese agrarian reform, the belief latifúndios were inefficient prevailed.

This original debate presents a very interesting and testable economic history question: Was agriculture in latifúndio regions less productive? And if so, is it due to inequality in land distribution? Or does this effect disappear once one properly accounts for the geographic and soil characteristics? This section provides descriptive information on all variables that may impact the study of the relationship between farm size, inequality, and productivity. It also provides an overview of the main sources used to assemble the dataset as well as some limitations of the variables and what can (or can't) be inferred from them.

This novel dataset was compiled from multiple official statistics sources, including *Recenseamentos Gerais da População, Anuários Demográficos and Estatísticas Agrícolas*. Information regarding agrarian structures in Portugal is from Martins's empirical work *Estruturas Agrárias Em Portugal Continental*.³⁹ Further, the mere existence of this study owes a great deal to the work of the members of the Centro de Estudos Agrários of the Gulbenkian Foundation for Science, a group of Portuguese economists and engineers who have made significant contributions to the study of agriculture and rural communities in Portugal during

³⁷ Decreto-lei 406-A/75

³⁸ “A terra a quem a trabalha” (the land to those who work it) was a popular political slogan used to promote the agrarian reform

³⁹ J. Silva Martins, *Estruturas Agrárias*

the 20th century. Data for the agrarian product and area cultivated is from two of their publications, by Pereira with Estácio and by Pereira.⁴⁰

⁴⁰ Pereira and Estácio, *Produtividade do Trabalho e da Terra no Continente*
Pereira, *Alguns Elementos para a Caracterização da Assimetria Regional Agrária Portuguesa*

Table 1. Variables Description and Source

Variable	Description	Source
Inequality	Number of farm workers per employer landowner in given county 1952-54 (log)	Martins (1973)
PAB per Cultivated Area	Agrarian product in 1960 in given county divided by Cultivated Area (1955 data, closest time point) (log)	Pereira and Estácio (1968)
Labor per Cultiv. Area	Man-units of available labor in given county 1960 divided by Cultivated Area	
Temperature	Annual Average Temperature Normal 1971-2000 in °C	Instituto Português do Mar e da Atmosfera, <i>Statistical Yearbook of Portugal 2017</i> , (Lisboa: Instituto Nacional de Estatística Portugal, 2018)
Precipitation	Annual Average Precipitation Normal 1971-2000 in mm	
Solar Radiation	Global Solar Radiation for 2017 in MJ/m2	
Altitude Range	Altitude Range in given county. Calculated as maximum altitude minus minimum altitude; Control for mountainous regions	Ministério do Ambiente - Direção-Geral do Território, <i>Carta Administrativa Oficial de Portugal - CAOP 2018</i>
Soil Type (30types)	Coded combination of two most common soil types	A. M. Soares da Silva. <i>Portugal Atlas do Ambiente – CNA - Carta Litológica</i> . Comissão Nacional do Ambiente (Lisboa: Estação Agronómica Nacional, 1983)
Soil Type (7types)	Coded most common soil type	
Tractores per Cultiv. Area	Total tractors power (Cv) in given county in 1960 divided by Cultivated Area (log)	Pereira and Estácio (1968)
Literacy Rate	Population that can read given county of residence divided by total population in that county in 1960	Instituto Nacional de Estatística, <i>X Recenseamento Geral da População em 15 de Dezembro de 1960</i> , Tomo III Vol2º Instrução Tabela 5 - População Residente de 7 e mais anos, segundo a instrução e o grau de ensino, por sexos, nos distritos e concelhos (1960); Pereira (1974)
Population Density	Population resident in given county in 1960 divided by county area	Pereira (1974); CAOP 2018.
Wheat Surface	Surface of total cultivated area dedicated to wheat production in 1960 (log)	Instituto Nacional de Estatística, <i>Estatística Agrícola 1960</i> , 24.
Corn Surface	Surface of total cultivated area dedicated to corn production in 1960 (log)	Superfície, sementeira e produção de cereais, legumes e tubérculos e produção de vinho e azeite, por regiões agrícolas e concelhos (1960)
Wine Production	Wine production per county in 1960 in hl (log)	
Olive Oil Production	Olive oil production per county in 1960 in hl (log)	
Livestock	Total heads slaughtered for consumption per county in 1960 (bovine, ovine, caprine and swine); Not livestock production but livestock slaughtered (log)	Instituto Nacional de Estatística. <i>Estatística Agrícola 1960</i> , 55. Reses aprovadas para consumo, por espécie e por concelhos, no Continente (1960)

The calculation of any productivity equates the output of a sector with an input used in its production – in this case, it is the value of the agrarian product (PAB) divided by cultivated land.

Agrarian product (PAB) is the difference between the value of the final agricultural production and the value of the factors of production used to obtain the final output. The data for the 1960 county-level agrarian product was disaggregated from national agrarian product by the Statistical Institute of Portugal as a request from Centro de Estudos Agrários. This decomposition of agrarian product at the county level only exists for 1960 and 1970. Data for the area cultivated was calculated by the State Secretariat for Agriculture and is the sum of area devoted to agricultural production (SAU) and area devoted to forest goods production (SFU) for the period between 1950 and 1955.

As noted by Pereira and Estácio, the disaggregation of the agrarian product presents a very important limitation. A particular good may be a final good in county A but also a factor of production in county B. If this situation occurs, the calculation for national product will present the net value. From the national net value, it becomes very tricky to disaggregate and recover the original county PAB without the effects of the county exchanges.⁴¹ While acknowledging this important limitation, and because of the low level of vertical agriculture specialization in the 1950s/60s as well as the high transportation costs, one can reasonably admit that the simple disaggregation provides a decent approximation to reality.

The use of the term productivity when we use as output the monetary value of agricultural production can also be contested. Expressing output in physical units (tons of wheat per hectare of land, for instance) would be straightforward to interpret and to compare across regions. Doing so is not possible because the agricultural sector produces a great variety of goods valued differently. Hence the need for a common unit to establish equivalence, the most commonly used being money (alternatives include calories, nutritional content, etc). The main shortcoming associated with this solution is its sensitivity to the crop mix chosen. For instance, imagine two regions with the exact same area and the same geographical and soil characteristics. Region A produced 10 units of wine and registered 100 units of PAB. Region B produced 100 units of wheat and also registered 100 units of PAB. The choice of crop impacts the physical land productivity. If we only look at PAB, however, it appears monetary land

⁴¹ Pereira and Estácio, *Produtividades do trabalho e da terra no continente* p. 11

productivity is the same for both regions. This limitation must stay present for it hints at what is one of the channels of transmission of the latifúndio: the crop mix chosen.

Figure 2 presents PAB per hectare of cultivated land in Portugal in 1960. From its observation, one can clearly distinguish between the high productivity area of Northwestern Portugal and the low productivity area of the Interior and South Portugal. The Alentejo region comprises 41% of continental Portugal and is almost fully located in the low productivity area. Given its size, it was always strategic in the efforts to achieve food self-sufficiency and reduce deficits in the Balance of Payments. However, the region often didn't produce enough to reach such goals, and many were the authors who hypothesized on the why. This plight became known as the "Agrarian Question", a debate as old as Portugal itself.

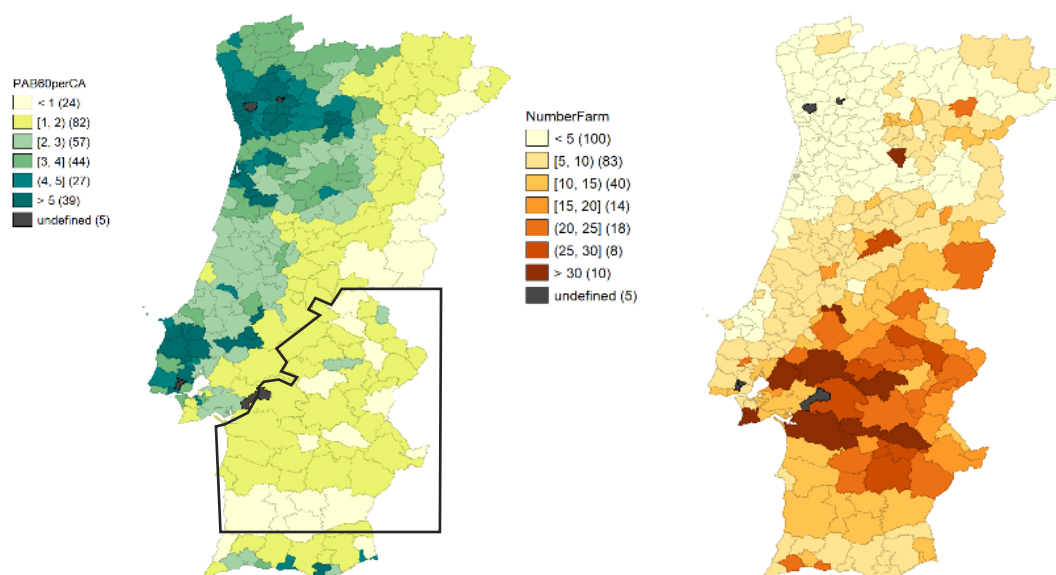


Figure 2. Land Productivity in continental Portugal, Agrarian Product in 1960 divided per Cultivated Area

Figure 3. Inequality in land ownership in continental Portugal, Number of farm workers per employer landowner in 1952-54

The Portuguese intellectuals who studied the Agrarian Question formulated several hypotheses to explain the low productivity of the Alentejo region. Most authors mentioned the geographical characteristics of Alentejo to argue that the region was not the best suited for

agriculture.⁴² The region's geography is characterized by the 'montado', a dry ecosystem that integrates olive and cork trees with animal pasture.

One of the most famous proponents of the geographical explanation was Salazar himself. In his book "Questão Cerealífera, o Trigo", Salazar discusses the imbalance between the domestic demand of cereal and the insufficient supply of that good. Salazar's analysis of what he terms the 'wheat and subsistence problem' accuses natural conditions as the main culprit for the low productivity of the wheat culture. Geoclimatic features – climate, soil conditions, water availability – entail that the region is better suited for olives and wine than for cereal and forage crops. He goes further by highlighting how protectionism, agrarian structures, and other economic conditions were barriers to the adoption of crops and methods better suited to the geographical features of the region.⁴³ Paradoxically, while Salazar condemns wheat protectionism from an agricultural aptitude's standpoint, he deepens this regime during his rule.

Geography does have a role to play in explaining the causes of the low productivity of the Alentejo region, but it is not the full explanation. While farmers cannot control the weather, they have some agency in decisions regarding the crop mix chosen, the adoption of new technologies (water irrigation, tractors, seed selection, fertilizer usage) and the percentage of land cleared for cultivation. Not satisfied with the limitations of the geographical explanation, great Portuguese thinkers turned against the skewed agrarian structure of the South.⁴⁴

Figure 2 depicts inequality in land ownership in continental Portugal. The indicator of land inequality is the number of farmworkers per employer landowner. The data was computed from *Inquérito às Explorações Agrícolas 1952-1954* and from *Recenseamento Geral da População of 1950* and can be found in the empirical work of Silva Martins.⁴⁵ The indicator corresponds to the ratio between the number of agriculture journeymen and the number of landowners that own farms where the majority or totality of the agricultural works is performed by hired workers. It is impossible to obtain data closer to 1960 because the following *Inquérito às*

⁴² A. H. de Oliveira Marques, *Introdução à História da Agricultura em Portugal. A questão cerealífera durante a Idade Média*, (Lisboa, Edições Cosmos, 1968)

António de Oliveira Salazar, "Questão Cerealífera. O Trigo", *O Ágio do Ouro e outros textos económicos 1916 – 1918*, Coleção de Obras Clássicas do Pensamento Económico Português nº 16, Banco de Portugal, Lisboa, 1997. "Alguns Aspectos da Crise das Subsistências" (1916), *ibidem*

⁴³ Salazar, "Questão Cerealífera"

⁴⁴ Cunhal, *Contribuição Para O Estudo Da Questão Agrária*

Eugénio de Castro Caldas, *O Problema Sociológico das Formas de Exploração da Propriedade Rústica em Portugal*, (Lisboa, Livraria Sá da Costa, 1947)

Henrique de Barros, *A Estrutura Agrária Portuguesa*, (Lisboa, Editorial República, 1972)

⁴⁵ J. Silva Martins, *Estruturas Agrárias*

Explorações Agrícolas only took place in 1968. From the map, one can easily see that Alentejo has the highest concentration of agricultural journeyman per employer landowner.

The large latifúndio owners were often the target of intense criticism. Deputy Oliveira Martins, during the 1884-87 agrarian crisis, for example, accused Alentejo elites of investing financial resources in acquiring new plots of land instead of developing the properties they already owned.⁴⁶ Fonseca's meticulous analysis of local archives and tax records confirms that, during the 19th century, agrarian elites in Alentejo did increase their investment in property. The average fortune of agrarian elites in Évora, the largest city of Alentejo, increased from 23,8 *contos* during the period of 1800-40 to 69,1 *contos* in 1871-1900. The composition of the fortune also changed: land as a percentage of total wealth was only 29,2% in 1800-40, by 1871-1900 it had increased to 68,2%. Ample evidence confirms that local elites, irrespective of their backgrounds and business attitudes, sought to accumulate property. Accumulation of land is not in itself proof of absenteeism or of lack of investment in innovation and modernization. Fonseca finds evidence of a wide range of technical changes introduced in large farms in Evora from the 1880s. These included new methods for crop rotation, the introduction of chemical fertilizers, purchases of plowing equipment and other farming equipment.⁴⁷

In the 20th century, the criticism driving the agrarian reform was not solely about efficiency but also featured prominent equity concerns. The communist manifesto used to justify the agrarian reform was written by the secretary-general of the Portuguese Communist Party, Álvaro Cunhal, in 1964. In his works, Cunhal described the existence of dualism – the expansion of a modern agricultural corporation in large estates alongside a traditional, backward, small scale agriculture. Both the family farmer and the agriculture journeyman, unable to adopt the prohibitively expensive modern technologies, experienced a stagnation in living standards. According to Cunhal, the social plights of the rural economy - high rates of unemployment in the interior, migration to coastal city slums and emigration, low literacy rates - were the product of this duality in agriculture. The failure to develop an inclusive agricultural sector along with absent landlords who didn't invest enough were considered responsible for the slow introduction of modern machinery, fertilization techniques, and chemical pesticides.

⁴⁶ Oliveira Martins, "Projecto de «Lei sobre o fomento rural» lido na Câmara dos Deputados em 27/4/1887", A Política Agrícola de Oliveira Martins, Ministério da Agricultura, Pescas e Alimentação, Secretaria-Geral, Lisboa, 1987

⁴⁷ Helder A. Fonseca, "Agrarian Elites and Economic Growth in Nineteenth-century Portugal: The Example of the Alentejo in the Liberal Era (1850-1910)." *Social History* 28, no. 2 (2003) p.207-222

V. Model and Discussion

So far, the paper has described what was the Portuguese Agrarian Reform of 1974-76 and presented the legislative framework that supported it. The motivations behind the land occupations were political but also economic. In fact, the legal basis used to justify the agrarian reform used as arguments ‘economic sabotage’ and under-exploitation of latifúndio estates in Alentejo. The debate about the low productivity of the Alentejo region is an old one and many competing explanations were advanced throughout history. While some authors stressed natural conditions (dry climate with very little rain, poor soil) others contended that the Alentejo agriculture lied below its production possibilities frontier because of land ownership concentration. Both views are testable through an OLS multiple regression model. Given data limitations, the year selected for the cross-section was 1960. Since Cunhal published his book in 1964, the choice of year seems appropriate. Further, this decade was a turning point in agricultural labor – only in the 1960s did the absolute number of workers employed in agriculture start to decline.⁴⁸

The estimation of the effect of land inequality on productivity is based on the assumption that all counties share the same production function. Even though all assumptions are flawed simplifications, this one is common throughout the literature on the topic and does not seem very far-fetched. The econometric specification used follows literature and is relatively straightforward. It can be written as (2) and is an adaptation of the classic inverse productivity puzzle equation (1).

$$(1) \ln Y_i = \alpha + \beta \ln A_i + \theta_i \ln X_i + u_i$$

$$(2) \ln y_i = \alpha + \beta_0 \text{Inequality} + \beta_1 \text{Labor Units} + \theta_x \ln X_i + \eta_z Z_i + u_i$$

The classical inverse productivity puzzle relationship in equation (1) has as dependent variable agricultural output, Y_i . X_i is a vector of controls and A_i is total area farmed. The parameters to be estimated are α , β , θ_i and u_i is a random error term. If β is less than 1, it implies that farm output increased slower than area farmed, and the data contains an inverse productivity relationship.

Equation (2) is an adaptation of equation (1). The dependent variable y_i is agricultural output per hectare of area cultivated (PAB/CultivatedArea). Equation (2) doesn't have total area

⁴⁸ Pedro Lains, “Agriculture and economic development in Portugal, 1870–1973”, in *Agriculture and Economic Development in Europe since 1870*, ed. Pedro Lains and Vicente Pinilla (London: Routledge, 2009) p. 333

farmed since y_i is already a land productivity measure. For simplicity reasons, when this essay mentions productivity without further specifying it is referring to land productivity.

The most important parameter to estimate is β_0 . β_0 tests whether counties with higher numbers of agriculture journeymen per employer landowner are less productive, controlling for labor input, geographical differences, soil quality, technology, and human capital. If β_0 is significant and less than 0 it implies that inequality has a negative effect on productivity.

Equation (2) also includes β_1 , the coefficient for labor units available. Data for the labor units available is from Pereira and Estácio. The authors computed labor availability by taking the age composition of the active population in agriculture for that county and weighing it by an effort coefficient.⁴⁹ Data for agricultural labor corresponds to the number of agricultural labor hours available, emphasis on the available. The data says nothing on whether agricultural workers are employed, unemployed or underemployed. Further, the prevalence of internal temporary migration during the 50s and 60s may be a cause of error. It was common for agricultural workers to move across counties according to production seasons. This indicator should thus be used with caution.

θ_x are the coefficients for vector X_i that controls for differences in geography and soil conditions across counties. It includes average annual temperature and average annual precipitation for the 1971-2000 normal, the amount of solar radiation for 2017 (geographical distribution of solar radiation does not change yearly - assumption), altitude range and the soil type. A quick remark about the challenges associated with the collection of soil types data. The main source was the *Carta Litológica de Portugal*. Through the informatic overlapping of the lithologic map with the administrative map, I was able to observe the most common soil type and the second most common soil type in each county. Identifying the two most common soil types of the seven main soil types distinguished in the map (shale rocks, granite and related, limestone and mango, sand and sandstone, silts and related, eruptive rocks, quartzites) yielded 30 different types of soil combinations. In the regression, I use 29 dummies to account for differences in soil characteristics. As a robustness check and in order to reduce the loss of degrees of freedom, one specification uses only 6 dummies for the single most common soil type.

⁴⁹Pereira and Estácio, *Produtividades do trabalho e da terra no continente* p.15
 Individuals aged between 15 and 19 0,7 man-labor units
 Individuals aged between 20 and 59 1 man-labor units
 Individuals aged between 60 and 64 0,6 man-labor units
 Individuals aged more than 65 0,3 man-labor units

Finally, η_z relates to vector Z_i that accounts for differences in modernization and human capital characteristics. It includes tractors power measured in bar potency as a proxy for modernization. Unfortunately, out of the 273 counties, there are 35 counties with missing information for this variable. The procedure adopted to handle missing data was to input the attribute of the nearest neighbor county with similar percentage of population employed in agriculture weighted by area differences. Estimating the regression without the interpolations yields the same result. To conclude, the model also includes the literacy rate and population density as a control for access to education.

Ideally, this exercise would also include information on fertilizer usage and irrigation availability. This data does not exist at the county level. However, irrigation availability strongly depends on annual precipitation, a variable that is accounted for. Regarding chemical fertilizer usage, their use was already widespread by the 1960s and should be more or less equally distributed geographically. Nonetheless, the omission of these variables is a limitation of this study.

The estimations use 271 observations (excluded the main urban centers, Lisbon and Oporto) and applies ordinary least squares (OLS) to estimate specifications of the form found in equation (2). Table 2 presents the results. Column (1) estimates a naïve regression that omits labor hours available and the explanatory variables in vectors X_i and Z_i . Column (2) includes labor hours available. Column (3) adds explanatory variables in vector X_i without the soil type dummies and column (4) introduces them. Column (5) is a robustness check that uses a different soil type classification and column (6) adds the modernization variable. Finally, column (7) introduces literacy and column (8) controls for population density.

Table 2. The effect of inequality in landownership in land productivity, all controls

Exp Variables	Dep Variable: log (PAB60perCArea)							
	1	2	3	4	5	6	7	8
Inequality	-0.3945	-0.1210	-0.0981	-0.0805	-0.0921	-0.1024	-0.0465*	-0.0411*
Labor		4.0796	3.8005	3.4604	3.5744	3.2769	3.4965	3.2660
Temperature			0.0774	0.0414*	0.0570	0.0404*	0.0493*	0.0536
Precipitation			0.0003	0.0005	0.0004	0.0004	0.0003	0.0002*
SunRadiation			-0.0005	-0.0004	-0.0004	-0.0005	-0.0005	-0.0005
AltitudeRange			-0.0004	-0.0003	-0.0003	-0.0019	-0.0001	-0.0001*
SoilType (30)				Yes		Yes	Yes	Yes
SoilType(7)					Yes			
Tractors						0.0802	0.0537	0.0375
LiteracyRate							2.9157	2.0217
PopDensity								0.0004
Constant	1.6588	0.3881	2.3737	2.3939	1.8864	2.9840	0.5247*	1.3775*
R²	0.2564	0.6311	0.7111	0.7575	0.7295	0.7706	0.8184	0.8298
Adjusted R²	0.2536	0.6284	0.7045	0.7214	0.7169	0.7353	0.7895	0.8020
p > t of Ineq	0.0000	0.0000	0.0090	0.0370	0.0130	0.0070	0.1800	0.2220

*not significant at a 10% significance level

The naïve specification in column (1) includes only the land inequality variable. Increasing the number of agricultural journeymen per employer landowner reduces agrarian product per hectare of cultivated land and the variable has a p-value close to 0, it is significant even at the 1% level. An adjusted r-squared of over 25% validates the importance of this variable in explaining land productivity differences.

Column (2) adds controls for labor availability. The results change substantially. The availability of labor is positively related to land productivity. The land inequality coefficient is more than halved by this addition, but its p-value remains strongly close to 0 and the variable is still significant at 1%. The explanatory power of the model also increased greatly. As mentioned previously, the interpretation of this variable requires caution, for the data cannot capture inter-county labor mobility nor distinguish between employed or unemployed.

Column (3) and (4) add the geographical and soil quality controls. Properly controlling for these increases the explanatory power of the model and further reduces the coefficient of the inequality indicator that still maintains its significance at a 5% level. The coefficient for labor

availability remains strong and significant. Equation (4) considers 30 different soil types while equation (5) simplifies to 7 main soil types. The results are similar for both specifications.

Column (6) introduces tractor power as a measure of modernization. Just as one would predict, a 1% increase in tractor power increases land productivity. The introduction of tractors' power also strengthens the coefficient β_0 and its p-value as well.

Finally, column (7) adds controls for human capital quality. The coefficient for literacy is positive and significant. Introducing human capital quality controls reduces the significance of both the β_0 inequality coefficient and the β_1 labor availability coefficient. This specification suggests that literacy is more important in explaining land productivity differences than inequality. Column (8) added population density, to control for the possibility of unequal access to education conditional on the density of the population.

Regression results are a useful summarizing tool to assess the relationship between variables and their strength. The main conclusions from this exercise are the following. First, agricultural labor availability has a strong positive effect on land productivity and is significant for all specifications. Second, not only is labor availability important but its characteristics are also significant. The literacy rate has a very strong positive effect on land productivity, measured in monetary terms. Finally, once one accounts for labor availability and human capital characteristics, the effect of inequality in land distribution diminishes and the variable is no longer significant at a 5% level.

The interpretation of regression results requires some caution. While the exercise seems to conclude that inequality in land distribution is not significant after controlling for literacy, it can be the case that land inequality affects productivity through other indirect channels, including the human capital one. If inequality in landownership negatively affects educational attainments, then the inequality coefficient result from specifications from (1) to (6) is still relevant. For the Portuguese case, as indicated by figure 4, which plots the literacy rate against the land inequality indicator, there is a negative association between the two.

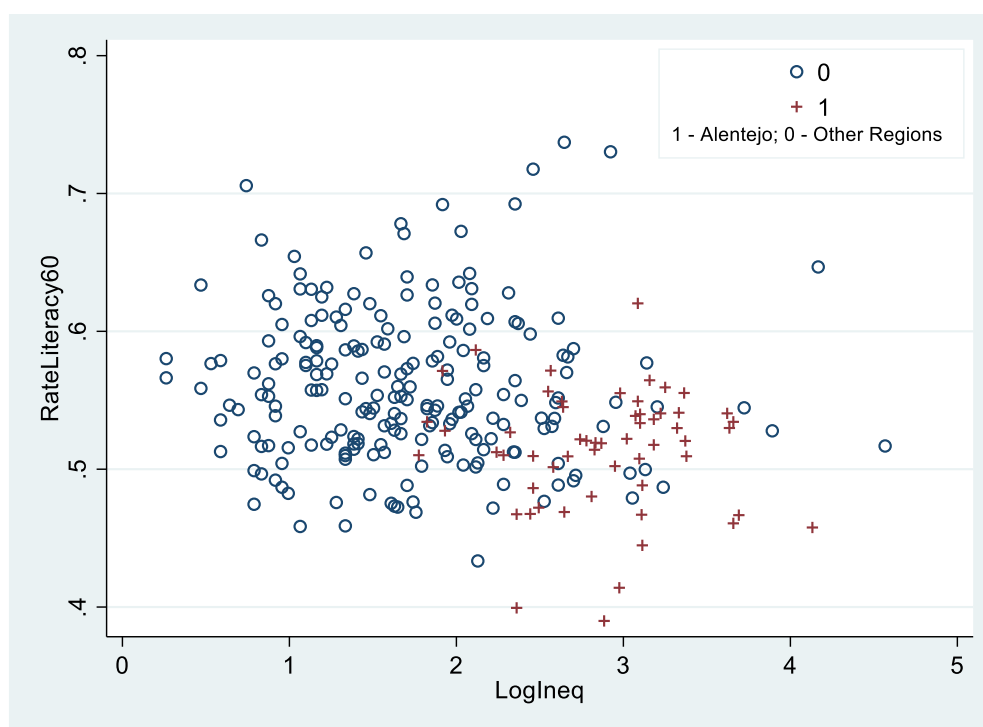


Figure 4. Scatter Plot of Literacy Rate and Inequality in continental Portugal

The most immediate consequence of land inequality is obviously distributional. The uneven distribution of a resource like land in a region where natural conditions for agriculture are already challenging pushed a large part of the Alentejo rural population to subsistence level. Decades of poor living standards along with the low industrialization of the interior of Portugal worked as powerful dissuaders for human capital accumulation. On one hand, the precarious economic situation of the rural poor made sending children to school too big of an opportunity cost. Mónica's analysis of the problem of illiteracy in Portugal prior to the 'Plano dos Centenários' primary school campaign that started in 1940 quotes reports of the Ministry of Public Instruction where teachers justify the low school attendance with the poverty of the rural population. Struggling to meet basic human needs, parents could not afford to lose the assistance provided by children in agricultural works or domestic services.⁵⁰

On the other hand, there was no incentive to invest in education as there were no industry or services jobs near that valued these skills. It may not be that the landed elites purposefully blocked access to education, as suggested by Galor et al.⁵¹ It can simply be that dual agrarian structures combined with low industrialization increase the opportunity cost of sending children to school and reduced the demand for education. The debate about the persistence of

⁵⁰ Maria Filomena Mónica, "«Deve-se ensinar o povo a ler?» - a questão do analfabetismo (1926-30)", *Análise Social* v.XIII (5) (1977) p.323

⁵¹ Galor, Moav, Vollrath, "Inequality in landownership"

high illiteracy levels in Portugal is too long and complex for me to provide a fair overview, given the scope of this dissertation. The aim of this short description was to highlight how concentration in ownership had direct distributive effects that may have pushed living standards of rural population to such a low level as to hinder school attendance. Also important is to highlight the existence of economic factors that further reduced the incentives for human capital accumulation. In turn, low levels of literacy hinder the adoption of best practices in agriculture which hampers productivity.

The regression results have yet another limitation. Land productivity is measured in monetary terms and thus, as mentioned before, it is highly sensitive to the agricultural crop mix. Figure 4 shows that the crop mix impacts land productivity, measured in monetary terms, even after controlling for soil characteristics. Wheat production has a negative effect on land productivity measured in monetary terms as does olive oil production. These are two dominant crops in the Alentejo region cultivated through extensive modes of production. If both crops negatively affect monetary land productivity, why would landowners prefer these over more valuable and productive ones such as wine or livestock? Decades of state intervention in wheat production in an arid climate along with a lack of investment in irrigation infrastructure for sure did not help.

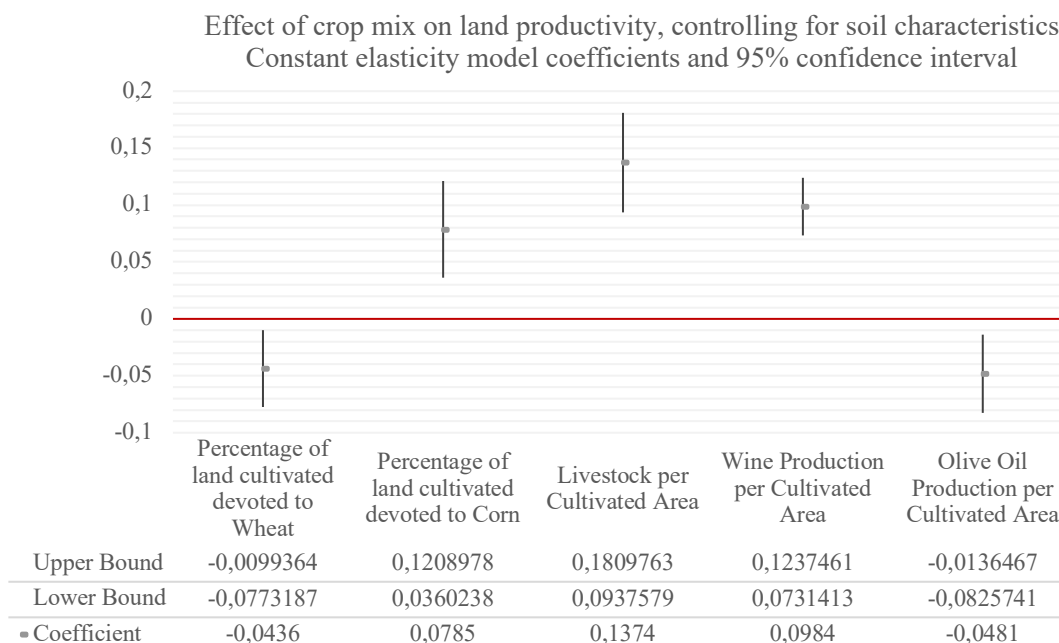


Figure 5. Effect of crop mix on land productivity, constant elasticity model coefficient and 95% confidence interval; The adjusted r-squared for this specification is 66,85%

During the interwar years, in a depressed world market, traditional exports like wine, cork and olive oil were increasingly difficult to sell in the international markets. Like many other countries, Portugal turned inwards. From 1928 to 1938, Salazar promoted the “Wheat Campaign” with the primary goal of reducing the amount of foreign currency leaving the country in the purchase of grains.⁵² The campaign consisted of a set of protectionist measures – customs protection, fixed wheat prices to producers, centralized wheat market – designed to incentivize an increase in the surface area devoted to this crop. Protectionism ultimately resulted in the conversion of cork montados and olive tree fields along with the clearing of not so fertile plots. The period from 1927 to 1962 was notorious for the increase in cultivated area.⁵³

Even though wheat protectionism was not restricted to the southern half of Portugal, this was where area devoted to wheat production increased the most. Public investment in hydraulic infrastructure in Alentejo only started to materialize in 1957, in the scope of the first ‘Plano de Fomento’ of the regime.⁵⁴ Until these public investments, traditional irrigation methods were insufficient to enable the large scale switch away from extensive modes of production and traditional crops, like wheat.

V. Conclusion

The immediate effects of land inequality are of a distributive nature. Concentration in land ownership can also have efficiency consequences, both in the short term and in the long term. The traditional literature has highlighted how land inequality combined with a faulty element (land market failure, moral hazard, principal-agent problems) can lead to suboptimal results culminating in an inverse farm size productivity relationship. Further, even if land inequality does not have an immediate direct effect on agricultural efficiency, it can have an indirect effect on long term productivity through human capital and credit market channels.

High concentration in land ownership is a characteristic of the ‘latifundia’ in the southern European countries during the 20th century, Portugal included. Latifúndio owners were under

⁵² José Machado Pais, Aida Maria Valadas de Lima, José Ferreira Baptista, Maria Fernanda Marques Jesus, Maria Margarida Gameiro, “Elementos para a história do fascismo nos campos: A «Campanha do Trigo»: 1928-38 (ii)”, *Análise Social* vol. XIV (54) (1978), 321-389

⁵³ Lains, “Agriculture and economic development in Portugal” p.338

⁵⁴ Dulce Freire, “Entre sequeiro e regadio. Políticas públicas e modernização da agricultura em Portugal (séc. XX)”, XIV Congreso de Historia Agraria (pp. 1-14). Badajoz: Universidad Badajoz / SEHA

accusation of not investing in their land, or even letting the land sit idle. The criticism was not just directed at the large latifúndio landowners but at the agrarian system itself. With the event of the 25th of April coup and the rise in power of the Communist Party, this discussion turned into a land occupation movement in the South of Portugal.

The aim of this study was to critically assess the arguments and legislative framework used to justify the land occupation movement that occurred after the Portuguese 25th April 1974 Revolution, when they were first presented in the 1960s. Using a unique dataset drawn from primary sources, I concluded that counties with high ownership concentration did have lower land productivity, even after introducing ecology controls. Hence, the initial main contribution of this paper is in empirically establishing the existence of an inverse farm size productivity relationship for mid-century Portugal. The explanation does not end here, as it is important to question why and how that relationship came into existence. Two factors stood out as important: the crop mix selected and human capital.

The land productivity measure used is expressed in monetary terms. Given that not all crops are equally valuable, this measure is very sensitive to the crop mix selected. Farmers in the Alentejo region favored less valuable crops, like grains. My explanation for this phenomenon is centered on the lack of irrigation infrastructure and wheat protectionism. By identifying the crop mix as the channel of transmission between land inequality and land productivity, this study provides a sensible alternative to the view that the majority of latifúndio landowners were irrational, slow to modernize or downright absent – at least for the period considered. Moreover, this study confirms Lains's contention that there was still significant scope for efficiency gains through structural change within the primary sector.⁵⁵

The second main result of this study concerns the importance of human capital for agricultural productivity. When literacy was introduced as a control in the regression, the land inequality coefficient lost its significance. This result thus identified the human capital channel as highly relevant in the Portuguese case. High ownership concentration in a region where natural conditions for agriculture were challenging, imposed serious hardships on the smaller farmers struggling to subsist hindering efforts to improve human capital.

Finally, this study asks for a part II. Land inequality works in interaction with other market failures, namely in the credit market, in the land market, and in access to education. Improving efficiency can be done through land reforms or through policies that address these failures.

⁵⁵ Lains, "Agriculture and economic development in Portugal" p.334

While the exercise concluded that there existed an inverse farm size productivity relationship in continental Portugal around 1960, when the conceptual framework underlying the agrarian reform was constructed, much had changed in the following decade. Literacy had increased tremendously as a result of the regime's push for universal primary education. The irrigation network was being extended and modernization in agriculture was occurring, albeit at a slow pace. Urbanization, industrialization, and emigration provided outlets for rural workers in search of better living conditions. Further research should explore what these changes imply in terms of their impact on the crop mix and mode of production selected by Alentejo landowners and in terms of their impact on the educational opportunities and achievements of the rural population.

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