Assets, Human Capital and Gender: The Long-Term Consequences of Land Dispossession

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Preliminary

Abstract

The relationship between family wealth in the form of asset ownership and investment in human capital is a longstanding question in economics. This paper investigates the long term effects of the massive land dispossession experienced by Palestinian Arabs in the 1948 war (Nakba in Arabic), on human capital accumulation of second and third generation decedents in villages and towns that remained under the control of the State of Israel. To identify the effect of land dispossession on human capital investments, we exploit the plausibly exogenous variation between villages, within regions, in the share of land lost as a result on the 1948 war. We then use the gendered nature of Muslim inheritance law, to identify the the channels through which dispossession affects. We draw on historical records to document pre-war stock of land and link this village level data to longitudinal administrative data on education and labor market outcomes of second- and third-generation village residents. We find that higher degrees of dispossession lead to increase in educational attainment as well as the quality of education, but only for men, exacerbating gender gaps in occupational choice and labor market outcomes. Furthermore, our findings highlight the importance of land as an assets that affects the relative expected returns to education for the potential (male) inheritors.

Keywords: Wealth, Land, Education, Gender, Israel-Palestine

JEL Codes: G51, J15, J16, J24, J62, N45

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1 Introduction

The relationship between family wealth in the form of asset ownership and investment in human capital has long been a central question in economic research (Galor and Zeira, 1993; Banerjee and Newman, 1993; Ager *et al.*, 2021; Stein and Yannelis, 2020). Among the various types of assets, land has historically been the most ubiquitous type of asset in determining household decisions regarding investment in education of children, especially in rural communities. Previous empirical work uncovered a complex relationship between land ownership and investment in schooling (Hu *et al.*, 2024). Family land ownership during childhood affects both the opportunity cost of schooling as well as household available income and ability to invest in education (Bar and Basu, 2009). At the same time, land ownership also determines the relative returns to education in adulthood, as it increases expected earnings that do not require education, either as an income generating asset or as collateral for other types of entrepreneurship (Banerjee and Newman, 1993).

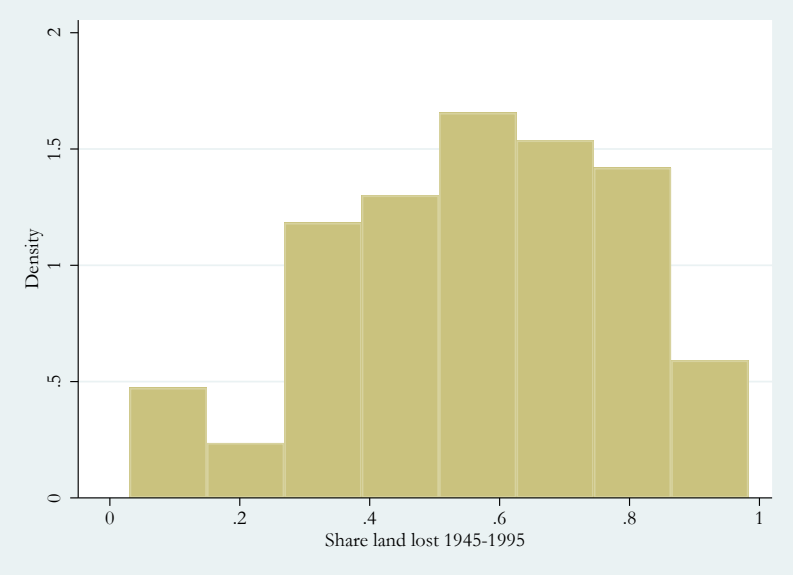
In this paper, we investigate the long term effects of the massive land dispossession experienced by Palestinian Arabs in the 1948 war (*Nakba* in Arabic), and subsequent years, on human capital accumulation of second and third generation decedents in villages and towns that remained under the control of the State of Israel.[1] From inception, Israel was defined as a Jewish state, but by the end of the 1948 war only about 13.5% of Israeli territory was under formal state or Jewish ownership (Granott, 1952; Kark, 1995). Therefore in the years following the war, the state institutionalized the war time dispossession Palestinian land, turning the majority of it into State Lands (Forman and Kedar, 2004). To identify the effect of land dispossession on human capital investments, we exploit the plausibly exogenous variation between villages in the share of land lost as a result on the 1948 war. In light of the gendered nature of Muslim inheritance law, we estimate the effect of dispossession by gender to separate the short and long term effects.

We draw on historical records to estimate the degree of land dispossession, at the village level. Specifically, we use the Village Statistics, 1945 survey work prepared by the Government Office of Statistics and the Department of Lands of the British Mandate Government for the Anglo-American Committee of Inquiry on Palestine which acted in early 1946. The survey includes data on land ownership, its uses, population statistics, and tax payment records for both Arab and Jewish settlements under the British Mandate Government. The extent of land loss of Arab settlements is measured as the ratio of settlement (municipality) size in acres in 1995, as reported in the national census, to the settlement size in acres in 1945.[2]. Figure 1 depicts the distribution of this ratio for

[1] Prior to 1948, Palestinian Arabs were the majority ethnic group in Mandatory Palestine. As a result of the Nakba, around two thirds of the Palestinian Arab population was displaced. The remaining Arab population, incorporated into the State of Israel amounted to approximately 158,000, constituting about 15 percent of the entire Israeli population (Rassem Khamaisi, 2013).

[2] During this period Arab municipalities were largely prevented from expanding their jurisdictions, despite significant population growth. The 1995

Figure 1: Extent of Land Dispossession 1945-1995, by municipality



the 76 villages for which we have data from both both 1945 and 1995, and reveal the substantial distribution, ranging from 10% loss to virtually 100%.

2 Land, Gender and Human Capital Investment

The loss of lands can affect investment in human capital through three main channels:

- Income shock: the loss of lands impoverished families, leading to a tighter budget constraint. However, post 1948, the Arab public education system rapidly grew, reducing the overall cost of schooling for families (Abu-Saad and Champagne, 2006).[3]
- Reducing the marginal cost of education: the overwhelming majority of Palestinians were owner-cultivators or share croppers (Anderson, 2018; Morkus-Makhoul, 2024). Therefore, as in many developing countries, the direct cost of sending children to school is loosing working hands on the family farm land (Shanan, 2023).
- Increasing the returns to education (in expectation): the marginal benefit of education is measured against the outside option. In the case of 1948 Palestinians, the outside option relies on access to capital, in the form of land. Therefore, the loss of land in 1947-8 reduced the expected return from the land, as the ability to retain ownership became largely uncertain, leading to a relative increase in the returns to education.

[3] In 1946, only 22% of the school age population in Palestine was enrolled in public schools (Abu-Saad and Champagne, 2006)

In the case of Palestinian peasants (*fellahin*) these channels are expected to differ across gender lines. We expect the income shock to equally reduce investment for both sons and daughters, with respect to pre-existing gender difference in educational attainment between boys and girls. In terms of opportunity costs, we expect men and women to be at least equally affected, as evidence from anthropological accounts of the peasantry in Mandatory Palestine reveal that women and girls were active members of the farming labor force, both on family plots as well as as laborers (Morkus-Makhoul, 2024). In contrast, we do expect differences in terms of expected returns to education. This is because among the Arab Palestinian population, land has been and continues to be traditionally bequeathed to sons (Sandberg and Hofri-Winogradov, 2010).[4]

3 Methodology and Data

Our sample of analysis is a full cohort of Arab students, who are citizens of Israel, born in 1988-90, and their parents. Virtually all parents in our sample were born after 1948, so we define them as second generation to the dispossession and their children as third generation. For the third generation we have a rich administrative data set that includes data on secondary and tertiary educational outcomes, test scores throughout the education pipeline and labor market participation and earnings. For their parents we observed completed years of schooling for mothers and fathers as well as household income quintiles. We do not use data on the first generation in our analysis for two main reasons. First, a large proportion of the first generation are likely to have completed their schooling before 1948. Second, educational records are less available, especially for those who completed their education before 1948.

While we don't have data on land holdings at the household level, we proxy this by the share of land lost at the village in which the parents and children in our sample reside. This is similar to the use of family names to proxy slave-holding wealth by Ager *et al.* (2021). The crucial assumption for our identification is that second and third generation reside in the same municipality as the first generation. Indeed, it is well documented that Arab citizens of Israel face limited housing mobility opportunities and constraints on access to land. Such limitations mean that most Arabs are born and die in the same locality and, in some cases, in the same neighborhood (Rassem Khamaisi, 2013).[5]

We follow the empirical approach employed by Ager *et al.* (2021) who estimate the effect of a wealth shock, loss of slaves, generated by the American Civil War. Equation 1 presents the main

[4]In Islam, daughters are in fact entitled to part of the inheritance. However, Sandberg and Hofri-Winogradov (2010) discuss how in practice daughters forgo their entitlement in favor of their brothers. Especially with respect to land ownership.

[5]When there is migration, it is largely towards the mixed cities.

specification through which we estimate the effect of land dispossession on human capital outcome y of individual i in municipality j.

$$y_{ij}^{g} = \alpha_r + \beta_1 LandLoss_j + \beta_2 Male_i + \beta_3 LandLoss_j * Male_i + \delta_1 PrivtLand45_j + \delta_2 LandPC95_j + \epsilon_{ij} \quad (1)$$

Our main variable of interest is $LandLoss_j$, measured at the level of municipality j and is the ratio total land in municipality in 1945 (both private owed by Arabs and public) to total land in municipality in 1995. The use of this measure lead to the exclusion of slightly less than a quarter of the cohort, who live in municipalities for which we do not have data in both points of time. One such subgroup are students who live in the mixed (Jewish and Arab) cities. For them, there is no data available on land holdings by ethnicity, and in all mixed cities, the Jewish population is the majority group. The second group is Bedoiun permanent settlement that were established after the 1948 war. The 1945 Villages report records many of the Bedouin tribes that now reside in permanent settlements, but at the time were still Nomadic, and had to land officially allocated to them in the Village report.

We include regional fixed-effects, α_r, to account for regional differences in outcomes. Finally, we add controls for municipality level wealth through $PrivtLand45_j$ which is the per capita amount of privately owned land in 1945 in municipality J and $LandPC95_j$ total land per capita in the municipality in 1995. These distributions likely differ because some municipalities absorbed large groups of internally displaced Palestinian during the war, who were not allowed to return to their villages after the war, remaining virtually landless (Forman and Kedar, 2004).

3.1 Results

Table 1 shows the estimation results of Equation 1 for parents in our sample, who are second generation to the land dispossession. We see that as expected, current (1995) land per capita is positively associated with both educational attainment and family income, and more so for men than women. We find support for the hypothesis that investment in human capital increases as a result of loosing land assets. However, the effect is largely concentrated among men, suggesting that as land ownership becomes less likely, the relative returns to education in the long run increase. As women do not inherit land, there is no significant change in the relative returns for them. Figure 2 plots the relationship between land loss and years of schooling, by parents' gender, and we see that both genders have a positive slope, suggesting a reduction in the opportunity costs of schooling, however the positive slope is substantially larger among men.

Turning to the third generation, in the top panel of Table 2 we estimate the effect of land dispossession on matriculation rates in high school and entrance into tertiary education, sixty years later.

Table 1: Second Generation's Years of Schooling and Household Income

	Years of schooling				Household income	
	Fathers		Mothers		Pr(above median)	
	(1)	(2)	(3)	(4)	(5)	(6)
Land loss 95-45	1.023**	1.553	0.446	-0.021	0.171***	0.271**
	(0.493)	(1.106)	(0.51)	(1.519)	(0.045)	(0.131)
Land per capita 45	0.017	0.017	-0.018	-0.018	0.002	0.002
	(0.013)	(0.013)	(0.02)	(0.019)	(0.001)	(0.001)
Land per capita 95	0.189**	0.179**	0.052	0.06	0.073***	0.072***
	(0.085)	(0.089)	(0.145)	(0.138)	(0.011)	(0.011)
Land loss 95-45 ^{2}		-0.59		0.521		-0.11
		(1.338)		(1.775)		(0.152)
Observations	12,791	12,791	12,293	12,293	13,567	13,567
R2	0.019	0.019	0.015	0.016	0.018	0.018

Figure 2: Second Generation's Education and Land Dispossession, by municipality

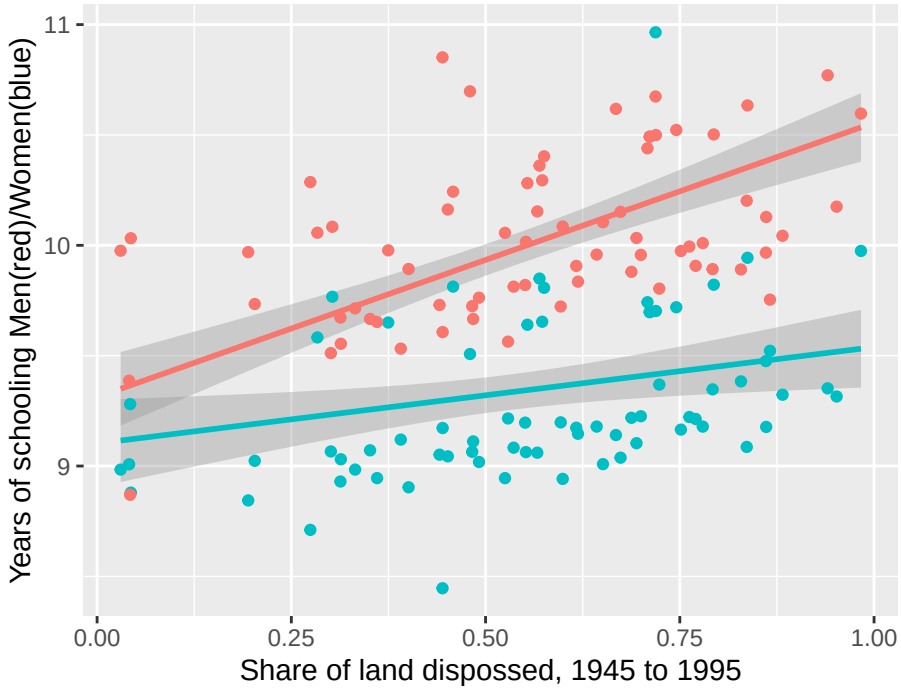
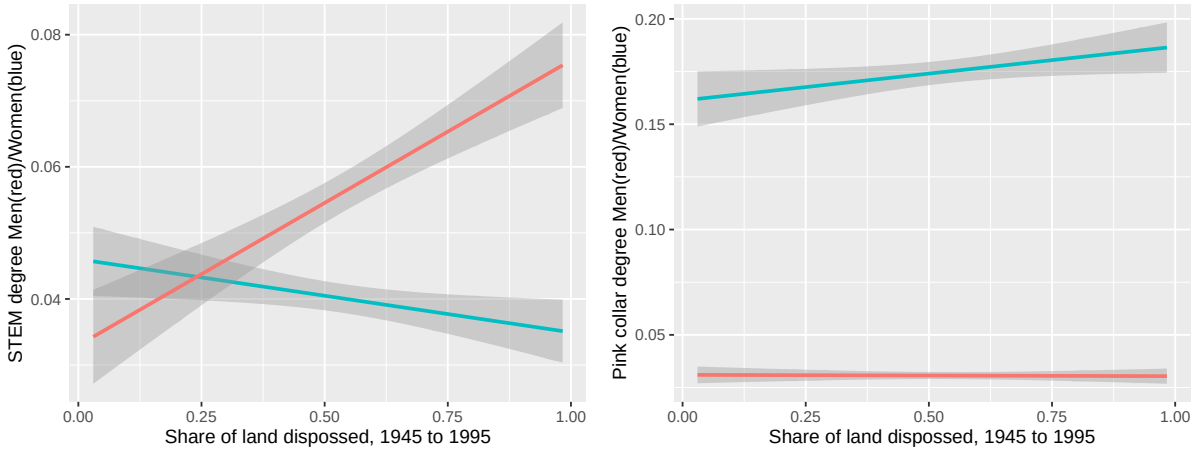


Figure 3: Second Generation's Education and Land Dispossession, by municipality



First we see the generational flip, where among the second generation, women had lower education compared to men, but in the third generation, attainment rates are much higher among women, in line with the patterns shown by (Friedman-Sokuler and Justman, 2020). We find no statistically significant differences in attainment according to the extent of dispossession, through the gender difference observed in the second generation persist. There is however, an effect of dispossession on study field choices, shown in panel (b). A ten percentage point increase in the share of lands lost in a municipality, increases the probability of studying towards high-risk-high-earnings occupations, i.e. study fields characterized by high labor market earnings, but low representation of the Arab minority such as STEM, but only among men. For women the opposite is true, albeit not statistically significant. On the other hand, we find no effect on study fields in which there is virtually guaranteed employment opportunities but earnings are not high, and where the Arab minority is fairly or over-represented: nursing , teaching, social work. Figure 3 shows that moving from very little dispossession to virtually full dispossession doubles the share of men in high earnings study fields and reverses the gender gap, originally favoring women.

Table 2: Third Generation's Educational Attainment and Study Field Choice

(a)	Matriculated			Studied in tertiary education		
	All	Male	Female	All	Male	Female
Land loss 95-45	-0.075	0.022	-0.162	0.018	0.123	-0.075
	(0.159)	(0.166)	(0.196)	(0.115)	(0.103)	(0.153)
Male	-0.217***			-0.191***		
	(0.012)			(0.009)		
Land per capita 45	0.002	-0.001	0.005*	0.002	0.0001	0.003**
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)
Land per capita 95	0.033**	0.044***	0.022	0.014	0.018**	0.01
	(0.014)	(0.014)	(0.019)	(0.009)	(0.008)	(0.013)
Land loss 95-45 ^{2}	0.139	0.097	0.176	0.054	-0.053	0.148
	(0.163)	(0.174)	(0.199)	(0.117)	(0.113)	(0.152)
Observations	13567	6711	6856	13567	6711	6856
R2	0.054	0.005	0.007	0.052	0.003	0.006

(b)	High earnings study field			High employment study field		
	All	Male	Female	All	Male	Female
Land loss 95-45	0.012	0.075*	-0.051	-0.057	-0.021	-0.09
	(0.031)	(0.042)	(0.037)	(0.082)	(0.047)	(0.132)
Male	0.016***			-0.145***		
	(0.005)			(0.008)		
Land per capita 45	0.0002	-0.0004	0.001	0.001	0.0004	0.002
	(0.0004)	(0.001)	(0.001)	(0.001)	(0.0005)	(0.002)
Land per capita 95	0.012***	0.020***	0.005	-0.004	-0.0001	-0.008
	(0.004)	(0.005)	(0.005)	(0.007)	(0.003)	(0.012)
Land loss 95-45 ^{2}	0.01	-0.02	0.04	0.052	0.014	0.087
	(0.038)	(0.052)	(0.043)	(0.079)	(0.048)	(0.131)
Observations	13567	6711	6856	13567	6711	6856
R2	0.003	0.005	0.002	0.059	0.002	0.004

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