UCLA

UCLA Previously Published Works

Title

Pen to the tiller: Land reform and social mobility across the 1979 Iranian revolution

Permalink

<https://escholarship.org/uc/item/0b91f8zr>

Journal

Journal of Agrarian Change, 19(3)

ISSN

1471-0358

Authors

Harris, K
Kalb, Z

Publication Date

2019-07-01

DOI

10.1111/joac.12321

Peer reviewed

Pen to the tiller: Land reform and social mobility across the 1979 Iranian revolution

Kevan Harris | Zep Kalb

Department of Sociology, University of California-Los Angeles, Los Angeles, California

Correspondence

Kevan Harris, University of California-Los Angeles, Department of Sociology, 284 Haines Hall; 375 Portola Plaza; Los Angeles, CA 90095 USA.

Email: kevanharris@soc.ucla.edu

Abstract

Giovanni Arrighi joined together questions of agrarian political economy with questions concerning the livelihoods of rural migrants and the fate of peasant communities as they dissipated. In this article, we apply Arrighi's concerns to the case of Iran to examine how processes of agrarian transformation link with trends in social stratification and upward mobility. First, we argue that land reform implemented during the reign of Mohammad Reza Shah Pahlavi contributed to a heterogenous social differentiation of the Iranian peasantry. Second, we claim that the widening of access to credentials fostered by Ayatollah Ruhollah Khomeini's Islamic Republic laid the tracks by which peasants and rural households could convert landholding assets into newly accessible forms of cultural capital. The benefits of these transformational processes, however, fell disproportionately to the rural middle strata created under the Pahlavi monarchy. Through the use of a new survey dataset, we show how pre-1979 land reform in Iran favoured segments of the peasantry, not for those who remained in rural agricultural production, but instead for those who utilized landholdings as a means to transfer status and opportunities to their children after the 1979 Iranian revolution.

1 | INTRODUCTION

How have Iran's rural households fared under the Islamic Republic? In trips to the Iranian countryside from the late 2000s to present day, families have often told us stories of absolute upward mobility from peasant origins to

professional standing among the post-1979 revolutionary generation. For instance, by the central desert town of Kashan, in a small cluster of villages located a 2-hour drive from the nearest city, small cottages built from sun-dried bricks generations ago sat dilapidated next to the main road. Alongside a handful of these cottages, however, were newer houses—prefabricated two-storey units, often with a new Iranian-made automobile in the driveway. Invited into one of these houses for tea by its elderly female owner, one of us asked her: “How did this new house get built? Do your sons work nearby in a factory and obtained a loan from the government bank?” She replied: “Oh no! Two of my sons are engineers, and one is a doctor. They built this house for me on our land. So I moved from my old cottage, which, as you can see, is falling apart there in the back. But my sons live in Tehran and only visit me during the new year holiday—they were supposed to come more often and bring their children!”

The sons, and increasingly the daughters of rural households as well, took advantage of an expanding educational system implemented by the post-revolutionary Islamic Republic (1979–present). Consider that Iran's gross school enrolment ratio in tertiary education, which calculates the number of enrolled students as a percentage of the total school-going population corresponding to the same level of education, stood at only 4.5% in 1978, but reached 69% in 2016, according to UNESCO. In comparison, gross tertiary school enrolment in the United Kingdom stood at 59% in the same year. The rapid expansion of educational credentialing has gone together with an explosion in the number of professional and technical occupations such as doctors and engineers. For example, the ratio of doctors to the overall population in Iran went from 1:2,800 in the year of the 1979 revolution—1:4,000 outside of the capital city of Tehran—to 1:690 by 2010 (Harris, 2017, p. 168).

However, absolute social mobility, including the structural transformation of agrarian-based labour into skilled and unskilled occupations in other sectors, is not the same as an increase in the relative mobility of individuals within an unequal society. Single anecdotes may hide a larger inverse trend. In fact, scholars generally point to the persistence of relative immobility over time for individuals from lower social strata in upper- and middle-income countries. The difficulty of radically changing the barriers of social stratification is partly due to entrenched class divides in rural areas between landholders and agrarian labourers. Social immobility often persists even after demographic change and internal migration shifts most of the population to urban locales (Torche, 2014). Furthermore, the study of social stratification and individual-level mobility can itself hide the historically-specific underpinnings of rapid changes in social mobility as well as the class relations between social strata as differentiated by status, prestige, or other markers of social distinction (Campling, Miyamura, Pattenden, & Selwyn, 2016, pp. 1747–1748).

In this regard, the Iranian case is useful for two reasons. First, Iran underwent one of the last social revolutions of the 20th century geared towards upsetting the highly stratified society experienced under the Pahlavi monarchy (1925–1979). Second, the Iranian countryside was subject to two rounds of land reform. The first round, executed in the 1960s, aimed to redistribute the landholdings of Iran's landlord class and create a smallholding peasantry loyal to the Pahlavi monarchy. In contrast, in the second round of reforms implemented in the 1980s, the new revolutionary state hoped to improve fortunes of the rural unemployed and the land poor.

Motivated by our observation in a central Iranian village, in this article, we examine the possibility of upward social mobility for those individuals in households who benefited from either round of land reform. The link between land reform before the 1979 revolution and upward social mobility after the 1979 revolution is rarely discussed, whether by the post-revolutionary Iranian political elite, domestic intellectuals, or scholars in agrarian studies more generally. This is partly due to the controversy that still surrounds the top-down redistribution of land under the Pahlavi monarchy, criticized by leftist radicals and Islamist revolutionaries alike. Moreover, the state implemented land reforms both before and after the 1979 revolution. The impact of these separate policies, the first purportedly “modernizing” and the second “Islamic,” are rarely compared. Furthermore, Iran tends to be ignored in most overviews of the socioeconomic consequences of land redistribution (for instance, there is no mention of Iran in the widely-debated paper on land redistribution by Griffin, Khan, & Ickowitz, 2002).

To explicitly link these topics, we ask the following question: to what extent did land reforms across the revolutionary divide ameliorate or exacerbate the inequalities experienced in Iran prior to the 1979 revolution as well as

currently in the Islamic Republic? Moreover, given the rapid educational expansion under the Islamic Republic in the wake of two waves of land reforms, to what extent has post-revolutionary social policy reduced the barriers to relative social mobility for individuals from rural households?

In this article, we connect the agrarian question in late 20th century Iran to a key historical process through which social differentiation and upward mobility can take place. Cross-national studies have examined the historical contexts wherein powerful plantation owners and landlords have attempted to limit educational access for rural labourers (Pennock, 2014; Wegenast, 2009). What happens to educational outcomes for newly differentiated social strata resulting from land reforms in the context of other social and political transformations, however, is less often studied. For Iran, we argue such a process took place in two parts. First, land reform implemented during the reign of Mohammad Reza Shah Pahlavi contributed to a heterogenous social differentiation of the Iranian peasantry. Even with a significant redistribution of land and a relative expansion of the number of small-holding plots, however, the differentiation of the countryside did not level out social inequality. Although the rural social relations engendered by the Pahlavi-era land reform varied widely by region, those households which received land tended to fare better than those households which did not. Second, we claim that the widening of access to educational credentials fostered by Ayatollah Ruhollah Khomeini's Islamic Republic laid the tracks by which peasants and rural households could convert landholding assets into new forms of social and cultural capital. We argue that the equalizing effects of the post-1979 revolutionary order, via educational expansion and other policies of social levelling, did not counterbalance the differentiating effects of the Pahlavi-era land reforms. Specifically, we find that the differentiating effects of land ownership are surprisingly persistent over time. We provide evidence which documents the transmission of land inequality into urban inequality via the relative acquisition of educational credentials (for a review, see Oyvat, 2016).

Our article proceeds as follows. We first highlight the overlooked contribution of Giovanni Arrighi for understanding how peasant differentiation is connected to social mobility across generational change. We then narrate the tale of state-led land reform efforts before and after the 1979 Iranian revolution and the mix of agrarian transformations fostered by these policies. Finally, we empirically buttress our claim that Pahlavi-era land reform facilitated upward social mobility of particular peasant households. Using evidence from the 2016 Iran Social Survey, a large, nationally representative survey of Iranian households collected by the authors, we compare educational attainment for individuals with four different types of rural backgrounds. Specifically, we contrast individuals from rural landless families, individuals descending from pre-existing landholding families, as well as individuals who descended from rural families who received land due to state policies before and after the 1979 revolution.

As Giovanni Arrighi stressed by tracking change across generations among Southern Italian peasant families, the process of upward mobility across the revolutionary interregnum in Iran was not a function of rational peasants automatically seeking out "human capital" for their kin. Instead, specific institutional foundations had to be in place for this type of rural transformation to take place. We regard educational attainment as a form of capital conversion, but not in the economistic sense of universally fungible forms of social capital. Instead, we claim that pre-1979 land reform in Iran favoured segments of the peasantry, not for those who remained in rural agricultural production, but instead for those who utilized landholdings as a means to transfer status and opportunities to their children after the 1979 Iranian revolution.

Our findings suggest that individuals from families benefitting from the Pahlavi-era land reform and individuals from older and more-established landowning families experienced a similar degree of upward educational mobility after the 1979 revolution, relative to those coming from landless rural families. By contrast, we do not find a significant difference between the educational attainment rates of landless rural families on the one hand, and individuals from families who received land after the 1979 revolution on the other hand. We also find evidence that the pattern of plot leasing or rental use among land reform beneficiaries is associated with relative educational mobility for these three land-owning categories, suggesting that the rural inequality fostered by land reforms persisted into the next generation.

2 | PEASANT DIFFERENTIATION AND THE TRANSMISSION OF SOCIAL CAPITAL

Giovanni Arrighi's fieldwork-based studies across multiple countries and time periods paid close attention to the circumstances in which agrarian transformations took shape. For Arrighi, there was no such thing as a common "peasant rationality" through which individual and household-level incentives to engage in economic activity transcend historical context. Instead, local relations of production interlink with local regimes of landholding and land tenure to determine the patterns by which economic surplus can be allocated and transferred among members of a rural community, including the patterns of migration from and to the local area. Depending on the internal configuration of production relations, a common external shock can have differential effects across different rural communities (Arrighi & Piselli, 1987; see Bair, this issue). Arrighi's Calabria fieldwork raised the question of how local surplus created during periods of agrarian change is distributed to and reinvested by newly differentiated social actors in the countryside, especially via their kin networks and offspring.

At the sub-regional level, then, Arrighi's Calabria writings anticipated the return to debates over redistributive land reforms across the global South, such as the discussion in the pages of the *Journal of Agrarian Change* on the role of land reform in promoting equity and efficiency among smallholding farmers (see the introduction by Byres, 2004). Development scholars have noted that land reform alone does not typically result in rural economic growth unless accompanied by a set of connected policies, such as state investment in rural infrastructure, delivery of education and social welfare to the countryside, intersectoral exchange of productivity-enhancing technology, and a favourable geopolitical context (Arrighi, Aschoff, & Scully, 2010; Karshenas, 2004). Conversely, land reform may contribute little to economic growth, but still lead to the transformation of local communities towards more egalitarian social relations, as observed for instance in Kerala and West Bengal in India (Dasgupta, 2017). In other contexts, as documented in Southern Africa, land redistribution may increase the burdens on social reproduction for certain smallholding and land-poor households, exacerbating rural inequality and contributing to out-migration (Sender & Johnston, 2004). Historical case studies illustrate that state-directed land reforms alone tend not to produce the oft-romanticized smallholding peasantry, but rather a heterogenous differentiation of rural producers with varying dynamics of inequality depending on local producer relations (Byres, 2004, p. 8).

In his analysis of the transformation of the Calabrian countryside, Arrighi conceptually distinguished between three "roads" of agrarian social change (Arrighi & Piselli, 1987; for a thorough discussion see Bair, Harris, & Hough, this issue). First, in the *Prussian/Junker* road, landed estates are converted into large capitalist enterprises, peasants are dislocated from the means of production, and agrarian relations of production resemble the satanic mills that Engels witnessed operating in industrial Manchester. Large farms, run by landlord-capitalists and employing proletarianized rural wage-labour, produce for the general market and aim to maximize profits. Land expropriation, class polarization, and widening inequality is the usual outcome, along with the making of landless strata that may out-migrate or engage in seasonal labour across multiple geographical zones.

In the *American or farmer* road, agrarian relations of production partly resemble the yeoman farmers lionized by Thomas Jefferson. Within a rural community on this path, differentiation is more gradated than the polarizing tendencies of the *Prussian* road. Some farmers turn into small capitalists who employ wage-labour to increase production and supplement family incomes. Others become semi-proletarians who hire out part of their own families to work on nearby plots. Landlords might sell off parcels or rent out land to better-off peasants, or become mid-sized petty farmers themselves. In particular, the *American* road becomes self-reproducing when farmers have access to cheap staple goods, agricultural credits, widening markets, and dependable demand. A classic case of smallholding farmers who prospered with such forms of support provided by the state itself can be seen in post-war Taiwan.¹

Finally, in the *Swiss* road, which can occur due to the relative isolation of a rural community from capitalist markets or coercive entrepreneurs, peasant smallholders exploit their own family labour, produce largely for their

¹We thank Robert Brenner for this point.

own subsistence, and sell off surplus goods and labour in near and distant markets. The income derived from surplus production is reinvested in the community and forms of subsistence production are upgraded. Foretelling the anarchic, horizontal relations of rural associational life later emphasized by James Scott as the “art of not being governed” (2010), Arrighi's third path shows how geographical and social remoteness can result in a relatively egalitarian community wherein subsistence production and high rates of savings allow for peasant smallholders to reinvest their surplus into land upgrading and artisanal goods. Table 1 summarizes the three types of roads.

In late 19th and early 20th century Calabria, rural social structures were differentially transformed along each road by a collectively experienced process: “a boom of agricultural prices on the world-market and ... the incorporation of Calabria in the newly formed Italian state” (Arrighi & Piselli, 1987, p. 678). Similarly, for Iran, we show below how mid-20th century land reforms and state incorporation under the Pahlavi monarchy analogously acted as a differentiating process.

What happens to the descendants of such a process of rural differentiation after state incorporation? Arrighi's Calabria research provided prescient insight on this question as well. Arrighi tracked the changing conditions in which rural migrants can utilize their labour power and family land assets to transform their accumulated capital, or put another way, transfer historically accumulated successes, *across generations*. As state intervention in Italy via social and economic policy became more salient, Arrighi shifted his study's unit of analysis from local to national patterns of social mobility. No matter the form of rural proletarianization and labour out-migration across his Calabrian cases, during the postwar era Southern Italian migrants were more likely to take up jobs in Northern Italian labour markets rather than engage in subsistence production on their local land plots. Younger generations of workers preferred garnering income through out-migration and wage-labour not only to “switch to the new patterns of consumption” as socially acceptable levels of subsistence were redefined upward, but also to “liberate themselves from the oppressive patriarchalism that pervaded the structures of subsistence production” (Arrighi & Piselli, 1987, p. 722).

From a narrow economic perspective, one could argue that newly acquired landholdings are simply a form of capital which allows for the conversion of landed assets into other resources, such as economic capital or so-called human capital—that is, educational credentials and skills remunerated by the wage-labour market. More historically-minded scholars recognize, however, that the fungibility of one form of capital into another requires the presence of institutions or social structures which provide the formal and informal bases for the transfer of resources attached to land into other forms of social prestige, power, or economic command. As Georgi Derluigan points out in a handy folk definition, “[C]apital describes the ways in which people store accumulated successes. These could be a matter of economic gains, which are the ‘capitalist capital’ proper; political positions and support bases; administrative capital vested in office promotions and special kinds of bureaucratic insider knowledge; symbolic intellectual prestige, diplomas, access to high culture practices, and professional positions; the traditional symbolic notions of family honor, kinship and patronage connections; the workers' occupational capital, expressed through their work skills, shopfloor rights, and solidarity; or the social capital of marginal populations vested in their resilience, resourcefulness, the possession of valuable friends, and the skills they use to avoid brushes with law” (Derluigan, 2005, p. 132).

TABLE 1 Arrighi's typology of “roads” of rural transformation

	Class features	Market conditions	Key outcomes
Junker road	Landowning capitalist class expels tenants	Cheap labour	Exploitation, deskilling, class polarization
American road	Peasant differentiation into small, mid, large-sized plots; tenant labour present	Cheap credit and goods; protected markets	Internal stratification, semi-proletarianization
Swiss road	Community of smallholders buys out landlords	Market isolation	Subsistence production, surplus produce, and labour sold in markets

Source: Arrighi & Piselli, 1987

For Arrighi, one of the pathways through which peasant households and their sons could deploy the transmission of social capital from rural to urban locales was through a strategy “to enter the workforce via higher education so as to be able to compete for bureaucratic employment either as a functionary of capital or as a functionary of the state” (Arrighi & Piselli, 1987, p. 722). Arrighi observed that historically-specific conditions in postwar Italy during the 1950s–1960s provided new routes for upward mobility among *better-off* peasant households. These shifts in status through higher education and occupations of younger offspring into expanding bureaucratic employment and other credentialed positions were partly possible due to the gradual envelopment of postwar Italy into the European Economic Community, an outcome ruled out for Third World countries (Arrighi & Piselli, 1987, pp. 733–34). European integration aside, this process of state incorporation does resemble the trajectory of upward mobility we observed for descendants of selected peasant households in the Islamic Republic during the 1990s–2000s after the Iran–Iraq war (1980–1988). If the land reforms of the Pahlavi monarchy were the first shock which shifted social relations among the diverse local communities across Iranian territory, the transformations fostered by the Islamic Republic laid the tracks for some households across newly differentiated locales in the countryside to take advantage of a tumultuous post-revolutionary order.

3 | TWO LAND REFORMS, ONE REVOLUTION

In this section, we examine pre- and post-revolutionary state attempts to redistribute landholdings across Iran, taking Arrighi's insights into rural differentiation as our starting point. During the 1962–1970 land reform up to the 1979 revolution, absentee sharecropping relations were uprooted across Iran. Depending on pre-existing local social structures, land reform pushed peasant communities onto paths which resembled the Junker, American, or Swiss roads of Arrighi's typology of rural differentiation. In areas where land was redistributed to peasants who held a customary claim, higher productivity rates and investment were spurred. Some peasants, particularly those working small irrigated plots, increasingly produced for the market along an American-style path. Other locations, however, moved towards a Swiss-style subsistence path, due to the relative social and geographical isolation of communities with newly acquired landholdings. In the well-irrigated plains of the south, northeast, and northwest of the country, finally, major agribusinesses and farm corporations were set up that approximated the Junker path.

Far from leading to a virtuous circle of Smithian growth in the countryside, however, many policies of state intervention in the 1970s had countervailing effects on peasant livelihoods. State preference in agricultural policy favoured urban markets over the facilitation of local production. Intertwined with Iran's tightening integration into global food markets, the fledgling productive systems emerging from land reform were seldom viable. For those areas on the Junker road, agribusinesses relied on major external financial injections from the state to survive. As rural profits were pushed down in the 1970s due to competition from imports, pressure intensified on American-path villages employing small-scale market production to increase the input of family labour over hired workers. As a result, by the 1979 revolution, subdivisions of plot ownership and a fragile diversification of tenure patterns were apparent.

In the second period, from the 1979 revolution to the early 1990s, land tenure regimes fluctuated as the revolutionary order kept land rights unsettled across many provinces. The Khomeinist government encouraged a model of the market-integrated smallholder-cultivator through a limited land transfer programme to underemployed land-poor families. The revolutionary government's subsidization of agricultural machines and fertilizers increased profit margins among those small-scale rural producers who could obtain access. Yet the dual effects of the 1980–1988 Iran–Iraq War and state-led attempts at economic self-sufficiency provoked an exodus from rural communities, aided by government nationalization of agro-industrial firms and the privatization of usufruct peri-urban lands.

During the 1980s, American-path farmers chiefly benefitted from these policies, albeit held in check by labour shortages and high costs. As peasants during the 1979 revolution claimed back large plots of Junker-type land and little state or private investment in new large-scale farms was forthcoming, this period also saw the marked decline of Junker-type farming. Thus, during the 1980s and 1990s, absentee land ownership shifted from rural to urban and

peri-urban areas, whereas small- and medium-sized family-based farming producing for the market intensified and expanded. Yet the deepening integration of a national market under the Islamic Republic meant that entrepreneurial incentives for speculation and use of land as a commercial asset increased for families with land titles on the edges of urban sprawl.

To summarize, both governments before and after the 1979 revolution engaged in policies of land redistribution. The scale and location of these policies, however, differed substantially. As shown in Table 2, the land reforms carried out under the Pahlavi monarchy affected far more peasant households as a share of the population. The revolutionary government's policies more directly distributed peri-urban lands, albeit to a narrower range of the population.

Below, we review the transformations in land ownership during these two periods. Then, in the final section, we analyse the effect of land ownership on educational outcomes of second- and third-generation offspring, using a unique survey dataset collected in 2016 assessing land ownership and educational attainment across three generations in Iran.

3.1 | Land reform under Mohammad Reza Shah Pahlavi (1962–1978)

Land reform had long been a priority on the lists of progressive policies demanded by Iranian intellectuals and activists. During the 1906–1911 constitutional movement, redistribution of large landed estates was advocated by étatist reformers. Although the modernization programme of Reza Shah Pahlavi (1925–1941) favoured elite groups that threw in their lot with the newly centralizing state, landowners were sometimes forced to sell off large holdings at bargain prices to the new authoritarian leader, especially in the fertile zones of the Caspian littoral. Only by the 1940s, with the accession of Reza Shah's son Mohammad Reza to the throne, were property rights in the countryside more firmly secured for the landowning class (Enayat, 2013, pp. 152–156).

Prior to the 1962 land reform act implemented by the Pahlavi monarchy, Iranian agriculture was marked by widespread absentee landlordism and sharecropping. Ownership of most arable land was concentrated in the hands of three types of entities: (a) absentee landlords, including aristocrats, the royal family, and small owners; (b) government institutions; and (c) religious bodies. Although the government rented out most of its land, almost all other landowners (including small owners) were absentees relying on tenurial labour. By the late 1950s, small and large-absentee landlords together owned about 76% of all arable land, including most irrigated plots. Peasant-owners only constituted around 5% of the entire peasantry. In this sharecropping-dominant system, around 60% of all rural households held customary cultivation rights, whereas landless agricultural labourers constituted much of the remainder (Hooglund, 1982; Lahsaeizadeh, 1993, p. 28).

TABLE 2 Summary of land redistribution and agrarian reforms in Iran

Period	Class dimensions	Total land distributed	Number of beneficiaries
Pahlavi Monarchy (1962–1970s)	Land reform disproportionately benefitted small- to medium-sized landowners and peasants with a claim to the land	Phase 1: 5,500 villages (in total); 10,000 villages (in part); Phase 2: 55,000 villages (in total and part)	1.9 million families, or 40–50% of total population
Islamic Republic (1980s–1990s)	Rural land transfers to idle villagers; urban land privatization to lower middle-class and public sector employees	Countryside: 600,000 hectares directly distributed; 680,000 hectares usufruct land licenced. City: 1 million hectares	Countryside: 6% of rural population, or about 230,000 households. City: over 2 million urban housing units

Source: compiled by authors from Ashraf, 1991; Azkia, 2002; Ehsani, 2006.

As was common U.S. policy towards the Third World at the time, the American government encouraged Iran in the 1950s–1960s to extend market-dependent relations of production in the countryside in order to counter the threat of peasant rebellion and communist mobilization via the sponsorship of “family farms.” Despite these instrumental political aims, however, Iran's pre-revolutionary land reform (1962–1970) is remarkable for the breadth of its implementation against the landowning class, effectively ending sharecropping systems in many sub-regions of the country. Almost all of the largest landlord families were forced to significantly reduce their holdings (Mahdavy, 1983). Compared with rhetorically radical states in the Middle East, the Shah's land reform was arguably more extensive than similar reforms in Syria, Iraq, or Egypt. Implemented over three stages, around 60% of all rural households were recipients under the programme. Over 90% of all peasants holding customary rights of cultivation were able to become proprietors of the land they farmed. Importantly, peasants were often able to buy land from government holdings without incurring serious financial debts (Hooglund, 1982; Lambton, 1969).

Notably, land reform was rolled out over three phases. The first phase (1962–1963), concentrated in the south and west of Iran, was the most redistributive. The second and third phases (1964–1970) relied more on furthering the rental market for land in order to protect landowners from income losses. The ensuing differentiation in tenure types and local social structures depended not only on irrigation and crop selection, but also on where land reform was most effectively pursued (Amid, 2009; Azkia & Firouzabadi, 2006).

Most scholars agree with Homa Katouzian's (1974) assessment that the principal aim and result of the Shah's land reform was the consolidation of state control over the countryside. Land reform was formulated as part of a broader modernization push called the “White Revolution” that the Shah had formulated in coordination with the United States in order to reduce popular and Communist threats to the government. A range of bureaucratic and top-down organizations were set up in towns and villages with the aim of improving literacy, providing access to basic health care, and fostering acquiescence to central authority (Azkia, 2002; Azkia & Ghafari, 2004). These new educational, judicial, and healthcare organizations weakened local institutions such as the village chief, instead allocating a rural role to local elites in the expanding state apparatus (Goodell, 1985; Shakoori, 2001).

Accounts from local fieldwork in the province of Fars stress the agricultural prosperity, self-sufficiency, and peasant empowerment which occurred in the wake of the reforms (Hegland, 2013). As the anthropologist Reinhold Loeffler wrote about the village in southwest Iran he visited on numerous fieldwork trips, “[i]n consequence of the land reform, the peasants continued to hold the land that they had always held, but with the difference that they were no longer subject to dues and inordinate exactions. Everything that they produced was now theirs to keep – a circumstance that encouraged intensive investment” (2011, p. 6). Loeffler's fieldwork in mountainous village communities revealed a Swiss-style road taking shape over a single generation, with little state engagement once lands had been reclaimed by peasant households.

Conversely, others have disputed the advantages of the Shah's land reform programme for many rural communities. Scholars have challenged the policy's success in realizing the state's main ambition—creating a foundation for the social reproduction of a smallholding peasantry and the commercialization of agriculture (Hooglund, 1982). Some have suggested that the state underestimated the previous number of smallholders in Iran, and that land reform inadvertently led to the partial dispossession and weakening of this stratum (Majd, 2000). Furthermore, redistributed land was often too small for subsistence farming, even accounting for the difference between irrigated and non-irrigated land (Majd & Nowshirvani, 1993). Loan facilities were lacking and unequally provided, customary community-cooperative farming arrangements were destroyed, and both agribusinesses and government-owned farm corporations failed to run a profit (Lahsaeizadeh, 1993; Lambton, 1984; Najmabadi, 1987). Iranian sociologist Ali Shakoori sums up the critical side of the historiography well: “the slogan of the land reform was ‘Land to the tiller.’ While this appeared logical, in practice it caused an unequal distribution of land. Its main beneficiaries were the richer farmers, and about half of the rural population were excluded from the distribution” (2001, p. 55).

Pahlavi-era land reform led to incipient social structures that were markedly different from absentee-sharecropping. Dozens of Junker-type farms were set up by private capital in the best-irrigated plains of the country, whereas the state set up farm cooperatives in which dispossessed peasants were given shares and employment

positions. Both private agribusinesses and farm cooperatives often failed to run a profit, relying on large financial injunctions to survive. Nevertheless, peasant-shareholders in observed farm coops saw their wages rise significantly (Najmabadi, 1987, p. 188). Smaller family-run farms followed both American and Swiss roads. Families that engaged in intensive farming in well-irrigated areas sold much of their produce to the market, becoming more integrated at the regional and national level. This counted both for small and larger farms. In contrast, families working non-irrigated farms large enough to sustain subsistence production (estimated at around 5 to 10 hectares) either did not sell any of their produce on the market or only a small portion of it (Najmabadi, 1987, p. 121).

Although land reform shook up existing social relations, however, it did not lead to major rural rebellions or landless peasant movements. Counter to American fears, the political weakness of smallholding farms and the existence of relatively effective cooperative arrangements between landowners and peasants had historically kept the Iranian peasantry from engaging in open rebellion (Kazemi & Abrahamian, 1978; Ashraf, 1991, p. 280). Unlike regions in Southern or Eastern Asia, few peasant insurgencies were observed in Iran either before or after land reform. Ironically, while a handful of Che Guevara-inspired radicals conspired in the countryside to foment a *foco*-styled rebellion against the autocratic Pahlavi Monarchy, assuming that they would liberate the countryside from its "feudal" backwardness, their calls for revolution found little resonance among peasant households.

Nonetheless, scholars and revolutionaries alike have argued that land reform contributed indirectly to the 1979 revolution. With a burgeoning urban population, the government resorted to mass imports of foodstuffs during the mid-1970s. In 1969, the agricultural import bill amounted to only \$37.3 million USD. By 1975, Iran imported over \$1.7 billion USD of agricultural produce, forcing globally-priced goods into competition with newly-created small producer farms. The rural exodus of agricultural workers and other surplus labour stemming from the reorganization of the countryside ungainfully swelled informal shantytowns and city squatter populations. Once in urban areas, oppositional groups were able to draw these new migrants in the 1978–1979 revolutionary process, contributing to the mass associational power of street protests across Iran. In fact, the impactful appearance of the central state in the lives of the 1960s–1970s rural generation, and the scaling up of symbolic power away from local elites to the centralizing figure of the Shah, contributed to the ideological appeal of anti-Shah sentiments among many young individuals who had recently been transplanted from country to town (Goodell, 1986).

With the revolution's victory in February 1979, Marxist organizations and leftist intellectuals increasingly lamented that the Shi'i Islamic clergy's strong ties to this lumpenproletariat allowed militants proclaiming allegiance to Ayatollah Ruhollah Khomeini to establish a populist regime that favoured petty accumulation, urban land privatization, and unproductive speculation in goods and property (Kazemi, 1980; Abrahamian, 1993; Bayat, 1997; Ehsani, 2006, 2013). At the micro-level, however, the situation was often more complex, as anthropologists closer to the ground observed during the revolutionary tumult. For instance, proximity of a village to a larger town was an important factor in determining whether its inhabitants staged protests against the regime. Villagers who commuted to major towns such as Shiraz, Tehran, Mashhad, or Tabriz brought back news of the revolutionary events, encouraging less powerful political actors to push aside their superiors and stage anti-monarchy demonstrations (Hegland, 2013). Activists from expressly Marxist groups such as the *Tudeh* Party and the People's *Fadaye'en* also stoked unrest and rebellion in the villages and small towns around Tehran and other major cities (Ashraf, 1991). At the same time, more remote villages often stayed away from revolutionary action. Unlike areas where state penetration was high, local headmen, and households in remote villages largely remained apprehensive of the national state and the capital city (*Iranian Studies*, 1983). In these cases, the low status that clerics (mullahs) were historically subject to in the countryside did little to increase confidence and faith in the new order (Hooglund, 1982).

Overall, the social effects of the Shah's land reform programme were mixed. Differentiation of landholding regimes did occur, and the Pahlavi monarchy arguably fostered the emergence of smallholding rural households in many sub-regions. Yet the state did not engage in the sort of supportive policies for smallholders as were occurring in parts of East Asia during the same decades. Investments in infrastructure and state subsidies of crop prices for smaller producers were limited. The 1979 revolution shook up existing claims to land rights, many of which remained unsettled. Although the revolutionaries which consolidated power from 1980 to 1983 romanticized the peasantry

and proclaimed that rural Iranians were to be a main beneficiary of an Islamic Republic, many peasant households utilized the changes of the post-revolutionary period to transfer their energies away from production into other entrepreneurial activities, including sending sons and daughters away from the village altogether.

3.2 | Land reform after the 1979 revolution

After the 1979 revolution, demands for land reform primarily came from activists in a newly established revolutionary organization Construction Jihad, as well as from urban-based left-wing parties active in the competition for state power. The rhetoric of these activists was couched in language not dissimilar from the Shah in the early 1960s: the plight of the peasants was due to powerful absentee landlords. Revolutionary intellectuals did not fully take into account the major transformations in the countryside over the past two decades (Amid, 2009). For instance, the Marxist group known as the *Minority Faction of the People's Fadayeen* issued a programme proclaiming their first "immediate action in rural affairs" to be "worker and peasant unity" to be achieved through "the immediate confiscation, without remuneration, of the land and physical capital owned by major landowners, feudalists, religious institutions, and their transfer to peasants and toilers" (People's Fadayeen Organisation, 1983, p. 15).

In a manner more *ad hoc* than its predecessor, the Islamic Republic implemented land redistributions and transfers between 1980 and the early 1990s. These policies fostered an array of social transformations that included the expansion of rural access to health care and education, the limited transfer and redistribution of arable land, and the conversion of urban wasteland into sites for residential property development.

The first post-revolutionary land law was approved in April 1980. The bill was pushed for by Ayatollah Mohammad Beheshti, the founder of the Khomeini-supporting, cleric-led Islamic Republic Party. The bill was radical on paper, insofar as it put all wastelands and pastures, as well as reclaimed lands confiscated by revolutionary tribunals, at the disposal of the state. It also paved the way for the transfer of barren land that had previously been reclaimed under the Pahlavi monarchy but which the previous regime had recognized as private property (Ashraf, 1991; Schirazi, 1993).

Beyond using religious precepts to justify redistributionist measures, the 1980 land bill differed in notable ways from the Shah's land reform. Most importantly, the bill was not designed to dispossess one group and distribute its property to others, but rather aimed at making the state responsible for increasing productivity and bringing unused land into cultivation. Barren and unused land, as well as farm land confiscated from families close to the previous regime, would be transferred *temporarily* to disadvantaged rural groups, remaining in the ultimate possession of the state. In sharp departure from the Shah's policy, unused land would be allocated to landless and land-poor peasants, graduates from agricultural schools, "and individuals interested in agricultural work"—in other words, to the idle, underemployed, and unproductive rural labour force.

However, there was much opposition from within the Islamic Republic Party, both from traditionally-minded religious jurists as well as landholders themselves who feared the overt threat to property rights. Much of the opposition centred on the land bill's clause C, which conditionally authorized the state to claim managerial rights over unused land possessed by landowners. In the end, opposition effectively shelved much of the 1980 land transfer bill (Frings-Hessami, 2001; Schirazi, 1997). From 1984 onwards, land transfers took on a more limited, bureaucratic, and top-down form, protecting larger landlords. Between 1980 and 1990, the beneficiaries of the post-revolutionary land distribution programme totalled around 230,000 families, or about 6% of the rural population (Azkia, 2002).

State land transfers in post-revolutionary Iran were not limited to the countryside, and also included the redistribution and privatization of confiscated properties and wastelands surrounding cities. In the years prior to the revolution, some of these lands had already been occupied by informal settlements. After the revolution, the jurisdictional boundaries of municipalities were redrawn, formally incorporating many of these communities and providing municipal services (Bayat, 1997). By March 1982, the government approved the Law of Urban Land. This bill set the stage for the nationalization and transfer of unused urban land to the Ministry of Housing and Municipalities

in order to “prevent land speculation” and take steps to expand housing supply. However, similar to post-revolutionary rural land transfers, scholars have argued that gradual privatization of land through state-affiliated institutions effectively made swaths of new middle-class households, which had expanded due to the burgeoning of state employment in the post-revolutionary era, the primary beneficiaries of urban land policy. Public employment provided access to housing cooperatives that oversaw much of the land redistributions in this time (Ehsani, 2013). As a result, absentee landownership shifted away from rural holdings and further towards urban and peri-urban areas, with former peasants and small landowners actively engaged in trading and speculating in housing and urban land stocks.

In the early post-revolutionary period, rapid increases in the use of machinery and fertilizers brought much of Iranian farming into the orbit of market exchange. American-road farming communities experienced a limited upturn, as land transfers to local communities were primarily designed to aid the state's effort at achieving self-sufficiency in agricultural production. Yet, at the same time, the Iran–Iraq war (1980–1988) and declining oil revenues reduced agricultural investment and kept the country reliant on imports of foodstuffs. Large-scale urban migration created labour shortages on the land, reducing the profitability of American-road farming in this period (Mojtahed & Esfahani, 1989). Peasants and rural producers were thus faced with pressures to diversify their economic activities into other arenas.

Notably, continuing processes that had begun before 1979, the post-revolutionary land reform programme also included a broad bureaucratic push that tied many landless villagers to the state. This expansion of the state's infrastructural power went much further than what the Shah attempted. Although interested villagers could only receive state land through registered cooperatives, broader land reform also included the establishment of institutions such as the Construction Jihad, rural development houses, and healthcare clinics (Azkia, 2002; Harris, 2017). Even if wealthier peasants may have reaped a larger share of benefits from new revolutionary institutions, many poorer villagers arguably became tied to the state for the first time, potentially laying the basis for subsequent mobility outside of agricultural production (Shakoori, 2001).

In sum, even as Iran underwent urbanization and state expansion in the post-revolutionary period, these large transformations did not take place on a blank slate. Instead, Pahlavi-era land reform contributed to the differentiation of rural social structures. Among the post-revolutionary generation of Iranians who descended from these rural households, new options for labour, migration, and education became available. Yet not all peasant households were created equal in the Pahlavi era. Instead, as documented by anthropologists and historians, varying patterns of peasant differentiation set up differential opportunities for how their descendants could take advantage of these new options. As we argue in the next section, the equalizing effects of the social levelling promoted in the post-revolutionary period did not fully counterbalance previous peasant differentiation brought through land reforms.

4 | MEASURING THE EFFECTS OF LAND REFORM ON INTERGENERATIONAL EDUCATIONAL ATTAINMENT

The Islamic Republic expended much effort on extending educational access to the population. In the immediate post-revolutionary years, a largely volunteer-driven project to alleviate adult illiteracy was implemented in lesser-developed provinces. Primary education was expanded; according to UNESCO, student-teacher ratios fell from an average of 28 in 1977 to 20 in 1983. From 1983 onward, the Islamic Republic also widened access to higher educational credentials. For those families which could credibly present themselves as sacrificing for the 1980s war effort, slots for incoming high school and university cohorts were reserved. In effect, after 8 years of war, the Islamic Republic engaged in a programme akin to the G.I. Bill of the United States (Sakurai, 2004). Given that many rural families sent sons to the war front, expectations increased that those who served in the cause of the revolution would beget privileges upon return. In addition, given that many rural families were reluctant to send their children to Tehran or other provincial capitals, the educational system increasingly came to them, as public and state-backed university systems expanded from the 1990s onwards. As researchers have noted, sending a daughter to university in Tehran is

TABLE 3 Land ownership and leasing patterns among Iran Social Survey respondents

Family Land Status Category	Share of ISS Respondents with Rural Parent(s)	Percentage Leasing Out	N
Landless Rural	36%	N/A	410
Landed	37%	29%	416
Shah	22%	81%	248
IRI	5%	19%	57
Total respondents			1131

Landless rural: respondents with at least one parent originating in rural areas who reported no landholdings for family of either parent or grandparent. Landed: respondents who reported pre-reform landholdings for family of either parent or grandparent. Shah: respondents with at least one parent or grandparent in family which received land during the Pahlavi era. IRI: respondents with at least one parent or grandparent in family which received land during the Islamic Republic era. *Source:* Iran Social Survey, 2016.

often out of the question. Sending her to a university in a nearby town, however, is not only acceptable, but often seen as the easiest route for upward mobility in family status and prestige, not to mention better chances on the marriage market (Habibi, 2015; Hooglund, 2011).

Even in the context of a rapidly expanding educational system in the Islamic Republic, however, differences in relative educational mobility endured among the descendants of rural families depending on their household situation after the Pahlavi-era land reforms. Below, we show that families who received parcels of land under the Pahlavi monarchy are associated with *higher* educational attainment for their children, relative to both landless rural families and, to a large extent, beneficiaries of the Islamic Republic's post-revolutionary land reforms. In other words, we find a surprising degree of persistence of the differentiating effect of the pre-1979 patterns of land ownership into the post-revolutionary period. In this sense, the 1979 revolution was equalizing in some respects, but did not counterbalance the differentiation that occurred among rural households as a result of pre-revolutionary land reform. We show this by utilizing variation in land redistribution and leasing patterns to estimate the effect of different periods of land reform on educational attainment in contemporary Iran, controlling for other socioeconomic factors.

For data, we rely on the nationally representative Iran Social Survey (ISS). The ISS was fielded by the authors in 2016 over landline phone from Tehran to 5005 individuals in randomly-sampled households. In addition to a range of questions on occupation and education, the ISS asked a series of questions about land ownership of the respondents' parents and grandparents. For our analysis, we restrict the sample to individuals aged 55 and below as older cohorts might have benefitted less from post-revolutionary educational expansion. We also omitted all respondents who did not know or refused to answer questions on family land ownership and removed individuals that reported benefitting from both land reforms, in order to isolate the effects of each reform separately. Table 3 provides descriptive statistics of the relative sizes of the groups used in our analysis by their answers to land ownership questions.

Sixty-four percent of respondents under age 56 with one or both parents from rural backgrounds reported that either their father or grandfather (paternal or maternal) owned some land. If the question on family's land ownership was answered in the affirmative, the respondent was asked whether this land was received in part or in its entirety from the Shah's reform programme and/or from post-revolutionary land transfers. To get a rough approximation the relative size of landholdings, the respondent was also asked whether some or all of this land was rented out or others were hired to work on this land. Given the sample size, we define the landless rural broadly as all those respondents who had at least one parent living in the countryside and reported owning no land on either side of the family.²

²*Sample representativeness:* The response rate for the 2016 ISS was 64%, a relatively high rate for phone-based surveys in the global South. Sampling design was based on rural and urban settlement densities derived from the 2011 Iranian census. In Table 3, sample results for beneficiaries from the Pahlavi land reforms roughly correspond to official statistics on the number of beneficiaries estimated in the scholarly historiography (roughly 60% of all rural families). In contrast, ISS results for beneficiaries from the Islamic Republic's land reforms are *higher* than most historical estimates suggest. Only 6% of all rural households received land in the 1980s and 1990s, according to historical records, which is less than half the share found among ISS respondents. We posit this

Source: 2016 Iran Social Survey.

Notes: The proportions shown are transition rates. These rates are calculated as the proportion of students who, having finished primary school, continue into secondary education. The figure includes high school dropouts, graduates, and those entering university.

Landless: respondents with at least one parent originating in rural areas who reported no landholdings for family of either parent or grandparent.

Landed: respondents who reported pre-reform landholdings for family of either parent or grandparent.

Shah: respondents with at least one parent or grandparent in family which received land during the Pahlavi era.

FIGURE 1 Proportion of age cohorts entering high school by rural land status

In Figure 1, we plot the transition rates among age cohorts of respondents which entered into secondary education, disaggregated by family's rural land status. Older cohorts show a higher degree of educational inequality between groups, including those of high-school age before and after the 1979 revolution. However, in evidence of educational expansion under the Islamic Republic in absolute terms, younger respondents from both landless rural families as well as families which obtained land under Pahlavi-era reforms report rates of entering into secondary education similar with respondents from pre-reform landed families.

Even with the absolute expansion in educational access, however, respondents from pre-reform landed families and the Pahlavi-era land beneficiary families tend to have better average outcomes than respondents from landless rural families in terms of educational attainment, urban residency, and occupational status (see descriptive statistics in Table A1). Once we control for the socioeconomic backgrounds of respondents' rural parents, measured via occupation and educational attainment, we find that the Pahlavi-era land reform is positively associated with higher educational outcomes after the 1979 revolution compared with respondents from landless rural families. Given the smaller sample size for respondents reporting post-revolutionary land acquisition, there are some indication to believe that this finding does not generally hold for respondents from families who obtained land after the 1979 revolution, but our results remain inconclusive.³

In order to assess the effect of land ownership and redistribution on educational outcomes holding the socioeconomic backgrounds of respondents' parents constant, we build an ordinary least square regression model and include a range of control variables constructed from ISS data (see full list of variables in Table A2). Our analysis includes respondents aged 56 years and below who had at least one parent living in a rural area when this parent was aged 14. Only respondents whose land ownership status was reported in the ISS were included.⁴ Due to the relatively small sample size of respondents' reported current occupational status, only educational outcomes are

discrepancy is partly explained by the wider scope of land redistributions and transfer in the years after the revolution, which included both rural and urban land, and state transfer, redistribution, and privatization of lands.

³In line with the limited reach of post-revolutionary land reform, a smaller segment of our respondents ($N = 404$) reported receiving land after 1979. After removing those who also received land prior to 1979 and other indeterminate cases, a sample of 74 remained, which is too small to make claims about the effects of these reforms. Separate analyses of the full sample of 404 respondents and other subsets, however, did not yield outcomes different from those presented here.

⁴For those respondents who answered "Don't Know" or did not answer, we found little evidence of systematic underreporting for any rural land group.

evaluated.⁵ Although educational attainment is not a direct measure of social status, class position, or household wealth, higher educational credentialing in Iran is associated with higher wages in the labour market (Haddad & Habibi, 2017).

To measure educational attainment, we use the UNESCO International Standard Classification of Education (ISCED; shown in Table A3). The ISCED scale is one of the most widely-used international scales of educational attainment. We chose to use it primarily for reasons of comparability with other national cases.⁶ The ISCED scale ranges from 0 to 8, where zero means that the individual received no or only pre-primary education and eight means that the respondent completed a doctoral degree. Because the ISS asked about post-graduate education broadly, we collapse level eight with level seven, which equates with a master's degree or above.

For control variables, we include several predictors of higher socioeconomic status from respondents' parents. Parents' education is included by using the highest level achieved by either parent. Fathers' occupational backgrounds are included and grouped into three oft-used categories of non-manual, manual, and farm, which is the distinction most useful to our purposes here. Age, gender, and geographical location of the respondent are also included as control variables.

The construction of variables measuring levels of parents' education might be correlated with fathers' occupational backgrounds, leading to potentially biased estimates of the individual predictors of the control variables. This could be an issue if we were solely interested in measuring the precise effect of parents' education on respondent's education, but the inclusion of both sets of control variables does not change the empirical relationship between our outcome variable (respondent educational attainment) and our predictor variable (family land ownership).⁷ Moreover, the inclusion of both parents' education and fathers' occupation as controls leads to an improved model (see Table A4 and Table A5 for the full models).

Figure 2 displays a regression coefficient plot with 95% confidence intervals shown for each coefficient result. The unit of analysis on the x-axis is the ISCED scale of educational attainment transformed into a 0–100 scale for easier interpretation. A coefficient of 10 on the x-axis corresponds with an average of a 10 percent increase in the respondent group's educational attainment compared to the reference group in the model. The reference category is the *group of respondents from landless rural backgrounds*, defined as respondents with at least one parent who resided in the countryside and reported no landholdings of any parent.

To describe Figure 2 in simple terms: even when we control for the occupational and educational backgrounds of respondents' parents, we find that that respondents from families who benefited from the Pahlavi-era land reform as well as respondents from pre-existing landed families tend to have obtained higher educational attainment compared with respondents from families who benefited from the Islamic Republic's land distribution and respondents from rural families who did not obtain any land at all. Specifically, we estimate that landowning families, whether this land is inherited or gained from the Shah-era reforms, score about 10% higher on the ISCED scale, with a similar 95% confidence range for both groups.

In other words, controlling for the other variables in the model, children from these two groups of landowning families gain on average almost a full educational level in the ISCED scale, compared with a respondent from a

⁵In a separate analysis of relative occupational mobility, using occupational prestige scales as the dependent variable instead of education, we find similar results to those presented here, with one major difference being that beneficiaries of Shah-era land reform indicate even higher occupational mobility relative to the other three groups. Given the small sample size, we do not show these findings here, but they correspond to the argument presented in this article.

⁶We also analysed educational transitions, using logit models to test the effect of family land ownership on the probability of respondent high school attainment (see Table A5) and university attainment. Similar results to the OLS model were found (see Table A4). The simpler OLS model is thus used here for our main figures.

⁷See Allison (2012) on degrees of collinearity and possible impacts on interpretations of statistical findings. As John Levi Martin points out, the justification for inclusion of particular control variables should be theoretically driven rather than merely seeking the optimal fit of a model: "The idea that multicollinearity makes your data inapplicable for regression is silly—that's why we do multiple regression in the first place. We may indeed end up throwing out a variable, but we can't throw out the interpretation that hangs something on that variable" (2018, p. 145). In our case, we tested for the degree of collinearity among variance in our control variables using the variance inflation factor (VIF) statistic and found a mean VIF of 1.37. VIFs of 2.5 or greater are usually interpreted as indicative of considerable collinearity.

Source: 2016 Iran Social Survey.

Notes: X-axis is the 7-unit ISCED ranking rescaled to 0-100.

OLS model coefficient plot for educational attainment of respondents descended from pre-existing landed families; families who received land during the Pahlavi era (Shah); families who received land during the Islamic Republic (IRI); with the reference category set as respondents descended from landless rural families.

Observations=1,041; control variables included for age, rural residence, parents' education and parents' occupation; full models shown in Appendix, Table A4

FIGURE 2 Bivariate effects of land ownership on educational attainment

landless rural background. Thus, for instance, an urban male respondent whose father finished primary school and had a manual labour occupation is expected on average to finish upper-secondary education if he comes from a landless rural background. If that same person came from a family that received land from the Shah, he would be predicted on average to have gained some sort of post-secondary vocational training. In sum, the Pahlavi-era land reform is associated with increased higher educational attainment in the next generation, as compared with both post-revolutionary land recipients and landless families.

In Figure 3, we divide up our sample of respondents into two age cohorts. The oldest cohort (aged 41–55) would have begun primary education, if enrolled, before the 1979 revolution. The second cohort (aged 26–40) began primary education after the 1979 revolution. The results from disaggregating by cohort are in line with the analysis presented above. The educational advantage associated with inherited or Pahlavi-distributed landownership does not disappear across cohorts. In other words, despite rapid educational expansion that has made it much easier for many in Iran to gain access to schooling, as well as inflated the average level of schooling through higher absolute

Source: 2016 Iran Social Survey.

Notes: X-axis is the 7-unit ISCED ranking rescaled to 0-100.

OLS model coefficient plot for educational attainment of respondents descended from pre-existing landed families; families who received land during the Pahlavi era (Shah); with the reference category set as respondents descended from landless rural families. Families who received land during the Islamic Republic not shown due to small sample sizes;

Observations=1,041; 95% confidence intervals shown; control variables included for rural residence, parents' education and parents' occupation; full models shown in Appendix, Table A4

FIGURE 3 Bivariate effects of land ownership on education by age cohort

attainment of educational credentials, the relative mobility for these two landowning groups via educational attainment does not seem to be disappearing over time.

Why is land ownership associated with such a persistent stratifying effect on educational outcomes, expressed over generations? One argument would be that land ownership implies real upward class mobility in terms of ownership over the means of production. Therefore, owners of large landed estates are members of a different class from land poor families, giving them an advantage in transforming economic capital obtained from land use into children's educational attainment. However, this argument is not entirely supported by scholarship on pre-revolutionary reforms, nor by our data. In particular, as noted above, many beneficiaries of the Pahlavi-era reforms obtained plots of land *too small for social reproduction*, often forcing them to sell off their labour to nearby towns or larger farmers.

To test this argument, the ISS contains data on whether families engaged in land leasing, which can be used as a proxy for landholding size. In Figure 4, we plot the correlations between respondent educational attainment and whether family land was leased out or not. Although differences between leasing and non-leasing family landholding arrangements for respondent educational attainment can be seen, these are not large enough to make significant claims, given our sample size.

In other words, using land-leasing as a proxy for larger landholdings suggests that the economic capital associated with land ownership is not particularly determinate in association with relative educational advantage. Following Arrighi, we would thus argue that closer attention needs to be paid to local patterns of social differentiation which took place through land reform, and the historically specific routes by which landholding, whether as economic capital proper or as another form of social power, was converted into educational credentials.

Given the limitations of our data, we can only speculate about how such capital conversion might have taken place in reality. A first route through which capital might be converted is through urbanization. The conversion of usufruct land rights into areas for peri-urban real estate development has been recognized as a tenuous, and often temporary, route for upward social mobility in other parts of the global South. Scholars of Iran have similarly pointed to the commodification of land and the growth of labour markets in areas surrounding cities which might have favoured nearby small-plot landholders (Ehsani, 2006; Hegland, 2011).

Another possible route concerns status distinction attached to land ownership in Iran. For many urban and middle-class families, owning even a small plot of land in the countryside (*bagh*) can be utilized for purposes of status distinction. Thus, one could argue that a lagged upward mobility in social prestige has occurred for those families that received even small plots of land in the 1960s, in turn positively affecting educational outcomes of children. Future research should investigate more extensively the mechanisms by which land ownership is converted into relatively higher educational credentials.

Source: 2016 Iran Social Survey.

Notes: X-axis is the 7-unit ISCED ranking rescaled to 0-100.

OLS model coefficient plot for educational attainment of respondents descended from pre-existing **landed** families; families who received land during the Pahlavi era (**Shah**); families who received land during the Islamic Republic (**IRI**); with the reference category set as respondents descended from landless rural families.

Observations=1,041; control variables included for age, rural residence, parents' education and parents' occupation; full models shown in Appendix, Table A4

FIGURE 4 Bivariate effects of land ownership on education by leasing patterns

In sum, using data from the ISS, we showed that descendants of rural families which benefited from the Pahlavi monarchy's land reform tend to have higher educational outcomes than their contemporaries who descended from landless rural families or families which received land after the 1979 revolution. Although the range of possible historical pathways through which such accumulated advantages were transferred requires further research, our analysis suggests that the Pahlavi-era land reform positively affected educational outcomes up until second- and third-generation offspring in Iran. In particular, beneficiaries of the Shah's land reform have on average similar levels of educational mobility as those respondents from pre-existing landed families.

5 | CONCLUSION

Early in his career, Giovanni Arrighi paid attention to the differentiation of rural social structures resulting from historical shocks. In addition, he traced out the lasting effects of this social differentiation on subsequent generations in both rural and urban areas. In doing so, Arrighi joined together questions of agrarian political economy with questions concerning the livelihoods of rural migrants and the fate of peasant communities as they dissipated. We extended this approach to trace out how social differentiation across peasant communities affected the accumulation of social advantage in subsequent generations.

In this article, we used the case of Iran to examine how the process of land redistribution links to subsequent trends in social stratification and relative social mobility. First, we argued that land reform implemented during the reign of Mohammad Reza Shah Pahlavi contributed to a heterogenous social differentiation of the Iranian peasantry. Second, we claimed that the widening of access to credentials fostered by Ayatollah Ruhollah Khomeini's Islamic Republic laid the tracks by which peasants and rural households could convert landholding assets into new forms of social and cultural capital. The benefits of these transformational processes, however, fell disproportionately to a portion of the newly landed peasantry. In summary, we showed how pre-1979 land reform in Iran favoured segments of the peasantry, not for those who remained in rural agricultural production, but for those who utilized these newly acquired landholdings as a means to transfer status and opportunities to their children after the 1979 Iranian revolution.

Given that many families which benefited from land reform in Iran did not formally own land prior to it, the social differentiation of the Iranian countryside during the 1960s–1970s arguably produced the “middle peasantry” hoped for by the Pahlavi monarchy's modernizers and critics alike. Those families left out of that era's land reform are often portrayed as a rural lumpenproletariat which, once migrated to cities, formed the mass social base of the Islamic Republic. The Islamic Republic engaged in wide-ranging social policies with a purpose of levelling inherited inequalities and generating new pathways of upward social mobility, including additional distribution of land. Yet those lower strata, often believed to be both the target of post-revolutionary policies as well as their beneficiaries, did not catch up on the whole with the generational offspring of Iran's Pahlavi-era landed families in the post-revolutionary era.

If our argument is plausible, it shows that intergenerational transmission of landholding assets into other forms of social power, especially in a rapidly credentialing society, can offset the attempt of a revolutionary state to reverse the inequalities it inherited from the old regime. Indeed, the equalizing effects of the 1979 revolution, through educational expansion and land distribution, did not seem to counterbalance the earlier effects of social differentiation spurred by the Pahlavi monarchy's land reform programme. Rather than turning the tide, the Islamic revolution rode on top of the wave of the White revolution.

ORCID

Kevan Harris <https://orcid.org/0000-0003-2660-3638>

REFERENCES

- Abrahamian, E. (1993). *Khomeinism: Essays on the Islamic Republic*. Berkeley, CA: University of California Press.
- Allison, P. (2012). When can you safely ignore multicollinearity? *Statistical Horizons Blog*, 10 September. <http://statisticalhorizons.com/multicollinearity>. Accessed 15 November 2018.

- Amid, J. (2009). Land reform in post-revolutionary Iran revisited. *Middle East Critique*, 18(1), 73–87. <https://doi.org/10.1080/10669920802685206>
- Arrighi, G., Aschoff, N., & Scully, B. (2010). Accumulation by dispossession and its limits: The Southern Africa paradigm revisited. *Studies in Comparative International Development*, 45(4), 410–438. <https://doi.org/10.1007/s12116-010-9075-7>
- Arrighi, G., & Piselli, F. (1987). Capitalist development in hostile environments: Feuds, class struggles, and migrations in a peripheral region of southern Italy. *Review (Fernand Braudel Center)*, 10(4), 649–751.
- Ashraf, A. (1991). State and agrarian relations before and after the Iranian Revolution, 1960–1990. In F. Kazemi, & J. Waterbury (Eds.), *Peasant politics in the modern middle east* (pp. 277–327). Miami, FL: Florida International University Press.
- Azkiya, M. (2002). Rural society and revolution in Iran. In E. Hooglund (Ed.), *Twenty years of Islamic revolution: Political and social transition in Iran since 1979* (pp. 96–119). Syracuse, NY: Syracuse University Press.
- Azkiya, M., & Firouzabadi, S. (2006). The role of social capital in the creation of rural production associations: A case study of the Karkheh Dam watershed basin. *Critique: Critical Middle Eastern Studies*, 15(3), 295–315.
- Azkiya, M., & Ghafari, G. (2004). *Rural development: With an emphasis on the rural society of Iran [Tawsi'ah-i rustayi: Ba ta'kid bar jami'ah-i rustayi-i Iran]*. Tehran: Ney Publishing.
- Bayat, A. (1997). *Street politics: Poor people's movements in Iran*. New York: Columbia University Press.
- Byres, T. (2004). Introduction: Contextualizing and interrogating the GKI case for redistributive land reform. *Journal of Agrarian Change*, 4(1–2), 1–16. <https://doi.org/10.1111/j.1471-0366.2004.00070.x>
- Campling, L., Miyamura, S., Pattenden, J., & Selwyn, B. (2016). Class dynamics of development: A methodological note. *Third World Quarterly*, 37(6), 1745–1767. <https://doi.org/10.1080/01436597.2016.1200440>
- Dasgupta, A. (2017). Land reform in Kerala and West Bengal: Two stories of left reformism and development. In A. P. D'Costa, & A. Chakraborty (Eds.), *The land question in India: State, dispossession, and capitalist transition* (pp. 242–264). Oxford: Oxford University Press.
- Deluguian, G. (2005). *Bourdieu's secret admirer in the Caucasus: A world-system biography*. Chicago, IL: University of Chicago Press.
- Ehsani, K. (2006). Rural society and agricultural development in post-revolution Iran: The first two decades. *Critique: Critical Middle Eastern Studies*, 15(1), 79–96.
- Ehsani, K. (2013). The politics of property in the Islamic Republic of Iran. In S. A. Arjomand, & N. Brown (Eds.), *The rule of law, Islam, and constitutional politics in Egypt and Iran* (pp. 153–178). Albany, NY: State University of New York Press.
- Enayat, H. (2013). *Law, state, and society in modern Iran: Constitutionalism, autocracy, and legal reform, 1906-1941*. New York: Palgrave Macmillan. <https://doi.org/10.1057/9781137282026>
- Erikson, R., & Goldthorpe, J. (1992). *The constant flux: A study of class mobility in industrial societies*. New York: Clarendon Press.
- Frings-Hessami, K. (2001). The Islamic debate about land reform in the Iranian parliament, 1981–86. *Middle Eastern Studies*, 37(4), 136–181. <https://doi.org/10.1080/714004419>
- Goodell, G. (1986). *The elementary structures of political life: Rural development in Pahlavi Iran*. Oxford: Oxford University Press.
- Griffin, K., Khan, A. R., & Ickowitz, A. (2002). Poverty and the distribution of land. *Journal of Agrarian Change*, 2(3), 279–330. <https://doi.org/10.1111/1471-0366.00036>
- Habibi, N. (2015). *Iran's overeducation crisis: Causes and ramifications*. Middle East Brief 89, Crown Center for Middle East Studies. Boston, MA: Brandeis University.
- Haddad, G. K., & Habibi, N. (2017). Vertical skill mismatch and wage consequences in low-skilled jobs: Evidence from Iran. *International Labour Review*, 156(1), 45–72. <https://doi.org/10.1111/ilr.12000>
- Harris, K. (2017). *A social revolution: Politics and the welfare state in Iran*. Oakland, CA: University of California Press.
- Hegland, M. (2011). Aliabad of Shiraz: Transformation from village to suburban town. *Anthropology of the Middle East*, 6(2), 21–37.
- Hegland, M. (2013). *Days of revolution: Political unrest in an Iranian village*. Stanford, CA: Stanford University Press.
- Hooglund, E. (1982). *Land and revolution in Iran, 1960–1980*. Austin, TX: University of Texas Press.
- Hooglund, E. (2011). Changing attitudes among women in rural Iran. In R. Bahrmitash, & E. Hooglund (Eds.), *Gender in contemporary Iran: Pushing the boundaries* (pp. 120–135). London: Routledge.
- Iranian Studies (1983). Current political attitudes in an Iranian village. *Iranian Studies*, 16(1/2), 3–29.

- Karshenas, M. (2004). "Urban bias," intersectoral resource flows and the macroeconomic implications of agrarian relations: The historical experience of Japan and Taiwan. *Journal of Agrarian Change*, 4(1–2), 170–189. <https://doi.org/10.1111/j.1471-0366.2004.00077.x>
- Katouzian, H. (1974). Land reform in Iran: A case study in the political economy of social engineering. *The Journal of Peasant Studies*, 1(2), 220–239. <https://doi.org/10.1080/03066157408437885>
- Kazemi, F. (1980). *Poverty and revolution in Iran: The migrant poor, urban marginality, and politics*. New York: New York University Press.
- Kazemi, F., & Abrahamian, E. (1978). The nonrevolutionary peasantry of modern Iran. *Iranian Studies*, 11(1/4), 259–304. <https://doi.org/10.1080/00210867808701546>
- Lahsaeizadeh, A. (1993). *Contemporary rural Iran*. Brookfield, VT: Avebury.
- Lambton, A. K. S. (1969). *The Persian land reform, 1962–1966*. Oxford: Clarendon Press.
- Lambton, A. K. S. (1984). Review of E. Hooglund, Land and revolution in Iran. *Iranian Studies*, 17(1), 73–84. <https://doi.org/10.1080/00210868408701622>
- Loeffler, R. (2011). The ethos of progress in a village in Iran. *Anthropology of the Middle East*, 6(2), 1–13. <https://doi.org/10.3167/ame.2011.060202>
- Mahdavy, H. (1983). Considerations about the land question in Iran [Mulahizati dar mawrid-i mas'alah-i arzi-yi Iran]. In *Kitab agah: Majmu'ah-i maqalat dar bareh-i Iran va khavar-i miyanah* (pp. 167–190). Tehran: Agah.
- Majd, M. G. (2000). Small landowners and land distribution in Iran, 1962–71. *International Journal of Middle East Studies*, 32(1), 123–153. <https://doi.org/10.1017/S0020743800021073>
- Majd, M. G., & Nowshirvani, V. (1993). Land reform in Iran revisited: New evidence on the results of land reform in nine provinces. *The Journal of Peasant Studies*, 20(3), 442–458. <https://doi.org/10.1080/03066159308438517>
- Martin, J. L. (2018). *Thinking through statistics*. Chicago, IL: University of Chicago Press. <https://doi.org/10.7208/chicago/9780226567778.001.0001>
- Mojtahed, A., & Esfahani, H. (1989). Agricultural policy and performance in Iran: The post-revolutionary experience. *World Development*, 17(6), 839–860. [https://doi.org/10.1016/0305-750X\(89\)90006-5](https://doi.org/10.1016/0305-750X(89)90006-5)
- Najmabadi, A. (1987). *Land reform and social change in Iran*. Salt Lake City, UT: University of Utah Press.
- Oyvatt, C. (2016). Agrarian structures, urbanization, and inequality. *World Development*, 83(July), 207–230. <https://doi.org/10.1016/j.worlddev.2016.01.019>
- Pennock, A. (2014). The political economy of domestic labor mobility: Specific factors, landowners, and education. *Economics and Politics*, 26(1), 38–55. <https://doi.org/10.1111/ecpo.12025>
- People's Fadayeen Organisation. (1983). On the action plan of the organisation of Iranian people's Fada'i Guerrillas [Huli barnamahi-yi amali sazmani chirikhai-yi fada'i-yi khalq-i Iran]. s.l.: Organization of Iranian People's Fada'i Guerillas.
- Sakurai, K. (2004). University entrance examination and the making of an Islamic society in Iran: A study of the post-revolutionary Iranian approach to "konkur". *Iranian Studies*, 37(3), 385–406. <https://doi.org/10.1080/0021086042000287505>
- Schirazi, A. (1993). *Islamic development policy: The agrarian question in Iran*. Boulder, CO: Lynne Rienner Publishers.
- Schirazi, A. (1997). *The constitution of Iran: Politics and the state in the Islamic Republic*. London: I.B. Tauris.
- Scott, J. (2010). *The art of not being governed: An anarchist history of upland Southeast Asia*. New Haven, CT: Yale University Press.
- Sender, J., & Johnston, D. (2004). Searching for a weapon of mass production in rural Africa: Unconvincing arguments for land reform. *Journal of Agrarian Change*, 4(1–2), 142–164. <https://doi.org/10.1111/j.1471-0366.2004.00075.x>
- Shakoori, A. (2001). *State and rural development in post-revolutionary Iran*. New York: Palgrave Macmillan. <https://doi.org/10.1057/9780230513433>
- Torche, F. (2014). Intergenerational mobility and inequality: The Latin American case. *Annual Review of Sociology*, 40, 619–642. <https://doi.org/10.1146/annurev-soc-071811-145521>
- Wegenast, T. (2009). The legacy of landlords: Educational distribution and development in a comparative perspective. *Zeitschrift für Vergleichende Politikwissenschaft*, 3(1), 81–107. <https://doi.org/10.1007/s12286-009-0023-8>

How to cite this article: Harris K, Kalb Z. Pen to the tiller: Land reform and social mobility across the 1979 Iranian revolution. *J Agrar Change*. 2019;19:465–486. <https://doi.org/10.1111/joac.12321>

APPENDIX A

TABLE A1 Socioeconomic outcomes for ISS respondents from differing rural backgrounds

	Landed	Shah	IRI	Landless
High School Completion	67% (416)	56% (248)	61% (57)	44% (410)
Professional Occupation	26% (141)	27% (99)	5% (19)	11% (114)
Urban Residence	64% (416)	55% (248)	54% (57)	52% (410)

Note. *Landless* rural: respondents with at least one parent originating in rural areas who reported no landholdings for family of either parent or grandparent. *Landed*: respondents who reported pre-reform landholdings for family of either parent or grandparent. *Shah*: respondents with at least one parent or grandparent in family which received land during the Pahlavi era. *IRI*: respondents with at least one parent or grandparent in family which received land during the Islamic Republic era. Sample sizes in parentheses. *Source*: Iran Social Survey, 2016.

TABLE A2 International standard classification of education (2011 Index)

Educational attainment	ISCED interval score
<Primary education	0
Primary education	1
Lower secondary education	2
Upper secondary education	3
Post-secondary non-tertiary education	4
Short-cycle tertiary education	5
Bachelor's or equivalent	6
Master's or above	7

TABLE A3 Description of variables used in OLS and logit models

Variable	Description	Measurement
Rural	Respondent lived in rural area (settlement under 5,000 individuals)	binary
Parents' Education	Highest ISCED score of either parent	ISCED scale
Non-manual	Occupation classification of father coded according to EGP schema	binary
Manual	Occupation classification of father coded according to EGP schema	binary
Farm (owner or worker)	Occupation classification of father coded according to EGP schema	binary
Landed	Father and/or grandfathers owned land and not beneficiary of either reform	binary
Shah	Father and/or grandfathers were beneficiary of Pahlavi land reform	binary
IRI	Father and/or grandfathers were beneficiary of post-revolutionary land reform	binary

Note: A breakdown of the EGP classification scheme is in Erikson and Goldthorpe (1992)

TABLE A4 OLS regression of education on land reform (Source: 2016 Iran Social Survey)

	Dependent variable: Educational Attainment (ISCED Scale)							
	Base				Full	Leasing	Cohort I	Cohort II
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Age		-0.09*** (0.01)	-0.09*** (0.01)	-0.08*** (0.01)	-0.08*** (0.01)	-0.08*** (0.01)	-0.11*** (0.02)	-0.09*** (0.02)
Age 18–25		-1.09*** (0.22)	-0.97*** (0.22)	-1.05*** (0.21)	-1.04*** (0.21)	-1.0*** (0.21)		
Male		0.58*** (0.12)	0.70*** (0.11)	0.72*** (0.11)	0.74*** (0.11)	0.72*** (0.11)	0.60*** (0.16)	1.04*** (0.18)
Rural			-1.03*** (0.11)	-0.90*** (0.11)	-0.87*** (0.12)	-0.86*** (0.11)	-0.83*** (0.17)	-1.05*** (0.18)
Parents' Education				0.38*** (0.05)	0.34*** (0.06)	0.32*** (0.06)	0.40*** (0.08)	0.58*** (0.13)
Non-Manual					0.31* (0.17)	0.30* (0.17)	0.16 (0.25)	0.56** (0.26)
Manual					0.11 (0.13)	0.09 (0.13)	-0.01 (0.19)	0.11 (0.20)
Landed	0.97*** (0.14)	0.94*** (0.13)	0.83*** (0.13)	0.68*** (0.13)	0.69*** (0.13)		0.88*** (0.19)	0.43** (0.21)
Shah	0.68*** (0.16)	0.78*** (0.16)	0.76*** (0.15)	0.68*** (0.15)	0.70*** (0.15)		0.79*** (0.23)	0.64*** (0.22)
IRI	0.72** (0.28)	0.38 (0.27)	0.31 (0.26)	0.28 (0.25)	0.30 (0.25)		0.32 (0.33)	0.74 (0.54)
No Rent: Landed						0.56*** (0.14)		
No Rent: Shah						0.54** (0.27)		
No Rent: IRI						0.38 (0.28)		
Leasing: Landed						1.03*** (0.19)		
Leasing: Shah						0.75*** (0.16)		
Leasing: IRI						-0.004 (0.53)		
Constant	2.39*** (0.10)	5.52*** (0.32)	6.13*** (0.31)	5.28*** (0.33)	5.19*** (0.34)	5.22*** (0.34)	6.11*** (0.74)	5.67*** (0.95)
Observations	1,041	1,041	1,041	1,041	1,041	1,041	447	461
R ²	0.04	0.17	0.23	0.27	0.27	0.27	0.30	0.25

Standard errors in parentheses. Cohort I and II refers to respondents aged 26–40 and 41–55, respectively.

* $p < .1$; ** $p < .05$; *** $p < .01$.

TABLE A5 Logit regression of education on land reform (Source: 2016 Iran Social Survey)

	Dependent variable: High School Attainment							
	Base (1)	(2)	(3)	(4)	Full (5)	Leasing (6)	Cohort I (7)	Cohort II (8)
Age		-0.09*** (0.01)	-0.11*** (0.01)	-0.08*** (0.01)	-0.08*** (0.01)	-0.09*** (0.01)	-0.13*** (0.03)	-0.09*** (0.03)
Age 18–25		-0.07 (0.29)	0.06 (0.30)	-0.13 (0.32)	-0.11 (0.32)	-0.13 (0.32)		
Male		0.38*** (0.14)	0.57*** (0.15)	0.68*** (0.16)	0.69*** (0.16)	0.67*** (0.16)	0.53** (0.23)	1.18*** (0.26)
Rural			-1.34*** (0.15)	-1.19*** (0.16)	-1.17*** (0.16)	-1.17*** (0.16)	-1.03*** (0.25)	-1.45*** (0.26)
Parents' Education				0.91*** (0.12)	0.87*** (0.12)	0.87*** (0.12)	0.77*** (0.18)	1.44*** (0.26)
Non-Manual					0.34 (0.24)	0.34 (0.24)	0.64 (0.39)	0.33 (0.34)
Manual					-0.02 (0.17)	-0.03 (0.17)	-0.05 (0.26)	0.20 (0.27)
Landed	0.88*** (0.15)	1.04*** (0.16)	0.99*** (0.17)	0.80*** (0.18)	0.80*** (0.18)		0.90*** (0.27)	0.73** (0.28)
Shah	0.40** (0.17)	0.74*** (0.19)	0.78*** (0.19)	0.68*** (0.20)	0.68*** (0.20)		0.55* (0.32)	0.88*** (0.30)
IRI	0.70** (0.30)	0.45 (0.32)	0.41 (0.34)	0.47 (0.35)	0.48 (0.35)		0.36 (0.44)	0.94 (0.70)
No Rent: Landed						0.71*** (0.19)		
No Rent: Shah						0.30 (0.37)		
No Rent: IRI						0.42 (0.38)		
Leasing: Landed						1.07*** (0.28)		
Leasing: Shah						0.78*** (0.22)		
Leasing: IRI						0.74 (0.80)		
Constant	-0.22** (0.10)	2.90*** (0.38)	3.98*** (0.43)	2.66*** (0.46)	2.67*** (0.48)	2.72*** (0.48)	4.17*** (1.10)	2.52* (1.30)
Observations	1,063	1,063	1,063	1,063	1,063	1,063	450	462
Akaike Inf. Crit.	1,431.54	1,273.54	1,193.02	1,112.83	1,114.39	1,117.15	484.05	495.06

Standard errors in parentheses. Cohort I and II refers to respondents aged 26–40 and 41–55, respectively.

* $p < .1$; ** $p < .05$; *** $p < .01$.