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THE FABLE OF LAND REFORM:
EXPROPRIATION AND REDISTRIBUTION
IN OCCUPIED JAPAN

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**The Fable of Land Reform:
Expropriation and Redistribution in Occupied Japan**

By J. Mark Ramseyer*

Abstract: Land reform will not just reduce rural poverty, write development officials. It can raise productivity. It can promote civic engagement. Scholars routinely concur. Land reform may not always raise productivity and civic engagement, but it can -- and during 1947-50 in occupied Japan it did.

This account of the Japanese land reform program is a fable, a story officials and scholars tell because they wish it were true. It is not. The program did not hasten productivity growth. Instead, it probably retarded it. The areas with the most land transferred under the program did not experience the fastest rates of productivity growth. They experienced the slowest.

Land reform reduced agricultural growth rates by interfering with the allocation of credit. A tenancy contract is a lease, and a lease is a capital market transaction. By precluding the use of leases, land reform effectively increased the cost of capital, reduced the amount of credit, and reduced the accuracy with which investors could target that credit. Banks provide an obvious alternative source of credit -- and post-land-reform, the areas with the fastest growth rates were those areas with the best access to those banks.

The fable of land reform rests on a fictitious account of pre-war Japan. Scholars assume tenancy rates reflected poverty levels. They did not. Instead, they reflected levels of social capital. Leases were not most common in the poorest communities. Given their character as capital market transactions, they were most common in those communities where investors could turn to social networks to induce farmers to keep their word.

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The end came in August. The war had been long and it had been brutal, but it came to an abrupt stop in the summer of 1945. To run the now-defeated Japan, U.S. President Harry Truman sent Army General Douglas MacArthur. In form, MacArthur ran the country on behalf of all allies (SCAP; for Supreme Command of the Allied Powers). In truth, he ran it for Truman.

Over the course of the next several years, MacArthur's staff would dictate the terms of a draconian "land reform" program. In 1941, Japanese farmers had cultivated 5.81 million hectares (1 hectare = 10,000 square meters, or 2.47 acres).¹ Of that amount, they had owned 3.13 million hectares (54 percent) and rented 2.68 million (Teruoka, 2003, 133; Nochi, 1957, 647). They had farmed 3.17 million hectares of irrigated rice paddies. Of that, they had owned 1.48 million hectares (47 percent) and rented 1.69 million (id.).

Through the Japanese government, MacArthur's staff expropriated 1.76 million hectares (66 percent) of the rented land from its owners and gave it to its renters. For obvious rhetorical ends, they spoke of taking the land from the "feudal" and "parasitic" landlords and giving it to their "immiserated" "peasants." Of the rented paddies, they expropriated 996 thousand hectares (59 percent). Nominally, the Japanese government paid for the land and resold it to the renters. In truth, it paid so little that it effectively "took" the land. It charged so little that it effectively gave it away.

Scholars immediately declared the program a "success," and in the academic imagination a success it has remained ever since. Six decades past, it continues to inspire development economists, officials and consultants at the World Bank and United Nations, and assorted populist politicians. At the hands of men like Robert Mugabe, "land reform" elsewhere has often lurched from blood bath to famine (Economist, 2002). In the development canon, the Japanese program has stood guard to the faith that it need not be so. Done right, World Bank and U.N. officials and development scholars insist, land reform can slash rural poverty. It can spur agricultural productivity. It can promote civic engagement. Done as it was done in Japan, it can fulfill the faith that they confide in it.

In fact, the standard account of Japanese land reform is a fable -- a tale that World Bank officials, U.N. consultants, and development scholars apparently tell and re-tell because they wish it were true. The Japanese program did not speed productivity growth. Instead, it slowed it. In many areas, the leases had served as the mechanism by which investors extended credit to farmers. Through the leases, cultivators had tapped the funds that wealthier investors could raise. Through the leases, men and women with access to

¹ The traditional Japanese measure for area is one "cho," which in turn is 10 "tan." Because 1 cho is 0.9917 hectare, I treat cho and hectare interchangeably.

capital had invested in agricultural projects -- from large-scale irrigation programs, to technological improvements, to fertilizer loans.

Land reform blocked this mutually advantageous market for credit. Post-reform, farmers owned almost all the land, but many of them lost their access to additional capital. Post reform, farmers were richer, but no longer had access to the extra funds they needed to repair dikes, to fix sluices, to experiment with alternative equipment, fertilizers, and pesticides. Cited regularly by development economists and World Bank and U.N. officials as an example of the way redistribution can increase the rate of productivity growth, the program did nothing of the sort. Instead, it slashed it.

I begin by summarizing the "fable" of land reform (Sec. I). I describe the Japanese agricultural sector in the mid-20th century (Sec. II). I explain the terms of MacArthur's land reform program (Sec. III). And I note the puzzles posed by the standard accounts of land reform (Sec. IV).

With prefecture-level data (for many variables, the prefecture is the smallest unit available), I then ask which areas showed the greatest gains in productivity after the redistribution. If, as scholars insist, the land reform increased incentives to produce, then the productivity gains should have been largest in the prefectures where the government transferred the biggest fraction of land. They were not. Instead, the prefectures with the largest transfers under the program show the lowest gains in productivity in the early 1950s (Sec. V.A., B.). I ask whether those prefectures where the government transferred large amounts of land invested more heavily in new paddies during the 1950s. They did not (Sec. V.C.).

To explore what function leasing might have served in pre-war Japan, I ask where people most commonly used these leases before the war (Sec. V.D.). Although scholars have assumed that people used them where farmers were too poor to buy, the data suggest (the inquiry here is more tentative) otherwise: people negotiated them where social capital was high. Reflecting the fact that a lease is a financial contract, investors most readily leased land where the networks of stable social relationships most reliably ensured that their renters kept their part of the bargain.

I conclude by addressing two additional issues. First, I test the many claims that the land reform program increased civic engagement in the countryside (Sec. V.E.). Second, I explain how the broader legal changes introduced with land reform stymied the use of more efficient farming techniques (Sec. VI.).

I. The Fable

A. Land Reform and Development:

Much has happened since SCAP ordered "land reform" in Japan, but development officials and scholars continue to promote the strategy. To be sure, they may not champion it with quite the zeal MacArthur's staff showed in 1946. They have seen too many Mugabes in the interim. Chastened as they may be, however, they retain the basic faith. And to justify their commitment, they cite the experience in Japan. Given the right conditions, they argue, land reform can "work." It worked in Japan in 1946-50, and it can work in the rest of the world today.

Crucial to the notion that land reform "worked" in Japan has been the claim that it raised productivity. Take the World Bank. The Bank has promoted -- and continues to promote -- land reform in the third world, and justifies its efforts in part on the ground of

productivity. Land reform boosts productivity, promise its officers (Deininger, 2012, 241; Deininger & van den Brink, 2000). "Theory and empirical evidence suggest that widespread ownership of land not only improves equity but also improves land productivity" (World Bank, 1993, 160). For support, they cite Japan (id.).

United Nations officers have similarly championed land reform. In one sponsored study (Ghai, et al., 1979, 9; see United Nations, 1976), for example, they declare that "radical land reform can, at a stroke, remove the deadweight of landlordism and install a system of egalitarian peasant farming which ensures growth without mass destitution." Again, they use Japan to justify that confidence (Berry & Cline, 1979): "land reform in the early 1950s proved extremely successful in Japan, Taiwan, and Korea."²

Academic development economists often make similar claims. In the Handbook of Development Economics, Hans Binswanger and co-authors (1995, 2685) write that land reform can give "stronger incentives for tenant-owners to work and invest in their farms and [lead] to increases in output and productivity." They then give Japan as a prominent example of such "successful land reforms" (see also Dorner, 1972, 126-27). Even Barry Weingast (Magaloni, Weingast & Daiz-Cayeros, 2008, 21) and his co-authors claim that "[l]and reform has promoted growth in China ..., Japan, Korea, and Taiwan.

B. Scholars of Japan:

Many scholars of Japan have supported these claims about productivity. Farmers who own rather than rent have stronger incentives to boost production, they explain.³ For instance, economic historian Ryoichi Miwa (2012, 164-65) reasons that:

Because land reform dissolved the landlord system, farmers were able to keep all of the income from the land that they now owned. This increased their incentive to work and improve their lands. By giving them the resources to invest in agriculture, it also raised their ability radically to increase agricultural productivity.

Similarly, prominent University of Tokyo scholar, Takafusa Nakamura (1995, 29-30), writes:

[T]his stringent reform had the effect of rapidly increasing the productive capacity of rice-growing land in such areas as Hokkaido, Tohoku, Hokuriku, and Tozan -- generally the northeast half of Japan -- where large landlords had been especially powerful After the transfer of property rights, land improvements were carried out on a large scale and combined with the introduction of new rice-growing technology to raise the level of agricultural productivity.

In the most careful study of the Japanese program in English, however, sociologist Ronald Dore reported a curious puzzle. The reforms must have raised productivity, Dore reasoned. By the late 1950s Japanese farms had grown more productive, and "land reform must be given considerable credit" (Dore, 1959, 216). After all, he mused, the program let renters avoid landlords who might have fought change. It

² In part, the "land reform" in Korea and Taiwan involved the return to farmers of land that had been controlled by the Japanese during their occupation of the country. See generally Mitchell (1949).

³ The claims that land reform increased the farmer's incentive to raise production are extremely common: e.g., Sasaki (2005, 738); Shimizu (2007, 345); Takagi (2008, 42); Moehwald (2004, 264); Kosai (1986, 22); Teruoka (2003, 138); Minami (1986, 70); Isobe (1979, 4).

gave renters "greater incentive to carry out improvements on, and to maintain the fertility of, the land" (id., 216). It offered them the "psychological" benefit of believing that "their future [was] in their hands" (id., 217). And it supplied them with the capital they would need for any improvements.

Given all this, in Dore's mind the reform had to have increased productivity. Yet the data left him puzzled. The evidence simply was not there. Dore worried that it showed no sign that the reform had raised productivity, and scrupulously reported the puzzle to his readers. Productivity must have increased, he wrote, but the evidence did not show it (id., 217).

II. Japanese Agriculture at Mid-Century

A. Wet Rice Farming:

Turn then to the Japanese experience. Rice lies at the core of the Japanese diet. People eat less rice now than they did in mid-century, but they still eat much. In 1965, the typical Japanese obtained over 40 percent of his calories from rice; by 2006, he still took over 20 (Takagi, 2008, 31). In 1957, he ate 88 kg of rice a year; by 2000, he still ate 59 kg (Sato, 2002). To this rice, he traditionally added wheat, barley, soybeans, eggs, vegetables, and fish. In 2010, Japanese farmers grew 571 thousand tons of wheat, 148 thousand tons of barley, 223 thousand tons of soybeans, and 13.4 million tons of vegetables. They grew 8.48 million tons of rice (Norin sho, 2012, 196)

Farmers raise this rice in meticulously irrigated paddies. Each field represents a major capital investment. For most crops, farmers anywhere will need to plow, fertilize, weed, and harvest their field. To grow rice in Japan, they will need to build a clay base, level it, add topsoil, encircle the field with waterproof dikes, and connect it to the vast network of communal irrigation sluices that traverse the village fields (Ramseyer, 1989). They will plant their seeds in one flooded field, transplant the seedlings to a bigger flooded paddy, and then drain the field as the plants mature. Their capital investment is massive and front-loaded: on the rocky, dry, hillside, they must create the paddy. But it is also on-going: against the perpetual depredations of the weather, they must maintain the soil, the dikes, the irrigation canals.

Japanese farms have long been small. Pre-land reform, those who owned farmland owned a mean 1.16 hectare (1935 figures; Nochi, 1951, 598). In 1940, of the 5.00 million owners, only 2,941 owned 50 hectares (123 acres, U.S.) or more. Of that number, 1,199 owned the land in the far northern island of Hokkaido. Nearly half (47.6 percent) owned less than half a hectare, and only 7.5 percent owned more than 3 hectares (Nochi, 1951, 599). Small-scale farming in Japan did not begin with land reform. Farms were small before.⁴

B. Land Tenure in Prewar Japan:

1. Owned and leased. -- In 1941, farmers owned 54 percent (3.13 million hectares) of their 5.81 million hectares of farmland. They owned 47 percent (1.48

⁴ The OECD (2009, 31) states that land reform shifted "the landholding structure away from large landlords towards smaller farmer-owned operations. The trade-off in any such reform is between larger, more economically efficient operations and the greater social equality and security that come from creating a new land-holding class." In fact, however, this is incorrect. Farms were not substantially larger before the land reform took effect.

million hectares) of their 3.17 million hectares of irrigated paddies. Everything else they rented.

Of their rented land, farmers obtained 26 percent (695 thousand hectares) from "absentee" owners -- men and women who lived outside the area. The rest of their rented land they obtained from local owners (Nochi, 1957, 647, 624). In significant part, absentee landownership was a creature of the far northern island of Hokkaido and the urban centers. After Hokkaido, the three prefectures with the largest fraction of farmland (not just leased farmland) held by absentee landlords in 1945 were Tokyo (11.7 percent), Osaka (10.6 percent), and Miyagi (9.0 percent; seat of the city of Sendai). Hyogo (7.3 percent; seat of Kobe) and Fukuoka (6.1 percent) followed not far behind (calculated from Norinsho, 1956).

As of 1941, 28 percent (1.52 million households) of the 5.41 million farm households owned no land. Another 28 percent (1.49 million) farmed only the land they owned. The remaining 44 percent farmed their own land and rented extra fields besides (Nochi, 1957, 646).

In short, Japanese farmers mixed ownership and rental. Some farmed both land they owned and land they rented. Some farmed some of the land they owned, but rented some of their land to others. And some simultaneously farmed some of their own land, farmed some land they rented from others, and rented out some of their land.

2. Rented and sharecropped. -- Japanese farmers leased most of their rented land under fixed price contracts. Sometimes these contracts required them to pay the rent in cash and sometimes in kind, but they almost always required a fixed amount. The alternative -- sharecropping contracts -- Japanese farmers rarely used. According to economists Yutaka Arimoto, Tetsuji Okazaki and Masaki Nakabayashi (2010, 295, 298), they primarily sharecropped only their least productive fields. Everywhere else, they negotiated fixed rent terms.

Generally, Japanese farmers paid about half of the harvest in rent. This should not surprise -- agricultural rents average half the expected harvest in a wide range of societies (Basu, 1984, 130). Consider one 1928 study from the Ministry of Agriculture and Forestry (Norin sho, 1928). As a fraction of the 1928 yield, the prefectural average contractual rent ranged from 0.33 to 0.61, with a mean of 0.498 and a median of 0.50. The contracts did not specify a rent of half the crop -- after all, they were not share contracts. Instead, they specified a fixed amount that approximated half the crop that year.

To mitigate the harvest risks that fixed rent contracts imposed, Japanese farmers took several steps. Modern scholars have suggested a variety of reasons for sharecropping contracts -- including screening farmers and land in the presence of asymmetric information, and compensating owners for managerial and entrepreneurial expertise. Steven N.S. Cheung (1969) and Joseph Stiglitz (1974) began the inquiry, however, by noting that sharecropping let renters and owners split the risk that the harvest might fail. A fixed wage contract placed all risk on the owner, while a fixed rent contract placed it on the renter. The sharecropping contract let the owner and renter split the risk.

Bearing that risk of crop failure, Japanese farmers reduced it through several means. First, they farmed scattered plots of land (Beardsley, et al., 1959, 124; Smith,

1978, 75). Like their counterparts in pre-enclosure England, they tilled a portfolio of small fields dispersed across the community. Given the wide variation in microclimates over a village from year to year, the scattering let them reduce the risk of a failed harvest (McCloskey, 1991).

Second, farm households pooled their agricultural incomes with non-agricultural earnings from unrelated by-employment (Smethurst, 1986, 21-22). Household members took a wide range of jobs, a mixture that varied from region to region and family to family. In some families, for example, one member (often the wife) might spin silk thread through putting-out arrangements (Miwa & Ramseyer, 2006). In others, a member might run a small store or work as a carpenter.

And in many families, young, unmarried sons and daughters left for several years to work in a city. In the mid-1930s, between 5 and 6 million households farmed (Norin suisan sho, 2003, 12-17), but over a million young men and women (603 thousand men, 407 thousand women) left those homes for a job in another prefecture. Many others left their village, but stayed within their prefecture. Of those who crossed prefectural lines, 347,000 worked in factories, 173,000 worked in homes as hired help, and 131,000 worked in commercial establishments. Among the factory workers, 127,000 went to a textile firm (Okawa, 1979, 52).

Third, farmers usually negotiated a fixed rent contract that was not quite fixed. Instead, they negotiated a contract that required the owner to reduce the rent if the harvest turned unusually bad. Indeed, even when they did not put the term in the contract, courts sometimes enforced a local custom to that effect anyway.⁵ Effectively, in Cheung's (1969, 32) words, the owner bundled an insurance contract with the land. He agreed to bear part of the risk that the crop might fail, and in exchange collected a higher rent.⁶

Consider the agricultural ministry's data from 1928. The harvest that year had been good. From 1921 to 1925, the rice harvest in one year had fallen as low as 8.06 thousand tons. Thereafter, it reached 8.15 thousand tons (1926), 9.08 thousand tons (1927), and 8.81 thousand (1928). Nevertheless, the prefecture-wide ratios of mean rent paid to mean contractually specified rent in 1928 ranged from 0.8 to 1.1. Those means themselves averaged 0.92. Even in good years, many farmers negotiated rent reductions (Norin sho, 1928; Norin suisan sho, 2012, 198).

III. The Land Reform Program

A. The Early Occupation:

During its first years, SCAP ran a brutal occupation. Although celebrated by historians as "idealist" (e.g., Dower, 2003a, 2003c), MacArthur's early team enforced a ruthlessly punitive series of policies. It purged 200,000 government leaders (Takemae, 2002, 269). In the name of reparations, it choreographed a massive plan to ship overseas most of Japan's most sophisticated manufacturing infrastructure. The plants stayed in Japan only because MacArthur himself thought the plan a bad idea and stalled. It decided

⁵ [No names given], 4019 Horitsu shimbun 39 (Sup. Ct. Apr. 9, 1936); [No names given], 16 Horitsu gakusetsu hanrei hyoron keiho 112 (Sup. Ct. Oct. 5, 1926).

⁶ Arimoto, et al. (2010, 294, 298) describe this as "a unique contractual form," a "unique characteristic of the Japanese fixed-rent contract." In fact, Cheung (1969, 31) describes it as a contract that was common in China.

to liquidate the largest 500 Japanese corporations for the simple sin of being too big. It shuttered two, and stopped only because Washington thought the plan ridiculous and intervened (Miwa & Ramseyer, 2005, 27-28). It decided to dissolve the family-owned "zaibatsu" conglomerates on the (largely incorrect) theory that they had promoted the war. Before Washington had time to notice, it finished the dissolution.

B. The Land Reform:

1. The terms. -- Almost immediately, this "idealist" team at SCAP decided to confiscate land from its owners and distribute it to its renters. The Japanese government had enacted a modest "land reform" program in 1946, but SCAP's team declared it too timid. They drafted a more draconian program, presented it to the Japanese government, and the government enacted it in late 1946.⁷

By 1949, SCAP had forced the Japanese government to redistribute about 2 million hectare of farmland, and 1 million hectares of irrigated paddies. As of 1941, farmers had rented 46 percent of their land. After the SCAP-mandated transfers, they rented only 10 percent.⁸

By the terms of this program:⁹

- a. Local owners (residents of the village in which the land was located) of leased land could keep 1 hectare (4 hectares in Hokkaido) to lease out. The rest they sold to the government, which in turn resold it to their lessees.
- b. Absentee owners could keep nothing.
- c. No farmer could own more than 3 hectares of farmland (12 hectares in the northern prefecture of Hokkaido). All land beyond that amount he sold to the government.
- d. Lessors could charge no more than 25 percent of the harvest for paddy fields, and no more than 15 percent for dry fields.
- e. The government would base prices on the capitalized value of the rental rates used for tax purposes in 1938. It could pay the owners in 30-year bonds.

2. Implementation. -- MacArthur's team could not take 2 million hectares from large-scale absentee landlords. Large-scale landlords did not own anything close to 2 million hectares. At a time when the Japanese population numbered 80 million (Sasaki, 2005, 737), they took land from 2.4 million owners. They distributed it to 4.3 million renters (Nochi, 1957, 619, 632; Nochi, 1980, 38, 40, 43). They did not just take from the rich, because the rich did not own that much land. They reached far into the middle class, and took from anyone who happened to have invested his savings in farmland.¹⁰

⁷ Jisaku no sosetsu tokubetsu sochi ho [Special Measures law Concerning the Establishment of Owner Farmers], Law No. 43 of Oct. 21, 1946 (hereinafter SML); Nochi chousei ho [Agricultural Land Adjustment Act], Law No. 67 of Apr. 2, 1938, as amended by Law No. 64 of Dec. 28, 1945 and Law No. 42 of Oct. 21, 1946 (hereinafter ALAA).

⁸ See Teruoka (2003, 133); Takemae (2002, 344); Sasaki (2005, 737).

⁹ See SML, *supra* note, at Secs. 3, 6, 43 as supplemented by land reform committee decisions; ALAA, *supra* note, at Sec. 9-8; see Takagi (2008, 214); Hara (2007, 288); Hewes (1950, 29-33).

¹⁰ Flath (2000, 75). Studying a village in the early 1950s, sociologist Ronald Dore recalls two families who had left their small farms with tenants when they left for the colonies as government officials. They returned impoverished, and found themselves categorized as "absentee landlords." A young mother

For "take" the team did. Nominally, the Japanese government bought from landlords and offered tenants the option to buy. It bought and offered, however at prices the team had deliberately keyed to 1938 values. Given the intervening hyperinflation, this let it buy the land for trivial amounts. From 1939 to 1949, nominal prices had jumped 150-fold (Flath, 2000, 74). Wrote one historian (Takemae, 2002, 344), "tillers of soil acquired property rights for what amounted to the cost of one salted salmon per 0.1 hectare." Explained another, at 760 yen, that 0.1 hectare of paddy land cost a bit less than a pair of rubber boots (842 yen; Sasaki, 2005, 738).

Predictably, landlords fought the "reform." If they sabotaged the actual process, however, little record of it remains. Instead, Dore (1959, 172) describes the transfers as primarily "peaceful and orderly." Plausibly enough, he attributes the order to "the overwhelming power" of occupation military force (1959, 172-173). During 1947-48, writes Dore (1957, 173), observers reported "only 110 incidents between landlords and tenants involving physical violence."

The SCAP staff feared that the beneficiaries of their program would promptly unwind it. They could take from the owners and give to the cultivators, but worried that the cultivators would sell the land back and pocket the cash. They seem not to have understood quite why investors and cultivators pre-war had negotiated the arrangements that they had. Yet they did apparently sense that those underlying dynamics (whatever they might have been) might drive the two sides back to their earlier equilibrium.

To forestall such a return, SCAP staff mandated a stringent set of rules over transactions in agricultural real estate. By 1952, these rules would become part of the basic Agricultural Act,¹¹ and govern the field for several decades. No one could own more than 3 hectares of paddy land under these rules. And no one could buy paddy land without first clearing his purchase with a local agricultural land committee.

3. Litigation. -- When MacArthur's team decamped in 1952, it left the Japanese government with a massive legal problem. In 1947, it had told the government to adopt a constitution that protected property rights. The government had duly complied, and through Article 29 declared private property "inviolable." It could take that property only by paying "just compensation." Simultaneously, MacArthur's team had told the government to expropriate rental farmland and give it to the cultivators. Flagrantly, the occupation-imposed land reform program violated the occupation-imposed constitution.

Dispossessed landowners sued, and by 1953 their case reached the Supreme Court. Tetsu Katayama of the Japan Socialist Party had briefly run the government in 1947-48. As Prime Minister he had named the first fifteen justices of the new Supreme Court, and in 1953 ten of his appointees still served on the Court. The intervening conservative Prime Minister Shigeru Yoshida had appointed the rest (Zen saibankan, 2010, 407).

of four children could not farm her 2-1/2 acres herself when her husband was drafted, so she rented 2 acres to her neighbors. She was now a "landlord" subject to the confiscatory program. Although the law required all three families to forfeit their land, Dore (1978, 59) writes that the local villagers manipulated the facts to let them keep their fields.

¹¹ Nochi ho [Agricultural Land Act], Law No. 229 of 1952; see generally Tanabe (1974, 1036-61).

The justices upheld the program. The price that the government pays should "promote the public welfare," the majority explained, and need "not always match the price based on current economic revenue. Certainly, it need not match the price that might arise in a free-market transaction."¹² Four of socialist Katayama's appointees dissented on the ground that the compensation was inadequate. All conservative Yoshida appointees voted to uphold the program.

The land reform program obviously fit the left's agenda, and the left did well among some farm communities in the early elections. Politicians need not be socialist, however, to realize the electoral potential to redistributive politics. As G.B. Shaw put it, any government that robs Peter to pay Paul can always depend on the support of Paul. Any incumbent who redistributes wealth from 2.4 million Peters to 4.3 million Pauls potentially increases his electoral support. Conservative politicians exploited this dynamic, and the farm vote soon shifted dramatically to the right. There it would stay for decades to come (Babb, 2005).

IV. Preliminary Questions

A. Immiseration:

1. The claim. -- SCAP described the world on which it imposed its land reform as positively Dickensian. To the Japanese government, it (1945) declared that the country needed "to destroy the economic bondage which [had] enslaved the Japanese farmer for centuries of feudal oppression." Those farmers had lived within "an archaic, oppressive, and entrenched system of tenancy," explained one SCAP official (Hewes, 1950, 11). Desperately, they needed it gone.

Archaic, oppressive -- and "exploitative." Much recent scholarship repeats the claims. According to one historian (Fukui, 2011, 56):

The social relations between the landlord and the tenant remained feudal, and the democratization of the villages stalled. The tenancy contract was not a modern contract. Instead, the landlord exploited his tenants as much as he wished. Because he charged such a high fee, his tenants lost their will to work, and production stagnated.

As MIT historian John Dower (1993, 112) put it, the arrangement "often involv[ed] exploitive rents."

Hand-in-glove with claims of exploitation have come dismissals of the landlords as "parasitic."¹³ Quite which landlords historians consider "parasitic" is less than clear, but at least the absentee owners seem to have qualified. Nakamura (1971, 57) recounts "parasitic" landlords who ran urban businesses and rented farmland on the side. By the late-19th century, he writes, Japan had become the site of "[c]omprehensive parasitism." Economist Yutaka Kosai (1986, 21) describes non-"entrepreneurial" landlords as "parasitic." And several decades earlier, T.A. Bisson of the SCAP staff (1941, 43; see also Bisson, 1944, 152) had dismissed Japanese landlords as "parasites ... intent only on drawing high rents -- often as much as 60 percent."

Some landowners also lent money, and by the standard accounts they lent money as exploitatively as they rented land. Historian Mikiso Hane (1982, 23) captures the

¹² Hoshina v. Koku, 7 Saihan minshu 1523 (S. Ct. Dec. 23, 1953) (en banc).

¹³ E.g., Nakamura (1971, 50, 57); Kosai (1986, 22).

flavor of this approach. "[M]ost moneylenders charged usurious rates," he reports. They "were merciless in collecting what was due."

Extortionate rents, usurious interest -- given the economic pressure they faced, farmers who owned land lost it, and those without land struggled simply to survive. "Farm owners continued to lose their land and the rate of tenancy steadily increased," explains Hane (1982, 27, 23). Landless farmers "in 'underdeveloped' areas, in particular, lived on the razor's edge," both "because of the constant threat of crop failure caused by bad weather," and because landlords were so "rapacious." "Crop failures, illness, a fall in the price of rice coinciding with the expense of a wedding or a funeral where social custom would permit of no stinting -- the factors leading to the sale of land recurred," writes sociologist Ronald Dore (1959, 19). "Owner-cultivators became tenants as they lost their land plot by plot."

2. Initial doubts. -- But did "owner-cultivators" lose their land "plot by plot"? Some did, of course. Some firms go bankrupt in any competitive industry, and agriculture is famously competitive everywhere. The tenancy rate did rise during the first half of the century. In Table 1, I include the numbers Nakamura (1971, 56) cites (and they are indeed the standard numbers): from 1887 to 1932, the tenancy rate climbed steadily.

[Insert Table 1 about here.]

But did the tenancy rate rise because market competition and "rapacious" lenders caused farmers to lose their land? Next to Nakamura's tenancy figures, I add the amount of land under cultivation (Umemura, 1966, 226-27). Although the tenancy rate rose at the turn of the century, so did the amount of land farmers cultivated. By simple arithmetic, one can back out of these columns the amount of land farmed by the "owner-cultivators" who Dore believes lost their land "plot by plot." The result appears in Figure 1.

[Insert Figure 1 about here.]

The message is stark: other than two dips (one at the turn of the century, the second at 1930), the amount of owner-cultivated land rose steadily and dramatically for half a century. Tenancy rates did not rise because the amount of land cultivated by owners fell -- because the amount of land cultivated by owners did not fall. Instead, the amount of owner-cultivated land rose.

3. Other contractual terms. -- What is more, the contracts that the renters used gave them substantial power. Quite how much power depended in part on the local custom -- often recognized and enforced by the courts. It also depended in part on whether the renter and owner negotiated their agreement as a contractual right (as saiken) or a property right (as bukken). If a property right, the renter could claim a minimum 20-year term (Minpo, Sec. 278).¹⁴ He could assert his interest against a later buyer of the farm (Wagatsuma, 1944, 91), and he could freely sell his right to till the land (Sec. 272). The landlord could evict him only if he failed to pay rent for two years (Sec. 276).

¹⁴ Minpo [Civil Code], Law No. 89 of 1896.

Although a renter with a contractual right (*saiken*) seemed to have less power, by 1924 legislation gave him considerable leverage as well.¹⁵ Should a landlord try to evict him, under the 1924 statute he could demand mediation. These mediator panels apparently decided the cases according to their own case law. Over time, they gave that precedent a distinctly pro-tenant cast (Adachi, 1959, 81-82; Tanabe, 1974, 603-21).

In many areas of the country, an owner could evict a renter only upon paying a substantial eviction fee.¹⁶ In several prefectures, in 1928 he needed to pay a full year's rent (e.g., Miyagi, Fukushima, Kanagawa). In Tottori, he owed a renter two years' rent. In Osaka, he owed 100 yen -- a fifth of the average price of the paddy itself. In Niigata, he needed 80 yen to evict a renter from a paddy that sold for 250 yen. And in Hyogo, he paid his renter 30 to 300 yen on a paddy he could sell for only 350 yen (Norin sho, 1928).

Given this security, tenants could (and did) regularly sell their leasehold. Again, the custom varied by area, but in many prefectures a renter could sell it for a substantial sum. In Iwate, Niigata, Akita, Okayama, and Yamagata in 1928, he could sell his right for about 20 percent of the price of the fee simple interest itself. In Mie, Yamaguchi, Kagawa, and Yamanashi, he could sell it for a third of the fee simple price. And in some areas of Ehime and Toyama, he could sell the rental right for same price as that which the owner could charge for his fee simple ownership (Norin sho, 1928).

Basic logic suggests many owners and renters must have found themselves deadlocked. In most market economies, if a tenant fails to pay the rent as promised, the landlord can evict him; if a landlord fails to maintain the property (fix the dikes, drain the sluice) as promised, the tenant can leave. By 1940, in many areas of Japan landlords could not evict non-paying tenants. Having paid good money for the right to till a field, neither could tenants leave non-performing landlords without abandoning a substantial capital investment. Bilateral monopolies often present intractable problems -- and in many areas of Japan owners and tenants seem to have found themselves in just such a bilateral monopoly.

Bilateral monopoly or no, all this should cast doubt on the claims that renters necessarily suffered "exploitation" or "immiseration" at the hand of their owners.¹⁷ Farmers do not ordinarily bid large sums for the right to be immiserated. Instead, they pay a positive sum for the right to rent a field only if they expect to earn a return on that investment over and above the market value of their labor. If they pay a price equal to that at which the owner could sell the fee simple, they must effectively split the returns to the land equally with him. Nominally, they work as tenants. Substantively, they constitute co-owners.¹⁸

¹⁵ Kosaku chotei ho [Tenancy Mediation Act], Law No. 18 of 1924.

¹⁶ Norin sho (1928). This is of course the post-war rule for Japanese residential contracts. See Ramseyer & Nakazato (1998).

¹⁷ The point may seem bizarre in 2012, but the claim dates from the pre-war period when many (not all) Japanese social scientists took direction from the Comintern over the proper interpretation of the Japanese economy (see generally Hoston, 1986, ch. 3; Smethurst, 1986; Shoji, 1999, Preface). Comintern is long gone, but the debate it engendered continues to shape Japanese historiography.

¹⁸ For a similar phenomenon in Ireland, see Guinnane & Miller (1997, 594).

4. The Smethurst imbroglio. -- Why then did tenancy rates rise? In the mid-1980s, historian Richard Smethurst (1986) advanced a very different hypothesis. Over the decades surrounding the turn of the century, he noted, wealthy merchants and industrialists invested in large-scale land reclamation projects. As they created new tracts, they leased them to local farmers. Those farmers rented them, reasoned Smethurst, because the extra acreage let them raise (and sell) more crops.

Tenancy increased, in other words, because investors built new paddies and leased them to farmers who used the land to raise their incomes (Smethurst, 1986, 61-62). As Smethurst (1989, 419) phrased the hypothesis, "the primary cause of the spread of tenancy was land reclamation." The growth in tenancy rates did "not reflect differentiation and the pauperization of small-scale farmers" (1986, 66-67). Instead, it reflected the "improved opportunities for the rural poor." Wealthy investors used their resources to create additional paddies; farmers rented the new land to farm more area and earn more money.

Colleagues in the historical community responded brutally. One journal published two separate hostile essays on Smethurst's book. Reviewers laced their critiques with ad hominem attacks. And one writer (in time, he would become president of SUNY New Paltz) added what he obviously thought the ultimate insult (Bowen, 1988, 828): Smethurst's book was positively "Reaganesque."

Smethurst's sin had been to suggest that farmers might have used the market to improve their lives. In the course of his research he had found, as he later put it (Smethurst, 1989, 417-18):

evidence for steadily rising agricultural productivity and disposable income ...; improving health, nutritional, and educational levels; higher expenditures on food and clothing; and increased use of modern facilities such as medical and dental clinics, trains, bicycles, telegraph and postal systems, electricity, and even entertainment forms such as motion pictures.

Like humans anywhere, Smethurst's farmers chose among alternative strategies to maximize their welfare. They used national markets to sell their harvest to a broader swath of buyers, and to borrow from a broader swath of lenders. They sold as high as they could, and borrowed as low as they could. As Smethurst (1989, 435) summarized it all:

[T]he growth of a market economy brought better and better living standards to Japanese farmers as a whole between 1870 and 1940. ... [I]n this process of becoming better off, Japanese tenant and owner-tenant farmers became better educated, more cosmopolitan, more powerful politically, more independent of their landlords, better able to control their own destinies, and more aware of that ability."

5. The shadow urban labor market. -- Even without Smethurst's pivotal study, the immiseration story should puzzle. Any notion that Japanese farmers as a whole (not farmers here and there, but systematically across whole prefectures) might have let "parasitic" landlords "exploit" them seems implausible on its face. Granted, farmers were not rich. Japan in 1940 was not yet the wealthy country it would become by 1970.

But even in 1940, farmers should not have lived lives worse than the lives their peers in the factories lived. After all, a farmer could always move to the city and take

that factory job. What he could earn at that factory thus placed a floor under his long-term agricultural income. In part, this is precisely why the market economy benefited the farmers. If his owner tried to charge a rent that left him with less than he could earn in a factory (adjusted for amenities), he could simply quit. He could take the factory job, and earn the higher income.¹⁹

Information was not an issue. Farmers knew what they could earn in non-farm employment. As noted earlier, many of them diversified their household income by adding other jobs like silk spinning. Many sent their sons and daughters to work several years in the city before they returned to marry. Farmers knew what factories paid.

And neither was quitting agriculture an issue. Farmers abandoned the industry regularly. From 1912 to the late 1940s, the Japanese population grew 60 percent -- from 50 million to 80 million (Takage, 2008, 28). Over the same period, however, the number of farm families grew only 15 percent -- from 5.4 million to 6.2 (Norin, 2003, 12-17). Given that farm couples raised large families, the majority of their children must have quit the farm. A farmer knew what he made on his paddies, and knew what he could make at a factory if he left. He knew, because his brothers, sisters, and children did leave.

Given that farmers knew what the industrial sector paid and could abandon the farm at any time, the wage they would earn in industry provided a floor under their agricultural income. To be sure, life on the farm brought with it a variety of amenities that factory life did not. If they stayed on the farm, they paid lower housing costs. They could grow vegetables on marginal lands. They could work flexible hours. But the amenities were not infinitely valuable. If a local industrialist financed a new paddy, he needed to find a farmer willing to cultivate it. To locate that renter, he could not charge a rent that left the renter with less (adjusted for the amenities) than he could earn at a factory. If he tried, the farmers simply would not come.

B. Productivity:

1. Marginal calculations. -- The notion that redistributing land could have raised productivity should puzzle just as much. After all, the redistribution did not give farmers stronger incentives. Pre-land-reform, they had leased their land on fixed rent contracts. Post-land-reform, they owned their land outright and captured all of the marginal gains to any productivity improvement they made. Yet they captured no larger a share of those improvements than they had captured before. When they rented their land on a fixed rent contract, they captured all the marginal improvements already.

2. Funds for Improvements. -- Neither did the land reform program increase a farmer's access to the capital necessary to make the improvements. Pre-land-reform, suppose a renter found a way to increase productivity in a cost-effective fashion but lacked the funds. He could have approached a bank -- banks were common throughout mid-20th century Japan. If his plans were cost-effective, he could (by definition) have paid the bank market interest and still earned a positive return himself.

¹⁹ Ironically, this is subject to the caveat (noted earlier at Sec. IV.A.3.) that some farmers had paid money for the lease up-front. They had done so because courts took such a "protective" approach toward tenants that leases acquired value as capital assets.

Or the renter could have approached the owner of his land. If he could cost-effectively raise productivity, then (again, by definition) he could pay his landlord market interest and still earn a return himself. If he worried that his landlord might expropriate the improvements by evicting him after he invested the money, he could demand a longer contractual term. Given that his improvement earned positive returns, he could profitably have paid his landlord for the longer term -- but in fact in many communities farmers worked under customary contractual terms that banned most evictions anyway (see Sec. IV.A.3., above).

Suppose that, for whatever reason, a renter refused to make a cost-effective improvement. The landowner could take the initiative himself. He could buy the technology. He could invest the capital. He could obtain the engineering expertise. And he could charge a new rent that earned him a return on the improvements but still left his renter with at least as much as he had before.

In fact, landowners did indeed make improvements. In his study of large landowners, historian Hiroki Ikeda (2008) confirms Smethurst's instinct that they acquired their farms by creating them. Building irrigated paddies involves a massive capital outlay, and many of the large landlords had made those outlays. Often, they came to agriculture from other industries. Some had been sake-brewers who vertically integrated into rice production (Ikeda, 2008, 144-45, 188). Some had been wholesale merchants who vertically integrated into their supply source (Ikeda, 2008, 160). Some were simply wealthy families looking to diversify their investments beyond their portfolios in government bonds, and shares of stock in cotton-spinning firms, banks, and insurance companies (Ikeda, 2008, 56-64). Many large landowners did indeed buy existing farms, but many used their funds to build paddies where none had existed before.

3. Access to information. -- For the most part, renters and owners both would have had the knowledge they needed to incorporate the available productivity-enhancing improvements. Renters obviously knew the conditions in their local community, but so did the owners. Half of the owners (i.e., 45 percent of those who lost land in the reform; Nochi, 1957, 632) lived in the area themselves, and many of the others used local agents who did. They sent their children to the same schools as the renters. They shopped at the same stores. They drank at the same bars. They talked with each other, with the other local landowners, and with the other local renters.

Renters knew the paddies in the area. Like peasants in pre-enclosure England, they each farmed plots scattered around the entire village. Necessarily, everyone walked past everyone else's fields. Landowners knew the relative ability of potential renters. Renters knew the relative quality of the various farms. And any time anyone introduced a new technology, everyone else would have watched what happened.

Renters and owners also had access to scientific and engineering expertise. By the 1920s, nearly everyone attended elementary school (see Table 2, Panel B). The owners could read, and so could the renters. The owners could handle basic arithmetic, and so could the renters.

Renters and owners had access to modern technology besides. Farmers had their news, and they could act on the news. From virtually any village, they could travel to the city. Over nearly all of the country, bus routes and railroads tied the farms to the urban

centers. In 1975, Japanese could travel on 26,900 km of railroad track. In 1940, they could actually travel on more: 27,300 km (Ando, 1979, 12).

4. The expected result. -- (a) Productivity increases? If most farmers had information about productivity-enhancing improvements, access to the capital necessary to acquire them, and the incentive to put them in place, then most would have operated near their production-possibility frontier. They would have operated there whether they owned their land or rented. If so, then transferring title from landowners to renters would not have raised output. As agricultural technology improved, productivity would have risen. But the productivity would have risen at all farms, whether owned by the cultivator or no.

Take a manufacturing firm. Some firms own the land and factories they use, while others rent their facilities instead. The former are not more productive than the latter. So too modern agriculture. Some successful farmers own the land they cultivate, but other successful farmers choose to rent instead. Land will sell for the capitalized value of its expected rental stream. As a result, agency costs aside (at times non-trivial, to be sure), a successful farmer will not earn more by investing his money in his farm than by investing it elsewhere. Given the risks inherent in agriculture, a successful farmer could rationally choose to cut his exposure by farming rented land and investing his savings in the stock of the local cotton-spinning firm instead.

Recognizing this logic, economist David Flath (2000, 74) writes in his text on the Japanese economy that the land reform program "almost certainly did not" increase productivity. It "may have transferred wealth from landlords to cultivators, but it did not stimulate agricultural production, or eliminate wastes and inefficiencies."

Flath shows exactly the right instinct, but at the time he wrote his book the evidence was not there. The best test to date appears in Toshihiko Kawagoe's article in the Hitotsubashi University economics journal, Keizai kenkyu.²⁰ Kawagoe proposes a simple correlation. He first measures the productivity increase in the 46 Japanese prefectures from 1923 to 1959. He then asks whether that increase correlates with the fraction of rented paddies in each prefecture in 1923. He finds no statistically significant correlation, whether positive or negative.

Kawagoe reasons that his test shows that land reform could not have raised productivity. Plausible as his no-positive-effect claim assuredly is, however, his exercise does not actually show it. After all, the orthodox claim is that tenancy prevented communities from improving productivity. Those areas with high tenancy rates would have had lower productivity growth pre-reform, and higher growth thereafter. Kawagoe compares 1923 tenancy rates against productivity growth rates over the entire 1923-1959 period. By the orthodox account, those communities with high tenancy would have had lower growth rates from 1923 to 1949, and higher rates from 1949 to 1959. Because Kawagoe conflates the two periods, if the orthodox accounts were right his exercise might not show it.

²⁰ Kawagoe (1995). More tentative studies, suggesting (but not showing) the lack of any boost to productivity include Kawano (1969), Kaneda (1980), Kawagoe (1993), and Hayami (1989, 45; 1991, 85).

(b) Productivity decreases. In fact, the land reform program may have hurt agricultural productivity -- but if it did Kawagoe's exercise might not have shown this either. Suppose land owners in pre-war Japan disproportionately provided the capital to build paddies, improve fields, and modernize agricultural technology. They focused on raising capital and coordinating reclamation and improvement efforts. Others leased the improved land from them and focused on cultivating it.

By expropriating the landowners' assets and effectively banning future rentals, the land reform program radically disrupted this process. More specifically, it disrupted the market through which the many participants in agriculture had coordinated their efforts to improve productivity. If so, then some high-tenancy prefectures with productivity increases from 1923 to 1949 might also have seen the lowest productivity increases from 1949 to 1959. By combining the two periods, Kawagoe's exercise would miss this possible effect as well.

V. The Empirical Inquiry

A. Introduction:

- To explore the effect of the land reform program, I instead ask three questions:
- (a) Did the program raise productivity? After land reform, at what rate did agricultural productivity (yield per area) rise in the various prefectures?
 - (b) What functions had leasing served in pre-reform agriculture? Why had some pre-reform landowners leased their land to cultivators, while others had sold them the land instead?
 - (c) Did the land reform program increase civic engagement? What effect did it have on voter turnout rates?

Consider each in turn.

B. Did Land Reform Raise Productivity?

1. Introduction. -- If (as the fable asserts) land reform in occupied Japan raised productivity, then the prefectures where the program transferred the largest fraction of land should have seen the fastest productivity increases. They did not. Instead, the communities where the program redistributed the most land saw the slowest increases in productivity.

2. Data and variables. -- I begin by collecting and creating the following data and variables. I include selected summary statistics in Table 2 Panel A. Although I would have preferred data partitioned at a more micro-level than prefectures, the data for many of these variables are available only at the prefectural level.

[Insert Table 2 about here.]

Fraction paddies purchased: Total paddy land bought under the land reform program by July 1950, divided by the total area of paddy land in 1941. Calculated from Nochi (1957).

Productivity, 1940: The amount of rice produced (in koku), divided by the area of paddy fields (in cho) (1 koku = 180 liters; 1 cho = .992 hectare). Calculated from Norin sho (tokei hyo; various years).

Productivity, 1950: Calculated analogously.

Productivity, 1955: Calculated analogously.

Productivity, 1960: Calculated analogously.

Productivity growth, 1935-1940: $(1940 \text{ productivity} - 1935 \text{ productivity})/1935$ productivity.

Productivity growth, 1950-1955: Calculated analogously.

Productivity growth, 1955-1960: Calculated analogously.

Absentee paddy ratio: Fraction of paddy land owned by landlords not living either in the town in which their land was located or in an adjacent town in 1945. Calculated from Norin sho (1956; kaiho jisseki).

Absentee household ratio: Number of landlords not living either in the town in which their land was located or in an adjacent town in 1945, divided by the total number of farm households in 1947. Calculated from Nochi (1957).

Land-rent ratio: Mean sales price of one hectare of paddy in 1939, divided by mean rental price of one hectare in 1939. Calculated from Nochi (1981, v. 13; shiryō shusei).

Rent-paid ratio: The mean rent actually paid for paddy land in 1928, divided by the mean contractually specified rent for paddy land in 1928. Calculated from Norin sho (1928; kosaku jijo).

Population density: Population in 1950/land area in 1950. Calculated from Sorifu (1952).

Fraction population rural: Non-urban population in 1950/total population in 1950. Urban areas are municipalities with population of at least 100,000. Calculated from Sorifu (1952).

Bank branches per capita: (Number of bank branches in prefecture in 1925)/population in 1925. Calculated from Okura sho (1926); Fukumi (1928).

Paddy area growth, 1920-25: $(1925 \text{ paddy area} - 1920 \text{ paddy area})/1920$ paddy area. Calculated from Norin sho (tokei hyo; various years).

Paddy area growth, 1925-30: Calculated analogously.

Paddy area growth, 1930-35: Calculated analogously.

Paddy area growth, 1935-40: Calculated analogously.

Paddy area growth, 1950-55: Calculated analogously.

Paddy area growth, 1955-60: Calculated analogously.

3. Productivity growth. -- (a) Basic results. Consider first the simple statistics in Table 3 Panel A. At the half of the prefectures where the land reform program transferred the largest fraction of paddy land during 1947-1950, productivity in rice production rose 14.3 percent over 1950-1955. At the half where it transferred the least land, it rose 22.0 percent. Productivity climbed 65 percent slower at the prefectures where the government expropriated the most land.

[Insert Table 3 about here.]

In Table 4 Panel A, I regress (OLS, prefecture-level data) productivity growth in rice from 1950 to 1955 against the fraction of paddy field purchased under land reform during 1947-1950. Consistently, the effect is negative: those prefectures where SCAP redistributed the largest fraction of paddies showed the slowest productivity growth in the succeeding half-decade.

[Insert Table 4 about here.]

I include several specifications. In Regression (1) of Table 4 Panel A, I use no controls. In Reg. (2), I introduce the prefecture-level productivity of paddy fields in 1940, and in Reg. (3) I use the prefecture-level change in productivity over 1935 to 1940. In the remaining specifications I add several other independent variables.

The land reform program has a consistently negative effect on productivity growth in all specifications. The effect is statistically significant at the 10 percent level in Reg. (2), at the 5 percent level in five of the other Panel A regressions, and at the 1 percent level in two.

The effect of the program on productivity is also economically substantial. Between 1950 and 1955, the median prefecture showed a productivity gain of .212. Given the magnitude of the coefficient in the first specification, a one standard deviation increase in the fraction of paddy confiscated lowered that productivity gain by .064. On a median gain of .212, this is a 30 percent cut.

(b) Type of tenancy. In Regressions (4) and (5) of Table 4 Panel A, I ask whether the type of landlord affected post-reform productivity. Recall that some historians call absentee landlords "parasitic." In Reg. (4), I add the fraction of the area of tenanted land owned by absentee landlords; in Reg. (5), I add the ratio of the number of absentee landlords to all farm households. Both resulting coefficients are insignificant. The presence of absentee -- "parasitic" -- landlords did not affect later productivity growth.

In Regressions (6) and (7), I ask whether the relative power of renters and landowners affected post-reform productivity growth. To the extent that courts enforced renter perquisites against a landowner, land would sell for a smaller multiple of the rental stream. In Reg. (6), I introduce the ratio of sales price to rental price. To the extent that courts refused to enforce contractual terms against tenants, landowners would collect a smaller fraction of the contractually specified rent. In Reg. (7), I introduce the ratio of the rent actually paid to the contractually specified rent. Both calculated coefficients are insignificant. To the extent that these variables capture tenant power, that power did not affect productivity growth in the early 1950s.²¹

(c) Urbanization. Much changed in Japan during the late 1940s. Between 1 and 2 million Japanese young men died in battle. They would never return. U.S. bombers destroyed half the housing stock in Tokyo, and a quarter of all housing in the country (McClain, 2002, 506-07). Many Japanese died in the bombing; some rebuilt on the ruins; and some moved far away. Seven million Japanese streamed home from Manchuria, Taiwan, and Korea (Gordon, 2003, 229). Some returned to their ancestral villages; others settled in the cities.

Conceivably, the fraction of land redistributed under the land reform program could have coincided with the impact of some of these demographic shifts. Many of the changes did correlate with the degree of urbanization. In several respects, so did some farming practices and some of the impact of the land reform program itself.

²¹ Given that investment decisions are endogenous to expected court outcomes, arguably these variables will not reflect tenure power at all. To the extent that courts are pro-tenant, for example, investors will rent out fewer fields. Among the fields that they do rent out, however, we have no reason to expect either a higher or lower price/rent ratio or actual/contractual rent ratio.

First, the land reform program redistributed all absentee-owned land, and absentee owners tended to hold land near urban centers. Absentee rates were 7.6 percent at the six prefectures with the largest cities (Tokyo, Osaka, Nagoya, Yokohama, Fukuoka, Kobe), but only 5.4 percent elsewhere. The difference is significant at the 10 percent level.

Second, in part because the government confiscated all land held by absentee owners, it confiscated more land near these urban centers. At the six municipal prefectures, it confiscated 36.5 percent of the paddies. Elsewhere, it confiscated 31.1 percent. The difference is significant at the 5 percent level.

Third, cultivators obtained higher productivity levels from urban farms than from farms elsewhere. Although most of Japan is mountainous, the cities are located on the coastal plains. Necessarily, cultivators found economies of scale easier to exploit on those plains, and the productivity figures reflect that difference. At the close of the land reform (1950), paddies at the six urban prefectures produced 25.7 koku/cho (see Sec. V.B.2. for units), while those elsewhere produced 19.3. The difference is significant at the 5 percent level.

Last, an owner faced higher-valued alternative uses for his farmland near the urban centers. Given the post-reform controls on land use, he could not necessarily take his farm out of agricultural production. He first would need to maneuver through the local agricultural land committee (see Sec. III.B.2.). He had stronger incentives to try in suburban Tokyo, however, than in the mountains of Nagano.

Whatever the reason, cultivators increased rice productivity more slowly at the urban prefectures. At the 40 non-urban prefectures, they raised productivity (yield/area) 20.7 percent over 1950-1955. At the six urban prefectures, they hardly raised it at all: an increase of 1.0 percent.

The first three specifications of Table 4 Panel B track this informal discussion. The discussion suggests that productivity at the most urban prefectures grew more slowly in the early 1950s than elsewhere. According to Reg. (1), productivity did indeed grow most slowly at the prefectures with the highest population density, though the effect is not statistically significant. Simultaneously, the variable reduces the magnitude of the land-reform coefficient -- though it does remain negative.

The apparent association between population density and slower productivity growth is not an artifact of the largest metropolitan centers. In Reg. (2), I drop the six most urban prefectures, and run the regression on the remaining 40. Population density remains negatively associated with productivity growth, even if only insignificantly so. The coefficient on the land reform program remains roughly unchanged.

In Reg. (3), I introduce a variable capturing the fraction of the population living outside urban areas (defined as cities with at least 100,000 population). The coefficient is positive -- suggesting again that productivity grew most slowly in the urban areas. Importantly, the negative coefficient on the fraction of land purchased through the land reform program remains negative and statistically significant.

Crucially, the land reform program never raises the pace of productivity growth. By some specifications, it has a significantly negative effect on growth; by others, it has a negative but statistically insignificant effect. The fable, however, is that it caused growth rates to rise. For that, the data offer no support at all.

4. 1955-1960. The land reform program did not retard productivity growth indefinitely. Instead, it slowed it (see Tab. 4 Pan. A) only during the initial reform years. More specifically, it slowed productivity growth at the prefectures most subject to its terms during the first half of the 1950s. In Table 4 Panel A, the coefficient on the fraction of land confiscated is consistently negative for 1950-55. In Table 5 Panel A, I regress productivity growth over 1955-60 on the land-reform variable. The resulting coefficient is now insignificantly different from 0 (Regs. (1)-(2)).

[Insert Table 5 about here.]

Crucially again, however, the land reform program never spurs productivity growth. The claim that it does lies at the heart of the fable: land reform raises the pace of economic growth. In fact, by several specifications it lowers it over the first half of the 1950s. Although that drag disappears by the end of the decade, land reform never actually quickens the pace of the growth. It never boosts productivity. Instead, by the end of the 1950s the areas most subject to the program merely recover from it -- and cause productivity growth across the prefectures to converge.

5. Credit accessibility. (a) Leases. The land reform program apparently retarded productivity growth by disrupting the credit market. Most obviously, it banned leases -- and leases can embody credit. Recall the terms of the program. It let no cultivator own more than 3 hectares of paddy land. It let absentee owners hold none at all. It let corporate owners hold none at all. It let no one lease out more than 1 hectare. And in a world where the market rental constituted half the yield, it capped the allowable rents at a quarter.

In pre-war Japan, village elites -- successful farmers, sake brewers, factory owners -- extended credit to the agricultural sector by leasing land. Banks and local elites both provided credit, in other words, but took different approaches. Banks lent money, but local elites leased land (and occasionally added some loans besides). In effect, land reform stopped the elites from extending their credit as best as best they knew how.

Take two parties, L and T. L has capital; and T runs a business. T has a profitable use for an asset in his business; and L either owns the asset or can readily buy it. L expects to earn a return on his money (or on the asset he buys with the money); and T is willing to pay for the use of the money (or asset).

Potentially, L and T can negotiate a deal that benefits them both. They could structure this mutually beneficial arrangement in two formally different ways: (i) L could lease the asset to T, or (ii) L could lend T the money and let him buy the asset himself. Add the appropriate contractual detail, and the two arrangements generate the identical functional result. Obviously, L and T can structure the arrangement to cover not just new land, but the funds necessary to buy new equipment, new fertilizers, or virtually any improvement.

For example, if L rents (leases) T an asset (like land), T will obtain the right to use it, and for that use will make regular rental payments to L. If L lends money to T, T will buy the asset, and for the use of the money will make regular interest payments to L. In either case, L will earn a market return on his money and T will obtain the use of the asset. If L and T negotiate a lease, L earns rental income -- but a net amount at least equal the amount he could earn on his money in alternative investments. Otherwise, L

will not agree to the arrangement. L's rental income will not exceed the interest T would pay on a loan to buy the asset, however. Otherwise, T will not agree to the arrangement.

If L leases the asset, T pays rent; if L lends the money, T pays interest. In the first case, T becomes a "tenant," and in the second he becomes an "owner." In either case, however, T obtains the right to use the property, and L earns a return that reflects the time value of money and the risk of T's nonperformance. The title describing each party's status differs. The economic substance does not.

(b) Loans. Given that leases and loans are substitutes, if farmers need funds but cannot lease, they will try to borrow what they need instead. For that money, in the post-reform years they could turn to banks. In Regressions (4)-(8) of Table 4 Panel B, I regress productivity growth on the accessibility of a bank office (measured before the period). The coefficient on bank accessibility is consistently and significantly positive: the more bank branches per capita, the faster the rate of productivity growth. The effect is the same whether I regress productivity on all prefectures or only the 40 non-urban prefectures.

Bank accessibility offsets in part the harm that the land reform program caused. Although the program cut credit, in other words, an accessible bank branch could partially make good the damage. In Regs. (4)-(8), the coefficient on the fraction of land confiscated remains negative, but is now smaller than in Panel A. In several specifications it is statistically insignificant, but in Reg. (4) remains significantly negative.

(c) The problems. For several reasons, bank loans could not fully substitute for leases in the post-reform market for agricultural credit. First, local elites generally would have known a community better than bank officers, and more accurately gauged the quality of local paddies and farmers. After all, they were local, and many farmed themselves. By contrast, most bank officers came from elsewhere. The banks needed university-educated staff, but most villages could not have supplied the necessarily personnel. In the years before land reform, many farmers would have approached their landlord for money. Post-reform, they had few places to turn except the local bank.

Second, land reform created a demand shock for which the banks would not have been prepared. To be sure, cultivators were richer post-reform, and would not have borrowed as much as before. They no longer paid rent. But they still would have needed funds for many improvements, and land reform had caused much of the village elite to drop out of the credit market. Having lost their land, they had less to lend, and were (one suspects) less eager to lend anything they still had. The resulting demand shock would have caught many banks off-guard. They would have lacked the staff they needed to handle the increased loan applications. And they would have lacked offsetting assets in their portfolios to diversify a massive increase in agricultural loans.

Third, banks could no longer protect themselves with a security interest in a farmer's field. Pre-reform, they could shield themselves against default by taking a security interest in a borrower's land. If the borrower defaulted, they could seize the land and sell it at auction. The process was simple: to an officer in the legal department of a bank in 1930, nothing about creating an enforceable security interest would have seemed hard.

Land reform eliminated a bank's ability to protect itself through a security interest. The law did not formally ban security interests. A bank could still take and record a security interest in land. But to stop tenants from selling their land back to their former landlords, the government had given local agricultural land committees a veto over all farmland transfers. Post-reform, a farmer could buy paddy land only if he applied to the committee and obtained its approval (see Sec. III.B.2.). He could buy land at bank auction only if he obtained committee approval in advance.²²

Necessarily, if a bank repossessed a paddy from a defaulting borrower, it could sell the farm at auction only to whatever group of farmers chose to obtain that pre-clearance. This is not a gamble banks have been willing to make. Reported one regional newspaper (Kan, 2011, 45 n.4):

The reason that local banks have been reluctant to make agricultural loans lies in the law. Because the Agricultural Act [codifying the terms of the land reform program] restricts the transfer of farmland, that land provides little value as security.

A financial firm was more blunt:²³

Of all assets in which a lender can take a security interest, real estate is the one bank officers like best. ... Among the different kinds of real estate, however, land that is hidden deep in the mountains, land that is part of an urban planning district, and land in agriculture have no value as a security. This is because -- even if a bank were to take security interest in such land -- it cannot sell the land when the need arises."

Credit markets do eventually equilibrate, of course. In time (by 1955-1960, according to Tab. 5, Pan. A, Regs. (1)-(2)), banks apparently adjusted to the new environment. Perhaps they added the staff they needed. Perhaps they rebalanced their asset portfolios. Crucially, however, the quantity of credit would have equilibrated at a lower level (i.e., lower than had there been no land reform) everywhere. After land reform, village elites no longer leased substantial land anywhere, and banks no longer lent on the basis of an agricultural mortgage anywhere.

6. Productivity levels. -- In Regressions (3)-(8) of Table 5 Panel A, I use the Table 4 variables to predict productivity at a given time rather than productivity growth over a given period. The results confirm much of the analysis above: that land reform hit hardest some of the most productive areas, that those areas hit a steep decline, but that they recovered their relative status by the end of the decade. Regressions (3)-(4) illustrate their initial (1950) relative productivity: land reform redistributed the most land at the communities with the most productive farms. The positive coefficient on population density (almost significant at the 10 percent level) suggests that these

²² Theoretically, the process can be made to work. Some city halls post instructions on their website about how to make it work. See, e.g.:

<http://www.city.nobeoka.miyazaki.jp/contents/sonota/nougyou/iinkai/kyoubai.html>

<http://www.city.tome.miyagi.jp/kurashi/nogyo/220729.html>

<http://www.city.kurashiki.okayama.jp/dd.aspx?menuid=2943>

²³ <http://www.financial-i.co.jp/column/bank/20030410.html>

communities lay just outside the cities along the coastal plains. Regressions (5)-(6) show the mid-decade decline: the areas hit hardest by the land reform program fell during the first half of the decade. Regressions (7)-(8) then demonstrate their eventual relative recovery: the areas hit hardest by the program recouped their earlier preeminence by 1960. The correlation coefficients in Panel B confirm similarly that the areas with the highest productivity at the time of the land reform (1950) recovered their relative standing by the end of the decade (1960).

C. Did Land Reform Increase Paddy Construction?

Consider the possible effect of land reform on new paddy construction. If the fable of land reform were true, one might expect the program not just to have induced farmers to raise the productivity on existing farms. One might expect it to have induced them to build new paddies as well.

Alternatively, if the land reform program interfered with the credit market (as the analysis above suggests), one might expect new paddy construction to have fallen in the communities hit hardest by land reform. After all, the land reform effectively banned leases. If investors could no longer lease any paddies they built, perhaps they built fewer paddies.

In Table 6 Panel A, I regress growth in paddies on the Table 4 Panel B variables. The coefficients on the fraction of paddies confiscated under land reform are uniformly insignificant: the land reform program neither increased nor decreased the rate at which people created new paddies.

[Include Table 6 about here.]

In truth, by the 1950s Japanese investors were not creating new paddies anywhere. Instead, they were starting to take them out of production. Consider again Table 1. From 1887 to 1922, investors increased the amount of paddies by over 20 percent. Thereafter, paddy acreage stayed largely unchanged. According to Table 6 Panel B, during 1930-35, 1935-40, and 1950-55, at a majority of prefectures the amount of paddy land actually fell. Even during 1920-25, only three prefectures (Hokkaido, Nagasaki, Kumamoto) had increases larger than the mean. During 1920-25, only two (Aichi, Hokkaido) had increases larger than the mean.

As the Japanese economy rebounded from World War II, Japanese pulled land and people out of agriculture. Through new plant varieties, fertilizers, and equipment, farmers steadily increased their yield. They produced more with fewer people and -- often -- with less land. The negative coefficient on bank accessibility in the Panel A regressions probably reflects the way local entrepreneurs used bank loans to shift resources out of agriculture and into industry.

D. Where Did Tenancy Contracts Thrive?

1. Introduction. -- Most historians describe tenancy as a response to poverty: farmers cultivated leased land either because they lost the land they owned, or because they never owned any land in the first place. If true, the explanation implies that pre-war tenancy levels were highest in the poorest communities.

If leases instead functioned as a credit extension, then different consequences would follow: lessors would have leased land most readily where they could most confidently predict that their tenants would pay the amounts due voluntarily -- on time, in

full. They would not have just relied on the courts. After all, courts were slow, courts were expensive, and -- increasingly -- courts (and mediation boards) did not necessarily let lessors evict non-paying tenants. When possible, lessors would have relied on social norms and community ties.

If investors used leases to extend credit, in other words, we should observe the highest tenancy levels not in the communities with the most poverty, but in the communities with the highest levels of social capital. Where social capital is high, people tend to fill the roles expected of them. Bound by webs of friendship, kinship, trade, and religion, they more often keep their promises. They do not just keep their promises because a court would hold them liable if sued. They keep them out of deference to the friends, families, and trading partners around them.

By contrast, where levels of social capital are low, people are less constrained by these social ties. Less tightly bound, they less strictly conform to social norms of appropriate behavior. They divorce. They bear children outside of marriage. They ignore expected roles, as do their children. And -- crucial to the study here -- they less often pay their bills when due.

2. Data and variables. -- To explore suggestive evidence on this question (the inquiry is necessarily more tentative than in Sections A-C), I offer a series of correlation coefficients. I first collect and create the following data and variables. I include selected summary statistics in Table 2 Panel C.

(a) Tenant households: Fraction of farming households cultivating at least some rented land, 1940. I take the data from Norin (1940; tokei hyo).

(b) Community income. Pre-war Japanese statistics do not give reliable measures of the now-standard indices of economic welfare. With no income tax to collect, the government did not try to measure personal income. Neither did it reliably measure agricultural production. Farm families grew much of the food they consumed themselves, and grew it beyond the scope of the government-measured formal sector.

Given the absence of reliable income statistics, I use several proxies instead. First, I examine the heights of young children. The measure reflects nutritional intake: whether families adequately fed their children. The poorer a community, the shorter the children. Second, I ask whether residents left Japan. The government did not reliably count the number of residents who moved from village to city, but it did count those who left the country. The poorer a community, the higher the fraction of residents who left.

Girls height, age 7: Average height of 7-year-old girls, 1933. I take the data from Monbu (1937).

Boys height, age 7: Average height of 7-year-old boys, from the same source.

Emigration rate: Total number of emigrants, 1899-1941, divided by the population in 1940. I take the data from Kokusai (1991) and Somu (2010).

(c) Social capital. Investors will more readily extend credit where social capital is high than where it is low -- because where social capital is high, borrowers more reliably keep their promises. Where people live and work within webs of social obligations and

expectations, they work harder to pay their debts. They pay them out of deference to their families, their friends, and their trading partners.

Typically, communities with strong networks of personal ties also enforce other norms. They urge their members to marry deliberately. They urge them to stay married. They urge them to bear their children within marriage. They urge them to send their children to school. Age at marriage, divorce rates, illegitimacy rates, and rates of school attendance thus tend to proxy for the level of social capital that binds a community together.

Divorce rate: Number of divorces in 1940, divided by the number of marriages. I take the data from Naikaku (1940).

Illegitimacy rate: Number of illegitimate births, divided by the total number of births, 1940. I take the data from Naikaku (1940).

Young wife rate: number of brides under age 18, divided by the total number of brides, 1940. I take the data from Naikaku (1940).

Elementary school attendance: the percentage of children of elementary school age who are attending school, 1925. I take the data from Monbu (1925).

3. Incomes. -- Turn first to the summary statistics of Table 3 Panel B. Consistently, they suggest that investors and farmers most often leased land in the wealthier farming communities. In 1940, 69 percent of the farming households in the median prefecture cultivated at least some rented land. At the half of the prefectures with more than the median fraction of tenant households, 7-year-old girls were 107.64 cm tall; at the half with less than the median fraction of tenant households, they were 107.10 cm. At the half with above-median tenancy, boys were 108.64 cm tall; at the half with below-median tenancy, they were 108.42 cm. From the half with above-median tenancy, 7.7 percent of the residents emigrated abroad between 1899 and 1940; from the half with below-median tenancy, 8.7 percent of the residents emigrated.

More generally, in Table 7 Panel A I give the correlation coefficients between the fraction of tenant households and the three measures of economic welfare. Consistently, the coefficients are statistically significant at better than the 1 percent level. Where tenancy rates are higher, young girls are taller, young boys are taller, and residents are less likely to move abroad.

[Add Table 7 about here.]

4. Social capital. Investors and farmers were also most likely to lease land in communities with high levels of social capital. In those prefectures with above-median levels of tenant households, the divorce rate was 7.3 percent; in the below-median prefectures, it was 8.6 percent. In the prefectures with above-median levels of tenant households, the illegitimacy rate was 2.4 percent; in the below-median prefectures, it was 3.2 percent. In the prefectures with above-median levels of tenant households, 2.4 percent of the brides were below age 18; in the below-median prefectures, 2.8 percent were. In the prefectures with above-median levels of tenant households, 96.51 percent of elementary-school age children attended school; in the below-median prefectures, 95.86 percent did.

In Table 7 Panel B, I report the correlation coefficient between the fraction of farm households renting at least some of their land, and these several measures of social

capital. The correlation between the tenancy rate and the divorce rate is negative and significant at the 10 percent level. The correlation between tenancy and the illegitimacy rate is negative and significant at the 1 percent level. The correlation between tenancy and the fraction of women marrying before age 18 is negative, but not statistically significant. And the correlation between the tenancy rate and elementary school attendance is positive and significant at the 5 percent level.

E. Did Land Reform Promote Civic Engagement?

1. Introduction. -- Writers routinely claim that the Japanese land reform program promoted civic engagement. The newly independent farmers "prospered and became increasingly inclined to support the principles of democracy and capitalism," writes historian James McClain (2002, 548). In the "stable countryside," explains historian Marius Jansen (2000, 268), conservative politicians found "an almost invulnerable electoral base." Indeed, proclaims political scientist Kazuo Kawai (1960, 174):

When it is seen to what extent the desperation of the landless peasantry of so many Asian countries feed the fires of revolutionary unrest in those countries, the stability and social health which the successful land reform has given to rural Japan stand in significant contrast.

Did the land reform increase levels of political engagement?

2. Data and variables. -- I define the following additional variables, and include selected summary statistics on Table 2.

Voter turnout rate, 1947: The voter turnout rate in the 1947 election. The turnout rate is the number of votes cast, divided by the number of votes eligible to be cast. I calculate turnout rates from data given in Reed (2012).

Voter turnout rate, 1952: Calculated analogously.

Voter turnout rate, 1958: Calculated analogously.

Voter turnout change, 1947-1952: The voter turnout rate in the 1952 election less the rate in the 1947 election, divided by the rate in the 1947 election.

Voter turnout change, 1947-1958: Calculated analogously.

3. Discussion. -- If land reform promoted civic engagement, then voter turnout rates should have increased. More specifically, the difference between the rates before land reform (in 1947) and after (1952, 1958) should be largest where the program transferred the most land. Accordingly, in Table 8 I regress (i) the actual turnout rates, and (ii) the change in turnout rates, on (iii) the fraction of paddies transferred and 1947 turnout rates.

[Insert Table 8 about here.]

The post-reform turnout rates do not depend on the fraction of land transferred. In general, turnout rates in 1947 predict turnout rates in the 1950s. The scope of the land reform does not. According to the first two regression in Table 8, the fraction of land purchased is negatively associated with turnout rates in 1952 and 1958 (in one case significantly so). In the last two regressions, it is negatively associated with the change in turnout rates (in one case significantly so). More basically, the point of Table 8 is simply that land reform did not increase turnout.

The reason land reform should not have promoted civic engagement is simple: the program hit hardest those communities with the highest tenancy rates, but those communities were ones that already had high levels of social capital. Civic engagement correlates with other indices of social capital, but the land reform program redistributed land not at the communities with low social capital but at the communities with high. Given high levels of social capital at the outset, the program was not likely to increase civic engagement further.

VI. Long-term Changes

The land reform program caused damage that extended far beyond the numbers in these regressions. The regressions ask whether the program raised the growth rate at those prefectures where it redistributed the most land. They show that it did not. The prefectures where it redistributed the most land initially grew slowly, and the pace of growth only converged after several years.

The regressions do not ask what the land reform program did to growth rates more broadly. They capture the effect it had on relative growth rates, but not on growth across the country as a whole. At the national level, however, it almost certainly caused long-term damage.

As noted earlier (see Sec. III.B.2.), SCAP staff feared that the beneficiaries of its land reform program would unwind it. The staff could take from the owners and give to the cultivators, but worried that the cultivators would promptly sell the land back and pocket the cash. They seem not to have understood quite why investors and cultivators had negotiated the contracts that they had, but sensed that the underlying dynamics (whatever they might have been) could drive the parties to return to the earlier equilibrium.

To prevent the former landlords and former tenants from undoing the program, SCAP staff imposed a series of rules. Recall the terms of the rules, and consider their effect:

- (i) No one could own more than 3 hectares of paddy.²⁴ By 1950, farmers had not yet mastered the technologies that would let them extend economies of scale in rice production to larger fields, but they soon would. When they did, the 3-hectare rule would hold them to the older, less productive technology.
- (ii) No one could lease out more than 1 hectare, and even on that hectare could charge only half the market price.²⁵ Again, the rule would soon prevent farmers from exploiting the new economies of scale.
- (iii) No one could own paddy land unless he lived in the community, and no corporation could own a paddy.²⁶ The rule prevented farmers from reaping the benefits from a division of labor between investing and operating.
- (iv) No one could transfer agricultural real estate without the permission of the local land committee.²⁷ The rule prevented farmers from using their land as security to borrow the funds they needed from a bank.

²⁴ Nochi ho [Agricultural Land Act], Law No. 229 of 1952, Sec. 3(b); see generally Tanabe (1974, 1036-61).

²⁵ Act, Sec. 24; see Tanabe (1974, 1050).

²⁶ Act, Sec. 6(a); see Tanabe (1974, 1042-43).

Over the succeeding decades, the Japanese Diet would loosen the rules. It lifted the 3-hectare maximum in 1962. It weakened several of the restrictions on leases in 1970 and 1975 (Hayami, 1988, 86-87; Hayami, 1991, 100; Nihon, 2007). It allowed some corporate ownership in 2000 (Nihon, 2007).

Ultimately, however, the rules SCAP staff designed to prevent a return to pre-1940 tenure locked Japanese farmers into a miniscule scale whose inefficiency became increasingly obvious by the year. Over the course of the next decades, farmers would obtain access to technological improvements that required large outlays and that they could efficiently exploit only by leveraging them over wide areas. Given the rules designed to lock-in the land reform program, they were improvements Japanese farmers could exploit only haphazardly at best.

VI. Conclusions

Land reform need not just reduce rural poverty, write development officials. It can raise productivity. It can promote civic engagement. Many scholars concur. Land reform will not always do this, but it can -- and in occupied Japan it did.

In fact, this account of Japanese land reform is a fable, a story that officials and scholars tell and re-tell only because they so badly wish it were true. Land reform in Japan did not raise productivity. Instead, it probably cut it. The areas with the most land transferred under the program did not grow fastest during the succeeding years. Instead, they grew slowest.

Land reform apparently slashed productivity growth by interfering with the allocation of credit. A lease is a capital market transaction, a convenient way for local elites to invest in the agricultural sector. By precluding the use of leasing contracts, the reform increased the cost of capital to farmers, slashed the amount of credit, and reduced the accuracy with which investors could target the credit. To make matters worse, it simultaneously stopped banks from making good the credit shortfall created by what was effectively a leasing ban. Because SCAP staff feared that tenants might sell back their land to their former landlords, they banned paddy transfers except on the permission of a local agricultural land committee. Effectively, they stopped banks from auctioning foreclosed farmland, and prevented farmers from offering their land as security for a loan.

The fable of land reform rests on a fictitious account of pre-war Japan. Scholars assume tenancy rates reflected poverty levels. They did not. Instead, they reflected levels of social capital. Tenancy was not most common where the farmers were poorest. As one might expect of a credit extension, it was most common where farmers lived and worked within coherent, intact -- and not impoverished -- communities.

²⁷ Act, Sec. 3(a); see Tanabe (1974, 1039)

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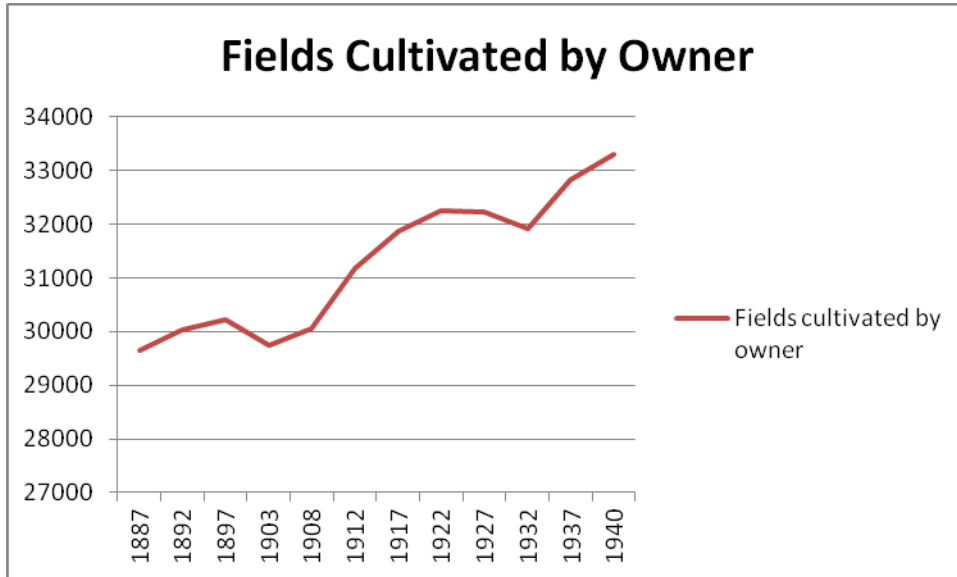
Table 1: Tenancy Rates and Total Farm Land

	<u>Tenancy %</u>	<u>Farm Land</u>
1887	39.5	49,007
1892	40.0	50,051
1897	41.2	51,396
1903	43.9	53,026
1908	45.4	55,029
1912	45.4	57,110
1917	46.2	59,243
1922	46.4	60,185
1927	46.1	59,798
1932	47.5	60,789
1937	46.8	61,694
1940	45.9	61,548

Notes: Tenancy percentage gives the percentage of farm land subject to tenancy contracts. The area of farm land is in 100 cho.

Sources: Mataji Umemura, et al., Noringyo [Agriculture and Forestries] (Tokyo: Toyo keizai shimpo sha, 1966)(Hitotsubashi Long-term Economic Statistics series, vol. 9); Takafusa Nakamura, Economic Growth in Prewar Japan (New Haven: Yale University Press, 1971) (transl. Robert A. Feldman).

Figure 1: Area under Owner Cultivation



Notes: Calculated from data given in Table 1.

Table 2: Selected Summary Statistics (I)

	<i>Min</i>	<i>Median</i>	<i>Mean</i>	<i>Max</i> .
A. <u>Did Land Reform Raise Productivity?</u>				
Fraction paddies purchased	.232	.315	.318	.485
Productivity, 1940	9.586	20.095	19.478	26.859
Productivity, 1950	16.026	22.237	22.551	31.508
Productivity, 1955	11.290	27.013	26.152	32.117
Productivity, 1960	22.111	28.000	28.619	35.624
Productivity growth, 1935-40	-.354	.052	.077	1.191
Productivity growth, 1950-55	-.500	.212	.181	.712
Productivity growth, 1955-60	-.124	.074	.120	1.740
Absentee paddy ratio	.023	..042	..057	.203
Absentee household ratio	.107	.195	.198	.291
Land-rent ratio	28.3	37.2	41.7	93.3
Rent-paid ratio	.800	.941	.929	1.101
B. <u>Where Did Tenancy Contracts Thrive?</u>				
Tenancy area	.333	.447	.457	.589
Tenant households	.341	.694	.688	.822
Girls height, age 7	103.4	107.5	107.4	109.1
Boys height, age 7	104.7	108.6	108.6	110.1
Emigration rate	.0009	.004	.011	.126
Divorce rate	.047	.074	.079	.303
Illegitimacy rate	.012	.026	.028	.063
Young wife rate	.008	.019	.025	.094
Elem. school attendance	92.6	96.4	96.2	98.1
C. <u>Did Land Reform Promote Civic Engagement?</u>				
Voter turnout, 1947	.573	.668	.669	.773
Voter turnout, 1952	.538	.771	.757	.854
Voter turnout, 1958	.641	.790	.783	.868
Voter TO change, 1947-52	-.158	.143	.133	.271
Voter TO change, 1947-58	.003	.169	.172	.336

Sources: See notes to Tables 4, 7, 8.

Table 3: Selected Summary Statistics (II)

A.	<u>Productivity growth, 1950-1955</u>		
	Above median Frac paddies purch'd		.143
	Below median Frac paddies purch'd		.220
B.	<u>Prefectural income</u>		
	<i>Girls height</i>		
	Above median Tenant households		107.64
	Below median Tenant households		107.10
	<i>Boys height</i>		
	Above median Tenant households		108.64
	Below median Tenant households		108.42
	<i>Emigration rate</i>		
	Above median Tenant households		.077
	Below median Tenant households		.087
C.	<u>Social capital</u>		
	<i>Divorce rate</i>		
	Above median Tenant households		.073
	Below median Tenant households		.086
	<i>Illegitimacy rate</i>		
	Above median Tenant households		.024
	Below median Tenant households		.032
	<i>Young wife rate</i>		
	Above median Tenant households		.024
	Below median Tenant households		.028
	<i>Elementary school attendance</i>		
	Above median Tenant households		96.51
	Below median Tenant households		95.86

Sources: See notes to Tables 4, 7, 8.

Table 4: Land Reform and Productivity Growth

A. Determinants of Productivity Growth (I)

Dependent variable: Productivity growth, 1950-1955

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Frac paddies purch'd	-1.045** (2.15)	-1.001* (1.96)	-1.161** (2.35)	-1.327** (2.48)	-1.497** (2.34)	-1.257** (2.53)	-1.387*** (2.74)	-1.874*** (2.79)
Productivity 1940		-.003 (0.31)						
Prod'y growth, 35-40			.146 (1.15)	.143 (1.12)	.155 (1.22)	.134 (1.06)	.198 (1.54)	.197 (1.50)
Absent paddy ratio				.894 (0.82)				.226 (0.20)
Absent h-h ratio					.729 (0.83)			.820 (0.92)
Land-rent ratio						.004 (1.24)		.003 (0.93)
Rent-paid ratio							-.723 (1.61)	-.702 (1.51)
Adj. R2	.07	.06	.08	.07	.07	.09	.11	.09
n	46	46	46	46	46	46	46	46

B. Determinants of Productivity Growth (II)

Dependent variable: Productivity growth, 1950-1955

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Frac paddies purch'd	-.563 (0.93)	-.673 (1.03)	-1.023* (1.90)	-1.081** (2.26)	-.543 (0.92)	-.474 (0.79)	-.717 (1.14)	-.573 (0.91)
Prod'y growth, 35-40	.067 (0.50)	.057 (0.39)	.125 (0.95)	.159 (1.30)	.087 (0.67)	.081 (0.62)	.096 (0.68)	.079 (0.56)
Pop density	-.115 (1.62)	-.266 (0.82)			-.105 (1.52)	-.156 (1.55)	-.170 (0.54)	-.294 (0.91)
Frac pop rural			.119 (0.68)			-.169 (0.69)		-.405 (1.47)
Bank branch, PC				1.434** (2.08)	1.353* (1.98)	1.338* (1.95)	1.444* (2.02)	1.456** (2.07)
Adj R2	.12	-.01	.07	.15	.17	.16	.07	.10
n	46	40	46	46	46	46	40	40
Prefectures	All	Non-urban	All	All	All	All	Non-urban	Non-urban

(Continued on next page.)

Table 4 (Continued)

Notes: All regressions are OLS. The table gives the coefficient, followed by the absolute value of the t-statistic in parenthesis. ***, **, *: statistically significant at the 1 percent, 5 percent, and 10 percent levels. n = 46.

Sources: Norin sho, ed., Norin sho tokei hyo [Ministry of Agriculture Statistical Tables] (Tokyo: Norin sho, various years); Norin sho, ed., Nochito kaiho jisseki chosa [Survey of Performance of Agricultural Land Liberation] (Tokyo: Norin sho, 1956); Nochi kaikaku kiroku iinkai, ed., Nochi kaikaku tenmatsu gaiyo [Summary Account of Land Reform] (Tokyo: Nosei chosa kai, 1957); Nochi kaikaku shiryō hensen iinkai, ed., Nochi kaikakushiryō shusei [Compilation of Material on Agricultural Land Reform], vol. 13 (Tokyo: Nosei chosa kai, 1981); Norin sho, ed., Kosaku jijo chosa [Survey of Tenancy Circumstances] (Tokyo: Norin sho, 1928).

Table 5: Land Reform and Productivity

A. Determinants of Productivity

Dependent variable:	Prod'y gr 1955-60		Prod'y 1950		Prod'y 1955		Prod'y 1960	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Frac paddies purch'd	.705 (1.00)	.236 (0.26)	23.230*** (3.23)	12.014 (1.48)	.777 (0.09)	10.810 (1.07)	22.860*** (2.83)	23.231** (2.40)
Prod growth, 35-40	.043 (0.24)	.077 (0.39)						
Productivity, 1940			.309** (2.33)	.423*** (3.12)	.255 (1.64)	.190 (1.13)	.234 (1.57)	.319* (1.98)
Pop density		.113 (0.74)		2.105 (1.53)		-1.848 (1.09)		-.229 (0.14)
Frac pop rural		.170 (0.46)		1.626 (0.47)		-.190 (0.04)		1.819 (0.44)
Bank branch, PC		-1.452 (1.41)		-22.687** (2.18)		11.181 (0.87)		-20.125 (1.63)
Adj R2	-.02	-.002	.30	.39	.02	.03	.21	.22
n	46	46	46	46	46	46	46	46

B. Correlation Coefficients

	Prod'y 1950	Prod'y 1955	Prod'y 1960
Productivity 1950	1.0000		
Productivity 1955	0.1359 0.3680	1.0000	
Productivity 1960	0.6448 0.0000	0.2398 0.1085	1.0000

Notes: In Panel A, all regressions are OLS. The table gives the coefficient, followed by the absolute value of the t-statistic in parenthesis. ***, **, *: statistically significant at the 1 percent, 5 percent, and 10 percent levels. n = 46.

In Panel B, the The table gives the correlation coefficient, followed by the p-value on the line below.

Sources: See Table 4.

Table 6: Land Reform and Paddy Construction**A. Determinants of Paddy Area Growth**Dependent variable: *Paddy area growth*

	1950-55 (1)	1950-55 (2)	1950-55 (3)	1955-60 (4)	1955-60 (5)	1955-60 (6)
Frac paddies purch'd	.051 (0.80)	.108 (1.48)	.102 (1.33)	-.045 (0.42)	.050 (0.46)	.069 (0.61)
Paddy area gr, 35-40	.211* (1.69)	-.106 (0.44)	.031 (0.11)	.541** (2.57)	-.140 (0.39)	.083 (0.20)
Pop density		-.028 (1.64)	-.051 (1.32)		-.056** (2.17)	-.120** (2.12)
Frac pop rural		-.012 (0.38)	-.020 (0.56)		-.008 (0.17)	.003 (0.05)
Bank branch, PC		-.031 (0.35)	-.016 (0.17)		-.420*** (3.22)	-.494*** (3.70)
Adj R2	.02	.02	-.05	.13	.32	.24
n	46	46	40	46	46	40
Prefectures	All	All	Non- Urban	All	All	Non- Urban

B. Paddy Area Growth -- Summary Statistics

	Min	Mean	Median	Max
1920-25	-.894	.226	.006	9.824
1925-30	-.590	.171	.009	8.365
1930-35	-.061	.005	-.001	.206
1935-40	-.165	-.005	-.001	.045
1950-55	-.065	-.003	-.006	.068
1955-60	-.071	.021	.018	.162

(Continued on next page.)

Table 6 (Continued)

C. Paddy Area Growth -- Correlation Coefficients

	1920-25	1925-30	1930-35	1935-40	1950-55	1955-60
1920-25	1.0000					
1925-30	-0.1153 0.4455	1.0000				
1930-35	0.0164 0.9139	-0.0538 0.7195	1.0000			
1935-40	0.0301 0.8424	-0.0511 0.7330	0.4013 0.0052	1.0000		
1950-55	-0.1615 0.2835	-0.1764 0.2409	0.1313 0.3846	0.2210 0.1399	1.0000	
1955-60	0.1069 0.4796	0.1109 0.4630	0.3690 0.0116	0.4092 0.0047	0.1966 0.1903	1.0000

Notes: In Panel A, all regressions are OLS. The table gives the coefficient, followed by the absolute value of the t-statistic in parenthesis. ***, **, *: statistically significant at the 1 percent, 5 percent, and 10 percent levels. n = 46.

In Panel C, the The table gives the correlation coefficient, followed by the p-value on the line below.

Sources: See Table 4.

Table 7: The Location of TenancyA. Incomes:

	Tenant households	Girls height	Boys height	Emigration rate
Tenant households	1.0000			
Girls height	0.5019 0.0003	1.0000		
Boys height	0.4621 0.0011	0.6120 0.0000	1.0000	
Emigration rate	-0.6529 0.0000	-0.6187 0.0000	-0.6079 0.0000	1.0000

B. Social Capital:

	Tenant households	Divorce rate	Illegit'y rate	Yg wife rate	Elementary sch attend
Tenant households	1.0000				
Divorce rate	-0.2518 0.0878	1.0000			
Illegitimacy rate	-0.5461 0.0001	0.1474 0.3228	1.0000		
Young wife rate	-0.2206 0.1363	0.5921 0.0000	-0.0234 0.8760	1.0000	
Elementary sch att	0.3058 0.0366	0.0054 0.9712	-0.1689 0.2563	-0.1681 0.2588	1.0000

Notes: The table gives the correlation coefficient, followed by the p-value on the line below.

Sources: Nochi kaikaku kiroku iinkai, ed., Nochi kaikaku tenmatsu gaiyo [Summary Account of Land Reform] (Tokyo: Nosei chosa kai, 1957); Norin sho ed., Norin sho tokei hyo [The Ministry of Agriculture & Forestry Statistics] (Tokyo: Norin sho, 1940); Naikaku tokei kyoku, ed., Jinko dotai tokei [Vital Statistics] (Tokyo: Naikaku tokei kyoku, 1940); Kokusai kyoryoku jigiyodan, ed., Kaigai iju tokei [Foreign Emigration Statistics] (Tokyo: Kokusai kyoryoku jigiyodan, 1991); Somu sho, Kokusei chosa hokoku [Population Survey] (Tokyo: Somu sho, 2010); Monbu sho, ed., Nihon teikoku monbusho nempo [The Japanese Imperial Ministry of Education Annual] (Tokyo: Monbu sho, 1925); Monbu sho, ed., Gakusei seito jido shincho taiju kyoi heikin ruinen hikaku, Meiji 33-Showa 9 nedo [Average Annual Heights, Weights, and Chest Circumference for Students and Children, 1900-1929] (Tokyo: Monbusho, 1937); Naikaku tokei kyoku, ed., Nippon teikoku tokei nenkan, v. 31 (Tokyo: Tokyo tokei kyokai, 1912).

Table 8: Land Reform and Civic Engagement

<i>Dependent variable:</i>	<i>Voter turnout</i>		<i>Voter turnout change</i>	
	1952	1958	1947-52	1947-58
Frac paddies purchased	-.269** (2.27)	-.112 (1.10)	-.443** (2.47)	-.191 (1.23)
Voter turnout, 1947	.782*** (5.26)	.763*** (5.92)	-.502** (2.23)	-.597*** (3.06)
Adj R2:	.43	.45	.15	.15

Notes: The table gives the coefficient, followed by the absolute value of the t-statistic on the line below. All regressions are OLS. n =46.

Sources: Nochi kaikaku kiroku iinkai, ed., Nochi kaikaku tenmatsu gaiyo [Summary Account of Land Reform] (Tokyo: Nosei chosa kai, 1957); Steven R. Reed, Japan SMD Data Set, available at: <http://www.fps.chuo-u.ac.jp/~sreed/DataPage.html>.