Supplemental Appendix

How Equality Created Poverty in Pre-industrial Japan, 1600–1870

By Yuzuru Kumon

A Income Inequality Estimates

Table A1: Income Inequality in Pre-industrial Societies

Country	Year	Type of Data	Gini
Western Europe			
Old Castile	1752	Income Census	0.52
France	1788	Social Tables	0.55
England & Wales	1759	Social Tables	0.51
Netherlands	1808	Tax Census of Dwelling Rents	0.56
Kingdom of Naples	1811	Tax Census	0.28
Asia			
India-Mogul	1750	Social Tables	0.39
China	1880	Social Tables	0.24
Java	1880	Social Tables	0.39
Japan	1895	Tax Records	0.40

Source: I use the Gini1 from (Milanovic et al., 2010) where available.

An alternative measurement of inequality is based on incomes as measured by Milanovic et al. (2010) . I compiled the relatively reliable data from the 18th-19th century in table A1.[10] I find income inequality was generally lower in Asian societies, where it was close to 0.40, relative to Western European societies, where

[10]I focus on Gini1 measure that assumes the lack of within-class inequality. This is because the Gini2 assumes an arbitrary distribution of within-class inequality based on the difference in incomes with the next highest income rank. This alternative measure makes little difference except for Moghul-India where the much higher Gini2 is driven by there being only 4 social classes that have large income gaps.

it was close to 0.55. The gap between regions is smaller when looking at income inequality. However, this is because labor incomes were more equally distributed in pre-modern times because most laborers were unskilled and earned unskilled wages.

B Proof for Proposition 1

Proof. Denoting the initial equilibrium with subscript zero, by definition,

$$B(L_0) = D(L_0)$$

Suppose a transfer of landownership of value ε occurs from a poor household to a rich houeshold. Due to the concavity of the fertility function, $b(c_{i,t})$, the increase in population resulting from increased births by the rich will be smaller than the decrease in population resulting from the decreased birth rate by the poor. Due to the convexity of the mortality function, $d(c_{i,t})$, the increase in mortality of the poor is larger than the decrease in mortality of the rich. Overall, the population will decrease leading to higher wages in the next period.

□

C Landownership in Japan: An Institutional Background

Tokugawa Japan (1600-1868) was an agricultural society, with 60-70% of GDP being agricultural (Saito and Takashima, 2016). Of the total GDP, 30-35% was composed of land rents. The distribution of land incomes was the primary source of inequality, and competing interests fought over land rights. In this feudal economy, the main claim over land came from the 300 lords who were given ownership over vast amounts of land by the Tokugawa shogunate, in return for various services. Thus, the lords were the *de jure* owners of land, and had the right to extract land rents in kind and in money. I call this income of the lord "taxation". The lords

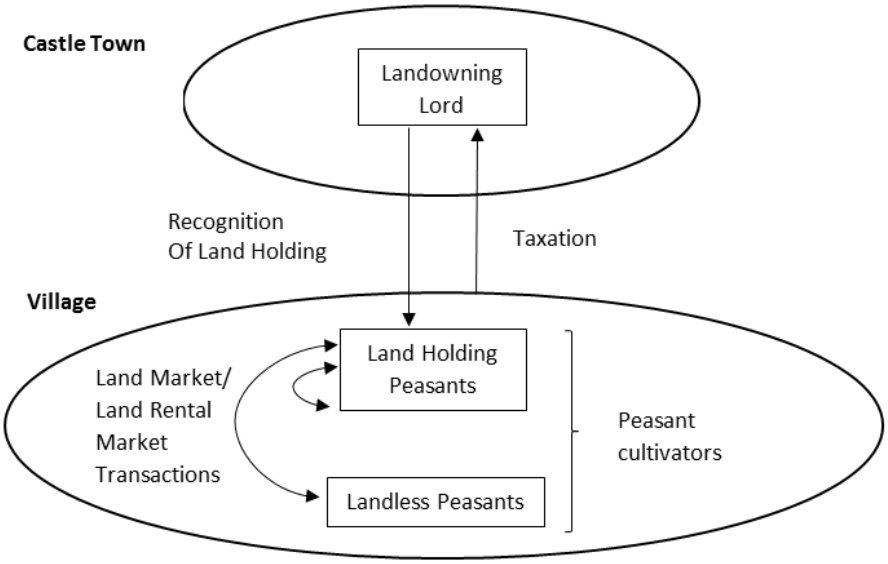


Figure A1: The Japanese Feudal Economy in the Tokugawa Period

and the samurai class were separated from the rural economy because they lived in castle town due to an institution known as *Heino-Bunri*. Therefore, the day-to-day maintenance of agricultural land and the collection of these taxes was left to the mostly autonomous peasants.

In order to collect taxation, the lord had to clarify the liability for taxation and have a broad understanding of the yield within the rural economy. To collect information, the lords conducted large scale cadastral surveys of their lands in the early 17th century and recorded the size and yield of all plots. Taxation was based on the estimated yield. Ultimately, the village had to organize and collect the tax that was demanded by the lord and paid it to the lord (*Murauke-sei*). To facilitate the distribution of tax within the village, a name was attached to each plot in the cadastral survey (the *Naukenin*), and they were deemed responsible for paying the taxation on the plot. However, if individual peasants could not pay their share, others in the village had to compensate for the missing tax.

Within the village, the peasant whose name was attached to the plot was recognized as the *de facto* "owner", and the lord would support the claim if any disputes arose. In general, the lord did not interfere in the land distribution within villages,

as long as taxes were paid. The peasant landholder was left with many rights over there landownership, including the sale or rent of the land, and the claim to all land rents that remained after taxation.

Land distribution were always unequal to some extent, resulting in some peasants owner more land than they could cultivate. To resolve this issue, households either employed servants or rented out their excess lands. Land rental markets were established in the early Tokugawa period and were the favored solution to excess land by the end of the Tokugawa period.[11] By the 18th-19th century, these land rental markets were working efficiently, and Arimoto and Kurosu (2015) show that most if not all of the surplus in landownership relative to the family labor force were resolved by land rentals in Northeast Japan. Land sales were also common, and many plots frequently changed hands in the cadastral surveys.[12] The existence of these markets imply two facts. First, land rights were secure enough to allow for the sale of such rights. Second, the positive price attached to land show that the asset gave the owners a positive stream of income implying that the lords had indeed failed to extract all of the land rent as argued above.

The landowning peasant could collect large amounts of land income, but many of these households were still too poor to subsist purely on land incomes. All but the richest cultivated land. Thus, the most common survival strategy by peasants was to cultivate the land they owned (if any) and rent plots from others with a surplus to make ends meet. Although peasants working their own land may not have thought of their extra incomes from landownership as land incomes, they certainly earned implicit land incomes. Therefore, I do not differentiate between land incomes earned from renting plots to others and implicit land incomes attained from farming owned plots.

I summarize the feudal economy using my terminology in Figure A1. Although various feudal economies had differing features, many shared the fact that land rents was distributed between peasants and lords. Furthermore, peasants often had the ability to informally sell or rent land that they owned. This can be seen in

[11] Takeyasu (1966) shows how various village records attach different names to the same plot within the same year. He argues that this was due to the cultivator being different to the owner, suggesting the existence of a land rental market.

[12] Takeyasu (1969) shows that land was frequently changing hands as early as the 17t century.

some estates of imperial Russia on the eve of emancipation, or in medieval England where estate records show land transactions among peasants from at least the 13th century.[13] Feudal lords were never powerful enough to extract all of the land rent. Hence, it is no surprise that Japanese peasants were earning land incomes under a Feudal regime.

[13](Dennison, 2011) Chapter 5

D Data

I clean the data by first dropping all observations that are irrelevant for studying household fertility/mortality. First, I drop all observations of servants. This is because they are not household members and are therefore irrelevant when thinking about household birth rates and mortality rates. Second, I consider only the mortality/fertility of the (grand)parents and (grand)children of the household head. The fertility/mortality of other kin such as uncles, aunts, and nephews ($\approx 2\%$ of individuals) in addition to adult siblings (age$\geq$18) ($\approx 4\%$ of individuals) are not considered. This is because these people were of lower status than the close kin so that their mortality/fertility may not be reflective of household landownership. Third, I drop temples from the data because these were people of special status that say little about the peasant masses.

I then construct the fertility variable by first taking all recorded births within the village. A minor issue is that a small set of children age$\leq$4 suddenly appear in some censuses. In these cases, I assume these children were born in the past and went unrecorded.

I construct the death variable by first creating a dummy for all recorded deaths. I also create a second measure of mortality where I add all cases where people disappear from the register for unknown reasons.

The extended summary statistics for the four villages can be observed in table A2. Fertility patterns mirror what was found when aggregating all villages in table 2. I also show the number of reproductive couples, defined as the number of married couples with the wife less than age 45. There is also a strong positive correlation between landownership and being in a married couple with reproductive potential. This is consistent with the results on fertility.

The mortality statistics are more problematic. Within some villages, death rates are low as 10 per 1000. This is far too low considering life expectancies from life tables, 1891-1913, indicate life expectancy at age one as 49-52 which indicate mortality rates of 19-20 per thousand. Given medical advances between pre-industrial times and 1891, the numbers from the censuses are too low. However, one village, *Hanakuma* village, has realistic death rates which I study in isolation as a robustness

check.

Table A2: Summary Statistics for 4 villages

Variable	Nakatō 1843-1864	Hanakuma 1789-1869	Ishifushi 1752-1812	Tōnosu 1790-1859
Village Level				
Population	479	228	126	241
Household Size	5.3	3.5	4.7	4.0
Avg. Landownership (*koku*)	2.6	3.9	3.8	3.6
Landownership Inequality (Gini)	0.51	0.45	0.39	0.47
Household Level				
No. Births per 1000 by Landownership bin				
0-2.5	47	74	71	65
2.5-5	56	101	81	85
5-7.5	74	99	114	135
7.5+	115	110	122	146
All	53	90	86	88
No. Reproductive Couples per 1000 by Landownership bin				
0-2.5	669	350	725	495
2.5-5	727	498	819	623
5-7.5	683	548	881	1002
7.5+	787	609	1081	1026
All	685	460	822	646
Individual Level				
Age	30.97	31.32	36.39	33.51
Female=1	0.48	0.50	0.46	0.45
Out-migration per 1000	32	23	21	15
In-migration per 1000	37	23	19	15
No. Deaths per 1000 by Landownership bin				
0-2.5	9	24	19	14
2.5-5	11	23	18	18
5-7.5	13	24	6	16
7.5+	7	26	12	14
All	10	24	16	16

E Age at First Marriage

Age at marriage can be found in the panel data but not in the cross-sectional data. Therefore, I use the observed age at first birth within the cross-sectional data as a proxy. This is defined as the age of the husband or wife minus the age of the oldest child. To avoid cases where the oldest child has already left the household, I further limit the sample to those households where the oldest child is less than age ten.

There are obvious limitations in using the age at first birth. One concern is measurement error due to the high infant mortality rates of the times. Approximately one third of children died before age one. A further source of error is due to the out-migration of children. This is especially likely for the oldest child who could become servants in other households in their teens. There are further measurement errors due to re-marriages after divorce or deaths of partners. If these deaths are random, this will tend to attenuate the coefficient downward. To partially address the second and third source of measurement error, I limit the sample to wives and husbands of ages below 30 and 35 respectively. Since women typically married in their early 20s and men by their mid 20s, it would have been rare for men and women to not have had their first births by this age. This limits the probability of partners having died at the point of observation. Nonetheless, there will be significant measurement error and attenuation bias so one should interpret the coefficient as a lower bound estimate of the true effects.

Similar to the main regressions, I regress these dependent variables on landownership and it's square with village fixed effect in the case of the panel data due to low numbers of observations of marriages in any village year. I use a village-year fixed effect for the other 351 villages.

I find that men and women tended to marry much earlier in richer households although the p-value is high for the female panel sample (see table A3). This may be due to a large standard error due to low sample size of 238 and 241 for women and men respectively. The coefficients are large in the panel estimates. Relative to the landless, a household owning the average quantity of land (3.5 koku) would have couples with ages at first marriage that were 1.7 years and 2.6 years younger for

Table A3: Age at Marriage Estimates

	Age at Marriage (Women)			Age at Marriage (Men)		
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	IV	OLS 351 Villages	OLS	IV	OLS 351 Villages
Landownership	-0.449*	-0.518	-0.146***	-0.471**	-0.819**	-0.091***
	(0.251)	(0.347)	(0.047)	(0.228)	(0.331)	(0.024)
$Landownership^2$	0.006	0.013	0.002***	0.004	0.024	0.001***
	(0.012)	(0.020)	(0.001)	(0.013)	(0.021)	(0.000)
Village-Year FE	No	No	Yes	No	No	Yes
Village FE	Yes	Yes	No	Yes	Yes	No
N	128	128	562	228	228	1539
Adj-R^2	0.261	0.260	0.166	0.332	0.327	0.050
First Stage F-stat		121			214	
p-val joint sig.	0.001	0.054	0.008	0.000	0.000	0.001
Mean Dep. Var.	23.1	23.1	24.8	26.0	26.0	31.6

Standard errors are robust and in parentheses. $*p < 0.10, **p < 0.05, ***p < 0.01$.
Notes: The dependent variable is a dummy for deaths. The IV is lagged landownership and its square with differing lags as indicated. For the cross-sectional sample of villages, the dependent variable proxies age at marriage using age at first birth. To avoid missmeasurement, I only use the sample of women under age 30 and men under age 35.

women and men respectively. When compared to a land rich household owning 2 standard deviation (7 koku) of land, the coefficients become 3 years and 4.6 younger for women and men respectively. For an extremely land rich household owning 3 standard deviations (10.5 koku) of land, the effect is 4 years and 5.9 years for women and men respectively. Accounting for the higher fertility at younger ages, which was around 0.3 per year (Clark, 2008), this implies this mechanism explains a gap of a fertility gap of around 1.2 births. Therefore, age at marriage can explain a large share of the gap in fertility.

The cross-sectional data has coefficients with similar signs which is reassuring although the coefficients are smaller. This is likely due to measurement error in the age at first birth.

Table A4: Intergenerational Transmission of Age at First Marriage (AFM)

	(1) Daughter's AFM	(2) Daughter's AFM	(3) Son's AFM	(4) Son's AFM
Mother's AFM	-0.087	-0.175		
	(0.166)	(0.167)		
Father's AFM			0.059	0.044
			(0.067)	(0.068)
Village FE	Yes	Yes	Yes	Yes
Landownership Control	No	Yes	No	Yes
N	36	36	101	101
Adj-R^2	0.244	0.238	0.262	0.264

Standard errors are robust and in parentheses. $*p < 0.10, **p < 0.05, ***p < 0.01$.
Notes: The Landownership control is a linear and square term.

F Age at First Marriage Transmission

Was the age at first marriage transmitted across generations? This may be through some omitted variable such as social status or human capital. If this variable is also correlated with landownership, this will result in omitted variable bias.

I test for this by studying a subsample of data where I know both the parent and child's age at marriage. I estimate the following specification that is similar to an intergenerational mobility model.

$$Child\ AFM_{i,g} = village_i + \beta Parent\ AFM_{i,g} + \gamma X_{i,t} + \varepsilon_{i,t}$$

The main coefficient of interest is β which measures the inter-generational elasticity in the transmission of the age at first marriage. I measure this for the father-son pair and the mother-daughter-in-law pair separately. Ideally, I can also look at the mother-daughter pair but the data does not allow for this linkage. The limitation of this exercise is a) the requirement of panel data, and b) the limited sample size.

The regressions show coefficients that are negative and close to zero. These numbers suggest no transmissions of age at first marriage across generations which is consistent with findings from the West (Clark et al., 2024). Of course, it is not possible to test for a null result. However, if we look at the 95% confidence inter-

vals, this suggests the elasticity should not be larger than 0.24 which is small. Thus, this is unlikely to be a major channel that can explain the results.

G Additional Robustness Tests

G.1 Different Lags as Instruments

I use lags of up to 30 years as an IV to test the main results in the paper related to mortality and fertility. The main results are unchanged for fertility with significance in all cases. Regarding deaths, I generally find a negative but insignificant coefficient.

Table A5: Regressions of Number of Births on Landownership, with various lags as IVs

	(1) 5 Years	(2) 10 Years	(3) 5 Years	(4) 20 Years	(5) 25 Years	(6) 30 Years
Landownership	7.170***	8.109***	11.186***	13.920***	16.818***	19.516***
	(2.104)	(2.380)	(2.941)	(3.927)	(4.833)	(6.588)
$Landownership^2$	-0.155	-0.227*	-0.421**	-0.640**	-0.791**	-0.957**
	(0.115)	(0.132)	(0.176)	(0.259)	(0.329)	(0.446)
Village-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	11478	10031	8655	7334	6324	5539
Adj-R^2	0.029	0.032	0.016	0.011	0.008	0.007
First Stage F-stat	11805	4656	1358	986	989	541
p-val joint sig.	0.000	0.000	0.000	0.000	0.000	0.000
Mean Dep. Var.	99	99	94	90	94	94

Standard errors are clustered by household and in parentheses. $*p < 0.10, **p < 0.05, ***p < 0.01$.
Notes: The dependent variable is the number of births in that year. The IV is lagged landownership and it square with differing lags as indicated. I only use the sample from Hanakuma village with reliable death statistics.

Table A6: Regressions of Mortality on Landownership, with various lags as IVs

	(1) 5 Year	(2) 10 Year	(3) 15 Year	(4) 20 Year	(5) 25 Year	(6) 30 Year
Landownership	-1.527**	-0.990	-0.983	-0.561	-1.508	0.364
	(0.628)	(0.678)	(0.865)	(1.167)	(1.613)	(1.694)
$Landownership^2$	0.108***	0.081*	0.091*	0.077	0.133	-0.014
	(0.033)	(0.042)	(0.051)	(0.080)	(0.113)	(0.123)
Age/Sex Controls	Yes	Yes	Yes	Yes	Yes	Yes
Village-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	44409	38726	33092	27584	23714	20851
Adj-R^2	0.038	0.038	0.040	0.043	0.035	0.033
First Stage F-stat	46726	17637	4339	2664	2848	1658
p-val joint sig.	0.002	0.106	0.062	0.243	0.345	0.922
Mean Dep. Var.	23	23	23	22	22	21

Standard errors are clustered by household and in parentheses. $*p < 0.10, **p < 0.05, ***p < 0.01$.
Notes: The dependent variable is a dummy for death. The IV is lagged landownership and it square with differing lags as indicated. I only use the sample from Hanakuma village with reliable death statistics.

G.2 IV Regression with Fixed Effects

I estimate specification 9 with an additional household fixed effect in order to compare differences within the same household over time. I find the main results generally do not change. A positive effect generally remains for fertility while the negative effect of mortality is mostly insignificant.

Table A7: Fixed Effects regression of Landownership and Fertility

	Number of Births		Number of Children w. Age ≤ 15	
	(1)	(2)	(3)	(4)
	OLS	IV	OLS	IV
Landownership	10.951**	20.040	87.756**	251.421**
	(5.192)	(12.333)	(38.184)	(117.620)
$Landownership^2$	-0.112	-0.850	-1.938	-10.640**
	(0.310)	(0.547)	(1.553)	(5.381)
Village-Year FE	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes
N	8655	8655	8655	8655
Adj-R^2	0.035	0.033	0.361	0.341
First Stage F-stat		394		394
p-val joint sig.	0.011	0.261	0.027	0.101
Mean Dep. Var.	94	94	1132	1132

Standard errors are clustered by household and in parentheses. $*p < 0.10, **p < 0.05, ***p < 0.01$.
Notes: The dependent variable is the number of births. The IV is lagged landownership and it square.

Table A8: Fixed Effects regression of Landownership and Mortality

	Deaths		Deaths + Potential Deaths	
	(1)	(2)	(3)	(4)
	OLS	IV	OLS	IV
Landownership	-3.302**	-1.464	0.707	1.490
	(1.306)	(3.982)	(1.494)	(6.599)
$Landownership^2$	0.216***	0.211	0.089	-0.039
	(0.073)	(0.199)	(0.066)	(0.257)
Age-Sex Controls	Yes	Yes	Yes	Yes
Village-Year FE	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes
N	33092	33092	13154	13154
Adj-R^2	0.047	0.047	0.048	0.048
First Stage F-stat		1708		756
p-val joint sig.	0.013	0.275	0.002	0.970
Mean Dep. Var.	26	26	26	26

Standard errors are clustered by household and in parentheses. $*p < 0.10, **p < 0.05, ***p < 0.01$.

Notes: The dependent variable is the number of deaths and potential deaths defined as all cases of individual disappearances for which there is no explanation. The IV is lagged landownership and it square.

G.3 Fertility: Number of Children

An alternative measure of fertility is to count the total number of children per woman at the end of their fertility cycle. Since most women have their last child by age 45, I limit the sample to only women who have reached this age.

There are a number of issues. First, there is a downward bias because some children would have died or migrated out of the household. Second, households with earlier first births would likely have some elder children who have already left the household. For example, if one has the first child at age 20, they would be 25 by the point of observation. Girls would likely have married into other households by this age. Since we know age at first marriage was correlated with landownership, this will bias the coefficient down. Third, I cannot account for whether the children are from first marriages since this requires panel data. Further, since the data does not distinguish between step children and biological children, this measure is slightly different from the first measure which only captured biological chidlren. Instead, this measure will capture total number of children from the particular generation when the wife is at the end of her reproductive cycle.

The regression results in Table A9 finds a positive and concave fertility function as in the main results of the paper. However, the p-values are higher due to the lower sample size.

Turning to the magnitudes, the findings from column 2 suggest the rich (with 10.5 koku of land) had around 0.3 more children than landless households. The coefficients are noticably smaller than suggested by the age at first marriage results. However, this is likely due to an undercounting of the children of the rich, many of whom left their parent's households before the mother reached age 45.

Table A9: Landownership and Fertility using Number of Children

	Observed Children at Wife Age 45		
	(1) Panel OLS	(2) Panel IV	(3) 324 Villages OLS
Landownership	0.066	0.090	0.025*
	(0.051)	(0.069)	(0.013)
$Landownership^2$	-0.005**	-0.006*	-0.000*
	(0.002)	(0.003)	(0.000)
Village FE	Yes	Yes	No
Village-Year FE	No	No	Yes
N	178	178	532
Adj-R^2	0.068	0.067	0.351
First Stage F-stat		149	
p-val joint sig.	0.013	0.024	0.157
Mean Dep. Var.	1.8	1.8	1.7

Standard errors are clustered by household and in parentheses. $*p < 0.10, **p < 0.05, ***p < 0.01$.

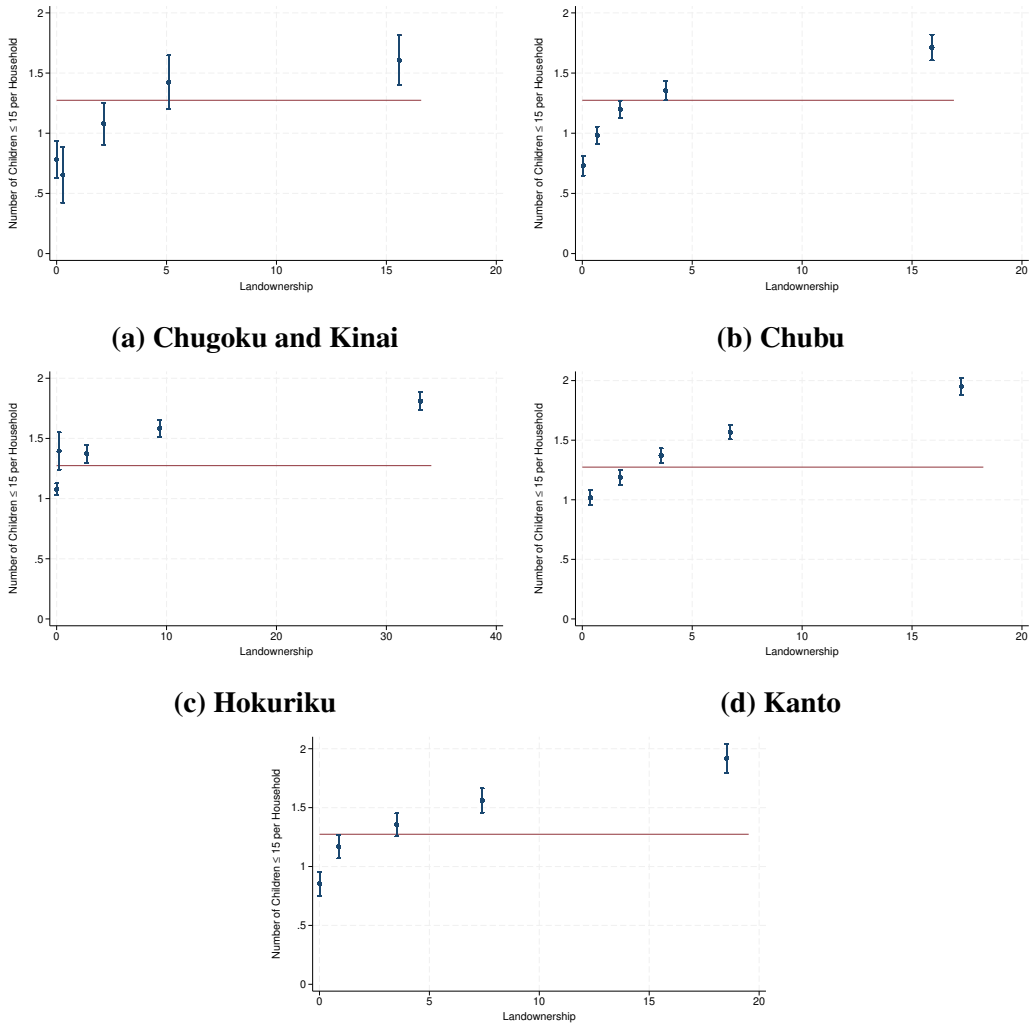
Notes: The dependent variable is the number of births. The IV are the quadratics of lagged landownership and housing area.

G.4 Landownership and Fertility Regressions with Flexible Specifications

I replicate figure 7b by region for robustness. Here, I bin by quintile and pool the Chugoku and Kinai regions where there are very few observations.

I find that in every region, one can visually observe a concave relationship. At the lower levels, landownership contributes greatly to having more children. At the highest end of landownership, the number of children appears to peak. This is unsurprising because fertility was biologically limited among the upper class.

I also show the results for figure 7a if the data were split into quartiles. The results are similar but the interpretation is more difficult because the quartiles are skewed towards the lower end of the distribution. It therefore fails to capture the middle ground between the third and fourth quartile. This is much less problematic for the cross-sectional data where the deciles allow for more coverage of the x-axis.



(a) Chugoku and Kinai

(b) Chubu

(c) Hokuriku

(d) Kanto

(e) Tohoku

Figure A2: Fertility and Landownership: Regression Based Estimates by Region

The point estimates and 95% Confidence Interval are plotted for number of children less than age 15. All points are plotted on the average of the quintile bin.

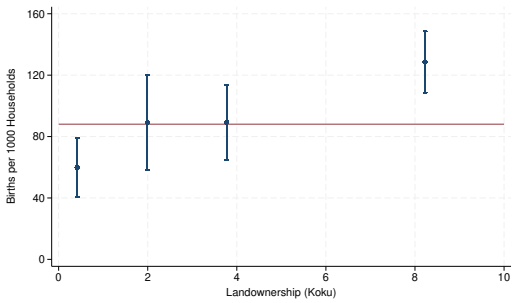


Figure A3: Fertility and Landownership: Panel Villages by Quartile

The point estimates and 95% Confidence Interval are plotted for number of children less than age 15. All points are plotted on the average of the quartile bin.

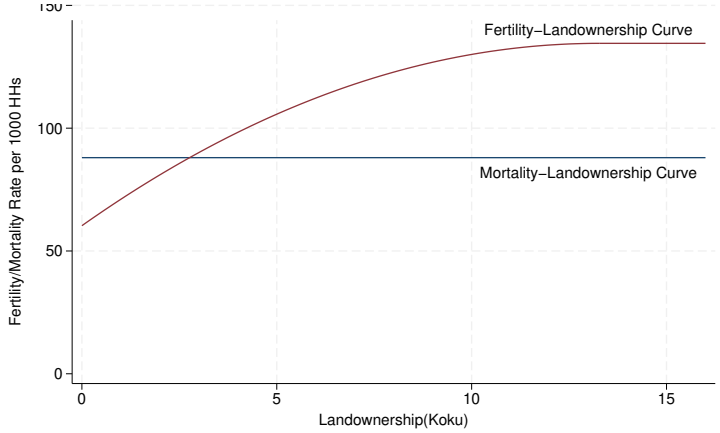


Figure A4: The Fertility and Mortality Curve in the Simulation

H Details on the Simulation

The idea of the simulation is to take the estimated fertility-income curve (and mortality-income curve) and find the equilibrium wage if the landownership distribution were changed. Since the economy was essentially in equilibrium within the data, I want to find the degree to which population and wages would have to adjust to accommodate Western European levels of landownership inequality.

I take the fertility-income curve from table 3 column (2). Since these are U curves, this means fertility begins to decline at high levels of landownership. However, this is not observed in the more flexible specifications. Therefore, I assume that once the fertility (mortality) curve hits its maximum (minimum), the level remains stable. Since the mortality estimates are less reliable, I present results with a flat mortality curve (that is based on mortality rates from 1891-1898). I assume the average mortality rate is at the population average for a family of 4.1 members - 88 per 1000 households. I graphically present the curves, with both fertility and mortality varying by income, in figure A4.

To estimate this, I need the parameters of the production function which relates population levels to wages. The equation is as below.

$$Y = \alpha Land^{\beta} Labor^{1-\beta}$$

I assume β is one half because laborers of Japan and many countries typically earned half of the yield within tenancy contracts.

I solve for the equilibrium by first assuming the population is 100 at the base. I adjust the population down by one during each loop of the simulation and check whether the resulting level of wage/land rent can create an equilibrium where the average fertility rates is equal to the average mortality rate. The resulting equilibrium wages are originally in units of landownership (*koku*) as in the fertility-income curve estimates. I convert them to wage equivalents using the estimates in Kumon (2022).

I Data Sources

In addition to the DANJURO dataset, the following sources were digitized.

Atsugi shi kyōiku iinkai shōgai gakushūbu bunkazai hogoka (2009) “Atsugi shishi Kinsei shiryō hen 5” *Atsugi shi*

Bitchū chōshi henshū iinkai (1974) “Bitchū chōshi shiryō hen” *Bitchū chōshi kankō iinkai*

Chiba kenshi hensan shingikai (1969) “Chiba ken shiryou 2” *Chiba ken*

Ebina shi (1994) “Ebina shishi shiryō hen kinsei 1” *Ebina shi*

Ebina shi (1996) “Ebina shishi shiryō hen kinsei 1” *Ebina shi*

Enzan shishi hensan iinkai (1995) “Enzanshishi shiryōhen 2” *Enzan shi*

Fukukawa shishi hensan iinkai (2004) “Furukawa shishi 8” *Furukawashi*

Fujimi shishi kyōiku iinkai (1990) “Fujimi shishi shiryōhen 4” *Fujimi shishi*

Fujino machi (1994) “Fujino machishi shiryō hen jyō” *Fujino machi*

Fujioka shishi hensan iinkai (1990) “Fujioka shishi shiryō hen kinse” *Fujioka shi*

Fujiidera shi (1985) “Fujiidera shishi 7” *Fujiidera shi*

Fukui shi (2004) “Fukui shishi shiryōhen 8” *Fukui shi*

Fukuroi shishi kyōiku iinkai (1975) “Fukuroi shishi shiryō 2” *Fukuroi shishi kyōiku iinkai*

Fukushima ken (1986) “Fukushima kenshi 10 jyō” *Rinsen shoten*

Fukushima ken (1986) “Fukushima kenshi 10 ge” *Rinsen shoten*

Fukushima shishi hensan iinkai (1968) “Fukushima shishi 8” *Fukushima shi kyōiku iinkai*

Fukushima shishi hensan iinkai (2000) “Fukushima shishi shiryō sōsho 76” *Fukushima shi kyōiku iinkai*

Futsu shishi hensan iinkai “Futsu shishi shiryō shū 1” *Futsu shi*

Gifu ken (1968) “Gifu kenshi shiryōhen kinsei 4” *Gifu ken*

Gifu shi (1978) “Gifu shishi shiryō hen kinsei 2” *Gifu shi*

Haibara chōshi hensan iinkai (1992) “Shizuoka ken Haibara chōshi shiryō 3 jyō” *Haibara chō kyōiku iinkai*

Hanno shishi henshū iinkai (1984) “Hanno shishi shiryōhen 8” *Hanno shi*

Hasuda shishi kyōiku iinkai shakai kyōiku ka (2000) “Hasuda shishi kinsei shiryō hen 1” *Hasuda shishi kyōiku iinkai*
Hidaka shishi henshū iinkai (1996) “Hidaka shishi kinsei shiryō hen” *Hidaka shi*
Hiratsuka shi (1983) “Hiratsuka shishi 3” *Hiratsuka shi*
Honkawane chōshi hensan iinkai (2000) “Honkawane chōshi shiryō hen 2” *Honkawane chō*
Ibaraki kenshi hensan kinsei shi daini bukai (1971) “Ibaraki ken shiryō kinsei shakai keizai hen 1” *Ibaraki ken*
Ibigawa chō (1970) “Ibigawa chō shi shiryōhen” *Ibigawa chō*
Imaichi shishi hensan senmon iinkai (1973) “Imaichi shishi shiryō hen kinsei 1” *Imaichi-shi*
Ina sonshi hensan iinkai (2003) “Ina sonshi 3” *Inamura*
Inoue, Kazuo & Gotō, Kazuo (1986) “Mikawa no kuni Hoi chihō shumon ninbetsu aratamechō” *kokusho kankō kai*
Iruma shishi hensan shitsu (1986) “Iruma shishi kinsei shiryō hen ” *Iruma shi*
Iwaki-shishi hensan iinkai (1972) “Iwaki-shishi 9” *Iwaki-shi*
Iwai shishi hensan iinkai (1994) “Iwaishishi shiryō hen kinsei” *Iwaishi*
Iwatsuki shi (1982) “Iwatsuki shishi kinsei shiryō hen 4” *Iwatsuki shi*
Izumozaki chōshi hensan iinkai (1988) “Izumozaki chōshi shiryō hen 2” *izumozaki chō*
Kamifukuoka shishi hensan iinkai (1997) “Kamifukuoka shishi shiryōhen 2” *Kamifukuoka shi*
Kamogawa shishi hensan iinkai (1991) “Kamogawa shishi shiryōhen kinsei 1” *Kamogawa shi*
Kanuma shishi hensan iinkai (2002) “Kanuma shi kinsei 2 bessatsu” *Kanuma shi*
Kanagawa ken kenminbu kenshi henshū shitsu (1973) “Kanagawa kenshi shiryōhen 6” *Kanagawa ken*
Kanagawa ken kenminbu kenshi henshū shitsu (1976) “Kanagawa kenshi shiryōhen 8” *Kanagawa ken*
Kaizu chō (1970) “Kaizu chōshi shiryōhen 2” *Kaizu chō*
Kashiwa shi hensan iinkai (1970) “Kashiwa shi shiryōhen 7” *Kashiwa* Kawaguchi shi (1985) “Kawaguchi shishi kinsei shiryō 1” *Kawaguchi shi*

Kawajima chō (2005) “Kawajima chōshi shiryōhen kinsei 1” *Kawajima chō*
Kawamata chō kyōiku iinkai “Kawamata chōshi shiryō 5” *Kawamata chō*
Kazo shishi hensanshitsu (1984) “Kazo shishi shiryōhen 1” *Kazo shi*
Komae shi (1979) “Komae shi shiryōshū 9” *Komae shi*
Kōri chōshi hensan iinkai (1992) “Kōri chōshi 6” *Kōri chōshi shuppan iinkai*
Kōriyama shi (1981) “Kōriyama shishi 8” *Kōriyama shi*
Kosai shishi hensan iinkai (1979) “Kosai shishi shiryōhen 1” *Kosai shi*
Koshigaya shi (1974) “Koshigaya shishi 6” *Koshigaya shi*
Kuki shi kyōiku iinkai (2013) “Kuki shi Kurihashi chōshi” *Kuki shi kyōiku iinkai*
Makabe machishi hensan iinkai (1990) “Makabemachi shiryō kinsei hen 3” *Makabe machi*
Matsubara shishi hensan iinkai (1974) “Matsubara shishi 4” *Matsubara shi*
Mino kashige shishi (1977) “Mino kashige shishi shiryō hen” *Mino kashige shi*
Minō shishi henshū iinkai (1970) “Minō shishi shiryō hen 4” *Minō shi*
Miyama chōshi hensan iinkai (1973) “Miyama chōshi shiryōhen” *Miyama chō*
Misato shishi hensan iinkai (1990) “Misato shishi 2” *Misato shi*
Miyamura shi henshū iinkai (2003) “Miyamura shi shiryōhen 1” *Miyamura*
Monzen chōshi hensan senmon iinkai “Shinshū Monzen chōshi shiryō hen 3” *Ishikawa ken Monzen machi*
Motosu chō (1975) “Motosu chōshi shiryōhen” *Motosu chō*
Nagano ken (1973) “Nagano kenshi kinsei shiryō hen 5-1” *Nagano kenshi kankō iinkai*
Nagano ken (1975) “Nagano kenshi kinsei shiryō hen 8” *Nagano kenshi kankō iinkai*
Nagano ken (1977) “Nagano kenshi kinsei shiryō hen 4-1” *Nagano kenshi kankō iinkai*
Nagano ken (1978) “Nagano kenshi kinsei shiryō hen 2-1” *Nagano kenshi kankō iinkai*
Nagano ken (1981) “Nagano kenshi kinsei shiryō hen 7-1” *Nagano kenshi kankō iinkai*
Nagano ken (1989) “Nagano kenshi kinsei shiryō hen 6” *Nagano kenshi kankō iinkai*

Nagareyama shiritsu hakubutsukan (1987) “Nagareyama shishi kinsei shiryō hen 1” *Nagareyama shi*
Nagareyama shiritsu hakubutsukan (1988) “Nagareyama shishi kinsei shiryō hen 2” *Nagareyama shi*
Namioka chō shi hensan iinkai (1982) “Namioka chō shi shiryō hen” *Namioka chō*
Narashino shishi henshū iinkai (1986) “Narashino shishi 2” *Narashino shi*
Narita shishi hensan iinkai (1977) “Narita shishi kinsei hen shiryōshū 4 ge” *Narita shi*
Nariwa chōshi henshū iinkai (1994) “Nariwa chōshi shiryō hen” *Nariwa chō*
Nasu, Kokichi (2005) “Yoshikawa mura shūmon ninbetsu aratame chō Volumes 1-3” *Nishikawa chō*
Niigata ken (1981) “Niigata kenshi shiryōhen 6” *Niigata ken*
Niigata ken (1981) “Niigata kenshi shiryōhen 7” *Niigata ken*
Niigata shishi hensan kinseishi bukai (1993) “Niigata shishi shiryō hen 4” *Nigata shi*
Nishiaizu machishi hensan iinkai (1994) “Nishiaizu machishi 4 jyō” *Nishiaizu machishi kankō iinkai*
Nitta chōshi hensanshitsu (1987) “Nitta chōshi 2” *Nitta chō*
Ōgaki shi (1968) “Shinshū Ōgaki shishi shiryō hen 1” *Ōgaki shi*
Ōgaki shi (2010) “Ōgaki shishi shiryōhen kinsei 2” *Ōgakishi*
Ogawa chō “Ogawa chō no rekishi shiryō hen 4” *Ogawa chō*
Oguchi sonshi hensan senmon iinkai (1978) “Oguchi sonshi 1” *Oguchi mura*
Ōhara chōshi hensan iinkai (1988) “Ōhara chōshi shiryōshū 1” *Ōhara chō*
Ōhara chōshi hensan iinkai (1989) “Ōhara chōshi shiryōshū 2” *Ōhara chō*
Ōimachi shi (1988) “Ōimachi shi shiryōhen 2” *Ōimachi*
Okegawa shi (1982) “Okegawa shishi 4” *Okegawa shi*
Ōmiya chōshi hensan iinkai (1979) “Ōmiya chōshi shiryō hen” *Ōmiya machi*
Ono chō (1988) “Ono chōshi shiryōhen 1 ge” *Ono chō*
Ōta kushi shiryōhen hensan iinkai (1997) “Ōta kushi shiryōhen Hirakawa ke monjyo 3” *Tōkyō to Ōtaku*
Ōta shi (1978) “Ōta shishi shiryō hen kinsei 1” *Ōta shi*
Otowa chōshi hensan iinkai (2001) “Otowa chōshi shiryōhen 2” *Otowa chō*

Oume shi goudo hakubutsukan (1986) “Oume shishi shiryōshū 36” *Oume shi*
Ryoukami sonshi hensan iinkai (1989) “Ryoukami sonshi shiryō hen 4” *Ryoukami son*
Sagae shishi hensan iinkai (2005) “Ishikawa mura shumon ninbetsu aratame chō” *Sagae shi kyōiku iinkai shakai kyōiku ka*
Sagae shishi hensan iinkai (2006) “Ishikawa mura shumon ninbetsu aratame chō 2” *Sagae shi kyōiku iinkai shakai kyōiku ka*
Sakado shi kyōiku iinkai (1987) “Sakado shishi kinsei shiryōhen 1” *Sakado shi*
Setagaya ku (1961) “Setagaya ku shiryou 4” *Setagaya ku*
Shimoyama mura (1986) “Shimomurayama sonshi shiryō hen 2” *Shimomurayama*
Sabae shishi hensan iinkai (1986) “Sabae shishi shiryō hen 2” *Sabae shi*
Saku, Takashi (1967) “Echizen no kuni shūmon ninbetsu aratamecho 1” *Yoshikawa kobunkan*
Saku, Takashi (1968) “Echizen no kuni shūmon ninbetsu aratamecho 2” *Yoshikawa kobunkan*
Saku, Takashi (1969) “Echizen no kuni shūmon ninbetsu aratamecho 3” *Yoshikawa kobunkan*
Saku, Takashi (1970) “Echizen no kuni shūmon ninbetsu aratamecho 4” *Yoshikawa kobunkan*
Saku, Takashi (1971) “Echizen no kuni shūmon ninbetsu aratamecho 5” *Yoshikawa kobunkan*
Saku, Takashi (1972) “Echizen no kuni shūmon ninbetsu aratamecho 6” *Yoshikawa kobunkan*
Sanbu chōshi (1984) “Sanbu chōshi shiryō shū kinsei hen” *Sanbu chō*
Sayama chōshi hensan iinkai (1966) “Sayama chōshi 2” *Sayama chō*
Sayamashi (1985) “Sayama shishi kinsei shiryō hen 1” *Sayamashi*
Settsu shishi hensan iinkai (1982) “Settsu shishi shiryō hen 2” *Settsu shi*
Shibayama chōshi hensan iinkai (1998) “Shibayama chōshi shiryōshū 3” *Shibayama chō*
Shibatashi (1968) “Kinsei Shomin shiryō” *Shibata shishi kankou gyōji jimukyoku*
Shinpen Okazaki shishi hensan iinkai (1983) “Shinpen Okazaki shishi 7” *Okazaki shi*

Shinpen toyokawa shishi henshū iinkai (2003) “Shinpen toyokawa shishi 6” *Toyokawa shi*
Shinshū Inazawa shishi hensan kaijimu kyoku (1986) “Shinshū Inazawa shishi shiryōhen 10” *Inazawa shi*
Shinshū Inazawa shishi hensan kaijimu kyoku (1988) “Shinshū Inazawa shishi shiryōhen 13” *Inazawa shi*
Shinshyū Neagari chōshi henshyū senmon iinkai (1993) “Shinshyū Neagari chōshi shiryō hen jyō” *Neagari machi*
Shizuoka shi (1975) “Shizuoka shishi kinsei shiryō 2” *Shizuoka shi*
Tarō machi kyōiku iinkai (1993) “Tarō chōshi shiryōshk̄insei 4” *Tarō machi kyōiku iinkai*
Taiei chōshi hensan iinkai (1990) “Taiei chōshi shiryōhen 2” *Taiei machi*
Takatomi machi (1977) “Takatomi chōshi shiryō hen” *Takatomi machi*
Tenryū shi (1974) “Tenryu shishi shiryōhen 1” *Tenryū shi*
Tenryū shi (1975) “Tenryu shishi shiryōhen 2” *Tenryū shi*
Tenryū shi (1977) “Tenryu shishi shiryōhen 4” *Tenryū shi*
Tenryū shi (1978) “Tenryu shishi shiryōhen 5” *Tenryū shi*
Tochigi kenshi hensan iinkai (1975) “Tochigi kenshi shiryō hen kinsei 3” *Tochigi ken*
Tochigi kenshi hensan iinkai (1977) “Tochigi kenshi shiryō hen kinsei 6” *Tochigi ken*
Toda shi (1983) “Toda shishi shiryōhen 2” *Toda shi*
Toda shi (1985) “Toda shishi shiryōhen 3” *Toda shi*
Tokiwa sonshi hensan iinkai (2003) “Tokiwa sonshi” *Tokiwa mura*
Tōkyō to Shinagawa ku “Shinagawa kushi zoku shiryō hen 1” *Shinagawa ku*
Togane shishi hensan iinkai (1976) “Togane shishi shiryō hen 2” *Togane shiyakusho*
Tōkyō toritsu daigaku gakujyutsu kenkyūkai (1970) “Meguro kushi shiryōhen” *Tōkyō to Meguro ku*
Toyota chōshi hensan iinkai (1988) “Toyota chōshi shiryōshū kinsei hen 1” *Toyota machi*
Tsuruga shishi hensan iinkai (1983) “Tsuruga shishi shiryō hen 4 ge” *Tsuruga shi*
Unakami chōshi hensan iinkai (1988) “Unakami chōshi shiryōhen 2” *Unakami*

machi

Urawa shi sōmubu shishi hensan shitsu (1986) "Urawa shishi 3" *Urawa shi*

Utsunomiya shishi (1980) "Utsunomiya shishi 4" *Utsunomiya shi*

Nakajyō chōshi hensan iinkai (1984) "Nakajyō chōshi shiryō hen 2" *Nakajyō chō*

Wakō shi (1982) "Wakō shishi shiryō hen 2" *Wakō shi*

Wajima shishi hensan senmon iinkai (1972) "Wajima shishi shiryōhen 2" *Wajima shi*

Yachiyo shi hensan iinkai (1989) "Yachiyo shi no rekishi shiryō hen kinsei 1" *Yachiyo shi*

Yamagata ken (1976) "Yamagata kenshi shiryōhen 16" *Yamagata ken*

Yamagata ken (1983) "Yamagata kenshi shiryōhen 18" *Yamagata ken*

Yokawa chōshi henshū iinkai (1993) "Yokawa ch0̄shi shiryōshū 2" *Yokawa chō kyōiku iinkai*

Yokkaichi shi (1993) "Yokkaichi shi 9" *Yokkaichi shi*

Zushi shi (1988) "Zushi shishi shiryō hen 2" *Zushi shi*

References

Arimoto, Y. and Kurosu, S. (2015). Land and Labor Reallocation in Pre-Modern Japan: A Case of a Northeastern Village in 1720-1870. *IDE Discussion Paper*.

Clark, G. (2008). *A Farewell to Alms: A Brief Economic History of the World*. Princeton University Press.

Clark, G., Cummins, N., and Curtis, M. (2024). How did the european marriage pattern persist? social versus familial inheritance: England and quebec, 1650–1850. *Economics & Human Biology*, 54:101383.

Dennison, T. (2011). *The Institutional Framework of Russian Serfdom*. Cambridge University Press.

Kumon, Y. (2022). The Labor Intensive Path: Wages, Incomes and the Work Year in Japan, 1610-1932. *The Journal of Economic History*, 82(2).

Milanovic, B., Lindert, P. H., and Williamson, J. G. (2010). Pre-industrial Inequality. *The Economic Journal*, 121(551):255–272.

Saito, O. and Takashima, M. (2016). Estimating the Shares of Secondary-and Tertiary-Sector Outputs in the Age of Early Modern Growth: The Case of Japan, 1600–1874. *European Review of Economic History*, 20(3):368–386.

Takeyasu, S. (1966). *Kinsei Hokensei no Tochi Kozo*. Ochanomizu Shobou.

Takeyasu, S. (1969). *Kinsei Kinai Nogyou no Kozo*. Ochanomizu Shobou.