



Factors affecting the creation of modern property ownership of forest commons in Japan: An examination of historical, prefectural data



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ABSTRACT

Forest commons in Japan are known as *iriai*, and they represent a century old communal forest management arrangement. In 1966, the government of Japan enacted the *Iriai* Modernization Act, which aimed to assign legal ownership to forest *iriais*. It gave forest users the option to choose between individual or collective ownership. The paper explores the implementation of the act and whether if the choices for *iriai* modernization and group or individual ownership can be linked causally to characteristics of the forest user group. By the year 2010, 36.5% of the area of forest *iriais* had been modernized. The size of forest *iriai* user group and the ratio of plantation forest appeared negatively correlated with the conversion to modern property ownership, but the unity among user group members appeared positively correlated with *iriai* modernization. The persistence of following customs and traditions of the user group correlated with modernization towards group ownership under the act, while past labor contribution by group members appeared positively correlated with modernization towards individual ownership. The case of forest *iriai* modernization in Japan is relevant for the expanding debate on the interrelations between a state's natural resource use reforms and how forest commons are incorporated in this process.

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1. Introduction

A significant proportion of the global forests are managed as common property. When it concerns forestlands that are controlled by communities, in which case it often concerns common property according to customary rules, the legal status of such forestland is often ambiguous. Much of the related academic inquiry on forest common property clarified self-governance, for instance on the internal mechanisms of governance of commons (e.g. Ostrom, 1990, 2009). More recent research has highlighted linkages with state regimes (Berkes 2002: 300). This has now been addressed in major research projects, including for instance in Asia (Yanagisawa, 2015). In this paper, we examine modernization policies of forest commons in Japan (*iriai*), triggered by the government *Iriai* Modernization Act of 1966, and we analyze implementation of these acts for a period of five decades.

The term *iriai* refers to a natural habitat that is of shared interest to a community and held under a customary common property arrangement. *Iriais* emerged since before the Edo Era (McKean and Cox, 1982), an era that lasted from the 1603 until 1867. Already since the Edo era, local governance of commons was affected by efforts of the

ruling *shogunate* to subject the country to a shared rule of law. After the Meiji Restoration of 1868, the newly established Japanese government tried to subject forest *iriais* to a regime that allowed including them into tax collection schemes. Rather autonomous hamlets were during this time incorporated into municipalities and the latter took control of forests as part of the “Public (Hamlet) Forest Reorganization and Unification Project” which lasted from 1910 to 1939 (Handa, 1988:212).

The latest effort to adapt forest *iriais* to a modern public administration has been the 1966 “Act for Modernization of *Iriai*” (hereafter called *Iriai* Modernization Act or the Act). This represents efforts of central government and prefectural governments to convert *iriai* forest groups, their governing organization, and the rules under which they operate into modern legal entities such as forest producers' cooperatives or agricultural producers' cooperatives (*nougyouseisan houjin*) who comply by the regulations that concerns them. Together with reforming collective groups as owners of former *iriai* forest, the policies also promoted dividing forest *iriais* into privately owned woodlots.

Our paper is divided into five parts. Section 2 provides more details on the phenomenon of forest *iriais* and their histories. Section 3 describes the methods of the underlying research, including a number of hypotheses that we test. Section 4 presents the results and the analysis and the paper ends with a discussion and conclusion in Section 5.

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Table 1
Hypotheses tested in the paper.

Initial conditions (Explanatory variables)	Group	
	Modernization	modernization
1. No. of members per <i>iriai</i>	—	
2. <i>Iriai</i> group larger than corresponding hamlet	—	
3. Does not permit new members	+	
4. Permits members' relatives or returning members to join the group	+	
5. Permits new residents		+
6. Allows trading of shares		—
7. Households leaving the hamlet lose all rights	+	
8. Households leaving the hamlet retain all rights		—
9. Group management ratio	+	
10. Plantation ratio	+	
11. Labor investment	+	
12. Obligatory labor investment	+	

2. Background: forest commons modernization in Japan

The Japanese forest *iriais* have a complex and long history. McKean and Cox (1982) describe the tumultuous pre-Tokugawa history of Japan, which sees the decline of influence of the Kyoto based Imperial Court over Japan's territory, followed by a decline of influence of court nobles and temples who had taken over control of the previous imperial and public lands over that same territory. During this time prominent members of villages became in charge of managing lands nominally still owned by feudal rulers. According to McKean and Cox' analysis, the 16th century internal wars gave power to the rural population as warlords dependent on their support to achieve their political objectives. This is the underlying political process of Japan that explains why village common lands became a prominent natural resource governance form throughout rural Japan and between the 14th and 16th century.

Tokugawa managed to impose a strict “totalitarian administrative structure” (McKean and Cox, 1982:68), which was ruthlessly enforced, but under this regime forest *iriais* did not lose their independence or self-control. Some of the elements of the Tokugawa rule of law enforcement, like for instance mechanisms to assure collective responsibility, actually were adopted by *iriai* member groups. The desire of the Tokugawa government to control the daimyos, their feudal lords who implemented the Tokugawa rules, diminished the incentives for them to exploit villagers, and this strengthened village independence. And finally, during the Tokugawa era a construction boom increased the demand for timber. While this demand encouraged daimyos to control forest with high quality timber, it also led to the recognition of communal rights over resources including over forest *iriais* (McKean and Cox, 1982).

Iriai lands played an important role in rural livelihoods until the 1950s economic recovery after World War II (McKean and Cox, 1982). By 1960, the total area of *iriai* forests was estimated by Nakao (1989) to be over 3 million ha. Opinions on how useful or relevant *iriai*

Table 3
Composition of group and individual modernization.

	Group modernization		Individual modernization	
	(ha)	%	(ha)	%
(Period 0)	182,401	62.8%	107,944	37.2%
Period 1	78,219	62.6%	46,779	37.4%
Period 2	40,700	55.0%	33,344	45.0%
Period 3	18,164	47.9%	19,787	52.1%
Period 4	8,125	40.9%	11,741	59.1%
Period 5	5,935	46.6%	6,814	53.4%
Period 6	2,816	33.9%	5,487	66.1%
Period 7	1,958	30.0%	4,560	70.0%

modernization have been are viewed critically by scholars (Kasahara, 1996; Noguchi, 2014).

Policy makers believed that forest *iriais* were underutilized, due to their legal status under customary *iriai*-type ownership; and that modern group ownership such as forest producers' cooperatives, or as individual ownership, would improve the contributions of these commons to economic growth and wellbeing of the rural population (Ministry of Agriculture and Forestry, Department of Survey and Statistics, 1962).

The 1960 World Agriculture and Forestry Census Survey shows the status of forest *iriais* after almost 100 years of industrialization of Japan. Among 109,909 forest *iriais* identified in the survey, 21,920 groups (19.9%) produced forest products, such as timber and fuel wood from February 1959 through January 1960. A total of 11,046 groups (10.1%) produced timber and 13,145 groups (12.0%) produced fuel wood or charcoal; some groups produced both. Of the 21,920 forest *iriais* that produced forest products, 4,901 (4.5%) distributed the products to their members, while the remaining entities sold these products and kept the cash proceeds in the groups' accounts or distributed the cash proceeds among members. This also shows that by the end of the 1950s, the majority of forest *iriai* members did not rely on forests to contribute to household income or consumption. This trend has continued until today.

After several years of research and discussion among governmental bureaucrats and experts, the *Iriai* Modernization Act of 1966 was approved (Handa, 1988). In Japan, since the beginning of the Act, around 30 to 40% of the area of forest commons have been converted to modern types of ownership such as individual private ownership, forest producers' cooperatives, joint ownership and non-profit associations. The Act was initially conceived as a means of increasing the size of non-industrial private forest ownership by providing additional forest lands to individual owners, as well as establishing cooperative forestry operations managed by former commoners. One could argue that many forest producers' cooperatives that are supposed to be modern legal entities without customary relationships, retain many of their traditional characteristics such as contributions to community expenses or restrictions of membership.

The consequences of the *Iriai* Modernization Act are thought to be two-fold. On the one hand, modernization led to the establishment of

Table 2
Numbers and areas of *iriais* modernized under the *Iriai* Modernization Act.

		Number of approved modernization projects	Percentage	Cumulative percentage	Approved modernization projects in area (ha)	Percentage	Cumulative percentage
1967–1975	(Period 0)	2,997	2.7%	2.7%	290,345	18.4%	18.4%
1976–1980	Period 1	1,396	1.3%	4.0%	125,002	8.0%	26.3%
1981–1985	Period 2	1,037	0.9%	4.9%	74,041	4.7%	31.0%
1986–1990	Period 3	559	0.5%	5.4%	37,951	2.4%	33.5%
1991–1995	Period 4	283	0.3%	5.7%	19,866	1.3%	34.7%
1996–2000	Period 5	186	0.2%	5.8%	13,300	0.8%	35.6%
2001–2005	Period 6	121	0.1%	6.0%	8,312	0.5%	36.1%
2006–2010	Period 7	76	0.1%	6.0%	6,518	0.4%	36.5%

Period 0 is for 9 years while other periods are for 5 years. In the following correlation analysis, Period 0 is for 7 years. In this table, the data for Hokkaido prefecture are included.

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