

Property Rights and Economics Development: The Legacy of Japanese Colonial Institutions

Dongwoo Yoo, West Virginia University

and

Richard H. Steckel, The Ohio State University

Several studies connect modern economic performance with institutions transplanted by European colonizers, and here we extend this line of research to Japanese colonies. Japan imposed its system of well-defined property rights in land on some of its Asian colonies, including Korea, Taiwan and Palau. In 1939 Japan began to survey and register private land in its island colonies, an effort that was completed in Palau but interrupted elsewhere by World War II. Within Micronesia robust economic development followed only in Palau where individual property rights were well defined. Well-defined property rights in Korea and Taiwan secured land taxation and enabled farmers to obtain bank loans for capital improvements, principally irrigation systems. Historical analysis suggests that institutions governing property rights are most effective if combined in a package that includes boundary surveys, land registration, ownership updates, and a citizen identity system.

JEL code: K11, N2, O1

Keywords: Natural experiment, Japanese colonies, Land registration, Property rights

1. Introduction

How and why developed nations became rich are central questions in economics and history. The process was undoubtedly complex, involving many factors such as government policies, investments in infrastructure, terms of trade, legacies of colonialism, natural resources, climate, and luck. Differential economic progress around the globe over the past half century has stimulated a search for fundamental conditions that trigger and sustain the process of development and modernization.

Many researchers now recognize the importance of institutions that protect property rights for economic development (North 1990; North and Weingast 1989; La Porta et al. 1997, 1998; Acemoglu et al. 2001, 2002; Engerman and Sokoloff 1997, 2002; Banerjee and Iyer 2005; Nunn 2008). Economic agents are less willing to invest if others can seize the returns of their investments (Demsetz 1967, Alchian and Demsetz 1973).

This literature contains an implicit belief that the property rights being protected are well defined and readily identified by governments seeking tax revenue and by banks or other lenders who might provide loans using the land as collateral. Our historical study of Asia shows this need not be the case. Complex rights and ownership confusion can increase the cost of enforcing property rights to the point of impairing decision making that stifles investment and growth. These costs can arise from a number of sources, including collective or clan ownership that essentially thwarts decision making and resource reallocation; vague boundaries; lack of clear land titles; absence of an identity system that uniquely links individuals with their property; and failure to update titles as transactions occur.

These concerns may not be apparent to Americans or to citizens of other countries having well-defined property systems. To obtain a mortgage, we take a signed purchase offer along

with a driver's license (or other ID) to the mortgage department, which uses the auditor's web site to verify the existing owner and the property boundaries (established by GPS equipment), and we hire a title company to guarantee the property right to the lender. This well-lubricated system evolved over a couple of centuries and its advantages are clear only by studying environments where one or more components are lacking. Consider unique names and identify cards, which did not exist in early-twentieth century Korea, where a single individual had a proliferation of names for different purposes and the new colonial government (Japan) had no easy way to learn whether a particular person owned land or was paying taxes.

Our paper contributes to understanding the link between property rights and economic growth by clarifying the important components of property-defining institutions that are the legacy of institutional change imposed by Japan on some Asian colonies. These colonies were acquired through an opportunistic process of territorial expansion, and prior to colonization these countries had complex systems of land tenure that impeded transactions and often denied the allocation of land to its most productive uses. In an effort to generate tax revenue, Japanese colonial administrators abolished these complex systems in favor of single ownership, official titles, updated land registers and boundaries established by clear survey maps. The new system made plain who was responsible to pay taxes.

The case of Palau – an island country in Micronesia – provides a quasi-experimental setting, which shows that secure private property defining institutions provided a foundation for economic development. Japan controlled Micronesia from 1914 to 1945, and in Palau surveyed and registered private ownership from 1939 to 1941, classifying land into four categories: public, clan, lineage, and individual. In 1941 Japan began to survey other Micronesian countries, but the process was interrupted by World War II. After the war the U.S. controlled Micronesia,

and in Palau, American judges upheld land titles originating from the Japanese land registers. The American judges consistently concluded that clans or lineages did not have any authority over private land. In other Micronesian countries, the American judges lacked legal proof of private ownership and following the tradition of common law, upheld customary ownership rights that allowed a village or clan leaders to confiscate or deny land-use rights if a resident neglected customary obligations to the village. As a result foreigners only invested in private lands that were protected in an absolute way, as in Palau. In 2007, Palau was three times richer than other Micronesian countries.

Land has two special characteristics that make it attractive for the tax base: it is "immovable" and "everlasting." Generally it is easier for the government to tax land as opposed to other assets that can be readily "hidden." Effective land taxation, however, requires registers and maps to identify parcels, as well as a system linking taxpayers to the registers (Cho 2003). In many countries, land taxes are evaded because the government cannot link registers, maps, and taxpayers. The Japanese land survey and registration system secured land taxation and thus promoted public finance.

The solution of a public finance problem eventually was important for private finance. The characteristics of land make it attractive to banks as collateral for loans. Banks readily accept land as collateral only if secure title and well-defined boundaries were part of a central ownership verification system. The Japanese land registration system was designed to preempt ownership and boundary disputes and was well integrated to the ownership updating system and the citizen identity system. Thus, it promoted private capital markets. Because land was the most abundant and important asset in these agricultural economies, its collateralization provided

a major boost for economic development. Especially, when farmers obtained access to credit, they invested in irrigation systems that increased agricultural productivity.

2. The Evolution of Property Rights in Japan and its Colonies

According to Wakita (1991), the Taiko land survey of the late sixteenth century established a secure land tenure system in Japan, whose main purpose was separation of the warrior and peasant classes (Asao 1991). Before unification by Toyotomi Hideyoshi in the 1590s, a samurai owned peasants in his fief. Thus, the samurai could turn the peasants into soldiers, which provoked many revolts. In order to prevent the frequent rebellions, Toyotomi Hideyoshi separated the two classes. Because the warrior class collected taxes in his fief, the separation required a new tax collection system. Therefore, the Taiko land survey identified the cultivator for every plot, which made clear who was responsible to pay the tax.

About 300 years later Japan further modernized the land tenure system. New tax laws promulgated in 1873 provided a uniform land tax, which was payable in money rather than rice and was assessed on the value of land, not the size of the harvest. Thereafter, peasants not only received title to the land, but gained the ability to buy and sell land, grow vegetables or fruit instead of rice as they saw fit, and even abandon their land if they wished (Duus 1976).

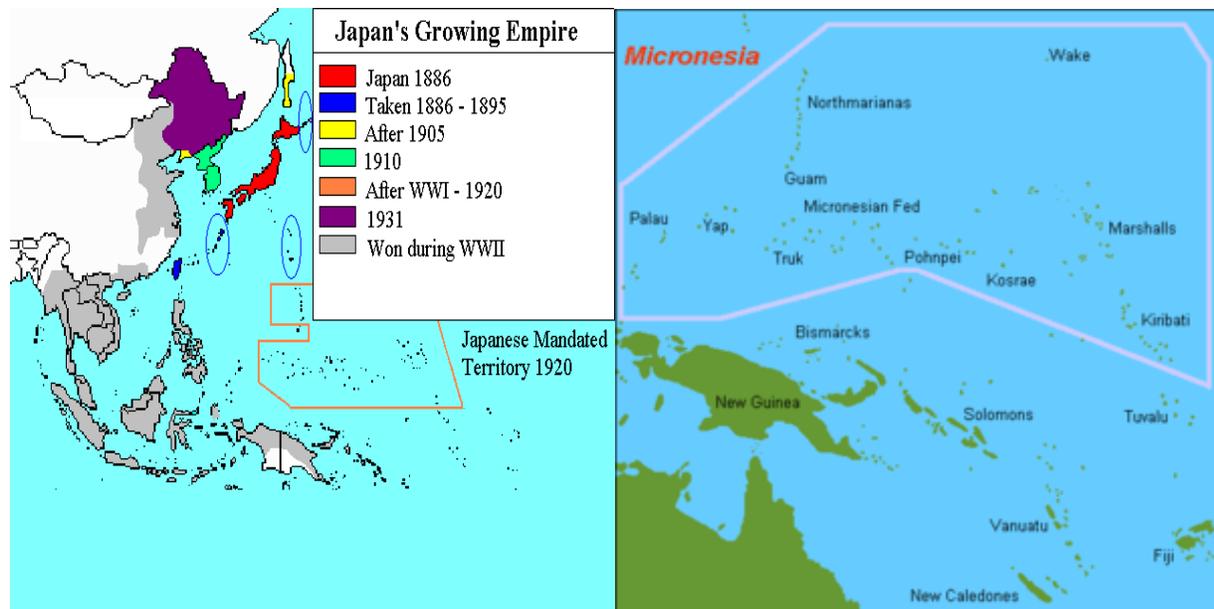


Figure 1. Japanese colonies and a map of Micronesia

Between 1895 and World War II Japan occupied dozens of countries or territories in Asia. The map given in figure 1 presents a rough time line of territorial acquisitions¹, beginning with Taiwan, acquired at the conclusion of the Sino-Japanese war in 1895. Japan invaded the Liaodong peninsula during the Russo-Japanese war of 1904-1905, and by terms of the Treaty of Portsmouth retained Liaodong peninsula and the southern portion of Sakhalin Island. In 1905 Japan declared Korea as a protectorate, and completed the process of colonization by annexation in 1910. Japan supported the Allies in World War I and was later rewarded with Germany's colonies in the Pacific (Palau, the Northern Mariana Islands, the Marshall Islands, and the Federal States of Micronesia). Japan became increasingly militaristic in the 1930s and 1940s, invading Manchuria in 1931 and occupying the remaining territories in the south, from the Philippines to Indonesia and Indochina, during World War II.

¹ Japan acquired Okinawa, the Kuril and other islands from 1886 - 1895.

Country	Japan (1873)	Korea (before 1918)	Taiwan (before 1905)
Ownership	Single owner	Single owner	Multiple owner (sub-soil owner, top-soil owner)
Land register	Official registers (100% of land was registered)	Official registers for tax (50% of land was registered)	Official registers for tax (30% of land was registered)
Updating system	Yes; Registers were updated and connected to taxpayers	No; Registers were outdated and not informative to identify taxpayers	No; Registers were outdated and not informative to identify taxpayers
Title	Official titles; All titles were linked to a centralized system	Official and private title; Private titles were not linked to a centralized system	Official and private title; Private titles were not linked to a centralized system
Boundary (map)	Taiko survey (1590s); Cadastral survey (1873)	Boundary was described vaguely based on landmarks	Boundary was described vaguely based on landmarks
Tax system	Based on the value of land; Payable in money; Uniform tax rate	Based on the size of the harvest; Payable in rice; Tax rate varied locally	Based on the size of the harvest; Payable in rice

Source. – Duus (1976), Lin (2008), Cho (2003)

Table 1. A comparison of land tenure systems

Table 1 summarizes important aspects of pre-colonial land rights in Taiwan and Korea. The first column repeats the salient features of the modern Japanese system: single owner; universal land registration that is updated as transactions occur; titles linked to a central registration system; and cadastral surveys (i. e. official boundary surveys). Other areas that became Japanese colonies might have had single owners (Korea) but much of the land was either unregistered or the registers were outdated, titles were not linked to a central system and surveys were based on landmarks. The systems in Taiwan had similar problems and were even more complex than found in Korea with separate top-soil and sub-soil owners.

Japanese colonial governments completed land surveys in Taiwan (1898 - 1905) and Korea (1911 -1918) by which land ownership was identified and registered. After the survey, it turned out that only 30% of land was registered in Taiwan (Ka 1995) and 50% of land was registered in Korea (Kwon 1989). The main purpose of these land surveys was to facilitate tax collection, which was needed to offset costs of colonial administration.

Effective land taxation requires registers and maps to identify parcels, as well as a system linking taxpayers to the registers (Cho 2003). In many countries, land taxes are evaded because the government cannot link the three together. Governments appoint local authorities to make the links based on local information, giving them a percentage of the tax receipts as payment. This remedy is imperfect, however, because principal-agent problems often lead to corruption.

Traditionally Asian countries had land registers, but given the lack of surveys and ownership updates, the land registers were not very useful in collecting land taxes directly from the taxpayers. The Japanese land survey linked the registers, maps, and taxpayers. Moreover, the Japanese colonial government also introduced a citizen identity system in Korea and Taiwan as a way to control the population, but this facilitated tax collection by identifying particular individuals as taxpayers. The Japanese colonial governments faced large budget deficits during the land reform, but the new land tax system was cost effective and much more successful than expected. The total cost of land reform in Taiwan was 5.3 million yen, but the annual land tax revenue increased by 2 million yen.² In Korea, the Japanese colonial government was able to decrease the land tax rate from 3% (planned) to 1.5% as a result of higher-than-expected revenues.

² The land tax revenue increased from 0.92 million yen in 1903 to 2.98 million yen in 1905.

(Unit: 1,000 yen)

	Collateralized (land) regular loan			Collateralized (land) Short-term loan			Total
	Siksan	Dongchuk	Geumjo	Choeun	Siksan	Botong	
1918	6,621	11,371	1,253	5,049	3,320	6,590	34,204
20	28,216	30,571	10,639	12,037	5,820	17,557	104,840
22	61,326	37,927	18,128	19,438	12,426	28,164	177,407
24	70,075	39,806	18,749	21,417	14,813	32,253	197,113
26	83,817	35,609	25,518	17,003	15,520	36,033	213,600
28	110,399	38,743	25,642	9,070	16,669	34,429	234,952
30	140,120	44,430	38,076	20,538	8,996	46,423	298,583

Source. – Hori, Gazuo (1982)

Note. – 1) Siksan, Dongchuk, Geumjo, Choeun, and Botong are the names of financial institutions. 2) The formal land survey was completed on November 1918.

Table 2. Amount of collateralized loan (collateral type: land) in Korea, 1918 – 1930

Year	Parcels of land registered as collateral in Taiwan	Parcels of land registered as changing hands through sales in Taiwan
1905	4848	4499
1906	43731	51137
1907	38040	62043
1908	39798	64210
1909	46279	68466
1910	54474	74815
1911	53718	86286
1912	67335	151125
1913	83341	121328
1914	92130	93759

Source. – Statistics on Land Registration in Taiwan (臺灣土地登記集計表) (1915)

Note. – Registration began in July of 1905.

Table 3. Land transaction in Taiwan (collateralization / sales)

Interestingly, the solution of a public finance problem eventually was important for private finance. After the official land registration system was operational, access to credit became easier because land titles became reliable nationwide. The total amount of collateralized loans from banks increased in Korea (table 2) after 1918 and the total number of collateralized parcels of land increased in Taiwan after 1905 (table 3).

Especially, when farmers obtained access to credit, they invested in irrigation systems that increased agricultural productivity. After the completion of irrigation projects and subsequent adjustments³, agricultural productivity in paddy land increased by 67 to 200 percent in Korea (Rhee et al. 1992).⁴ On average, there was a drought every eight years and extremely severe drought every twenty five years in Korea (Rhee and Cho 2005, Rhee 2009). Thus, it is clear why the farmers invested in the irrigation system when they first obtained access to credit.

The irrigation investments in Taiwan doubled the quantity of arable land from 1898 to 1940 (Ka 1995) and increased agricultural productivity by 81% from 1901 through 1938 (Lin 2008). Taiwanese landlords who benefited from the land-tax reform continued to save and to invest in commercial enterprises such as sugar and rice processing (Ka 1995).

3. A Natural Experiment in Micronesia

One might suspect that we emphasize the completion of a land survey in Taiwan and South Korea because these countries later became rich. In identifying the long-run economic effects of property rights, one must consider the problem of reverse causality, i. e. secure property rights might be a result of economic development.

Reverse causality is not an issue in the case of Palau, a Pacific island that enjoys three times the GDP per capita (\$7,600 in 2007) compared to other countries in Micronesia (the Marshall Islands, \$2,900 and the Federated States of Micronesia, \$2,300 in 2007). The case of Palau is illustrative because the Pacific islands have quite similar initial economic conditions (isolated geographic location and extremely limited land area) and a tradition of clan ownership.

³ Agricultural productivity does not increase immediately partly because micro-organisms in the soil must adjust to more water.

⁴ Land reforms that led to irrigation investments and rising agricultural productivity are also reported in Botswana (Machacha 1986) and Kyrgyzstan (Akramov and Omuraliev 2009).

In Micronesia, the Japanese colonial government first identified the boundaries between public lands and private lands from 1923 to 1937. Then, Japan identified owners and boundaries of private lands and made land registers in the Northern Mariana Islands from 1937 to 1939 and in Palau from 1939 to 1941 (Purcell 1967). However, in the Federated States of Micronesia and the Marshall islands, the Japanese land survey, begun in 1941, was curtailed and eventually stopped by the onset of World War II (Damas 1994, McGrath and Wilson 1971). Consequently, the Federated States of Micronesia and the Marshall islands still operate under the clan ownership system.

Legal cases in Micronesia clearly show the legacy of the Japanese land registration system. From 1945-1981 Micronesian countries became the Trust Territory of the United States and during this era courts consistently upheld land rights defined by the Japanese land survey in Palau. The American judges consistently concluded that clans or lineages did not have any authority over private land (*Orrukem v. Kikuch*, Trust Territory Reports (T.T.R.) vol. 2, 533).⁵

In sharp contrast, in the Federated States of Micronesia and the Marshall Islands, American judges were unable to find any basis or evidence of private land ownership and therefore customary land law applied. In Micronesia land tenure was based on clan, lineage or group ownership and most customary law allowed the chief to confiscate (customarily assigned) land if an individual violated village traditions. Consequently, the courts allowed (or sometimes enforced) the confiscation of land if a plaintiff provided clear evidence of violation of the customs by, for example, failing to attend important village activities (for example, *Amon v. Tobeke* T.T.R. vol. 6, 36; *Tamaggimed v. Bathin*, T.T.R. vol. 2, 499; *Phillip v. Carl*, T.T.R. vol. 3, 330; *Mita v. Piriska*, T.T.R. vol. 3, 168). With the exception of Palau, this kind of legal

⁵ See also *Ngiruhelbad v. Merii, Imesei, and Tarkong*, T.T.R. vol. 1, 367; the opinion of the Appellate Division in that action affirming the decision of the Trial Division, T.T.R. vol. 2, 631; the opinion in the case of *Lusii Orrukem v. Kikuch and Issak*; Palau District Civil Action No. 194.

tradition remains in Micronesia. In Yap, Civil Action No. 2008-043 states that “Generally, land titles in Yap ... do not have the same meanings as land titles held elsewhere. ... the titles are generally subject to various conditions or interests whether or not the conditions or interests are mentioned in the certificates of title” and the municipal judges can nullify land titles if the land owner violates the traditional customs (Yap state government, Section 7 of Yap State Law 2-38).

	Disposed		Pending		Disposed + Pending		Total	% of Disputed
	Disputed	Undisputed	Disputed	Undisputed	Disputed	Undisputed		
States with the Japanese land registers in Babeldaob island								
Ngchesar	17	50	16	29	33	79	112	29.5
Ngaremlengui	11	14	2	7	13	21	34	38.2
Ngarchelong	46	154	7	5	53	159	212	25.0
Ngaraard	24	234	57	4	81	238	319	25.4
Melekeok	5	15	7	3	12	18	30	40.0
Total	103	467	89	48	192	515	707	27.2
States without the Japanese land registers in Babeldaob island								
Airai	4	48	94	19	98	67	165	59.4
Aimeliik	24	10	7	1	31	11	42	73.8
Ngardmau	4	27	19	1	23	28	51	45.1
Total	32	85	120	21	152	106	258	58.9

Source. – Palau Land Court

Note. – Two states that has fewer than five cases are excluded

Table 4. Disputed and undisputed cases in issuing land titles in Babeldaob 2000 – 10

One can also study the relationship between secure land tenure and development within Palau. Three of the 16 states in Palau – Aimeliik, Airai, and Ngardmau – lack the Japanese land registers because they were apparently misplaced in storage or lost in transit to Guam (Trust Territory of the Pacific Islands Office of Land Management, Note on Duplication 1967). Court records from 2000 to 2010 show that in Babledaob Island, where ten out of sixteen states are located, the three states lacking the Japanese land registers have more disputes (58.9%) in issuing land certificates than other states (27.2%) (table 4).

The relationship between the lack of a land register and low development is most clearly observed in the state of Ngardmau, which sank from one of the most to the least developed states in Palau after the land registers were lost. During the colonial era the state became relatively prosperous after the Japanese opened bauxite mines. In the 1960s, many Japanese companies wanted to reopen the mines, but the unclear boundary between public and private lands discouraged this (Petrosian-Husa, Miko, Smaserui 2002). Vague boundary and the slow process of land titling were the main obstacles to reopening the mines and invigorating economic development.⁶

One might suspect that other factors such as education, health, infrastructure investments or initial endowment that were either unique or relatively more important to Palau led its economic growth. However, from 1945 to 1981, U. S. policy treated these countries as one political entity, the Trust Territory of the Pacific Islands.⁷ In fact, Japan and the United States built and repaired roads, harbors, and airfields not only in Palau but also in the Marshall Islands and the Federated States of Micronesia (Close up Foundation 2000, Boecker 1993). Moreover, there was a large expansion of American-style education⁸ and significant sanitation improvements in Micronesia after 1945. Economic growth, however, was robust only in Palau where Japan transferred its land tenure system completely.

The colonial history of Micronesia suggests that Palau did not have more favorable initial economic conditions than other Micronesian countries. During the Japanese occupation, civil

⁶ One may suspect that destruction during World War II might be the cause of slow development in Ngardmau, which is one of the states on Babeldaob island. In 1947, the U. S. Geological survey evaluated Ngardmau's potential for bauxite mining (Petrosian-Husa, Miko, and Smaserui 2002). They concluded that the principle asset remaining were the roads and railway grades, which could be restored and used to good advantage. The water mains, reservoirs, causeway, pier and also possibly the aerial tramway could be rehabilitated at moderate expense. In Palau, war destruction was heaviest in the adjacent islands of Peleliu and Angaur, which were the only areas of Palau the United States invaded.

⁷ Palau and the Marshall Islands voted for independence, declining to join the Federated States of Micronesia.

⁸ The U. S. navy estimated that about 90% of primary school age children were enrolled in schools and 95% of them were attending in 1950s (Mangefel and Caldwell 2005).

head-quarters were located in Palau. Indeed, having civil head-quarters helped the economic development of Palau. Thus, one may suspect that Palau was chosen as the head-quarters because Japan recognized its economic potential. However, that hypothesis is unlikely for several reasons. First, Japan was indifferent to Micronesia prior to 1914 because the country was beset with more pressing problems closer to home – China (1895), Russia (1905), and Korea (1910) (Purcell 1967, 247). In 1914 Japan sent a group of investigators, however their reports on Micronesia did not mention any economic potential. “There is no mention of sugar, copra or phosphorous⁹ in the entire report, nor any indications as to why such considerations were omitted” (Purcell 1967, 153). Japan moved their headquarters from Truk (which provides the most stable anchorage for military ships in Micronesia) to Palau in 1922. Palau was chosen as headquarters “because of its geographic location, which would enable the Japanese to have a clearer idea of what British were doing in New Guinea, as well as an equally clear picture of American activity on Guam and in the Philippines” (Mangefel and Caldwell 2005, 41).

Arguably, it was Ponape that had the most favorable economic conditions. Unlike other Micronesian islands, Ponape has high mountains and large rainfall. Consequently, Japanese could cultivate their main staple, rice. Before the onset of World War II, Japanese immigrants to Ponape increased rapidly and were projected to catch up with Palau.

Second, the former colonizers – the Spanish (1884-1899) and the Germans (1899-1914) – who occupied the same area neglected Palau. Spain and Germany divided Micronesia into the Mariana islands, the Caroline islands (Palau and The Federated States of Micronesia), and the Marshall islands. During the German era the most successful trading station was Jaluit, an atoll

⁹ Sugar, copra, and phosphate were major commodities in Micronesia during the Japanese era.

in the Marshall Islands surrounded by islands that had good land for coconuts¹⁰ (For example, in 1922 the acres of coconut trees were 25,583 in the Marshall Islands; 11,000 in Ponape; 8,305 in Truk; 6,855 in Yap; and 1,855 in Palau from Purcell (1967)).

In the Caroline islands, the Spanish and the Germans mainly fought over Yap where David O'keefe (an American businessman) traded copra successfully in the 1870s. The Spanish and made their Western Caroline headquarters in Yap, which the Germans later took over. In Yap, the Germans dug a canal and built a causeway and an undersea cable station which connected Yap – Guam – Shanghai – Indonesia, and planted 80,000 coconut trees. In Ponape, where the Spanish made their Eastern Caroline headquarters, plantations were more successful than in Yap. The Germans took over the headquarters and reorganized a land tenure system and issued some land titles from 1912 - 1914.¹¹ Thus, it is clear that Yap and Ponape were two economic centers of the Caroline islands before the Japanese colonization.

Finally, after World War II the United States virtually ignored Micronesia including Palau until the 1980s¹² (Etpison, 1994) and the Trust Territory was poorly developed and could not support itself (Boecker 1993). Arguably, the United States made the Micronesian countries equally under-developed by forbidding foreign companies from doing business until 1974. Tax revenues show that the Marshall islands was the economic center as it had been in the German era. In 1975, 48% of tax revenue in Micronesia came from the Marshall Islands (income tax – the Marshall Islands: \$1,153,609.23, Palau: \$35,655.42, the Federated States of Micronesia: \$79,902.89 / business gross receipts tax – the Marshall Islands: \$725,742.67, Palau: 156,688.34, the Federated States of Micronesia: \$377,378.31 from Trust Territory of the Pacific Islands

¹⁰ During World War I, the only place that Japan officially announced its occupation was the Jaluit atoll in the Marshall Islands.

¹¹ Germans also planned to reorganize the land tenure system in Yap, but could not succeed in it by 1914.

¹² The United States began to pay attention to Palau after the tourism boom in Palau in the 1980s.

(1975) 28th annual report to the United Nations on the administration of the Trust Territory of the Pacific Islands).¹³ Finally, in 1979 – just before the end of the Trust Territory – more tourists went to the Federated States of Micronesia than Palau, partly because some states of the Federated States of Micronesia were closer to Guam (tourist distribution: the Marshall islands 16 percent, Palau 21 percent, the Federated States of Micronesia 61 percent – Ponape 30 percent, Truk 24 percent, Yap 6 percent, and Kosrae less than 1 percent, from Annual report of the High Commissioner of the Trust Territory of the Pacific Islands to the Secretary of the Interior 1979). In short, Palau did not have a leading economic position in Micronesia during the Trust Territory era.

4. Comparison of Land Reforms

Comparing the traditional land tenure system of Taiwan during the Qing period and colonial land tenure system of Taiwan during the Japanese colonial period helps to identify the critical components of land registration leading to development. According to Lin (2008), although the Qing government supported economic development, its system had little success in attracting outside capital and modern technology due to insecure and complex property rights. In southern China and Taiwan, custom recognized top-soil and sub-soil rights. The former were permanent tenancy contracts that the community recognized as a kind of property (the tenant leased the land for three or four generations). Both top-soil and sub-soil rights could be leased. The dual owner system provided security for tenants, but made land transactions and tax collection very difficult (Macauley 2009). Only the native Taiwanese could control every aspect

¹³ The format of the annual to the United Nations on the administration of the Trust Territory of the Pacific Islands was changes in 1976 and the changed format did not report the tax revenue at the district level.

of complex property rights: multiple owners and potentially numerous rental contracts (Ka 1995).

From June of 1886 to December of 1889 (10 years before the Japanese occupation), a Chinese general Liu Ming-chuang reformed the land tenure system of Taiwan, an effort that cost 426,635 ounces of silver. Notably the general did not create an updating system to register land sales, new land reclamation or other changes from that point onward. Consequently, this new system gradually lost its effectiveness, as had happened with earlier reforms. Their priority was to determine which landowner should be taxed under the new system (Lin 2008).

In contrast, the Japanese colonial government introduced the modern, single owner, land tenure system based on accurate cadastral surveys. Its total expenditures in surveying land and making registers were about 4,230,905 ounces of silver (ten times of the expenses of Liu's reform; the original expenditure was 5,357,188 yen; the annual budget of the traditional Taiwanese government was about 1 million yen). In order to introduce a single ownership system, the Japanese colonial government bought all sub-soil rights and gave legal title to top-soil owners, at a cost of about 2 million yen (Ka 1995). More importantly, coupled with a series of land registry regulations, household registry rules, and other administrative measures, the government could now record all "changes in land distribution and household composition" (Lin 2008).

Legally, land ownership is an abstract concept and what the seller of land owns and offers is "the right to sell" (tenants and squatters have the right to use but lack the right to sell). However, "the right to sell" is justified only by the law (Simpson 1976). In most cultures, traditionally land was considered to be held either directly or indirectly from the King. Therefore to prove ownership the title had to be traced back to the original Crown grant (or state

grant). For example, in the U. S., title insurance links the deed through an unbroken chain to the original state grant. Therefore, a centralized information exchange system such as a record of deeds or registration of title is a very efficient way of proving and updating ownership. The absence of those systems gradually makes land registration obsolete.

The comparison of Japanese and American land reforms in Micronesia also helps to identify another crucial component to success. Japan occupied Micronesia from 1919 to 1945 and the U. S. succeeded from 1945 to 1981. After occupation, Japan implemented a citizen identity system that included finger prints, a land reform, and a tax reform, as they had done earlier in Taiwan and Korea. When Japan officially occupied Micronesia in 1919, they conducted a complete census on October 1, 1920. In fact, Japan was so adamant about accuracy, it was made a general rule to carry out the census twice and double-check the results. Japan also introduced a system to register titles and update the register following transactions. When the Japanese colonial government introduced land registration in Micronesia, they compensated or planned to compensate chiefs. Consequently, Japan's land reform in Micronesia was more successful than the one undertaken by Germany (occupied 1899 – 1914), which surveyed only prosperous areas such as coconut and pineapple plantations, and prohibited land transactions.

In contrast, after occupying Micronesia, the U. S. faced difficulties in implementing an effective citizen identity system and a land tenure system. The Trust Territory government clearly acknowledged the critical roles of 'land surveying' and 'registration and updating' for secure land tenure. For example, Trust Territory Policy Letter, P-1, clearly states "the long range plan includes cadastral survey of all land, registration of titles, and recording of all land transfers" (Wright 1947, 55). At the planning stage, however, the government did not recognize the importance of citizen identity system. After the initiation of land registration, the American

promoters realized that “Micronesians as a whole do not appreciate the need for signatures and correct spelling of names” (Trust Territory of the Pacific Islands 1971, 23). The first land registration project in Micronesia was abandoned by 1951 (McGrath 1971). In the 1970s, the Trust Territory government reinstated a land reform, but its speed was painfully slow (McCutcheon 1981).

In many cultures, people have multiple names for different purposes. For example, in traditional Korea, a man was given names at birth, as an adult, an official name for governments, a name for the family history, and a nickname. Thus, the Korean government had difficulty in identifying the owner of land from the name used on the traditional land register. Therefore, the effective land registration requires a citizen identity system. Without a system that identifies a person with a single name, land registration becomes obsolete.

5. Conclusion

Japan began to establish a secure land tenure system in the late sixteenth century and completed the process in 1873. Its colonial governments transferred the Japanese land tenure system to Taiwan and Korea – two growth miracles – and Palau – a leading economy in the Pacific.

Historical analysis shows that a thorough land tenure system solves a public finance problem by linking land registers, maps, and taxpayers. Moreover, the solution to a public finance problem spills over to private finance. A proper land survey defines boundaries and registration of titles enables banks to readily verify ownership. Because land is the most abundant asset in agricultural economies, its collateralization can provide a major boost for

financial markets that nurture economic development. In Asia, a secure land tenure system combined with financial market developments encouraged investment.

The motivation of land reform was solving a budget deficit and raising tax revenue. In order to solve the budget problem, the government surveyed available assets such as land and population. The survey and updating system made the economy more manageable by the government. Historical and political viewpoints on the emergence of modern nation-states also emphasize increasing the taxation capacity of governments (Tilly 1990, Furgerson 2001, and Besley and Persson 2009). Moreover, it is worth to note that some legal historians observe that “secure property rights in land established a precedent for the establishment of secure property rights in general” (Hughes and Cain 2007, 14).

The comparison of land reforms in Micronesia suggests that success requires not only land registration but also a citizen identity system. In other words, Japan delivered institutions as a package of land registration, the citizen identity, and contract enforcement using collateral. In fact, the structure of civil codes (or private laws) confirms that secure property rights institutions requires those components. For example, California civil codes have four sections 1) Persons, 2) Property, 3) Obligations (contract rights and remedies), 4) General provisions. Indeed, the structure of civil codes in developed countries is quite similar.¹⁴

The law on persons determines names, addresses, and “legal capacity¹⁵” of persons in contracts and property ownership. The law on obligations determines the relationship between “two” people (a creditor and a debtor / a buyer and a seller) in a contract. The law on property

¹⁴ German civil codes have five sections 1) General provisions 2) Property 3) Obligations 4) Persons 5) Succession to property. French civil codes have three sections 1) Persons 2) Acquiring property/ownership (Property) 3) Modifications in property/ownership (Obligations).

¹⁵ For example, a contract with a child is not valid due to the child’s legal capacity in making the contract. Similarly, when a tribe owns land collectively, a sales contract between a tribe man and a foreign buyer is considered to be invalid within the clan because the tribe man only has the right to use, not the right to sell.

(i.e. mainly land) determines the relationship between the property owner and “the rest of the world”. The property owner has exclusive rights on his land.¹⁶ A well-defined property can be used as collateral of obligations, facilitating contract enforcement. Thus, collateral law – roughly half of obligation law – links property and obligations. Family law – part of persons law – determines the succession to property and contract. In other words, persons, property, and obligation are inter-related and dependent on each other to provide a complete institution on contract and property. In sum, good property rights institutions are a package of persons, property, and obligations.

Appendix. Land Laws in the Micronesia from Trust Territory Reports

Palau Land Law

Individual land was foreign concept that had no place originally in Palau customary land law.

Ngiruhelbad v. Merii, T.T.R. vol. 1, 367.

Older Palau custom is of little help in determining exact effect and implications of concept of individual land. *Ngiruhelbad v. Merii*, T.T.R. vol. 1, 367.

Since concepts of “individual land” and transfer of land by written instrument are foreign to Palau custom, general principles of land transfers applied by administering authorities who introduced concepts, rather than Palau custom, will be used in determining ownership of land.

Asanuma v. Flores, T.T.R. vol. 1, 458.

¹⁶ In sharp contrast, the obligation laws do not provide exclusive rights to the creditor on the debtor’s assets because the law determines only the relationship between two people. In legal principle, creditors vested the same or similar rights should be treated equally in insolvency proceedings. For example, although there are few exceptions such as unsubordinated creditor, bankruptcy courts in the United States have the power and authority to subordinate prior claims on the assets of a bankrupt debtor to the claims of junior claimants based on principles of equity.

Purpose of introducing concept of individual land in Palau was to get away from complications and limitations of Palau matrilineal clan and lineage system and to permit individual control of land and patrilineal inheritance. *Ngiruhelbad v. Merii*, T.T.R. vol. 1, 367.

In case of individual land in Palau Islands, lineage or clan from which it came retains no control over it. *Orrukem v. Kikuch*, T.T.R. vol. 2, 533.

Marshalls Land Law

Under Marshallese custom, there is no analogy between the American idea of absolute owner and the Marshallese idea of holder of any one of levels of rights in common kinds of land ownership. *Jatios v. Levi*, T.T.R. vol.1, 578.

Under Marshallese custom, all levels of owners of land have rights which courts will recognize and obligations to each other which severely limit their control over rights. *Jatios v. Levi*, T.T.R. vol. 1, 578.

Dri jermal rights of defendant who flagrantly disregarded judgment by not recognizing plaintiff as their *iroij erik* and *alab* and failing to cooperate with plaintiff under the custom would be terminated, and defendant ordered off the land. *Amon v. Tobeke*, T.T.R. vol. 6, 36.

Ponape Land Law

Where land on Ponape Island is transferred upon agreement to take care of grantor and there is gross failure to perform agreement by grantee, transfer may be cancelled and land transferred by grantor to another. *Eneriko v. Marina*, T.T.R. vol. 1. 334.

Where daughter is given land by father under customary Ponapean obligation to support and respect parents for their lifetime, and she grossly fails in such customary obligations, she thereby loses any right she may have had to control division of use of such land during their lifetime, or

to substitute other support in place of allowing parents to obtain their needs from the land. Phillip v. Carl, T.T.R. vol. 3, 330.

Truk Land Law

On islands of Truk Atoll, holding of land by family groups of varying degrees of inclusiveness is common practice. Santer v. Onita, T.T.R. vol. 1, 439.

Matrilineal family or lineage ownership is most common form of ownership on Truk Atoll.

Nusia v. Sak, T.T.R. vol. 1, 466.

Where it is clear that land is owned by a lineage, a transfer to the child of a male member is not to be presumed, but must be established by clear and convincing evidence. Lus v. Totou, T.T.R. vol. 1, 552.

Such a transfer must be consented to by all the male members of the lineage, or must be generally acquiesced in by them. Fischer (1958), *Native Land Tenure in the Truk District*, Sec. 3.

Where transfer of land in Truk is conditioned on donees staying with donor on land and taking care of her for rest of her life, and donees fail to do this, transfer fails and donor has right under Truk custom to disregard or cancel it. Mita v. Piriska, T.T.R. vol. 3, 168.

Yap Land Law

Under Yap custom, in order to sanction confiscation of land to redress private wrong, it is necessary that those seizing land explain their actions to village chiefs and elders and obtain at least their tacit consent to seizure. Tamaggimed v. Bathin, T.T.R. vol. 2, 499.

References

Acemoglu, Daron; Johnson, Simon and Robinson, James A. "The Colonial Origins of Comparative Development: An Empirical Investigation." *The American Economic Review*, 2001, 91(5), pp. 1369-401.

_____. "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution." *The Quarterly Journal of Economics*, 2002, 117(4), pp. 1231-94.

- Akramov, Kamiljon T. and Omuraliev, Nurbek** "Institutional Change, Rural Services, and Agricultural Performance in Kyrgyzstan." *IFPRI Discussion Paper*, 2009, 00904.
- Alchian, Armen A. and Demsetz, Harold.** "The Property Right Paradigm." *The Journal of Economic History*, 1973, 33(1), pp. 16-27.
- Asao, Naohiro.** "The Sixteenth-Century Unification," G. Editors, *The Cambridge History of Japan*. Cambridge: Cambridge University Press, 1991,
- Banerjee, Abhijit and Iyer, Lakshmi.** "History, Institutions, and Economic Performance: The Legacy of Colonial Land Tenure Systems in India." *The American Economic Review*, 2005, 95(4), pp. 1190-213.
- Besley, Timothy and Persson, Torsten.** "The Origins of State Capacity: Property Rights, Taxation, and Politics " *American Economic Review*, 2009, 99(4), pp. 1218–44.
- Boecker, Rebecca Reid.** *Yap State History*. Yap State Department of Education, 1993.
- Cho, Sukgon.** *Hankuk Geundae Tojijedoui Hyungsung (in Korean)*. Seoul: Haenam, 2003.
- Damas, David.** *Bountiful Island: A Study of Land Tenure on a Micronesian Atoll*. Waterloo: Wilfrid Laurier University Press, 1994.
- Demsetz, Harold.** "Toward a Theory of Property Rights." *The American Economic Review*, 1967, 57(2), pp. 347-59.
- Duus, Peter.** *The Rise of Modern Japan*. Boston: Houghton Mifflin, 1976.
- Engerman, Stanley L. and Sokoloff, Kenneth L.** "Factor Endowments, Inequality, and Paths of Development among New World Economics." *National Bureau of Economic Research Working Paper Series*, 2002, No. 9259.
- Etpison, Mandy T.** *Palau: Portrait of Paradise*. Koror: NECO Marine Corp., 1994.
- Ferguson, Niall.** *The Cash Nexus : Money and Power in the Modern World, 1700-2000*. New York: Basic Books, 2001.
- Fischer, Jack L.** "Native Land Tenure in the Truk District," J. A. Tobin, J. L. Fischer, R. G. Emerick, F. Mahoney and S. Kaneshiro, *Land Tenure Patterns in the Trust Territory of the Pacific Islands*. Guam, M.I.: Office of the High Commissioner, Trust Territory of the Pacific Islands, 1958.
- Foundation, Close Up.** *Micronesia: A Guide through the Centuries*. Alexandria: Close Up Foundation, 2000.
- Hori, Kazuo.** "Colonial Industrial Finance and Economic Structure - Analysis of Korean Colonial Industrial Bank." *Korean Economic History Association*, 1982.
- Hughes, Jonathan and Cain, Louis P.** *American Economic History*. Boston: Pearson Education, 2007.
- Japanese, Colonial Government.** *Statistics on Land Registration in Taiwan (in Japanese)*. 1915.
- Ka, Chih-ming.** *Japanese Colonialism in Taiwan: Land Tenure, Development, and Dependency, 1985-1945*. Oxford: Westview, 1995.
- Kwon, Tae-Uk.** "Iljeui Chosun Chimryaksa (in Korean)." 1989.
- Lin, Wen-Kai.** "Land Property and Contract in Taiwan: During the Qing and Japanese Colonial Period.," Unpublished manuscript, 2008.
- _____. "Land Property and Contract in Taiwan: During the Qing and Japanese Colonial Period.," Unpublished manuscript, 2008.
- Macauley, Melissa.** "A World Made Simple: Law and Property in the Ottoman and Qing Empires," H. Islamoglu and P. C. Perdue, *Shared Histories of Modernity: China, India & Ottoman Empire*. New Delhi: Routledge, 2009,
- Machacha, B.** "Botswana's Land Tenure: Institutional Reform and Policy Formulation," J. W. Arntzen, L. D. Ngcongco and S. D. Turner, *Land Policy and Agriculture in Eastern and Southern Africa*. Tokyo: The United Nations University, 1986, 39-47.

- Mangefel, John A. and Caldwell, Michael F.** *A Caroline Island Cultural Perspective on Disability: The Six History of Education in the Federated States of Micronesia*. Quezon City: Centralbooks, 2005.
- McCutcheon, M. S.** "Resource Exploitation and the Tenure of Land and Sea in Palau," *Anthropology*. University of Arizona, 1981.
- McGrath, William A. and Wilson, Scott W.** "The Marshal, Caroline and Mariana," R. G. Crocombe *Land Tenure in the Pacific*. London: Oxford University Press, 1971,
- North, Douglass C.** *Institutions, Institutional Change and Economic Performance*. New York: Cambridge University Press, 1990.
- North, Douglass C. and Weingast, Barry R.** "Constitutions and Commitment: The Evolution of Institutional Governing Public Choice in Seventeenth-Century England." *The Journal of Economic History*, 1989, 49(4), pp. 803-32.
- Nunn, Nathan.** "The Long-Term Effect of Africa's Slave Trades." *The Quarterly Journal of Economics*, 2008, 123(1), pp. 139-76.
- Perosian-Husa, Carmen C. H.; Miko, Melson and Smaserui, Moline.** *Inventory of Cultural and Historical Sites and Collection of Oral History Ngardmau State*. Bureau of Arts and Culture - Historic Preservation Office, Republic of Palau, 2002.
- Porta, Rafael La; Lopez-de-Silanes, Florencio; Shleifer, Andrei and Vishny, Robert W.** "Law and Finance." *The Journal of Political Economy*, 1998, 106(6), pp. 1113-55.
- Porta, Rafael La; Lopez-De-Silanes, Florencio; Shleifer, Andrei and Vishny, Robert W.** "Legal Determinants of External Finance." *The Journal of Finance*, 1997, 52(3), pp. 1131-50.
- Purcell, David Campbell.** "Japanese Expansion in the South Pacific, 1890-1935," 1968.
- Rhee, Younghoon.** *Hankukui Yuksa Tonggye*. 2009.
- Rhee, Younghoon and Cho, Youngjoon.** "18-19 Segi Nonggawi Gagye Gyesheung Chuyi (in Korean)." *Gyungje Sahak*, 2005, 39.
- Rhee, Younghoon; Jang, Siwon; Miyajima, Hiroshi and Matsmoto, Takenori.** *Hankuk Guendae Suri Johap Yongu (in Korean)*. Seoul: Iljogak, 1992.
- Tilly, Charles.** *Coercion, Capital and European States, Ad 990-1992*. Cambridge: Blackwells, 1992.
- Trust Territory, of the Pacific Islands.** *28th Annual Report to the United Nations on the Administration of the Trust Territory of the Pacific Islands*. 1975.
- _____. "Note on Duplication," Trust Territory of the Pacific Islands Office of Land Management, 1967.
- Trust Territory, Pacific Islands** *Trust Territory Reports: Containing Opinions of the High Court of the Trust Territory of the Pacific Islands, Appellate and Trial Divisions*. Oxford: Equity Pub. Corp., 1969 - 1989.
- Trust Territory, Pacific Islands; Office of the High, Commissioner and United States. Dept. of the Interior.** "Annual Report, Trust Territory of the Pacific Islands to the Secretary of the Interior." *Annual report, Trust Territory of the Pacific Islands to the Secretary of the Interior.*, 1979.
- _____. "Annual Report, Trust Territory of the Pacific Islands to the Secretary of the Interior." *Annual report, Trust Territory of the Pacific Islands to the Secretary of the Interior.*, 1971.
- Wakita, Osamu.** "The Social and Economic Consequences of Unification," G. Editors, *The Cambridge History of Japan*. Cambridge: Cambridge University Press, 1991,
- Yap, State Court.** "Yap Civil Action 2008-43," 2008.
- Yap, State Government.** "Yap State Law 2-38."