



THE LONDON SCHOOL
OF ECONOMICS AND
POLITICAL SCIENCE ■

Economic History Working Papers

No: 336

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Japan: Knowledge transfer
through in-house training at the
South Manchuria Railway
Company (SMR)

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February 2022

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Keywords: Human Capital Development, Occupational Mobility, Technology Transfer, Post-war Reconstruction

JEL Codes: J24, J62, N35, N75

Abstract

One important question in history is how knowledge has spread and allowed participants in an economy to increase their human capital. As Easterly and Levine have suggested (2001), one possible source of Japan's post-war growth was the increased size of the labour force and improved human capital. Their data show that Japan's experience was different from that of post-war Europe, where sources of growth mainly came from the high levels of investment, rather than from human resources. My research goes back to imperial Japan to analyse one possible channel of human capital development – the in-house vocational training offered by the largest Japanese wartime public corporation, the South Manchuria Railway Company (SMR). The majority of the 140,000 Japanese staff members were higher-elementary school graduates. They worked as staff members engaged in railway operation and construction, station duties, or worked as factory workers, and received extensive on-the-job training. A limited number of capable young employees were invited to attend training schools within the company. These programs were also open to non-Japanese staff members, but most participants were Japanese. Corporate training became increasingly common after the Second Sino-Japanese War broke out in 1937 to fill the vacancies created as a result of the intensified conscription. Although some people died in the war, many returned to Japan and entered the post-war labour market armed with their wartime skills and knowledge. The paper argues that training opportunities provided to under-educated young Japanese individuals at the SMR and other public corporations in the overseas empire produced unanticipated benefits in the form of human capital development.

Introduction

One of the important questions in history is how technology and knowledge have spread and allowed participants in an economy to increase their human capital.

As Easterly and Levine (2001) and Sugihara (2007) have suggested, one possible source of Japan's post-war growth was the increased size of the labour force and improved human capital. Their data showed that Japan's experience was different from that of European countries after the Second World War, where sources of growth mainly came from the high levels of investment, rather than from human resources. However, our understanding of many aspects of human capital development, including in Japan and elsewhere, remains limited.

As Becker (1962) proposed, human capital can be categorised into two types: general human capital and firm-specific human capital. Human capital development is usually discussed from the viewpoint of general human capital, normally developed through school education, as analysed by Lindert (2003). In addition to schools, in modern history, companies have been instrumental in enhancing human capital by disseminating technology, knowledge, and skills from a small number of elites to ordinary employees via in-house training programmes. However, research on in-house vocational training in Japan has been limited except for a few research works, such as *Technology and Industrial Growth in Pre-War Japan: The Mitsubishi-Nagasaki Shipyard 1884-1934* (Fukasaku, 1992).

This paper will focus on in-house vocational training that has fostered human capital. In order to do so, this research goes back to the 1930s and the 1940s to analyse one possible channel of human capital development – in-house vocational training of employees by the largest Japanese wartime public corporation, the South Manchuria Railway Company (SMR).

In addition to contributing to analysing in-house vocational training, this case study of the SMR is useful for two more reasons. First, it examines the possible spillover effects of wartime training on the post-war Japanese economy. For example, due to the dissolution of the Japanese empire, wartime firm-specific human capital was released into the economy. In the case of the SMR and other imperial public corporations, their skilled staff members were repatriated to post-

war Japan. Although part of their knowledge was lost in transition, part of this human capital was transplanted to be used in the post-war economy.

Second, this research examines human capital as a possible source of Japan's post-WWII growth. This is worthwhile because especially in the English language literature, Japan's post-WWII success has been predominantly examined from the viewpoint of the developmental state and the systems adopted by major companies, such as lifetime employment and cooperative labour-management relations. In this literature, the analysis of human resources is generally missing, a gap this paper aims to fill.

The SMR and the profile of the staff members

The SMR was established in 1906 after the Russo-Japanese War to take over a part of the Chinese Eastern Railway from Russia. The SMR was responsible for not only the operation of railways but also coal mines, water services, electrical services, railway cargo services, warehousing, real estate services, as well as other associated services. After the mid-1930s, the company increased the number of staff members, specifically when its subsidiary the North China Railway (Kahoku Kōtsū) was founded in 1939. SMR's total number of employees was approximately 400,000 in September 1944, including 140,000 Japanese and 260,000 staff members of other nationalities, mostly Chinese and Russians.

The majority of the Japanese staff members were higher-elementary school graduates who had been recruited in Japan and sent to Manchuria, or children or relatives of existing SMR staff members, who had already been living in Manchuria. They worked, for example, as railway operation staff members, factory workers, railway construction staff members, station staff members or office clerks, and received extensive on-the-job training. A limited number of capable young employees were also invited to attend training schools within the company.

A total of 400,000 employees at the South Manchuria Railway Company (SMR) in 1944 were classified into four ranks according to their level of education. Table 1 presents the breakdown of employees in these ranks, and the largest number of these worked as either *yōin* (entry-level employee) or *koin* (employees with elementary school certificates). According to Table 1, as of September 1944, 48 per cent of the Japanese staff members were *koin*, indicating that they had only received higher elementary school education. Many other Japanese elementary school graduates may have already been promoted to higher ranks (*junshokuin* and *shokuin*) after several years of service at the company, and it seems likely that more than half had entered the SMR with only higher-elementary school certificates.

Table 1 also reports the job classification of non-Japanese nationals. Most were Chinese, but there were also Russian staff members; Korean and Taiwanese staff members were registered as Japanese. Among these, approximately 5,500 were *shokuin*, the highest-ranking employees, but this figure is much lower than that of the Japanese, and only 12 per cent of *shokuin* were non-Japanese. The majority (75 per cent) of non-Japanese staff members worked as *yōin*. Unfortunately, due to the limited information on non-Japanese nationals for both wartime and post-war periods, this study mainly focuses on the education and work experiences of Japanese staff members.

Table 1. Employees by job classification at the SMR in September 1944

Ranks (Degree requirements for Japanese new entrants in parentheses)	Japanese	Non-Japanese	Total
<i>Shokuin</i> (職員) ¹ (Career track personnel, higher professional schools or universities)	39,428	5,567	44,995
<i>Junshokuin</i> (准職員) (Skilled personnel, middle schools)	31,604	11,562	43,166
<i>Koin</i> (雇員) (Higher-elementary schools)	66,813	39,561	106,374
<i>Yōin</i> (傭員) (Higher-elementary schools)	0	195,041	195,041
Other ranks	959	7,766	8,725
Total	138,804	259,497	398,301

Notes: The number of Japanese staff members on leave for military service was 27,100 at this time. This number almost certainly increased further toward the end of the war although no statistics are available.

Source: Mantetsukai, 1989, pp.2-3.

The SMR's in-house vocational training

The SMR traditionally had various educational and training programmes, including study-abroad programmes, in which chosen staff members were sent to academic institutions in China, Japan, the United States, and Europe. The SMR also had numerous in-house training programmes. As Japan's military expansion intensified after 1937, the shortage of engineers and technicians became a significant problem in both mainland Japan and the country's foreign territories. One of the SMR's responses was to increase the capacity of in-house vocational training as well as train and promote limited numbers of Chinese staff members.

The SMR had roughly five types of in-house training or on-the-job training programmes as shown in Table 2. Table 2 shows that 6,021 Japanese staff members, (including Koreans and Taiwanese who were registered with the SMR as Japanese), and 6,216 Chinese staff members were under training in 1944. This means that 3.1

¹ Among *shokuin*, a small number of section chiefs (*sanji*) and sub-section chiefs (*fukusanji*) were included, who were usually university or professional school graduates.

per cent of the total staff members were in one of the training programmes when the employee statistics were consolidated in 1944, but the total number of those who had already completed such programmes is likely to have been much larger. Table 2 shows that the numbers of Japanese and Chinese staff members under training were approximately the same, but the Chinese trainees were concentrated in special on-the-job training programmes (Category C in Table 2), or at the Mukden Railway School which was established in 1933 for Chinese staff members, where education was provided in Chinese.

For many Japanese boys who had not had an opportunity to attend middle schools, educational and training opportunities at the SMR were enormously attractive. It is difficult to evaluate the quality of these programmes, but testimonies of former trainees, which were published after the war, were generally positive about the training experiences. For example, Atsushi Watanabe from Fukushima prefecture was admitted to the evening middle school (*Ikusei Gakkō*) after he finished higher-elementary school at the age of 14 in 1926. The evening middle school was established in 1907 to educate young male interns to become capable white-collar workers. (Wakabakai, 2007, p. 31) The curriculum changed over time, but in 1944, it offered a four-year evening education programme in Dalian and Mukden to 214 Japanese boys, mostly aged between 13 and 19 (Amano, 2009, p. 207). Qualification to take the entrance exams included a certificate from a higher-elementary school or a two-year academic training record at a middle school. The competition to pass the entrance exam was intense, and only one in 15 applicants was admitted. All admitted students worked for the SMR as an intern during the day and attended classes in the evening between 6 and 9 pm. All students lived in a dormitory. The first cohort of graduates completed their studies in 1908, and the last, the 36th cohort, graduated in 1945. (Wakabakai, 2007, p. 10)

According to Watanabe, tuition was free, and housing, clothing, and food were all provided by the SMR. Students were also given an allowance (15 *sen* per day), which Watanabe fully appreciated. Subjects taught were Japanese, Chinese classics (*kanbun*), history, mathematics, moral training (*dōtoku*), economics,

commerce, calligraphy, martial arts and military drills. Teachers included economists from the SMR's Research Department (Chōsabu), and experienced SMR engineers who taught mathematics, science, civil engineering and other technical subjects.² Watanabe majored in accounting and became an accountant of the SMR's Jilin Railway Department (Kitsurin Tetsudōkyoku). He continued to use his accounting skills in post-war Japan at a semi-public agency.³ In this way, schools and training programmes trained young SMR staff members to fill vacancies within the company created by the drafting of senior staff members. It was a golden opportunity for those who were particularly keen to acquire knowledge and skills.

² For information on leading engineers at the SMR, other Japanese wartime public corporations and the military, see Sawai (2015).

³ This information has been taken from a newsletter published in 2007 by a postwar group of the SMR's middle school graduates, the SMR's staff member records, and a member list of Mantetsukai, the postwar organisation of SMR repatriates. However, detailed information cannot be included in this paper due to the Personal Information Protection legislation of 2003. This paper uses the term semi-public sector to denote Japanese organizations referred to as *tokushuhōjin* and *tokushugaisha*, both of which are established under special legislation, the latter taking the form of a joint-stock company. Examples of the former (*tokushuhōjin*) are Teito Kōsokudo Kōtsū Eidan (reorganized to Tokyo Chikatetsu in 2004) and NHK (the Japan Broadcasting Corporation, Nippon Hōsōkyōkai). Wartime and postwar examples of *tokushugaisha* are the South Manchuria Railway Company and the Nippon Telegraph and Telephone Corporation (established in 1985 as a result of the privatization of a *tokushuhōjin*, the Nippon Telegraph and Telephone Public Corporation).

Table 2. Number of staff members in training programmes (September 1944)

Category	English translation	Japanese name	Japanese staff	Chinese staff	Total
A	Training schools Railway operations	Tetsudō Kyōshūjo (鉄道教習所)	885	545	1,430
	Locomotive crews	Kikansha Jōin Yōseijo (機関車乗員養成所)	86	0	86
B	Technical training schools Railway operation	Tetsudō Gijutsuin Yōseijo (鉄道技術員養成所)	746	0	746
	Ports	Kōun Gijutsuin Yōseijo (港運技術員養成所)	34	23	57
	Coal mines	Tankō Gijutsuin Yōseijo (炭鉱技術員養成所)	302	0	302
	Railway factories	Kōjō Gijutsuin Yōseijo (工場技術員養成所)	741	292	1,033
C	New staff members under special on-the-job training	Tetsudō Renshūsei (鉄道練習生)	916	3,492	4,408
	Local railway training centres	Tetsudō Renshūjo (鉄道練習所)	506	290	796
D	Evening middle schools	Ikusei Gakkō (育成学校)	214	0	214
E	The SMR High School	Mantetsu Kōtō Gakuin (満鉄高等学院)	213	1	214
	The South Manchuria Technical High School	Nanman Kōsen (南満高専)	517	0	517
	Mukden Railway School	Hōten Tetsuro Gakuin (奉天鐵路学院)	0	1,153	1,153
	Other training centres	(その他訓練所)	861	420	1,281
	Total (a)		6,021	6,216	12,237
	Total number of staff (b)		138,804	259,497	398,301
	Percentage of staff members who were in training programmes (a)/(b)		4.3%	2.4%	3.1%

Notes to Table 2:

Category A: Training schools for railway operation for potential engine drivers, train controllers, and station staff members. Examples of courses taught included train control, train driving, basic training to deal with passengers and freight, language classes (Japanese, Chinese and Russian), moral training (*dōtoku*), physical education and military drills.

Category B: Technical training schools for railway construction and maintenance staff members, and factory workers. Examples of courses taught included carpentry, plastering, painting, electrical engineering, lathing, assembling, casting, modelling, metalwork, boiler technology, welding, technical drawing, language classes (Japanese, Chinese, and Russian), material science, physics and military drills.

Category C: Special on-the-job training programmes for new staff members who were assigned to work at stations, engine depots, construction sections or electrical work sections. Short-term re-training programmes for staff members with a few years of experience were also available.

Category D: Evening middle schools for new graduates from higher-elementary schools or middle schools. These schools also offered three to six-month re-training programmes for staff members who had already been working for the company. Examples of courses taught included bookkeeping, commerce, commercial law, filing, and languages (Japanese, Chinese, and Russian).

Source: Amano, 2009, p. 209.

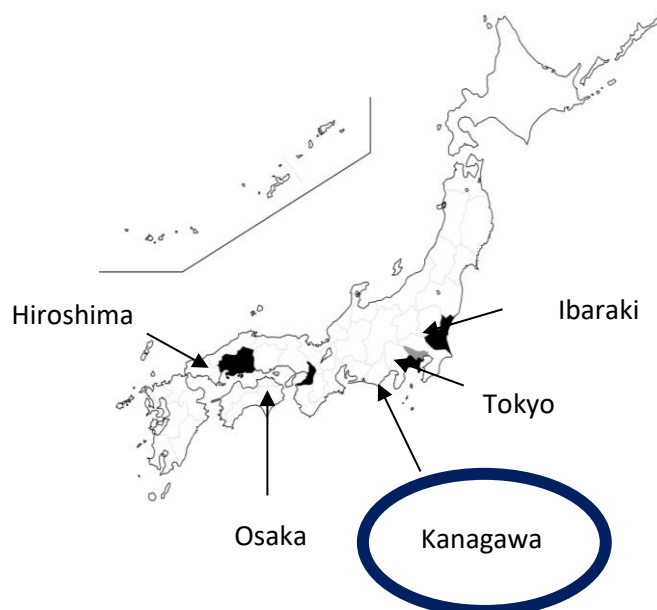
Post-war experiences of elementary school graduates in the SMR

The majority of Japanese SMR staff members were repatriated to Japan after the Second World War but tracking their post-war lives is not easy due to the limitation of source materials. One useful source for this research is the 1956 government survey of repatriates' post-war lives (Ministry of Health and Welfare, 1956).⁴ This was a national survey, but out of 47 prefectures in Japan, only four prefectural archives (Ibaraki, Kanagawa, Hiroshima and Osaka) have made these survey forms available for research. In this paper, information on SMR repatriates living in Kanagawa prefecture is used to understand their post-war lives. This paper acknowledges the problems regarding their representativeness, specifically due to the characteristic of Kanagawa as one of the most industrialised prefectures adjacent to Tokyo.⁵ Figure 1 shows the location of Kanagawa and the other three prefectures in the map of Japan.

⁴ The questions for each family member included name, sex, date of birth, the dates of emigration and repatriation, the name of their repatriation ship, the departure and arrival ports upon repatriation, and whether or not s/he was receiving public aid at the time of the survey. In addition, the household head was required to provide information on the length of his/her overseas residence, and four addresses (the address in Japan where the family was registered, the foreign address at the end of the war, the first address after repatriation and the one at the time of the survey in 1956). The survey also asked about the household head's wartime and postwar occupations and employers, including their longest job abroad; their occupation and employer at the end of the war; and their employment in 1956. If a family member had died during or after the repatriation, his/her name, sex, the date of death and age were also reported.

⁵ It is clear that Japan's 47 prefectures have quite different characteristics from each other, for

Figure 1. Location of Kanagawa and other prefectures mentioned in this paper



In Kanagawa prefecture, 10,432 repatriate households participated in the 1956 survey. The database created for this research based on the survey shows that 18.9 per cent of the participants had worked for the SMR or its subsidiaries. In this paper, we examine the experiences of 366 randomly selected SMR repatriates in the Kanagawa prefecture database. In this sample, approximately two-thirds are likely to have been elementary school graduates because they joined the SMR at the age of 14 or 15. The remaining one-third joined the company at the age of 16 or above. The school education of the latter group is not clear – they might have been graduates from middle school, high school or university, but it is also possible that they were elementary school graduates who had worked for some other employer before joining the SMR. This paper considers those who entered the SMR at the age of 14 or 15 as higher-elementary school graduates and highlights

example in terms of demography, history, sectoral structure and migration trends to former Japanese territories. At the time of the survey in 1956, Kanagawa was already a highly industrialised prefecture, adjacent to Tokyo, with a developing manufacturing zone. Ibaraki was also in the Tokyo Metropolitan Area, but it was still a rural area where the agricultural sector was dominant, and people were less mobile. In Hiroshima, urban areas and ports had close connections with the military and major industrial corporations, for example, Mitsubishi Shipbuilding, while the prefecture also had a large agricultural sector. Hiroshima prefecture had also sent a significant number of migrants overseas, not only to former Japanese territories, but also to the Americas, including Hawaii. Osaka was the commercial centre of western Japan, though the prefecture included both agricultural and urban areas, especially in the 1950s.

their experiences by comparing them with those who had joined the SMR at the age of 16 or above.

An analysis of the database shows that more than half (52.5 per cent) had joined the SMR in or after 1937 when the Second Sino-Japanese War broke out. The proportion of elementary school graduates increased towards the end of the war. In both groups (the elementary school graduates and the rest), 80 per cent worked as technicians or engineers in various sections of the company, and the remaining 20 per cent were office clerks, administrators or staff members in service-related sections, including the Yamato Hotel. Both groups' repatriation was generally slower than that of other civilian repatriates, possibly due to forced or voluntary detention in China and Siberia, and 32-33 per cent of both groups in the database were repatriated after January 1948.⁶ The average age of the elementary school graduate group was 31.2 years old in August 1945 and that of the other group was 38.4 years old. In post-war Kanagawa, the majority of both groups (elementary school graduates and the rest) found some sort of skilled job in the private sector or entered the public or semi-public sectors. Table 3 shows their occupational transitions obtained from the database.

⁶ It is not clear how the timing of repatriation, especially delayed repatriation as a result of detentions in Siberia and postwar employment by the Chinese and Taiwanese governments, affected repatriates' chances of capturing the opportunity of being employed by the same employer. In the case of wartime rail workers, however, it seems likely that the timing mattered, because the Transport Ministry finished its re-employment programme for repatriated railway staff members in June 1947.

Table 3. Occupational patterns of SMR repatriates in Kanagawa (1956)

	Number of SMR repatriate	
Agriculture	6	1.6%
Skilled employment in the private sector	129	35.2%
Public and semi-public sector		
Japanese government offices	57	15.6%
American bases	45	12.3%
Japan National Railways and major private railway companies (Keihin Kyūkō and Tōkyū)	69	18.9%
New jobs in new sectors	45	12.3%
Unemployed or retired	15	4.1%
Total	366	100%

Notes: Figures were taken from the databases created for this research.

Source: *Zaigai Jijitsu Chōsahyō* (Ministry of Health and Welfare, 1956).

Table 3 shows that very few SMR repatriates in Kanagawa were in the agricultural sector even though Japan was still a predominantly agrarian country in 1956. The largest group (approximately one-third) took up skilled jobs to use their wartime skills in the private sector. If we compare elementary school graduates and the other group in skilled employment, we find that more than half (55 per cent) of elementary school graduates were working in major firms such as Nihon Kōkan (NKK, a major steel manufacturer) as factory workers, while the majority (71 per cent) in the other (more educated) group were more likely to be in small and medium-sized enterprises (SMEs), often as middle managers. It is worth noting that 24 individuals (all elementary school graduates) out of 366 in the total sample were working at Nihon Kōkan as factory workers or engine drivers. Other companies which employed several individuals in the database include Mitsubishi Heavy Industries (nine individuals), Komatsu and Kajima Corporation (three individuals each).⁷ These major companies seem to have seen SMR repatriates (and possibly those repatriated from other public corporations) as a resource pool of technical skills and therefore employed a group of them.

⁷ Mitsubishi Heavy Industries, Komatsu and Kajima Corporation employed individuals from both the elementary school graduate group and the other group.

The Japan National Railways (JNR) and other private railway companies employed approximately 20 per cent of both groups as station staff members, train drivers, and construction and maintenance specialists. Employment at the JNR was partly a result of the petition submitted by the association of repatriated foreign railway staff members (Tairiku Tetsudō Jūjiin Engokai).⁸ As a result, approximately 11,200 out of 180,000 repatriate railway workers across Japan, including those from the SMR, were employed in 1946 and 1947 by the Transport Ministry (Tairiku Tetsudō Jūjiin Engokai, 1947), from which the JNR was separated in 1949. The public sector was also a major employer and c.28-29 per cent of both elementary school graduates and the other group were employed in the public sector. Both groups of individuals in the public sector were working at various central and local government agencies, such as the Economic Planning Agency, the Transport Ministry, the Special Procurement Agency, and American bases (as quasi-public servants). The public sector and American bases were also workplaces where SMR repatriates in both groups used their wartime skills. They took up jobs as mechanics, specialists on construction or waterworks, office clerks, accountants, or interpreters. The trends in the public sector were similar for both elementary school graduates and the other group. The similar post-war transitions of both groups may indicate that, with the skills acquired at the SMR, elementary school graduates may have become equal competitors to their more educated colleagues in terms of finding stable, rewarding, and well-paid jobs.

If we examine the hometowns of the SMR repatriates who were living in Kanagawa prefecture in 1956, we find that more than 65 per cent had been originally from other prefectures, including in western Japan. The majority (48.9%) first returned to their hometowns after repatriation but moved to Kanagawa sometime between their time of repatriation and 1956. As previously mentioned, in the SMR repatriate population in Kanagawa, approximately two-thirds were elementary school graduates and the remaining one-third belonged to

⁸ In May 1946, the leaders of four wartime foreign railway companies (the SMR, the North China Railway, the Central China Railway and the Korean Railway) established an association for repatriate railway workers in Tokyo. This organization assisted members' job placement, including at the Japan National Railways.

the other group. It is interesting to note that if we examine the SMR repatriate population in other prefectures (such as Ibaraki and Hiroshima) for which the 1956 national survey data are available, we find that fewer than ten per cent of them were elementary school graduates, the majority being those who can be categorised into the other group. Any conclusion should be carefully drawn, of course, because no information is available for other prefectures and the sample sizes of the Ibaraki and Hiroshima databases are small,⁹ but it seems possible that some of the young SMR repatriates were more willing to move to urban areas, such as Kanagawa, to seize job opportunities in the growing urban economy.

SMR as a place of education for undereducated young Japanese people

It should be acknowledged that more information is needed to support the hypothesis that the SMR's in-house training empowered the company's young employees, specifically those who had only received elementary education. However, there is only limited information available. To supplement the analysis of the 1956 survey, below I provide information on two more personal experiences of young SMR repatriates who seem to have fully utilised their experiences at the company.

The first example is Narumi Sakiyama. Sakiyama was born in Nagasaki in 1924 and went to Manchuria to find a job at the age of 14 when he was still a higher-elementary school student. Perhaps after being engaged in different jobs, he joined the SMR at the age of 16 in 1934. Sakiyama spent the first two years of his career at the Technical Training School of the Dalian Railway Factory (Tetsudokōjō Gijutsuin Yōseijo). He specialised in electrical welding and became a repair mechanic at a boiler factory in Mudanjiang (Jap. Botankō) after graduation. After the war, he was repatriated to Japan in 1946 at the age of 28. He first returned to Nagasaki but went to Tokyo shortly after and took up several

⁹ In the Ibaraki database, 59 individuals (out of randomly selected 500 people from the 9,424 total civilian repatriate population in the prefecture in 1956) were associated with the SMR at the end of the war. In the Hiroshima database, 35 individuals (out of randomly selected 621 in the total civilian population of 19,333) were working for the SMR at the end of the war.

part-time jobs as a translator and an interpreter. He graduated from Waseda University's Faculty of Commerce in 1954. Sakiyama became a staff member of the Japan Economic Federation's International Affairs Department and in 1973 became a Human Resource Manager of Dow Chemical Japan (Sakiyama, 2012).

Another example is S. T. He was born in 1914 in Sapporo. He lost his parents in the 1918 Spanish flu pandemic and was raised by an uncle and his wife, graduating from higher-elementary school. S.T. wanted to go to middle school, but his uncle and aunt forced him to work in their hardware shop from early morning until late at night. Later, with an invitation from another uncle, who was working at the SMR, S.T. migrated to Manchuria and was admitted to the SMR. He received a two-year education at the same training schools as Sakiyama had attended and became a railway signalling technician after graduation. S.T. was conscripted and was fortunate enough to be sent back to Japan with his troops to defend the homeland. He was demobilised in August 1945 at the age of 31. After the war, one of his colleagues invited him to join a new electrical construction company in Ginza, Tokyo. While he was at this company, S.T. attended an evening certificate programme at Tokyo Denki University studying new electrical engineering technology. In 1961, he established his own electrical construction firm. The business became successful, specifically in lighting. He participated in joint projects with major firms, such as Toshiba, and published two books and several serial articles from a publisher specialising in electrical engineering. He closed his company in 1989 and retired.¹⁰

These are only two of the stories that I have collected of capable young SMR repatriates who seem to have fully utilised their opportunities to receive secondary education or vocational training at the SMR. They sometimes re-educated themselves or took up new sorts of jobs after the war as did Sakiyama and S. T. It still seems that training opportunities at the SMR gave them basic knowledge and skills that allowed them to increase their post-war job prospects.

¹⁰ Interview with S.T. on 21 October 2012.

Although not all young SMR repatriates were as fortunate as these two and may have been less creative or aggressive in seizing new opportunities, these episodes give us useful examples. To fully answer the question regarding to what degree the training programmes offered by the SMR empowered under-educated young staff members, more information is needed. For example, it would be helpful to examine the data on all graduates who received higher education at the SMR as well as information on their job and salary levels, which is unfortunately unavailable. However, the evidence presented in my research indicates that at least some used their wartime skills in the private and public sectors in post-war Japan, and it would be difficult to deny the role in human capital development of in-house training at the SMR.

Conclusion

As I have discussed, in-house training at the SMR offered secondary education to young staff members who did not attend middle or other kinds of upper schools. In addition to the SMR, numerous other public corporations and the Japanese Navy offered similar opportunities to possibly hundreds of thousands of young people. At wartime public corporations and the Navy, knowledge and skills were transmitted from senior to young staff members. As Becker (1962) argued, companies normally train their staff members to increase firm-specific human capital, with the expectation that the trainees would stay with the company for at least a certain period. Due to the end of the war and the collapse of the Japanese empire, staff members lost their jobs, and the majority of the Japanese were repatriated to Japan. For some, the post-war transition was not easy, and they ended up as day labourers or became unemployed after being repatriated. However, at least in Kanagawa, many individuals entered the post-war Japanese labour market armed with skills, knowledge, and confidence acquired during the war. Thus, wartime firm-specific human capital became general human capital that may have contributed to Japan's post-war growth. The possible upward social mobility of these formerly poor young people could also help explain the reduction

in inequality in post-war Japanese society, as suggested by Thomas Piketty in *Capital in the Twenty-First Century* (Piketty, 2014).

However, it should also be noted that behind these motivated young Japanese people were numerous non-Japanese and Japanese female staff members who were not given equal education opportunities. The presence of an inexpensive Chinese workforce may have made it easier for the company to introduce various full-time training programmes, mostly for Japanese staff members. Towards the end of the war, as many Japanese employees had been drafted, the SMR started promoting non-Japanese nationals, for example, as station masters or steam train drivers. However, the number of promotions was still much smaller than those of Japanese staff members who remained in post during the war. In addition, as occasionally mentioned in personal essays published by the Japanese SMR repatriates in post-war Japan, non-Japanese individuals were very often the target of Japanese staff members' arrogance and insults at the SMR.

More information is needed to fully answer the question of to what degree the training programmes offered by the SMR empowered under-educated young staff members. However, the evidence presented herein indicates that at least some used their wartime skills in the private and public sectors in post-war Japan, and the impact of in-house training on human capital development at the SMR should not be discounted.

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