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Development and Management of Manchurian Economy under the Japan Empire

Tetsuji Okazaki (The University of Tokyo)*

Abstract

In 1932, the Kwantung Army occupied Manchuria, the northeast part of China, and founded a puppet state, Manchukuo. The Kwantung Army and the Manchukuo government intended to develop heavy and chemical industries as well as munitions industries there, but they did not have a solid program for it in the first place. Indeed, the process of Manchurian development in the 1930s and 1940s was full of trial and error. At first, many “special corporations” were founded under the supervision of the Manchukuo government, but they were not coordinated systematically. Furthermore, the targets of “Five Years Plan of Industrial Development” decided in 1937 were not coordinated. Given that, a new system of coordination was introduced. That is, a large holding company, the Manchurian Heavy Industries Development Co.(MHID) was founded with Yoshisuke Ayukawa as the president, and it was intended that special corporations would be coordinated under the MHID. It is a remarkable trial of a new coordination system, where a major part of a national economy was coordinated within the one huge private conglomerate. However, finally in 1939, under the condition that import from Japan was restricted and there was no prospect of capital import from foreign countries, the Kwantung Army and the Manchukuo government decided to introduce an alternative system of coordination, namely, the state-led system of planning and control. This was similar to the system that had already started to work in Japan. In this sense, the system of full-scale planning and control was imported from Japan to Manchuria, not from Manchuria to Japan.

Keywords: Planning and Control, Economic Development, War Economy, Comparative Economic Systems, Economic History, Asia, Manchuria, Japan

JEL Classification Numbers: N45, O14, O21, P11, P51

1. Introduction

In September 1931, the Japanese Army, specifically the Kwangtung Army, a part of it stationed in Manchuria, the northeast part of China, to defend the South Manchuria Railways, started military movements, and occupied the whole Manchuria by the end of February 1932.¹ In the next month, foundation of a new state, Manchukuo, was declared. Formally Manchukuo was an independent state with its own government, but in reality the Kwangtung Army totally controlled the state.² Because the Japanese Army was keen on expanding the capacity of munitions production, and Manchuria was supposed to be richly endowed with natural resource, the Kwangtung Army and the Manchukuo government tried to develop munitions industries and basic material industries rapidly in Manchuria. In the new state, where there were few existing legal constraints, the Kwangtung Army and the Manchukuo government started almost with a clean slate. However, they did not have a solid program in the first place. Indeed, as stated below, the process of Manchurian development in the 1930s and 1940s was full of trial and error.

This process provides us a good opportunity to observe and compare different modes to develop an economy. In this chapter, I exploit this opportunity. To do that, a standard framework of economics of organizations is used. Namely, it is assumed that coordination and motivation are the two fundamental functions for an economy to work, and that modes of coordination and motivation are diverse across economies.³ In particular, I focus on overtime changes in the modes of coordination.

Development of the Manchurian economy under the Japan Empire has been long attracted interests of economic historians in Japan, and several detailed studies have been published.⁴ This chapter relies on these studies, especially on Akira Hara's works. Hara described not only the drawing up process, but also the implementation process of the development plans in detail, using rich original documents of the Kwangtung Army, the Manchuria government and the South Manchuria Railways Co..⁵ In addition, in another article, Hara made clear the background and the activities of the Manchuria Heavy Industries Development Co., a special cooperation founded to implement the long-term development plan.⁶

This chapter aims at contributing to the literature in two ways. First, I introduce the standpoint of economics of organizations, as stated above, which enables us to characterize different modes of coordination in the successive phases of Manchurian economic development. Second, related to the first point, this chapter tries to propose a new evaluation of the economic policies in Manchuria. In the literature, it is sometimes argued that Manchuria went ahead of Japan in planning and control of

the economy and the experience in Manchuria was imported to Japan.⁷ However, looking at the Manchurian economy from the standpoint above, we have a different view.

The remainder of the chapter is organized as follows. Section 2 describes the drawing up process of the “Five Years Plan of Manchuria Industrial Development” as well as the Manchurian economic system at its early stage. In section 3 discusses the meaning of the Manchuria Heavy Industries Development Co. as a device of coordination. In section 4, I focus on the transition to a state-led planned economy after 1939. Section 5 concludes.

2. Start of a long-term plan of industrial development

Foundation of Manchukuo and the early stage of economic construction

Just before the foundation of Manchukuo, the Kwantung Army examined how to manage the occupied area of Manchuria, collaborating with the South Manchuria Railway Co. (SMR), which not only managed the railways in the south Manchuria, but also governed the areas attached to the railroads since 1906. After the foundation of Manchukuo in March 1932, the Kwantung Army transmitted the draft of the policy for economic construction to the Manchukuo government, to make it an official document of Manchukuo. In March 1933, the Manchukuo government announced “Manshukoku Keizai Kensetsu Koyo” (Outline of the Policy for Constructing Manchukuo Economy).⁸

This document shows the basic idea of the Kwantung Army to manage the Manchukuo economy in the early stage. It stressed that fruits of the economic construction should not be seized by a certain class, and that important industries should be controlled by the government, which reflected the anti-capitalism ideology of the Army. Based on this idea, that document indicated the policy that important industries should be managed by public corporations or “special corporations.” A “special corporation” referred to a corporation that was founded according to a special law or a treaty between Manchukuo and Japan, and was regulated by the government. There was a similar category, “quasi-special corporation.” A quasi-special corporation referred to a company whose shares were owned by the government, that was established according to an ordinance by the government, and/or that was controlled by the government according to its statutes or the law.⁹ By the end of 1936, 26 special and quasi-special corporations were founded. They include *Manshu Denshin Denwa* (telephone and telecommunication), *Manshu Dengyo* (electricity), *Showa Seikojo* (iron and steel), *Manshu Keikinzoku* (aluminum), *Manshu Sekiyu* (petroleum mining and refinery), *Manshu Tanko* (coal mining), *Dowa Jidosha Kogyo* (automobile), and *Hoten*

Zoheisho (munitions). Major sources of the capital of those corporations were the Manchukuo government and SMR.¹⁰

Concerning special and quasi-special corporations, it is remarkable that so called “one industry, one corporation policy” was adopted. That is, just one special corporation was founded in each industry and no outsider company was allowed. In other words, each special or quasi-special corporation was given the authority to monopolize a certain industry by the government. This “one industry one corporation policy” characterized the early stage of Manchurian development.¹¹

Drawing up and revision of the “Five Years Plan of Manchuria Industrial Development”

While many special and quasi-special corporations were founded and they were regulated by the Manchukuo government, there was no systematic and quantitative plan for developing the whole Manchurian economy in the early 1930s. It was in 1935 when the Army started to draw up the plan for long-term development of the Manchurian economy, as a part of a plan that included Japan and Manchuria. The motivation of the Army was to reduce the gap of munitions production capacity between Japan and the Soviet Union, a major potential enemy for the Army. Kanji Iihara, the chief of the Strategy Section of the Army General Staff Office, requested a staff of the South Manchuria Railways, Masayoshi Miyazaki, to organize a research institute, Nichiman Zaisei Keizai Kenkyukai (Research Institute on Public Finance and Economy in Japan and Manchuria, RIPEJM) and to draw up long-term plans of industrial development in Japan and Manchuria. On the request, RIPEJM made a draft plan (Five Years Plan on Revenue and Expenditure from Showa 12 Fiscal Year, supplemented by Outline of Emergency National Policies), which was presented to the Ministry of Army and the Kwantung Army in August 1936.¹²

After revised by the Ministry of Army, the Manchurian part of the draft plan was examined and revised at an informal meeting of the three influential actors in Manchuria, namely, the Kwantung Army, the Manchukuo government and the South Manchuria Railways, held at Tang Gang Zi close to Shenyang in October 1936. The draft plan incorporating the opinions of these three actors was transmitted to the Japanese government again. Through these procedures, “Five Years Plan of Manchuria Industrial Development” was finally determined and launched in January 1937.¹³ Table 1 summarizes the quantitative targets of the plan. As shown in the table, the Five Years Plan was quite ambitious. It aimed at developing varieties of heavy and chemical industries rapidly in Manchuria. They include automobile and aircraft, which would directly contribute to munitions production, as well as materials such as iron, steel and coal. Also, it is notable that the speed of expansion was very high. That is,

production of all the commodities in the plan were expected to be more than doubled in five years.

Table 1

Ambitious as the “Five Years Plan” was, it was further revised upward in May 1938. There were two major reasons for this. The first is that the long-term plan for production capacity expansion in Japan was taking shape in 1937. The origin of the plan was the draft plan by RIPEJM (Five Years Plan on Revenue and Expenditure from Showa 12 Fiscal Year, supplemented by Outline of Emergency National Policies) mentioned above, the Manchurian part of which was the origin of the “Five Years Plan”. Based on the draft plan, the Ministry of Army officially determined “Juyo Sangyo Gokanen Keikaku Taiko” (Outline of the Five Years Plan of Important Industries, “Outline”) in May 1937. “Outline” by the Ministry of Army included the production targets in Manchuria in addition to those in Japan (Table 2). It is notable that the production targets in Manchuria in the “Outline” were substantially larger than those in the “Five Years Plan.” Leaders of the political and business societies in Japan almost reached a consensus that they should accept the plan by the Army.¹⁴

The second reason for the upward revision was the break out of Sino-Japanese War in July 1937. This was the start of the full-scale war for Japan lasting until August 1945. Huge consumption of munitions for the war further strengthened the Army’s request for Manchuria to expand production. Particularly, the Army requested Manchuria to supply basic materials such as coal, pig iron and crude steel to Japan. Originally, the Kwantung Army had the idea to develop its own munitions and related industries in Manchuria and this idea was reflected in the “Five Years Plan,” but the Japan Army came to have the strategy to utilize Manchuria as a source of raw materials and semi-manufactured goods to the Japanese industries. Responding to the request, the Manchukuo government revised the “Five Years Plan” in February 1938. The production targets were substantially raised for most of the commodities in the plan (Table 2). In addition, reflecting the reason for the upward revision, the “Revised Five Years Plan” indicated the target of supply to Japan for each commodity.¹⁵

Table 2

3. Trial of coordination by a private conglomerate: Manchuria Heavy Industries Development Co.

To implement the “Five Years Plan of Manchuria Industrial Development,” the Kwantung Army considered possibility to utilize the capability of private companies in Japan. For this purpose, they invited several influential Japanese entrepreneurs to have them observe Manchurian economy in 1936. Also, the Kwantung Army presented them the draft of the “Five Years Plan” to ask their advices. Those entrepreneurs included Yoshisuke Ayukawa (President of Nissan), Kojiro Matsukata (Ex-president of Kawasaki Dockyard), Shitagau Noguchi (President of Nippon Nitrogen).¹⁶

After Ayukawa came back in Japan, he gave the following comments on the draft of the “Five Years Plan”, to the Ministry of Army. First, the plan is just listing the production targets in the final year based on the military demand, and there is little consideration on the relationships between industries and timing of expansion. Second, it is necessary to coordinate related heavy industries by organizing them in a hierarchical organization, whereas special corporations had not been operated in a coordinated manner until then. These two points are closely related to the third point. That is, in order to develop the aircraft and automobile industries as the “Five Years Plan” aimed at, it is necessary to develop the industries that supply parts to them. In summary, what Ayukawa proposed was that they should coordinate the development of related industries to implement the “Five Years Plan” and that to do that those industries should be organized in a hierarchical organization.

Ayukawa’s first point is on the evaluation of the “Five Years Plan” as an economic plan. A similar evaluation from the academic standpoint is seen in an article by Ishikawa.¹⁷ Along with the fact that special and quasi-special corporations were not systematically coordinated, planning and control in the Manchurian economy was really at a rudimentary stage in 1936.

Ayukawa’s second and third points can be interpreted as a development strategy similar to that known as “big push” in the literature of development economics. An essential element of “big push” is complementarity between industries. In case industries are complementary each other, in the sense that a certain industry enhances other industries’ efficiency, and other industries vice versa, concerted expansion of those related industries are necessary to have an economy to escape from a stagnating “bad equilibrium”.¹⁸ Ayukawa seems to understand the essence of that idea. At the same time, it is notable that as a measure for coordinating complementary industries, he proposed not a government intervention but a private hierarchical organization. This is just what major zaibatsu business groups did at the early stage of Japanese economic development in the late nineteenth century.¹⁹

As is well known, “big push” needs large amount of fund in a short period. Japan

exported substantial amount of capital to Manchuria in the early 1930s, but Japan itself was being faced with shortage of fund, due to the expansion of military budget and production capacity expansion. Given these conditions, Ayukawa argued that it was necessary to import capital from abroad other than Japan, particularly from the U.S.²⁰

These comments by Ayukawa strongly impressed the Ministry of Army, and they wanted Ayukawa to participate in the implementation of “Five Years Plan.” At first, the Army intended to have Ayukawa manage just the automobile and aircraft industries, because Nissan had one of the largest automobile company, Nissan Jidosha Kogyo, Co.. To the Army’s proposal, Ayukawa replied that if he was entrusted with the development of all the heavy industries, he was ready to move the whole Nissan business group to Manchuria.²¹ Ayukawa’s response was surprising because Nissan was the fourth largest business group in Japan in 1937.

The Kwantung Army, the Manchukuo government, the Japan Army and the Japanese government examined the Ayukawa’s proposal, and negotiated one another to reach the Cabinet decision, “Manshu Jukogyo Kakuritsu Yoko” (Outline of Establishing Heavy Industries in Manchuria) in October 1937.²² The Cabinet decision presented the basic policy that in order to establish heavy industries rapidly in Manchuria, they would reform corporate forms and invite powerful entrepreneurs. The main points were as follows. First, they would found a new corporation owned half and half by the government and Nissan, and this corporation would invest in such industries as iron and steel, light metals, automobile, aircraft and coal to have dominant shares. Second, in developing those industries, this corporation would make an effort to introduce capital from abroad. Third, the Manchukuo government would provide some special treatment to the investment in this corporation and its businesses. Fourth, management of this corporation would be entrusted to an appropriate person from the Japanese private sector, Yoshisuke Ayukawa of Nissan.

Based on this Cabinet decision, Nissan moved its headquarters to Hsinking, the Capital of Manchukuo, in November 1937, and in December it was reorganized to a special corporation of Manchukuo according the special law, the Law for Managing the Manchuria Heavy Industries Developing Co.. At the same time, Nissan changed its name to the Manchuria Heavy Industries Developing Co. (MHID).

By April 1939, the MHID acquired four existing special corporations, Showa Seikojo (Showa Steel), Manshu Tanko (Manchuria Coal Mining), Manshu Keikinzoku (Manchuria Light Metals) and Dowa Jidosha (Dowa Automobile), from the Manchukuo government and the South Manchuria Railways Co., while it newly founded five special corporations, Manshu Kozan (Manchuria Mining), Manshu Hikoki Seizo (Manchuria

Aircraft Manufacturing), Manshu Magnesium, and Tohendo Kaihatsu (Dongbiandao Development).²³ Thus, MHID constructed the huge conglomerate of heavy industries in Manchuria as Ayukawa imaged in the first place. However, at that time, the environment of conditions for the MHID to work well had been lost, as described below.

4. Transition to a state-led planned economy

Changes in the international environment

When the MHID was founded, the international environment of the Manchurian economy was changing rapidly. The fundamental condition was that the Sino-Japanese War became long drawn out. When the Prime Minister of Japan, Fumimaro Konoe, declared that they would not negotiate with the Chinese National Government after the Japanese Army occupied Nanjing in January 1938, possibility of early conclusion of the war was lost.

Given the prospect of a prolonged war, the Japanese government strengthened the system of wartime economic control in 1938. While the international trade and the flow of long-term fund had been already controlled since the previous year, the government began to draw up and implement the short-term plan to adjust the demand and supply of strategic commodities (the Material Mobilization Plan, or *Bussshi Doin Keikaku* in Japanese) in January 1938. The Material Mobilization Plan was implemented by means of distribution control of each commodity. At the same time, price control was implemented for a number of commodities.²⁴ The Japanese economy became a planned economy, in the sense that a substantial part of coordination, i.e. resource allocation, was carried out by the planning and control by the government instead of the market mechanism.²⁵

Operation of the Material Mobilization Plan by the Japanese government gave a serious impact on the Manchurian economy, as the Manchurian economy heavily depended upon the trade with Japan, in particular, the import from Japan. The percentage of the import from Japan to the total import was 75.1 % in 1937, for instance.²⁶ In this situation, the Japanese government decided the downward revision of the Material Mobilization Plan in June 1938, due to the unexpected decline of export. As the basic constraint for the Material Mobilization Plan was the import of essential raw materials from foreign countries, decline of export affected the scale of the Plan through decline of foreign currencies. This revision obliged the Japanese government to restrict export to Manchuria, because Manchurian Yuan was not convertible to US dollar or pound sterling and hence export to Manchuria did not contribute Japan to earn foreign currencies.²⁷

As stated above, Ayukawa stressed importing capital from abroad, and the major reason for it is removing the constraint of foreign currencies. Restriction of import from Japan made capital import still more vital. Indeed, Ayukawa made great efforts to import capital, but all of these attempts were unsuccessful. This was mainly because the diplomatic relationship between Japan and the U.S. was deteriorating due to the prolonged Sino-Japanese War.²⁸

Material Mobilization Plan and distribution controls

Given the downward revision of the Material Mobilization Plan in Japan in June 1938, the Manchukuo government decided the “General Guideline for the Contribution of Manchuria to Japan’s Material Mobilization Plan”. The “General Guideline” stated that Manchukuo would entirely cooperate with Japan on its emergency measures determined in July 1938, following the revision of the Material Mobilization Plan. In the same month, the governments of Japan and Manchukuo held a conference on the Material Mobilization Plan to reach the following agreements. First, concerning pig iron, steel, coal and feed, out of the strategic materials that Japan had imported from foreign countries, Manchukuo should meet the demand of Japan as much as possible. Second, Manchukuo should import most of the equipment for industrial development from Japan, and all the demand for the equipment in Manchuria should be once concentrated on the Manchukuo government to be approved.²⁹

Based on these agreements, the Manchukuo government decided to draw up the Manchurian version of the Material Mobilization Plan in August 1938. The purpose of it was to meet such needs as exporting materials to Japan, implementing the “Revised Five Years Plan,” and maintaining people’s lives. Given the tight constraint on the supply side, planning and control on allocation of commodities was indispensable to meet those needs simultaneously. The Planning Committee, in particular the Commodities and Prices Committee (*Busshi Bukka Inkaï*), which was one of the four committees under the Planning Committee³⁰, took charge of making the Material Mobilization Plan, collaborating with other relevant sections of the Manchukuo government and the Kwantung Army. The Commodities and Prices Committee, in turn, was composed of four subcommittees, each of which covered specific group of commodities.³¹

In August 1938, the Commodities and Prices Committee determined the official manual to draw up the Material Mobilization Plan³². According to it, the Plan was drawn up through the following procedure. First, for each important commodity, the domestic demand was estimated. The domestic demand was classified into (a) the military demand, (b) the public demand, (c) the demand of special corporations, and (d)

the private demand. Second, for each of the same commodities, the domestic supply was estimated, which was composed of (a) production and (b) stock and collection. In case the demand exceeded the supply, measures for cover the shortage were devised, such as (a) emergent production, (b) saving, substitution or collection, (c) import from Japan, (d) import from the areas of China under control of Japan, (e) import from foreign countries. Because import from Japan was restricted, which was the starting point of drawing up the Material Mobilization Plan in Manchuria as stated above, and import from foreign countries was constrained by availability of foreign currencies, it was necessary to a certain part of the gap between demand and supply was covered by saving. This implies that rationing was inevitable. The Material Mobilization Plan was drawn up mainly for providing the quantitative framework for rationing.³³

Indeed, while preparing for drawing up the Material Mobilization Plan, the Manchukuo government began to introduce the distribution control for strategic commodities. For instance, in April 1938, the Iron and Steel Control Law (*Tekko-ruï Tosei Ho*) was legislated, which prescribe that the Japan Manchuria Trading (JMT, *Nichiman Shoji*), a special cooperation, should take charge of all the international trade and domestic sales of iron and steel, and the sales prices by the JNT were controlled by the government. Also, with respect to cement, in September 1938, the Cement Joint Sales Corporation was founded by the JMT, cement producers and cement traders, which took charge of domestic and international trades alone, under the supervision by the government.³⁴

The first Manchuria Material Mobilization Plan was for the first quarter of 1939 fiscal year, but it was determined as late as February 1939, and also it was just for four commodities, i.e. steel, cement, coal and lumber. In this sense, the first full-scale Manchuria Material Mobilization Plan was that for 1939 fiscal year (April 1939-March 1940). To implement the Plan, the Planning Committee determined the “Outline for Preparing Distribution System” (*Haikyu Kiko Seibi Yoryo*). It prescribed that besides those commodities whose distribution control systems had been already prepared, including iron and steel, and cement, they should prepare the distribution control systems for all the important commodities, such as non-ferrous metals, chemical products and necessities of life. By these measures, the system of planning and control by the state was almost ready to work. After that, coordination of economic activities in Manchuria was carried out mainly by this system.

Transition to the state-led system of coordination gave a substantial impact on the MHID, because its major role was substituted by the new system. In the literature, conflicts between MHID and JMT on the distribution of commodities were stressed.

³⁵These conflicts reflected the transition from the coordination system based on a private conglomerate to the state-led one, because the JMT was an essential element of the latter system.

5. Concluding remarks

In 1933, the Manchukuo government declared implementing economic controls to develop the economy, and in January 1937 it determined the “Five Years Plan of Industrial Development.” Given these facts, the literature stressed the view that planning and control went ahead in Manchuria to be imported to Japan from there (Johnson 1982; Kobayashi, Nakamura). However, as stated above, when the “Five Years Plan of Industrial Development” was determined, the coordination system substituting for the market mechanism was underdeveloped in Manchuria. It is true that there were many special corporations based on the “one industry, one corporation policy,” but they were not intentionally coordinated each other. Furthermore, the targets of “Five Years Plan of Industrial Development” themselves were not coordinated. Indeed, this is the issue that Yoshisuke Ayukawa stressed in his comments on the Manchurian development.

Accepting Ayukawa’s comments, the Kwantung Army and the Manchukuo government introduced a new mode of coordination, that is, the coordination by a private conglomerate. For this purpose, the Manchurian Heavy Industries Development Co. (MHID) was founded, as a huge holding company that managed the special corporations of heavy industries in Manchuria. Whereas this system was different from a typical market economy in the sense that a substantial part of coordination was supposed to be conducted within an organization, but on the other hand, this was essentially different from the system of planning and control by the state, in the sense that the organization was a private conglomerate. In other words, the experience of MHID was a trial of a new system of coordination, where a major part of the national economy was coordinated within the one huge private conglomerate.

However, finally in 1939, under the condition that import from Japan was restricted and there was no prospect of capital import from foreign countries, the Kwantung Army and the Manchukuo government decided to introduce an alternative system of coordination, namely, the state-led system of planning and control. This was similar to the system that had already started to work in Japan. In this sense, the system of full-scale planning and control was imported from Japan to Manchuria, not from Manchuria to Japan.

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Table 1 Outline of the "Five Years Plan of Manchuria Industrial Development"

		Capacity at the end of	Production target for 1941	
			Initial plan (Jan. 1937)	Revised Plan (May 1938)
Pig iron	1,000 tons	850	2,530	4,680
Crude steel	1,000 tons	580	2,000	3,160
Iron ore	1,000 tons	3,180	7,740	15,990
Coal	1,000 tons	13,558	27,160	34,910
Alcohol	ton	15,080	56,690	56,690
Aluminium	ton	–	20,000	30,000
Magnesium	ton	0	500	3,000
Lead	ton	2,200	12,400	29,000
Zinc	ton	1,900	6,600	50,000
Salt	1,000 tons	340	974	911
Soda ash	1,000 tons	12	72	72
Chemical fertilizer	1,000 tons	–	–	454
Pulp	1,000 tons	70	120	400
Electricity	1,000 KW	459	1,405	2,571
Automobile	unit	–	4,000	50,000
Aircraft	unit	–	340	5,000

Source: Yamamoto, *Manshukoku*, op. cit., pp.38–39.

Table 2 Outline of the "Five Years Plan of Important Industries"

		Production target in 1941		Production in 1936
		Japan	Manchuria	Japan
Aircraft	unit	7,000	3,000	1280.0
Automobile	10,000 unit	9	1	1.2 *
Machine tool	10,000unit	45	5	1.6
Steel products	10,000 tons	700	300	432.0
Pig iron	10,000 tons	750	400	222.0
Iron ore	10,000 tons	1,050	1,200	125.0
Gasoline	10,000 kl	190	140	65.3
Alcohol	10,000 kl	45	5	3.3
Benzol	10,000 kl	14	6	
Heavy oil	10,000 kl	135	100	45.7
Coal	10,000 tons	7,200	3,800	4790.0
Aluminium	10,000 tons	7	3	0.5
Magnesium	10,000 tons	6	3	0.6 *
Ship	10,000 tons	86	7	24.7 *
Electricity	10,000 KW	1,117	140	654.3

Source: M. Inaba, T. Kobayashi, T. Shimada and J. Tsunoda (eds) *Taiheiyo Senso eno Michi: Kaisen Gaiko Shi (Road to the Pacific War: Diplomatic History toward the Outbreak of the War)*, supplementary volume, Tokyo: Asahi Shinbunsha, 1963, p. 232 for the targets. Kokumin Keizai Kenkyu Kyokai, *Kihon Kokuryoku Dotai Soran (Compendium of Movement of Basic National Resource)*, Tokyo: Kokumin Keizai Kenkyu Kyokai, and Toyo Keizai Shinposha, *Showa Sangyoshi (Industrial History in Showa Era)* vol.3, Tokyo: Toyo Keizai Shinposha, for the production in 1936.

Note: The production data with "*" does not include production in the colonies.
The production of alcohol is for 1937.