The Economic Development of Manchuria: The Rise of a Frontier Economy
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I

INTRODUCTION

THE paper we are presenting here is in essence an interim research report, a summary and preliminary analysis of findings based on a larger study still under way. Thus both the findings and the interpretations are subject to revision as we continue and complete our investigation.

The economic development of Manchuria holds special fascination, since within the compass of a limited area and a self-contained time span of about one hundred years—between 1860 and 1960—we witness three different types of development patterns, based on three alternative sources of economic growth. The first and longest period, extending roughly from 1860 to 1930, was based on the development of an open frontier, the settlement of a new region. Application of the staple theory of growth to Manchurian conditions can help to illuminate the character of the growth process during this first period. In this connection the Manchurian development case invites comparison with growth processes in other newly settled regions, for example, the U.S., Canada, and Australia.

Industrialization based to a considerable extent on the importation of foreign capital and entrepreneurship—primarily from Japan—provided the principal engine of growth during the second period, which extended roughly to the end of World War II. Growth during this period lends itself to some very interesting comparisons with other cases of colonial development both within the Japanese Empire (that is, Formosa and Korea), and territories governed by other powers. Accelerated industrialization (but based on greatly stepped-up domestic input mobilization supplemented by Soviet credits and technical assistance) characterized growth during the

We wish to acknowledge the invaluable research assistance of K. S. Liao and Nick Lardy in compiling Tables 1 and 2 and Appendix Tables I to III respectively. We would also like to thank the National Science Foundation, Social Science Research Council and the University of Michigan Center for Chinese Studies for their support, without which this study could not have been undertaken.

last period, starting around 1950. The rise in the pace of input mobilization was, in turn, brought about through profound institutional change and transformation of the whole economic system. Through this transformation state organs gained far-reaching control over the process of resource allocation and used this control to significantly raise the rate of saving and investment.

A study of Manchurian development is of potential analytic interest from an entirely different but related vantage point as well. It presents a sharp contrast to the development pattern in China Proper, a contrast between rapid development of a newly settled region and quite slow growth in a typical underdeveloped agrarian economy subject to acute population pressure. Given this contrasting development pattern, Manchuria's importance in the Chinese economy as a whole rose consistently and appreciably. Thus, one of the questions to be explored is: what role did Manchuria play, and how major an asset did it constitute in the development of the Chinese economy after 1950, when this region was reunited with China Proper.

Limitations of time and space preclude dealing with all of these questions and aspects within the confines of this paper. Therefore we will concentrate on an analysis of developments during the first two periods. Moreover since our studies of the first period are still in the early stages of exploration, our analysis will have to be necessarily tentative and preliminary. For the second period, we have completed studies of the growth patterns and will therefore present an analysis of our findings. However, we have not yet completed our study of the sources of economic growth so that this subject will have to be deferred for later consideration.

EXPANSION OF MANCHURIA'S AGRICULTURAL FRONTIER, 1860-1930

1860 represents a logical starting date for the study of Manchuria's modern economic growth for a number of reasons. It marks another turning point in the policy barring Manchuria to agricultural settlement by Chinese. Equally important, the Sino-Russian Treaty of Peking was signed that year and this was soon followed by the opening of Newchwang, the first treaty port in Manchuria.[1] The opening of this port clearly marks the beginning of a continuous and sustained rise in the volume of exports.

[1] J. K. Fairbank, E. O. Reischauer and A. Craig, *East Asia: The Modern Transformation* (Boston: Houghton Mifflin, 1965), p. 173.

The Ch'ing dynasty's Manchurian settlement policy was based on some mutually conflicting considerations. The early Manchu emperors favored a policy aiming at the preservation of the frontier political and cultural status quo. Chinese immigration was prohibited in the pursuit of this objective. The Manchu rulers not only wanted to prevent the sinification of the frontier but also wished to safeguard the exclusive Manchu right to exploit three of the region's most highly valued products: ginseng, furs, and pearls. The emperors were also very much concerned about protecting the frontier from foreign incursion, that is, Russian expansion and pressure from "barbarians."[2]

With this in mind, they were most anxious to preserve the military prowess of the Manchu frontier bannermen. However, this whole policy proved unsuccessful since the frontier Manchus, despite subsidies and other incentives, were continuously tempted away to the life of ease and privilege in Peking. As a result, there was an ever present threat of depopulation in Manchuria. To counter this threat and to fill the emerging power vacuum, Manchu emperors relaxed the prohibitions on Chinese immigration from time to time. Consequently, Chinese settled in these frontier regions—in part legally and in part illegally—throughout the period of Ch'ing rule even prior to 1860. That year, amid the Taiping Rebellion, the greatly weakened dynasty sanctioned once more the sale of land in Manchuria to Chinese as a means of raising revenues and producing land taxes.[3] The Hulan district in Heilungkiang Province and the Lalin district in Kirin Province were both opened to Chinese settlement in 1860. Gradually other districts were similarly opened in subsequent years, until all remaining restrictions were lifted for Kirin in 1902 and for Heilungkiang in 1904.[4]

Although 1860 represents a logical starting point for the study of Manchurian economic development, this task is greatly complicated by the paucity and unreliability of the data available for the nineteenth century. Both analytically and datawise, the 1860 to 1930 period can be subdivided into at least two phases: the periods before and after the completion of the Chinese Eastern Railway and

[2] This brief discussion of the sinicization of the Manchurian frontier is largely based on the study by Robert H. G. Lee, *The Manchurian Frontier in Ch'ing History* (Cambridge, Mass.: Harvard University Press, 1970). See especially pp. 20-23.

[3] K. C. Sun, *The Economic Development of Manchuria in the First Half of the Twentieth Century* (Cambridge, Mass.: Harvard University Press, 1969), p. 11.

[4] Robert Lee, *Frontier*, p. 103.

the South Manchurian Railway between 1901 and 1903.[5] Another significant turning point is the founding of the South Manchurian Railway Company with Japanese capital in 1907. The S.M.R. Company operated this railway after it was ceded to the Japanese by the Russians following the end of the Russo-Japanese War in 1905. The S.M.R. evolved into a holding company with a number of subsidiary enterprises and with a sizable economic research department. The latter began compiling and publishing basic economic series starting with 1907. Moreover, in 1907 three new ports were opened by treaty—Antung, Dairen, and Tatungkow—thus breaking the foreign trade monopoly of the port of Newchwang.[6] For all of these reasons the data prior to 1907 are distinctly inferior to those for the subsequent years and are not fully comparable either in quality or in coverage.

During this phase of Manchuria's economic growth, we witness the rapid settlement of "empty lands." Between 1860 and the early 1900's, the principal sources of growth were population expansion and extension of the land under cultivation reinforced by marked growth in foreign trade. In the absence of output data for this period, it is uncertain whether or not this was a clear case of export-led growth, since we have no way of estimating whether exports rose more rapidly than domestic output. It is clear, as will be shown below, that export expansion outpaced the rate of increase in the principal inputs (land and labor) but whether the same can be said for outputs is unclear.

Soybeans, soybean cake, and soybean oil dominated exports, so much so that in 1872 these constituted close to 90 percent of total sales abroad. By 1899 and 1906 this diminished somewhat to about 80 percent. (See Tables 3 and 4.) Prior to the advent of the railroad these soybeans and soybean products were shipped to the port of Newchwang either on rivers or overland. The Liao was navigable for about 400 miles, but only by junks since the presence of shoals prevented navigation by larger vessels. The same can be said of most of the other rivers, although the Amur and Sungari were navigable by steamboat over longer distances. All of these rivers were

[5] See David J. Dallin, *The Rise of Russia in Asia* (New Haven: Yale University Press, 1949) and S. H. Chou, "Railway Development and Economic Growth in Manchuria," *The China Quarterly*, 45 (January-March 1971), Table III, p. 63.

[6] Bank of Chosen: *The Economic History of Manchuria*, Seoul, 1920, pp. 204-205.

ice-bound for four to six months, but could serve as highways for overland traffic during the winter season.[7]

We see then a pattern of development emerging in the second half of the nineteenth century triggered on the one hand by the opening of Manchuria to land settlement by Chinese and on the other by the simultaneous opening of the first seaport to foreign trade. These twin developments served to mutually reinforce each other as immigration spurred land settlement and the combination of the two led to rapid agricultural expansion.

The demand stimulus for this agricultural expansion was provided by two interacting sources. The consumption needs of a rapidly rising population had to be provided for and this in turn was reflected in the rapid growth of farm staples—principally *kaoliang* and other grains. At the same time, the continuous rise in the export demand of soybeans and bean products encouraged a sustained increase in soybean acreage and production. The proceeds from this crop provided a major source of cash income to the farm population which then stimulated a further rise in consumption demand for grain staples, for consumer goods imports and for domestically supplied services. Increasing demands for agricultural products stimulated further immigration, land settlement, and population growth, which in turn led to a continuing rise in farm production and a mutually reinforcing pattern of economic growth. Some of these relationships can be documented as will be shown below, while others can only be inferred due to lack of data.

It would seem that this growth process may have been accelerated after the completion of the two major railways in 1901 and 1903 and their official opening to traffic in 1903 and 1907 respectively. The Chinese Eastern, completed first, cut across Manchuria from west to east and linked the Transsiberian Railway with Vladivostok, a total length of 1,067 miles. The South Manchurian Railway then linked Harbin to the seaport of Dairen, a length of about 690 miles.[8] In the same year that the S.M.R. became fully operational, Dairen was opened to foreign trade and then or within the subsequent two years a number of inland cities—some located on rivers and others on the major railroad lines—became treaty

[7] *Ibid.*, pp. 17, 213; see also Theodore Shabad, *China's Changing Map* (New York: Praeger, 1972), p. 246.

[8] S. H. Chou, "Railway," p. 63.

ports in which internal and foreign trade could be carried on both by Chinese and foreign residents.[9]

The opening of additional treaty ports combined with the start of railway operations must have lowered the cost of inland transport on the one hand and facilitated access to foreign markets on the other. In an area such as this, where inland waterways provide only limited means of transport during part of the year and where highways and other forms of road transport are quite underdeveloped, railroads can become a most significant source of "social savings." There are strong indications that railroad development in Manchuria opened access to large tracts of unsettled land. It would seem that as a result, these changes in transport and communication dramatically accelerated the pace of land settlement and the rate of export growth. Some of these trends will be more clearly spelled out below.

Population

There are no systematic population series for this first phase of Manchuria's economic development, although annual population data were published by the SMR research department for the 1920's. These were estimates for the three provinces of Liaoning, Kirin and Heilungkiang starting with a chosen year-base and an assumed annual growth rate.[10] After the establishment of the State of Manchukuo and beginning in 1932, annual population data were compiled from police registers. A close study of these data indicates that there are many discrepancies and peculiarities so that they cannot be used, at least not in their original form.

A point of departure for a systematic study of Manchurian population is provided by the census of 1940, which was conducted with great care and the results of which seem quite reliable.[11] For the nineteenth and early twentieth century there are only scattered data partly based on Ch'ing and Republican registers and partly based on Japanese sources. However, some of these estimates were derived from systematic studies of the available data and can be

[9] Bank of Chosen: *The Economic History of Manchuria,* pp. 204-205.

[10] SMR: *Mantetsu chosa geppo* (Monthly Surveys), Dairen, November 1932, p. 19 and SMR: Manshu sangyo tokei (Manchurian Industrial Statistics), Dairen, 1931, p. 7.

[11] For a detailed discussion of population data and the population census see our Appendix A available on request and the monograph by Waller Wynne, *The Population of Manchuria,* Bureau of the Census, International Population Reports P-90, No. 7, Washington, D.C., 1958.

TABLE 1
ESTIMATED LONG-TERM POPULATION TRENDS IN MANCHURIA, 1860-1940

Year	*Population in Thousands*[a]
1860	3,283
1872	4,454
1887	5,150
1898	6,943
1908	17,055
1910	17,942
1914	19,652
1930	31,300
1940	38,400

[a] The totals for 1860 to 1914 are based on separate estimates for each province derived from the following sources: Yen Chung-p'ing, et al.: *Chung-kuo chin-tai-shih t'ung-chi tz'u-liao* (Statistical Materials on Modern China), Peking 1957, pp. 362-374; Chang P'o-ying: *Heilungkiang chih-kao* (Draft Gazetteer of Heilungkiang Province), Taipei, 1965 (facsimile reproduction, 1933) vol. II, p. 1181; Nakano Jiro (transl.): *Manshu Tsushi* (General History of Manchuria, translated from a publication of that title originally published by the Russian Ministry of Finance, ca. 1900), Tokyo, 1906; East Asiatic Investigation Bureau: *Manchuria Year Book, 1931*, Tokyo, 1932, pp. 5-6. For 1930 and 1940 our figures are based on Manchurian totals rather than on provincial estimates as estimated in Appendix A of our larger study and adjusted to 1910 boundaries.

fitted into a reasonably plausible series for certain benchmark years as shown in Table 1. In this connection too the 1940 Census serves as a useful reference point. The data in Table 1 refer to the original provinces of Manchuria, Liaoning, Kirin, and Heilunkiang. They exclude Jehol and represent an adjustment of all data to the region's 1910 boundaries.

Bearing in mind that these data may be subject to sizable margins of error, it would seem that Manchurian population may have grown from around 3 million about 1850 to 18 million around 1910 and close to 40 million by 1940. The estimates in Table 1 would suggest close to a twelvefold rise in numbers in 80 years, which is an average annual growth rate of about 3.1 percent—certainly a high rate by most standards.

There is clearly a sharp discontinuity in this series between 1898 and 1908. It is most improbable that population would have increased two and one half times in a decade. Therefore most probably part of this increase is statistical rather than real, reflecting a considerable underestimate and undercount of population before that date. However, irrespective of this, population growth almost certainly was accelerated under the impact of railroad construction

and the opening of the Chinese Eastern and South Manchurian Railways.

Unfortunately there are no systematic migration data for the nineteenth century or the first two decades of the twentieth. Therefore we cannot determine what share of population growth was contributed by natural increases as compared to net immigration. However we have derived annual net immigration estimates for 1924 to 1941 and have also estimated total population increase for each of these years.[12] These would suggest that close to half of the population gain for the 1924 to 1941 period as a whole can be attributed to net immigration. Naturally there were marked fluctuations in the rates of migration year by year depending on economic and political conditions in Manchuria and in North China, from whence most of the immigrants came. But for the period as a whole, immigration clearly was a major factor in defining the rate of population growth and the characteristics of this population.

Based on the 1940 Census, birth rates were around 37 per thousand with death rates about 25 per thousand. This would suggest rates of natural increase of around 1.2 percent per year in the 1930's. It is unlikely that birth rates were much higher in the nineteenth century because of a highly adverse sex ratio. In 1940, this ratio was 123.9; it may be expected that it was probably even higher before 1900 or 1910, when the total population was much smaller and the share of the immigrant population correspondingly larger. It is even more improbable that death rates could have been lower in the nineteenth century than around 1940. If this reasoning has any validity, rates of natural increase could not have been much higher in the late 1800's than in the 1930's. Therefore one may surmise that immigration must have contributed even more decisively to population growth between 1860 and 1910 than during the following decades. It is possible that perhaps as much as two thirds of the population increase in Manchuria was derived from immigration during the second half of the nineteenth century. This can be considered both as a symptom of the region's rapid economic growth and one of the major sources of this growth during this period.

Cultivated Land

The most systematic compilations of land and population in China thus far are those by Dwight Perkins. We used these as a

[12] Based on Appendix A.

point of departure for our estimates, but supplemented them with data for Heilungkiang for the early years and added some years so as to obtain a somewhat more continuous series.

It would seem that cultivated acreage and population grew at roughly the same rate between 1872 and 1940, but the same does not hold for intermediate periods. As a result, cultivated land per capita appeared to be the same at the beginning and at the end of the period, but not for the years in between. On the other hand, if one starts the analysis in 1887, the land-man ratio exhibits a distinct downward trend. This accords with one's expectations, given the fact that cultivable land was relatively more abundant in the nineteenth than in the twentieth century. On this basis one would expect the ratio in 1872 to be higher than in 1940. To the extent that this may have been the case, the acreage figures for 1872 must have been underestimated.

Just as with population, the cultivated acreage figures for the period before and after 1908 are not comparable. Almost certainly both are underestimated for the early years, although on the basis of our reasoning above this would be more pronounced for land than for population. At the same time, one would expect a significant acceleration in the rate of growth for both between 1898 and 1908 under the impact of railroad construction and railroad operation which opened new lands and speeded up the process of land settlement.

A declining trend in land-man ratios would also accord with the long-term historical trend in China Proper where, as brought out by Perkins, population grew faster than area under cultivation. The resulting decline in acreage per capita was then compensated for by a greatly stepped up intensity of land use. Given the relatively greater abundance of land and the much more recent settlement of Manchuria, population pressure and intensity of land use was much less pronounced in this frontier region than in the rest of China. As a result, even in the 1930's and 1940's there was more than twice as much cultivated land available per capita in Manchuria than in China Proper.[13]

Exports

Manchurian exports rose at a most rapid rate throughout this period exceeding by a considerable margin the rates of growth in cul-

[13] Based on Perkin's data in Table A.5, p. 212 and Table B.14, p. 236. The land-

TABLE 2
ESTIMATED CULTIVATED ACREAGE AND POPULATION TRENDS IN MANCHURIA, 1873-1930

Year	Population in 1,000	Area in 1,000 Hectares	Rates of Growth in percent per year		Cultivated Land Area per Capita in Hectares
			Population	Area	
1872-73	4,454	1,752.3			0.39
			0.8	3.0	
1887	5,150	2,698.7			0.52
			5.8	5.0	
1908	17,055	7,528.9			0.44
			2.4	4.0	
1914	19,652	9,501.0			0.48
			3.0	1.8	
1930	31,300	12,576.0			0.40
			2.1	2.0	
1940	38,400	15,251.0			0.39

Sources: Dwight Perkins, *Agricultural Development in China*, 1368-1968, Chicago, 1969, Table B.14, p. 236, Otake Fumio: *Kinse Shina Keizai-shih* (Studies on the Economic History of Modern China), Tokyo, 1942, p. 218. Wang Shu-nan, et. al. (compilers): *Feng-t'ien T'ung-chih* (Gazetteer of Fengtien, also known as Liaoning Province) Shenyang, 1934, vol. 108 Chang Sun (ed.), *Kirin T'ung-chih* (Krin Province Gazetteer) Taipei, 1965 (facsimile reproduction, 1930), vol. IV, pp. 2219-2234. South Manchurian Railway Company: *Hokuman Keizai Chosa Shiryo* (North Manchurian Economic Investigation Materials), Dairen, 1910, pp. 3-4. Chang P'o-ying, *op. cit.* vol. II, pp. 773-890. Hsu Shih-ch'ang (compiler): *T'ung-san-sheng Cheng-lueh* (The Administration of the Three Northeastern Provinces), Taipei, 1965 (facsimile reproduction, Shenyang, 1911). Li Wen-chih et al.: *Chung-kuo chin-tai-shih t'ung-chi ts'u-liao ch'uan-chi* (Selection of Statistical Materials on Modern Chinese History), Peking, 1957, vol. I, pp. 60-63. Chen Nai-ruenn: *Agricultural Statistics for Manchuria, 1914-1957*, Appendix Table C (mimeo), Cornell University, Department of Economics Working Paper No. 15.

tivated land and population. Between 1872 and 1899 Manchurian sales abroad including shipments to China Proper, increased at a rate of 7.1 percent a year as may be seen from the data in Table 3. The pace of export growth was significantly accelerated after 1907 when the C.E.R. and S.M.R. were fully operational and the Port of Dairen was opened as well. They rose to 11 percent per year for the 1907 to 1929 period.

Strictly speaking, the series for the years before and after 1907 as given in Appendix Table I are not comparable. The data for 1872 to 1907 refer to export shipments only through the port of Newchwang. However, in the absence of railways and other sea-

man ratios for China Proper were 0.56 in 1873 and 0.44 in 1933, as compared to about 1.0 acres for Manchuria.

TABLE 3
FOREIGN TRADE OF MANCHURIA, 1872-1929
(millions of yuan)

Year	Imports		Exports		Total	
	Current Prices	1913 Prices	Current Prices	1913 Prices	Current Prices	1913 Prices
1872	5.3	11.5	3.1	6.4	8.4	17.9
1899	43.2	64.3	32.1	41.2	75.3	105.5
1905	77.5	95.4	18.7	20.7	96.2	116.1
1907	55.3	67.2	38.0	38.9	93.3	106.1
1909	123.1	117.1	141.6	128.1	264.7	245.2
1929	513.5	324.8	663.1	390.5	1176.6	715.3

Sources: Appendix Tables I and II.

ports, the bulk of exports moved through this port during that period. Undoubtedly some goods moved overland to North China, but they could not have been significant enough and variable enough to affect the rate of growth appreciably. In 1907 additional ports were opened and exports were now also carried overland by rail.

Manchuria's principal export staples were soybeans, bean cake and bean oil, which constituted 87 percent of total sales in 1872. However the share of this staple in the region's export shipments declined gradually and consistently; it was 81 percent in 1899 and 60 percent in 1929. This declining share was a result of the fact that bean exports increased more slowly than total exports. This tendency was particularly pronounced in the 1907 or 1909 to 1929 period with the former growing at the 5.3 percent rate, while the latter rose at an annual average of 11 percent.

TABLE 4
EXPORTS OF SOYBEAN AND SOYBEAN PRODUCTS
FROM MANCHURIA, 1867-1929

Year	Export Value (in millions of yuan)	
	in Current Prices	in 1934 Prices
1867	n.a.	7.7
1872	2.7	6.9
1891	10.2	24.8
1899	26.0	31.0
1905	14.2	10.3
1909[a]		91.0
1915		107.3
1929	397.9	255.5

[a] There is a sharp discontinuity between the series prior to 1907 and thereafter relating to differences in coverage.
Source: Appendix Table III.

The declining share of soybean exports coupled with very rapid export expansion serves as an indication of the growing diversification of the Manchurian economy. At the same time, the fact that total exports, and even soybean shipments, outpaced the rise in population suggests the possibility that national product per capita may have been rising quite appreciably between 1872 and 1929. This, of course, is based on the assumption that to some extent at least export expansion may serve as a proxy for national product growth. The divergence between population increases and export growth is so significant that even if exports rose more rapidly than domestic product, there would still be room left for a rise in per capita product.

A Recapitulation

In this section we have tried to throw some light on the rate and pattern of development based on very scanty data between 1860 and 1930. It seems to us that this is a case study of extensive growth in a newly settled region in which economic development is dependent on a rapid expansion of inputs. At the same time it is a case which seems to be reasonably well explained by the staple theory of growth.

Watkins identifies two distinct traits in the initial conditions characterizing economic development of newly settled countries or regions: a favorable man-land ratio and an absence of inhibiting traditions.[14] These initial conditions prevailed in Manchuria in the latter part of the nineteenth century, at least as compared to China Proper and other economies in East and Southeast Asia. He then points out that from these initial features flow some probable consequences for the growth process, at least in the early phases; staple exports are the leading sector, setting the pace for economic growth and the import of scarce factors of production is essential. Moreover growth, if it is to be stable, requires an ability to shift resources that may be hindered by excessive reliance on exports in general and, in particular on a small number of staple exports.

These conditions are met in the Manchurian case. Economic growth was propelled by the mutual interaction of population growth, expansion in cultivated acreage and the rapid rise in staple exports. Population supplied one of the key inputs, labor, which in

[14] Melville H. Watkins, "A Staple Theory of Growth," *Canadian Journal of Economics and Political Science,* XXIX (May 1963).

combination with land provided the wherewithal for increasing agricultural production. This rising production, in turn, provided for the consumption needs of a rapidly increasing population and supplied the staple exports to foreign markets. The demand forces generated by population and export growth stimulated a further expansion in output, which, in turn, fostered the demand for additional inputs of land and labor. In this way a mechanism was created for an ongoing process of economic development.

The process was crucially dependent on the importation of labor and capital on the one hand and the export of soybeans and soybean products on the other. Unskilled and farm labor was imported from China, while managerial and technical skills together with capital were imported from Russia and later predominantly from Japan. Most of the imported capital and skill was initially devoted to railroad construction and operation, which served to reinforce and broaden the growth process referred to above. Second, it went into the development of trade and services associated with railroad development. As the economy became more advanced and somewhat more complex, soybeans and soybean products declined in importance and exports became more diversified. Gradually, and especially beginning in the 1920's, industrial development began to gain momentum so that the economy was becoming less dependent on exports in general and soybean shipments in particular. This tendency became even more pronounced in the 1930's as will be documented in greater detail in the next section of this paper.

INDUSTRIAL DEVELOPMENT IN THE INTERWAR PERIOD, 1924-41

It would seem that the period of extensive growth based on an expansion of the agricultural frontier was largely ended around 1930. This is quite clearly evidenced by the fact that total grain output—based on annual figures for 1924 to 1941—attained its peak level in 1930, and the three-year crop production average for 1929-31 was perceptibly higher than for 1939-41.[15]

This development was paralleled by a slowdown in export growth, coupled with a rapid rise in commodity imports and growing trade

[15] These annual crop data are presented in Appendix C of our larger study. These in turn are based on the following three sources: *Manshu kaihatsu yonjunenshi* (*The History of Forty Years Development in Manchuria*) (Tokyo: Manshikai, 1964); *Tung-pei nien-chien, 1931* (*The Yearbook of the Northeast, 1931*) (Mukden: Tung-pei Culture Press, 1932); *Manshu nosan tokei* (*Agricultural Statistics of Manchuria*), SMR, Dairen, 1943.

deficits financed by capital imports, mostly from Japan. At an earlier stage, capital imports were largely channeled into railroad development which contributed to agricultural expansion and rising exports. By 1930 or so most of the more fertile lands were under cultivation and further agricultural growth became increasingly dependent on rising input productivity requiring investment of capital and technological progress. However, the Japanese who increasingly dominated economic policy direction in Manchuria, chose instead to concentrate on industrial development, on further extension of the railroad network for strategic and industrial development reasons, and on the development of commerce and government services.

These findings can be much more firmly documented than those for the preceding period, since beginning in the 1920's much more detailed and systematic statistics began to be collected and published in Manchuria. On the basis of these statistics it became possible to construct a series of national product estimates for certain years between 1924 and 1941. Our analysis of economic growth and structural transformation is based on these detailed sectoral estimates which will be published when our study as a whole is completed.

The data are generally better for the 1930's than for the 1920's and therefore our estimates for 1934-41 are more reliable than those for 1924-29. Many statistical problems were encountered in the process of constructing the estimates and often circuitous and indirect approaches had to be resorted to in order to resolve particular problems. Yet, it seems to us that on balance these are reasonably reliable and usable estimates. Great care was taken by us to make these estimates territorially comparable. Thus they refer to the four northeastern provinces, the Kuantung Leased Territory and the SMR Zone.[16] This means that our territorial coverage for this period not only refers to Liaoning, Kirin, and Heilungkiang, but Jehol as well.

The Rate of Growth

Bearing these qualifications in mind and as may be seen from Table 5, the average annual rate of growth in the Manchurian economy was about 4 percent a year for the 1924-41 period. This is clearly a high rate by pre-World War II standards. The most rap-

[16] The Kuantung Territory situated on the tip of the eastern Liaoning Peninsula was leased by Japan from China when the Russo-Japanese war ended. It encompasses an area of 3,462 square kilometers. At the same time the Japanese acquired the right to administer the lands on both sides of the south Manchurian Railway, a total area of 298 square kilometers.

TABLE 5
GROSS DOMESTIC PRODUCT OF MANCHURIA, 1924-41
AVERAGE ANNUAL RATES (percentage)

	1924-29	*1929-34*	*1924-34*	*1929-36*	*1924-36*	*1936-41*	*1924-41*
"A" Sector[a]	5.3	−8.5	−1.8	0.9	1.6	2.4	1.9
"M" Sector	3.1	5.8	4.3	5.5	4.4	9.9	6.0
"S" Sector	5.1	2.1	3.3	2.6	3.6	10.5	5.6
"A" & "M" Sectors	4.8	−4.5	− .07	0.7	2.4	4.9	3.1
Transportation and Trade	5.8	3.1	4.4	3.3	4.2	7.8	5.3
Total GDP	4.9	−2.0	1.3	1.4	2.8	7.3	4.2

[a] The *A Sector* includes farm production, processing activities in agriculture, forestry and fishing; the *M Sector* refers to mining, manufacturing, public utilities, small scale industry and construction; all other economic activities are encompassed under the *S Sector*.

Sources: Appendix A to Appendix O; the raw material for these Appendices and the data on which they are based were for the most part culled from the archives and research library of the South Manchurian Railway Company deposited in the Library of Congress.

idly growing sectors were construction, factory industry, and modern transport and the most rapidly growing periods were between 1924 and 1929, but particularly 1936-41. On the other hand, growth was quite slow between 1929 and 1936 due to the sluggishness of agricultural production, associated with the Mukden Incident and the formation of the new "State of Manchukuo," and the impact of the world depression. Actually, the growth rates for 1924-34 and 1929-34 illustrate the sharp drop in farm output, which reached its low for the period in 1934. What is also evident from these figures is that in the 1920's agriculture was still a dynamic sector, significantly contributing to economic growth, while from 1929 on it experienced very slow growth.

The position of manufacturing was almost the reverse of agriculture: it expanded rather slowly in the 1920's, but was a most dynamic sector in the 1930's, especially from the mid-thirties on when the industrialization program of the new puppet state gained full momentum under Japanese tutelage. Another notable feature of Manchuria's growth pattern is the rapid expansion of the service sector. This was particularly pronounced in the 1936-41 period and may in part by ascribed to the construction of a large apparatus for the new "state." As a result, government services rose at 17 percent per year during these five years. Modern transportation was another very dynamic sector, largely due to the rapid growth of railway traffic.

As was indicated in the preceding section, Manchurian develop-

TABLE 6
PER CAPITA GDP IN MANCHURIA, 1924-41
(values in 1934 yuan)

	Population[a]	*GDP (million)*	*Per Capita GDP*
1924	31,030,000	2,348.0	75.7
1926	32,477,000	2,639.3	81.3
1929	35,759,000	2,986.4	83.5
1934	38,668,000	2,677.1	69.2
1936	39,984,000	3,289.6	82.3
1939	43,035,000	4,174.8	97.0
1941	45,755,000	4,733.3	103.4

[a] These population series are not comparable with those in Tables 1 and 2, since the former are based on three northeastern provinces, *i.e.*, they exclude Jehol, while the present do not.
Sources: Column (1), Appendix A of our larger study; Column (2), Appendices C to O of our larger study; and Column (3), derived from (1) and (2).

ment was characterized by marked increases in population. During the years under consideration here, population increased at an estimated average annual rate of 2.3 percent. This means that domestic product per capita rose at a rate of close to 2 percent a year.

This too is quite a high rate by pre-World War II standards of presently industrialized countries. Two percent a year per capita rates of growth in national product were attained or exceeded in the process of their industrialization by Sweden and Japan. However, for some periods such rates were also attained in Great Britain, Denmark, U.S. and Canada.[17] Moreover, high rates of per capita growth—significantly in excess of the long term historical rates—were of course attained in a number of countries since World War II, including many underdeveloped countries. Finally, while fairly high rates of per capita growth characterized Manchurian development, almost certainly this experience was not repeated in China Proper.[18]

Changes in Economic Structure

This rapid growth necessarily entailed a marked transformation in the structure of the economy as may be seen from Tables 7 and 7A. It resulted in a significant decline in the relative importance of

[17] Based on Simon Kuznets, *Economic Growth of Nations: Total Output and Production Structure* (Cambridge, Mass.: Harvard University Press, 1971), Table 4, pp. 38-40.
[18] There are detailed GNP estimates for China only for 1933. There are more skeletal estimates for 1931-36, but none for a longer time span. Therefore no firm quantitative statements are possible, but all of the qualitative evidence would speak against a sustained rise in per capita product between 1920 and 1940.

TABLE 7
INTERSECTORAL COMPOSITION OF GPD IN MANCHURIA, 1924-41
(in percent and based on 1934 yuan)

	1924	*1926*	*1929*	*1934*	*1936*	*1939*	*1941*
Agriculture	44.7	45.7	45.7	32.2	38.5	29.2	29.4
Subsidiary Production in Agriculture	4.0	4.1	4.1	2.9	3.4	2.6	2.6
Fishing	0.2	0.2	0.4	0.5	0.5	0.5	0.4
Forestry	0.8	0.5	0.5	0.6	0.8	1.4	1.5
Mining	1.4	1.6	1.4	1.7	2.1	2.4	2.6
Factory Industry	2.3	2.7	2.8	3.8	5.1	7.9	7.6
Small-scale Industry	9.8	8.7	7.7	8.9	7.0	4.4	4.7
Construction	1.2	0.8	1.0	5.4	3.5	5.7	5.4
Modern Transportation and Communications	3.5	3.5	3.7	4.9	4.5	6.9	7.6
Traditional Transport	0.8	0.8	0.9	1.1	1.0	1.0	1.0
Trade	15.7	15.7	16.2	21.1	18.2	17.0	15.8
Government and Other Services	10.0	10.0	10.0	11.2	9.7	15.2	15.9
Housing Services	5.7	5.7	5.7	5.7	5.7	5.7	5.7

TABLE 7A
(in percent and based on 1934 yuan)

	1924	*1926*	*1929*	*1934*	*1936*	*1939*	*1941*
A+	49.7	50.1	50.7	36.2	43.2	32.7	33.9
M+	14.7	16.8	12.9	19.8	17.7	20.4	20.3
S	35.6	33.1	36.4	44.0	39.1	46.9	45.8

Sources: Appendix C through O of the larger study.

the agricultural sector from one half to one third of GDP, paralleled by a rise in the M+ sector from about 15 to 20 percent and in the S sector from 35 to 45 percent. Agriculture remained throughout the single most important sector, followed by trade and government and other services. Despite rapid industrial development, manufacturing did not change its relative importance throughout; factory industry grew at the expense of small-scale industry, but industry as a whole expanded at the same rate as GDP, thus not gaining in relative importance. One of the most striking characteristics of the development pattern exhibited by Table 7 is the increasing service orientation of the Manchurian economy. Service activities gained in relative importance at the expense of commodity production.

Another way of assessing Manchuria's economic progress and transformation is to compare its economic structure with that of other countries at differing stages of development. Using Simon

Kuznets' classification as the standard, the Manchurian economy of 1924 would most closely approximate the lowest category with per capita incomes of about $52 in terms of 1958 dollars. However, Manchuria's S share was much larger than that associated with the poorest countries; therefore, by the standards of that sector it would belong to Category III.[19]

By 1941 the Manchurian economy had clearly moved up in the international development scale, but in a peculiarly "unbalanced" fashion. Its agricultural sector share would have placed it in category IV, its M share however left it in category I and its S share placed it in the highest category or above. The change in Manchuria's position on this S share scale can be wholly attributed to relative gains in modern transport and government services. At the same time, while the trade share in GDP did not change very much between 1924 and 1941, it also placed Manchuria near the top of the scale, while in terms of per capita income level it certainly was close to the lower end. This may be a function of Manchuria's strong foreign trade orientation with an export share of about 17 percent and an import share of 22 percent in relation to 1934 GDP.[20] At the same time it reflects an inflation of government services to supply the region with the attributes of statehood and to develop a bureaucracy for administering wartime controls.

These peculiarities in Manchuria's economic structure were by no means unprecedented as may be illustrated by the data in Table 8. The U.S. in 1839 had a higher per capita product (in comparable dollars) than Manchuria in 1924 or 1941. In terms of economic structure, however, it did not differ radically from the Manchurian one in 1924, although its A and S sectors were somewhat smaller, while its M sector was larger. On the other hand, Australia—another newly settled region—was by the 1860's more advanced than Manchuria in the interwar period, both in terms of per capita product and economic structure.

In comparison with another relatively "new" but less developed country than the U.S. or Australia (Brazil, for example), Manchuria's position would not seem at all anomalous. This conclusion is reinforced in comparison with a number of Asian countries of the

[19] See Simon Kuznets, *Economic Growth of Nations*, Table 12, p. 104 with sectors I and S adjusted to our definitions, *i.e.*, transport and communication transferred from I to S.

[20] Based on foreign trade data in Appendix Table I and our GDP estimates.

TABLE 8
INTERSECTORAL COMPOSITION OF GROSS DOMESTIC PRODUCT, SELECTED COUNTRIES

	A	*M*	*S*
United States			
1839	42.6	24.5	32.9
1889-99	17.9	40.5	41.6
Australia			
1861-80	25.1	30.0	44.9
Sweden			
1861-70	38.3	21.0	40.7
Brazil[a]	28.2	25.8	46.0
Burma	31.8	17.8	50.4
Ceylon	47.8	12.2	40.0
Malaysia	37.8	18.9	43.3
Thailand	37.4	17.7	44.9
Taiwan	33.4	26.9	39.7
Pakistan	53.5	12.1	34.4
India[b]	48.6	18.3	33.1

[a] For Brazil through India for 1960.
[b] Net domestic product.
Sources: Simon Kuznets, *Economic Growth of Nations*, Tables 21 and 22, p. 147 and pp. 160-162; and United Nations: *Yearbook of National Accounts Statistics, 1965*, New York, 1966.

post-World War II period. In all of these the S sector looms relatively large. For instance, Burma in 1960 had a somewhat smaller A and M sector than Manchuria in 1941 but a larger S sector. In contrast, Taiwan (1960) and Manchuria (1941) had about the same size A sector, but the former was more industrialized and correspondingly less service-oriented than the latter.

Comparative Growth Patterns in China and Manchuria

As noted earlier, rapid growth and economic transformation in Manchuria led to a marked increase in per capita product. In the meantime, there is no evidence of a comparable expansion in China, so that during the interwar period the Manchurian and Chinese economies were following clearly divergent paths. If we compare the single prewar year for which there are detailed national product estimates for China, 1933, with our 1934 estimates for Manchuria, the lag in the stage of development of the former as compared to the latter is demonstrated once more. The contrast would undoubtedly be even greater if we could separate out Manchuria from the all-China estimates and in this way obtain comparisons for China Proper and Manchuria. The divergence between the two increased in time, in part due to the fact that industrialization and economic

development continued in Manchuria even after the outbreak of the Sino-Japanese War in 1937, while it was halted or set back drastically in the rest of China.

The Chinese economy more or less recovered from the impact of war and civil war by 1952; therefore we chose this year for comparison with Manchuria in 1941. This is based on the presupposition that in the absence of the Sino-Japanese War the Chinese economy might in some sense have attained its 1952 level by 1941.

Proceeding on this basis and in terms of 1933 prices for China and 1934 prices for Manchuria, the comparative per capita product of the two is as follows (in yuan)[21]:

	1930's	"1940's"
Manchuria	69.2 [1934]	103.4 [1941]
China	59.4 [1933]	59.3 [1952]

As may be seen from these figures, Manchurian per capita product exceeded the Chinese level by 16 percent in the early 1930's. This almost certainly understates the difference between the two, since 1934 was a particularly poor harvest year in Manchuria. As may be seen from Table 6, if we compare 1929 or 1936 product with China's in 1933, the difference between the two per capita products would not be 16, but close to 40 percent. By 1941, as compared to China in 1952, this divergence rose to about 75 percent. However, this difference may be overstated by the way Chinese product was estimated for 1952.[22]

These differences in the respective levels of development are also reflected in the structures of the two economies as may be seen from Table 9. By the 1930's Manchuria's economy was less agricultural, more industrial, and more service-oriented than China's. These differences persisted into the later period, but they were narrowed somewhat as the Chinese economy of 1952 was more developed than that of 1933.

The divergent development paths of China and Manchuria are not at all surprising, given the course the two economies have fol-

[21] The Manchurian estimates are based on Table 6 of this paper. Those for China are from T. C. Liu and K. C. Yeh, *The Economy of the Chinese Mainland, National Income and Economic Development, 1933-1959* (Princeton: Princeton University Press, 1965), Tables 8 and 51.

[22] The agricultural product estimates by Liu and Yeh for 1952 are based on certain assumptions which yield a definite downward bias.

TABLE 9
GROSS DOMESTIC PRODUCT BY INDUSTRIAL ORIGIN IN CHINA AND MANCHURIA
(in percent)

	China		*Manchuria*	
	in 1933 Prices		*in 1934 Prices*	
	1933	*1952*	*1934*	*1941*
A	65.0	56.6	36.0	33.9
M	11.5	14.5	19.7	20.3
S	23.5	28.9	44.3	45.8

Sources: Table 7A of this paper; Liu and Yeh, *Economy*, Table 8.

lowed within the past century. Another basic symptom of these differences as well as a major factor contributing to them is the investment rate. Thus the rate of gross investment in fixed capital was 9 percent in Manchuria by 1924, over 17 percent in 1934, and 23 percent in 1939. In contrast, the corresponding rate in China was only around 5 percent in 1933 and the high Manchurian rates were not attained in the country as a whole until the end of the First Five Year Plan, around 1956 to 1957.[23] The high prewar investment levels attained in Manchuria in the late 1930's were to a large extent financed by capital imports from Japan.

Under the impact of this rapid development, how significant an asset did Manchuria represent to the Chinese economy as a whole? In the early 1930's about 8 percent of China's population lived in the Northeast and this rose to 9 percent by 1952. If we compare 1941 outputs in Manchuria with those of China in 1952 (in comparable prices), it would seem that the region contributed about 14 percent to the country's national product, almost a third to its factory product, and over 43 percent to the value added by modern transport.[24] The scattered and partial evidence thus far available would suggest that by 1952 Manchurian production had not yet fully recovered to pre-1949 peak levels, but on the average 1941 and 1952 outputs for the region may be roughly comparable.

Assuming that this was the case, the Japanese clearly left behind them a most important economic legacy when they surrendered

[23] Rates for China based on Liu and Yeh, *Economy*, Table 71 and on Chao Kang's: *Capital Formation in China, 1952-1965*, manuscript to be published by the University of California Press, Table 10; rates for Manchuria are from Appendix P of our larger study.

[24] Based on a comparison of our total GDP and sectoral estimates for 1941 (in 1934 prices) with those for China in 1952 (in 1933 prices) as derived by us from Liu and Yeh, *Economy*, Table 8.

Manchuria in 1945. They left a much more developed region than they acquired and one that would make a major contribution to the industrialization and economic development of a revitalized China.

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JOHN CHANG, *Asian Development Bank*

Appendix Table I
FOREIGN TRADE OF MANCHURIA, 1872-1941
(in millions of yuan)

Year	*Imports*	*Exports*	*Total*
1872	5.3	3.1	8.4
1873	4.9	2.5	7.4
1874	3.8	2.7	6.5
1875	4.4	4.2	8.6
1876	6.7	4.1	10.8
1877	5.8	4.9	10.7
1878	8.4	6.8	15.2
1879	7.1	5.7	12.8
1880	5.3	5.2	9.8
1881	3.9	5.5	9.5
1882	4.7	5.6	10.3
1883	4.8	6.1	10.9
1884	5.7	6.4	12.1
1885	5.8	7.1	12.9
1886	6.3	7.0	13.4
1887	7.6	8.5	16.1
1888	6.7	8.9	15.5
1889	6.0	8.7	14.7
1890	11.3	11.2	22.5
1891	14.0	12.6	26.6
1892	11.4	14.1	25.5
1893	13.0	14.5	27.5
1894	12.3	13.3	25.6
1895	5.8	8.7	14.6
1896	17.9	17.6	35.5
1897	19.6	21.5	41.1
1898	23.4	27.2	50.5
1899	43.2	32.1	75.3
1900	16.4	18.0	34.3
1901	36.6	29.2	65.8
1902	39.2	27.3	66.5
1903	43.1	31.1	74.2
1904	45.7	18.9	64.7
1905	77.5	18.7	96.2
1906	46.3	23.0	69.3
1907	25.8	24.5	50.3
1907[a]	55.3	38.0	93.3
1908	93.9	85.8	179.8
1909	123.1	141.6	264.7
1910	138.4	145.7	284.2
1911	161.9	169.8	331.7
1912	165.5	160.9	326.4
1913	174.5	177.4	352.0
1914	175.1	169.7	344.8
1915	168.4	202.7	371.1
1916	201.8	203.8	405.7
1917	247.1	251.0	498.1
1918	276.1	259.9	536.0
1919	360.4	352.0	690.7
1920	319.5	367.5	671.5
1921	340.0	365.2	705.2

[a] Series before and after 1907 not comparable. See text.

APPENDIX TABLE I (*Continued*)

Year	*Imports*	*Exports*	*Total*
1922	306.0	427.8	734.0
1923	322.5	457.9	780.4
1924	312.5	419.0	731.8
1925	381.2	486.7	899.1
1926	431.3	577.6	1009.0
1927	418.9	635.6	1054.6
1928	471.9	676.2	1148.2
1929	513.5	663.1	1176.6
1930	478.3	618.1	1096.4
1931	341.0	722.8	1079.4
1932	337.7	618.2	955.8
1933	515.8	448.5	964.3
1934	593.6	448.4	1041.9
1935	604.1	421.1	1025.2
1936	691.8	602.8	1294.6
1937	887.4	645.3	1532.7
1938	1274.7	725.5	2000.2
1939	1783.4	826.2	2609.6
1940	1563.3	572.5	2135.8
1941	1260.9	608.8	1869.7

Sources: Bank of Chosen, *Economic History of Manchuria,* Seoul, 1920, pp. 21-22; *The Manchukuo Yearbook, 1934;* "The Foreign Trade of Manchukuo Since Its Inception," in SMR, *Contemporary Manchuria,* III, April 1939 and III, July 1939.

APPENDIX TABLE II
INDEX NUMBERS OF PRICES OF IMPORTS AND EXPORTS
(1913 = 100)

	Imports	*Exports*
1872	45.8	48.7
1899	67.2	78.0
1905	81.2	90.4
1907	82.3	97.6
1909	95.1	90.5
1929	158.1	169.8

Source: Nankai Institute of Economics, *Nankai Index Numbers, 1936,* Tientsin, 1937, Table VII, pages 37-38.

APPENDIX TABLE III
EXPORTS OF SOYBEANS, BEAN CAKE, AND BEAN OIL FROM MANCHURIA, 1867-1938

	Quantity			*Value*		
	1,000s of short tons			*in 1,000s*		
Year	*Soybeans* (1)	*Bean Cake* (2)	*Bean Oil* (3)	*HKT* (4)	*Yuan* (5)	*1934 Yuan* (6)
1867	76.1	81.4	1.5			7,741
1868	53.9	41.1	.9			4,831
1869	97.8	61.5	2.3			8,372

APPENDIX TABLE III (*Continued*)

Year	Quantity (1,000 of short tons)			Value (in 1,000s)		
	Soybeans (1)	*Bean Cake* (2)	*Bean Oil* (3)	*HKT* (4)	*Yuan* (5)	*1934 Yuan* (6)
1870	64.9	51.3	9.0			7,085
1871	64.9	27.1	.9			4,940
1872	82.4	43.9	2.8	1,738	2,711	6,884
1873	67.0	36.9	1.3	1,252	1,953	5,495
1874	73.5	50.6	1.7	1,372	2,140	6,454
1875	116.0	67.1	.8	2,214	3,454	9,415
1876	94.7	50.7	.3	2,088	3,257	7,479
1877	95.9	52.8	.3	2,388	3,725	7,628
1878	143.7	128.3	.2	3,509	5,474	13,256
1879	123.5	120.1	.8	3,151	4,916	11,861
1880	141.4	90.1	1.8	2,718	4,240	11,917
1881	150.7	96.2	1.5	2,801	4,370	12,644
1882	137.9	107.5	1.4	2,961	4,619	12,312
1883	156.2	114.4	1.1	3,241	5,056	13,593
1884	140.1	125.1	1.4	3,281	5,118	13,107
1885	170.8	120.3	.7	3,576	5,579	14,606
1886	126.6	98.7	.1	3,136	4,892	11,124
1887	173.1	135.4	2.3	4,007	6,251	15,555
1888	176.7	124.3	.9	4,357	6,797	15,131
1889	127.8	126.2	3.8	3,987	6,220	12,797
1890	187.4	174.9	2.1	5,070	7,909	17,854
1891	277.2	204.3	6.2	6,563	10,238	24,816
1892	278.0	187.9	8.1	6,495	10,132	24,529
1893	222.7	155.1	5.9	7,065	11,021	19,734
1894	249.1	177.3	4.9	6,676	10,415	21,960
1895	196.7	52.8	2.2	4,579	7,143	13,783
1896	255.7	181.6	5.9	9,455	14,750	20,913
1897	258.2	220.5	5.0	11,372	17,740	24,142
1898	281.4	246.4	7.2	14,740	22,994	26,808
1899	314.1	292.1	10.7	16,685	26,029	30,973
1900	167.9	194.1	14.9	9,643	15,043	19,387
1901	168.9	288.8	13.9	16,088	25,097	22,883
1902	228.7	309.1	18.8	14,100	21,996	27,875
1903	228.3	303.5	7.5	14,630	22,823	25,927
1904	121.7	132.4	4.8	8,750	13,650	12,829
1905	98.9	114.3	1.7	9,080	14,165	10,346
1906	137.5	244.2	6.4	11,850	18,486	18,228
1907	76.2	244.6	5.6			14,554
1909[a]	977.4	717.2	38.0			90,991

[a] 1867-1907 and 1909-1938 series are not comparable.

Sources: Columns (1), (2), and (3), 1867-1907 from K. C. Sun, *The Economic Development of Manchuria,* p. 15; 1909-1929 from SMR, *Second Report on Progress in Manchuria to 1930,* Dairen, 1931, p. 144; 1930 from *The Manchuria Yearbook 1932-33,* Tokyo, 1932, pp. 342, 348, and 350; 1931-1938 from *Manshû nenkan* (*Manchuria Yearbook*), 1932, 1936, 1937, 1939, and 1940. Column (4) 1867 to 1901 from Ishida Kōhei, *Manshû ni okeru shokuminchi keizai no shiteki tenkai* (*The Historical Development of Colonial Economy in Manchuria*), Mineruwa, Kyoto, 1965, table 1.20, p. 290; 1902-07 from Bank of Chosen, *Economic History of Manchuria,* Seoul, 1920;

APPENDIX TABLE III *(Continued)*

Year	Quantity (1,000 of short tons)			Value (in 1,000s)		
	Soybeans (1)	*Bean Cake* (2)	*Bean Oil* (3)	*HKT* (4)	*Yuan* (5)	*1934 Yuan* (6)
1910	831.5	637.8	46.1			79,555
1911	821.9	911.9	67.3			92,598
1912	650.1	727.1	58.6			74,277
1913	532.6	907.3	73.2			76,481
1914	672.4	804.8	49.1			77,079
1915	928.9	1,073.3	82.9			107,308
1916	575.6	992.6	103.5			86,810
1917	651.7	1,255.6	128.0			104,920
1918	512.2	1,332.6	152.4			103,419
1919	772.0	1,504.6	153.3			125,195
1920	701.1	1,500.7	138.9			118,738
1921	855.3	1,658.5	131.7			132,582
1922	1,148.5	1,790.9	171.7			160,748
1923	1,322.4	2,048.3	173.1			180,836
1924	1,509.6	1,879.7	152.1			182,158
1925	1,614.1	1,747.4	168.7			185,727
1926	1,577.5	2,129.2	199.3			212,721
1927	2,034.6	2,192.3	180.6	215,955	336,890	228,881
1928	2,681.4	1,813.2	142.2	245,722	383,328	246,335
1929	3,041.9	1,548.9	130.2	255,052	397,881	255,480
1930	2,473.4	1,673.5	149.1	206,901	322,766	229,981
1931	3,126.5	2,091.7	206.6	274,233	427,803	292,558
1932	2,826.5	1,567.9	141.3	234,681	366,102	245,346
1933	2,607.4	1,185.9	89.5		245,181	210,264
1934	2,753.9	1,358.7	107.2		228,018	228,023
1935	1,946.9	1,128.3	98.6		201,555	171,020
1936	2,169.3	935.1	74.0		284,760	172,912
1937	2,242.8	884.6	77.4		310,611	175,791
1938	2,390.5	959.9	62.9		318,611	185,014

1927 from SMR, *Report on Progress in Manchuria 1907-1928*, Dairen, 1929, p. 112; 1928-1930 from *The Manchuria Yearbook 1932-33*, Tokyo, 1932, pp. 342, 348, and 350; 1931-1932 from *Manshû nenkan* (*Manchuria Yearbook*) 1932. Column (5) HKT converted into Yuan at a rate of 1.56 Yuan per HKT based on Frank N. Tamagna, *Banking and Finance in China*, Institute of Pacific Relations, New York, 1942. Column (6) based on the following prices for 1934: Soybeans 58.2 Yuan per short ton, Bean Cake 37.9 Yuan per short ton, and Bean Oil 151.6 Yuan per short ton. All of these prices were obtained from SMR, *Manshû keizai tôkai nempô* (*Annual Report of Manchurian Economic Statistics*), Dairen, 1939, pp. 184, 190, and 191.