



A STUDY OF THE AWA INDIGO INDUSTRY IN THE MIDDLE OF THE MEIJI PERIOD : WITH SPECIAL REFERENCES TO THE INDIGO BUSINESS OF THE TAKAHASHI FAMILY IN TOKUSHIMA PREFECTURE

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**A STUDY OF THE AWA INDIGO INDUSTRY
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MASATOSHI AMANO

The purpose of this paper is to investigate the response of the Awa indigo industry to the new competitive conditions caused by the opening of Japan to foreign trade in 1858. I would like to take the case of the business activities of the Takahashi family who were one of the indigo manufacturers in the province of Awa-Tokushima from the Tokugawa period to the Meiji period and to analyze the account book kept by the 10th successor to the head of the family, Yayota Takahashi. The business of the family seems to have suffered from the expanding inflow of foreign indigo. Although the second quarter of the 1890's was a turning point, the family failed to change their business practices to suit the new conditions in a critical period of change in history. The conclusions that can be derived from analyses of the family's business seem to be applicable to other cases among the Awa indigo industry in this period, with the exception of a handful.

Introduction

The purpose of this paper is to investigate the response of traditional industries to the new competitive conditions caused by the opening of Japan's ports in 1858. With the opening of the ports, Japan underwent the shift from a closed economy to an open economy, and the opening of Japan to foreign trade caused drastic changes in the domestic economy and also in traditional industries. I would like to explore how the traditional industries responded to the new conditions after 1858, taking as an example the case of the Awa indigo industry.

From the latter half of the 18th century on, commercial production in agriculture was widespread and rural industries developed steadily in Japan. In rural villages which were situated north of the Yoshino River, in eastern Shikoku, indigo cultivation progressed. The Awa domain developed into a major indigo production area¹⁾. However, imports of foreign-produced indigo increased in the late 19th century. It seems that the Awa indigo industry was faced with increasing competition from the imported indigo. In this paper, I would like to investigate the influence of the influx of foreign indigo and chemical dyestuffs on

1) On this point, see Masatoshi Amano, *Awa-ai keizaishi kenkyū* [Economic history of the Awa indigo industry], (Tokyo: Yoshikawa Kobunkan, 1986), pp.11-65.

the Awa indigo industry.

According to trade statistics from *Nihon Bōeki Seiran* [*Foreign trade of Japan: A statistical survey*] imported indigo consisted of natural dry indigo and artificial indigo. However, since the statistics expressed for the latter date from 1902, let us examine the trends of the former. The imports of natural dry indigo in the first half of the Meiji period did not increase, according to the figures for import volumes, which were around 26,000 kins or 15,600 kilograms (kgs) as a yearly average during the period. But the imports of natural dry indigo expanded in the middle of the Meiji period. The import volumes surpassed 200,000 kins (120,000 kgs) at about the end of the 1880's. The figure reached 480,000 kins (288,000 kgs) in 1892, 950,000 kins (570,000 kgs) in 1896, and neared 2,000,000 kins (1,200,000 kgs) at the end of the 1890's, which was the peak in the volumes of imports. These figures show that foreign indigo imports increased especially in the 1890's. Sixty to eighty percent of the foreign dyestuffs were imported through Yokohama till the end of the 1890's. The influx of foreign dyestuffs seems to have had a strong influence in the Kantō region²⁾. The question arises of how those involved in the indigo industry responded to the inflow of these foreign dyestuffs. I would like to examine the case of "Aishi", that is, the indigo manufacturers in the province of Awa-Tokushima. The case study undertaken is that of the Takahashi family from Higashinakatomi, Aizono Village, Itano County, which was a part of the center of indigo production along the Yoshino River.

I. The revenues of the Takahashi family's business

The 7th successor to the head of the Takahashi family, Yazaemon entered the indigo industry during the Kansei period (1789-1800). Subsequently, the Takahashi family, the name of whose store was Mitsuya, dealt in indigo in Buzen province and the Osaka market³⁾. But, as is made clear in the following analysis, in the middle of the Meiji period, the Takahashi family supplied processed goods and finished goods of indigo to the "Aishō", that is, the indigo merchants in Tokushima, and changed the nature of its business to become that of an "Aishi", that is, indigo manufacturer. Therefore this case study is an analysis of the business trends of manufacturers rather than merchants in the Awa indigo industry. The 9th successor to the head of the family, also called Yazaemon, died

2) On this explanation of the trends of the influx of foreign dyestuffs, see Akira Hasegawa, "Meiji-ki ni okeru Awa-ai to kokunai-shijō — Gaikoku-ai to no taikō-kankei o chūshin ni shite" [Awa indigo industry and the domestic market in the Meiji period — with special references to the competition with foreign indigo], *KEIZAI KEIEIGAKU RONSHŪ*, MOMOYAMA GAKUIN DAIGAKU, Vol.15, No.2 (1973), pp.10-15.

3) See Aizumi-chō-shi Henshū-iin-kai ed., *Aizumi-chō-shi* [History of the town of Aizumi], (Tokushima: Aizumi Town, 1965) supplements, pp.48-49.

TABLE 1 THE REVENUES OF THE TAKAHASHI FAMILY'S BUSINESS

	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900
Sales of processed goods and finished goods of indigo	yen 663.9	yen 776.9	yen 1,151.6	yen 1,342.5	yen 867.2	yen 1,303.5	yen 1,205.7	yen 1,297.8	yen 979.6	yen 1,384.0	yen 1,306.3
Sales of grains	121.4	184.4	131.1	144.2	106.5	184.6	110.8	209.4	236.5	115.2	134.6
{ Barley	47.7	109.4	81.8	41.0	82.4	91.6	89.7	102.8	135.2	82.9	62.6
{ Soybean	68.9	70.3	36.4	85.5	13.7	81.7	11.2	88.8	94.8	25.1	39.2
Fee or pay	32.6	29.8	26.3	26.2	27.4	28.7	17.4	40.1	35.2	8.6	8.6
Others	3.0	3.0	25.5	16.2	18.3	15.8		4.1	55.5	2.2	26.4
Total	820.9	994.1	1,334.5	1,529.1	1,019.4	1,532.6	1,333.9	1,551.4	1,306.8	1,510.0	1,475.9
Sales of processed goods and finished goods of indigo	% 80.9	% 78.2	% 86.3	% 87.8	% 85.1	% 85.1	% 90.4	% 83.6	% 75.0	% 91.7	% 88.5
Sales of grains	14.8	18.5	9.8	9.4	10.4	12.0	8.3	13.5	18.1	7.6	9.1
{ Barley	5.8	11.0	6.1	2.7	8.1	6.0	6.7	6.6	10.3	5.5	4.2
{ Soybean	8.4	7.1	2.7	5.6	1.3	5.3	0.8	5.7	7.3	1.7	2.7
Fee or pay	4.0	3.0	2.0	1.7	2.7	1.9	1.3	2.6	2.7	0.6	0.6
Others	0.3	0.3	1.9	1.1	1.8	1.0		0.3	4.2	0.1	1.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: "Shūshi Kanjōbo:1890" [Account book of revenues and expenditures of the Takahashis:1890]

in 1854, and was succeeded by Yayota. Yayota died at the age of 77 in 1914, and thus it was Yayota that managed the Takahashi family business from the end of the Tokugawa period through the Meiji period. He tried to grasp accurately the state of his family business, and made precise balance calculations in the 1890's⁴⁾. By making use of these calculations, I would like to examine the business trends of this family.

Table 1 shows the composition and trend of the revenues of the Takahashi family in the 1890's. Let us try to grasp the business characteristics of the Takahashi family from the viewpoint of the revenues as shown in Table 1. According to this table, the Takahashi family focused their business on the indigo industry in the middle of the Meiji period, since eighty to ninety percent of the revenues from 1890 to 1900 proved to be from the sale of processed goods and finished goods of indigo. In addition, other revenue sources consisted of the sale of grains such as barley and soybean used in the pre- and post-production of indigo. Thus the family's revenues in general were related to the indigo industry, and these characteristics of the revenue composition did not change during the middle of the Meiji period. Further, following the trends of the sales of processed goods and finished goods of indigo in Table 1, the low level of the sales, probably caused by the panic of 1890, tended to recover in the first quarter of the 1890's. But in the latter half of the 1890's the sales did not increase as had been expected,

4) The Takahashi family's "Shūshi-Kanjōbo" [Account book of revenues and expenditures], used in the following analyses, is preserved by Mr. Masayoshi Takahashi, Aizumi Town, Itano County, Tokushima Prefecture.

TABLE 2 THE MAIN SALES OUTLETS FOR THE PROCESSED GOODS AND FINISHED GOODS OF INDIGO PRODUCED BY THE TAKAHASHIS

	Transactions of the Processed Goods and Finished Goods of Indigo										Total		Notes
	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	yen	%	
Rokusaburō Tezuka (Myōdō County)	138.4	809.0	367.8	175.0	1,123.7	590.3	760.9	295.5			4,260.6	34.7	Kantō, Kai-Shinano-Suruga-Izu, Sado-Echigo
Rokurō Mori (Tokushima City)			567.4		120.7				701.1	651.7	2,040.9	16.6	Kantō, Kai-Shinano-Suruga-Izu, Harima-Wakasa-Tanba-Tango- Tajima
Yokichirō Miki (Itano County)		80.1		95.0					473.4		648.5	5.3	Kantō, Kai-Shinano-Suruga-Izu, Harima-Wakasa-Tanba-Tango- Tajima, Awaji
Shōichi Katayama (Tokushima City)					53.7	213.7		56.8		195.7	519.9	4.2	Higo, Osaka
Kiyota Inoue (Myōdō County)							404.9				404.9	3.3	Buzen, Osaka
Japanese Indigo Co., Ltd. (Osaka City)						344.9	27.3				372.2	3.0	
Seitarō Torino (Myōdō County)							100.2	265.6			365.8	3.0	Hizen
Hyōkichi Amou (Tokushima City)	358.1										358.1	2.9	Yamashiro, Osaka
Nuijirō Inubushi (Itano County)										344.1	344.1	2.8	Hyūga-Satsuma-Osumi, Osaka
Soji Yoshimi (Tokushima City)			194.6	37.3				86.6			318.5	2.6	Osaka
Genjirō Shima (Itano County)	144.8		158.6								303.4	2.5	Hyūga-Satsuma-Osumi

Sources: "Shūshi Kanjōbo:1890" [Account book of revenues and expenditures of the Takahashis:1890], Aishō Torishimari Kaisho Kakkoku Uriba Kumiai Meibo [A list of Awa indigo merchants with markets outside Tokushima, organized in Awa Indigo Trade Association] in Yokichirō Miki ed., *Awa ai fu Shiryō-hen Ge-kan* [Grand history of Awa indigo — historical documents — vol.3] (Tokushima:Miki Sangyō Co.,Ltd.,1974) pp.430-460, Awa Ai Hanbai Chikuiki Jinmei Hyō [A list of Awa indigo merchants with markets outside Tokushima] in *Ibid.*, pp.639-655.

or rather, it became clear that the sales were stagnant. Such trends of the sales were the same as those of the total revenue. The total revenue was also at a turning point in the second quarter of the 1890's, and stagnated after this. Judging from the trends of both the sales of processed goods and finished goods of indigo and the total revenue, the second quarter of the 1890's was a crucial turning point for the Takahashi family.

In order to make a more detailed examination of the trends of the Takahashi family's indigo business, let us look at the main sales outlets for the processed goods and finished goods of indigo in Table 2. This table shows the detailed transactions between the Takahashi family and its customers whose purchases from the Takahashis exceeded 300 yen in the period from 1890 to 1900, and also shows each customer's share in the total sales of the Takahashis in this period together with their markets outside Tokushima. The transactions shown in this

table represent more than eighty percent of the total indigo transactions of the Takahashi family.

According to Table 2, the main customers of the Takahashi family in the 1890's were the Awa indigo merchants with a large market in the Kantō area. About half of the indigo sales of the Takahashis in this period were to merchants such as Rokusaburō Tezuka from Myōdō County, Rokurō Mori from Tokushima City. It is undeniable that the main customers of the Takahashis in the 1890's were made up of Awa indigo merchants with a large market in the Kantō area such as the Tezukas, the Moris and the Miki family from Itano County. However, it is also interesting to note that indigo merchants with their markets in the Osaka area and parts of Kyūshū, such as Buzen, Hizen, Higo, Hyūga, Satsuma, and Osumi appear in this period as customers of the Takahashis, though the amount of the transactions was not so significant. The Awa indigo industry was displaced from the Kantō area by the imports of foreign indigo, strengthened its ties with traditional textile industries such as that of Kurume-Kasuri, and changed the domestic market⁵⁾. It seems that the slight change in the market of the Takahashi family reflected these trends of the Awa indigo industry. But I cannot necessarily state that the Takahashis actively adapted themselves to the transformation of the domestic market of the indigo industry. As the Awa indigo merchants with a large market in the Kantō area had been the customers of the Takahashis during this period, the business practices of the Takahashi family did not undergo a drastic change. As mentioned above, the business of the indigo merchants with a large market in the Kantō area suffered from the expanding inflow of foreign indigo through Yokohama⁶⁾. The worsening performance of their indigo business seems to have brought about a significant limitation in the indigo manufacturers' business in Tokushima Prefecture.

II. The expenditures of the Takahashi family's business

This section aims to examine the business of the Takahashi family from the viewpoint of expenditures. Regarding both the sales of processed goods and finished goods of indigo and the sales of grains shown in Table 1 as the business revenues of the Takahashi family, the various expenditures spent on earning the revenues are regarded as the business expenditures of the Takahashis. Table 3 shows a list of the business expenditures of the Takahashis. Let us look at the trends of total business expenditure in the table. It is worthy of note that the total

5) On this problem, see Akira Hasegawa, "Meiji-ki ni okeru Awa-ai to kokunai-shijō", *op.cit.*, pp.15-25.

6) See, Masatoshi Amano, "Meiji-ki ni okeru kōhatsu-aishō no shijō-dōkō ni tsuite" [On the marketing behavior of a late-comer indigo merchant in the Meiji period], *KOKUMIN-KEIZAI ZASSHI* Vol.168, No.3 (1993), pp.85-102.

business expenditure showed a tendency to increase in the latter half of the 1890's, after it had been reduced due to the panic in 1890. In order to explore the cause of the increase in the trend of total business expenditure, I would like to analyze the factors of the business expenditure in detail.

The major components of business expenditure in the period shown in the table were the purchase of fertilizers and wages. Let us look at the trend in the spending on fertilizers. Nearly sixty percent of total expenditure was appropriated for the purchase of fertilizers at first. But it was suddenly reduced to about forty percent of total expenditure due to the panic in 1890. Subsequently, it turned around to increase in the latter half of the 1890's and was about fifty percent of total expenditure. It is clear that the purchase of fertilizers was given significant weight in the total expenditure of the Takahashi family. Here let us amplify this point a little.

According to Table 3, the fact that the ratio of spending on fertilizers to total expenditure had been held relatively high and that the purchases of the processed goods and finished goods of indigo and indigo leaves had been made sporadically implies that the business of the Takahashis was made up of the cultivation of indigo leaves, the processing of them and their distribution. Referring to a few estimates of the revenues and expenditures of Awa indigo farmers in the Meiji era, it seems that the cost of fertilizers used per tan (0.2451 acres) was 19.22 yen in 1896 and 10.45 yen in 1902⁷⁾. Taking the average of these two figures, let us consider 14.84 yen as the cost of fertilizers used per tan. Estimating on the basis of this average figure, it can be suggested that the figures for the spending on fertilizers by the Takahashi family in the latter half of the 1890's imply that the land used for the cultivation of indigo was around 3 chō (7.353 acres). However, at the same time attention must be paid to the figures for farm rent given in the same table. The family appropriated about 80 yen to 100 yen for farm rent. It is said that farm rent for a field of 1 tan (0.2451 acres) in Aizono Village, Itano County was a maximum of 12 yen, normally 8 yen and a minimum of 6 yen at the beginning of the 1890's⁸⁾. Estimating by the usage of the average figure of 8 yen, I can point out that the family ran rented land of approximately 1 chō (2.451 acres) in 1890. In short, the Takahashi family for this period managed not only its own land of 2 chō (4.902 acres) but also rented land of 1 chō (2.451 acres). So, it is

7) See, Chikayoshi Kamatani, "Meiji-ki Nihon ni okeru dentō-gijutsu no henyō — Awa-ai no saibai-seizō" [The reform of traditional techniques in Meiji Japan], *KEIEI RONSHŪ*, TŌYŌ DAIGAKU, No.31 (1988), pp.50-51.

8) These figures for farm rent at Aizono Village were obtained from a document, "Meiji 23 nen yori 28 nen ni itaru, Kangyō ni kansuru ōrai-sho, Itano-gun Aizono-mura-yakuba" [A communications Register with relation to the promotion policies of industries from 1890 to 1895, Aizono Village, Itano County], housed by The Information and Documentation Centre for Japanese Economic Statistics, The Institute of Economic Research, Hitotsubashi University.

TABLE 3 THE EXPENDITURES OF THE TAKAHASHI FAMILY'S BUSINESS

	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900
	yen	yen	yen	yen	yen	yen	yen	yen	yen	yen	yen
Indigo seed and various seeds	7.2	9.2	3.8	6.0	7.3	3.8	9.8	10.6	5.9	8.5	5.3
Processed goods of indigo and indigo leaves		94.2			12.2				38.9		
Fertilizers	365.9	221.2	248.2	320.5	343.9	321.7	397.5	438.9	429.8	477.4	429.0
Back of hoe and agricultural implements	1.5	9.6	8.5	14.1	4.1	19.1	12.5	15.9	13.3	13.2	6.6
Straw and straw mat	31.1	4.7	19.8	19.6	15.1	19.3	9.4	34.1	23.1	15.5	35.9
Wages	96.8	61.0	75.1	122.8	126.6	170.8	184.5	205.6	196.4	258.1	295.1
{ Employees	51.6	28.8	30.3	58.8	60.8	100.6	95.1	123.9	136.3	129.3	168.2
{ Laborers for beating indigo leaves to dry them and separate the leaves from stalks	34.1	19.8	25.4	41.2	31.9	44.0	55.6	51.6	31.4	66.2	63.4
Rent	87.1	87.1	75.9	77.9	107.8	101.9	92.0	91.4	91.4	91.4	90.6
Tax and the like	50.6	71.6	64.3	82.4	49.9	55.9	68.1	81.4	90.3	94.5	116.4
Total	640.2	558.6	495.6	643.3	666.9	692.5	773.8	877.9	889.1	958.6	978.9
	%	%	%	%	%	%	%	%	%	%	%
Indigo seed and various seeds	1.1	1.7	0.8	0.9	1.1	0.5	1.3	1.2	0.7	0.9	0.5
Processed goods of indigo and indigo leaves		16.9			1.8				4.4		
Fertilizers	57.2	39.6	50.1	49.8	51.5	46.4	51.4	50.0	48.3	49.8	43.8
Back of hoe and agricultural implements	0.2	1.7	1.7	2.2	0.6	2.8	1.6	1.8	1.5	1.4	0.7
Straw and straw mat	4.9	0.8	4.0	3.1	2.3	2.8	1.2	3.9	2.6	1.6	3.7
Wages	15.1	10.9	15.1	19.1	19.0	24.7	23.8	23.4	22.1	26.9	30.1
{ Employees	8.1	5.2	6.1	9.1	9.1	14.5	12.3	14.1	15.3	13.5	17.2
{ Laborers for beating indigo leaves to dry them and separate the leaves from stalks	5.3	3.5	5.1	6.4	4.8	6.4	7.2	5.9	3.5	6.9	6.5
Rent	13.6	15.6	15.3	12.1	16.2	14.7	11.9	10.4	10.3	9.5	9.3
Tax and the like	7.9	12.8	13.0	12.8	7.5	8.1	8.8	9.3	10.1	9.9	11.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: "Shūshi Kanjōbo:1890" [*Account book of revenues and expenditures of the Takahashis:1890*]

Note: Figures for agricultural implements from 1891 to 1894 are estimated ones, calculated on the basis of the average composition ratio of agricultural implements and house goods after 1895.

certain that the family's business was made up of the cultivation of indigo leaves, the processing of them and their distribution.

Taking the nature of the family's business into consideration, it is not surprising that the family hired a certain number of employees. According to Table 3, the next highest cost to that of fertilizers was that of wages which consisted of the pay of employees, laborers for beating indigo leaves to dry them and separate the leaves from stalks and the like. The payments for these wages had a tendency to increase in the latter half of the 1890's. It was not until the end of the 1890's that about thirty percent of the business expenditures was appropriated for the payments of wages. According to the above-mentioned analyses, it is clear that the cost of fertilizers and wages had increased since around the second quarter of the 1890's, which had caused the rising tendency of the total business expenditure of the Takahashi family.

III. The balance of the Takahashi family's business

As the trends of the revenues and expenditures of the Takahashi family's business were drawn from the study of Tables 1 and 3, I would like to make a more detailed analysis of the trends of business balance.

As mentioned above, regarding both the sales of processed goods and finished goods of indigo and the sales of grains as business revenues, totaling related expenditures spent on gaining the business revenues under the heading of business expenditures, and deducting business expenditures from business revenues, then the business balance is obtained. And I calculate the ratio of the business balance to the business revenues and name it the business balance ratio.

Next, adding non-operating revenues to and subtracting non-operating expenditures from the business balance, the ordinary balance is obtained. And I take the ratio of the ordinary balance to the total revenues and call it the ordinary balance ratio. And furthermore, taking extraordinary expenditures into consideration, I calculate the net income and the net income ratio. Table 4 is a summary of these figures. In addition, non-operating revenues are mainly composed of indigo inspector fees, tenant land service fees and the like, and non-operating expenditures are, as shown in the table, composed of household expenses, financial expenditures like interest payments and so on. The absolute value of the non-operating expenditures is large, in spite of a little fluctuation, while the non-operating revenues are in general within several percent of the total revenues and do not fluctuate as much.

According to Table 4, business revenues in 1890 stayed at a very low level under the influence of the panic, and the business balance as well as the business balance ratio became worse. Moreover, since non-operating expenditures, especially financial expenditures, expanded significantly, the ordinary balance went into the red and the ordinary balance ratio declined remarkably. However, business revenues recovered in the second quarter of the 1890's, while business expenditures were tightened. As a result the business balance in this period recovered, together with an improvement in the business balance ratio. Furthermore, since household expenses and small monthly payments in the non-operating expenditures in this period were restrained and financial expenditures were on the decrease, the ordinary balance ratio was inclined to recover too.

But in the latter half of the 1890's there was a change in the trend of the above-mentioned business indices of the Takahashi family. That is to say, business revenues, as mentioned previously, had stagnated since the second quarter of the 1890's, while business expenditures had increased. Consequently the business balance as well as the business balance ratio had decreased. And at the same time since financial expenditures had continuously decreased and offset the

increase in household expenses, non-operating expenditures had stayed relatively stable. And therefore the movement of the ordinary balance and the ordinary balance ratio in this period was parallel to that of the business balance and the business balance ratio. However, in 1893 and 1894 a large amount of extraordinary expenditures were incurred, which caused the deterioration of the net income and the net income ratio. According to the account book of revenues and expenditures kept by Yayota⁹⁾, the extraordinary expenditures in 1893 and 1894 were mainly composed of ceremonial occasion fees and building expenses. The second quarter of the 1890's seems to have been the turning point in the business of the Takahashi family. Nonetheless profits gained from the business activities of the Takahashis in this period were not spent on surviving this turning point, but were wasted on paying extraordinary household expenses such as ceremonial occasion fees and building expenses. But in the following year, 1895, such expenses were not incurred, and at the same time, the business balance and the business balance ratio improved. Thus the ordinary balance together with the ordinary balance ratio took a favorable turn and also the net income moved in the same way. However, I can not miss the fact that in 1895, compared with 1892-

TABLE 4 BUSINESS BALANCE, ORDINARY BALANCE AND NET INCOME OF THE TAKAHASHIS

	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900
Business revenues (yen)	785.3	961.3	1,282.7	1,486.7	973.7	1,488.1	1,316.5	1,507.2	1,216.1	1,499.2	1,440.9
Business expenditures (yen)	640.2	558.6	495.6	643.3	666.9	692.5	773.8	877.9	889.1	958.6	978.9
Business balance (yen)	145.1	402.7	787.1	843.4	306.8	795.6	542.7	629.3	327.0	540.6	462.0
Business balance ratio (%)	18.5	41.9	61.4	56.7	31.5	53.5	41.2	41.8	26.9	36.1	32.1
Non-operating revenues (yen)	35.6	32.8	51.8	42.4	45.7	44.5	17.4	44.2	90.7	10.8	35.0
Non-operating expenditures (yen)	432.1 (334.5)	352.8	312.9	303.3	320.6	292.9	247.4	362.9	315.4	312.9	353.4
Household expenditures (yen)	135.9	88.6	97.1	103.9	114.5	151.1	173.1	234.6	217.2	220.5	247.0
Monthly small payments (yen)	77.8	45.4	56.2	64.3	106.4	64.0	53.0	78.0	82.8	69.7	79.9
Financial expenditures (yen)	218.4 (120.8)	218.8	159.6	135.1	99.7	77.8	21.3	50.3	15.4	22.7	26.5
Ordinary balance (yen)	-251.4 (-153.8)	82.7	526.0	582.5	31.9	547.2	312.7	310.6	102.3	238.5	143.6
Ordinary balance ratio (%)	-30.6 (-18.7)	8.3	39.4	38.1	3.1	35.7	23.4	20.0	7.8	15.8	9.7
Extraordinary expenditures (yen)				375.7	173.2				217.4		876.5
Net income (yen)	-251.4 (-153.8)	82.7	526.0	206.8	-141.3	547.2	312.7	310.6	-115.1	238.5	-732.9
Net income ratio (%)	-30.6 (-18.7)	8.3	39.4	13.5	-13.9	35.7	23.4	20.0	-8.8	15.8	-49.7

Source: "Shūshi Kanjōbo:1890" [Account book of revenues and expenditures of the Takahashis:1890]

Note: There are two kinds of figures for 1890 in this table, because we have two kinds of interests for this year in and out of the "Shūshi Kanjōbo". Parenthesized figures in 1890 are calculated on the basis of figures for the interest payments out of the "Shūshi Kanjōbo".

9) See Footnote 4)

1893, the business balance ratio as well as the ordinary balance ratio and the net income ratio had a slight fall. Such a tendency became quite noticeable in the latter half of the 1890's.

Business revenues toward the end of the 1890's continued stagnant, while business expenditures expanded further. Therefore the business balance and the business balance ratio showed a tendency to decline. And also, in this period, the degree of decrease in financial expenditures was outnumbered by that of the increase in household expenses, which pushed up the level of non-operating expenditures. As a result the ordinary balance as well as the ordinary balance ratio had a tendency to deteriorate. In 1898 and 1900 a large amount of extraordinary expenditures were incurred again. Taking account of them, the net income in both years went into the red. The extraordinary expenditures in both years were again basically composed of ceremonial occasion fees and building expenses. The net income and the net income ratio, taking account of those extraordinary expenditures, had a tendency to deteriorate in and after 1895 and reached their worst in 1900. The Takahashi family suffered great losses in the year and consequently could not help closing their indigo business.

IV. Concluding Remarks

In this paper, I have tried to investigate the response of the Awa indigo industry to the new competitive conditions caused by the opening of Japan to foreign trade in 1858, taking the case of the Takahashi family who were one of the indigo manufacturers in the province of Awa-Tokushima from the Tokugawa period to the Meiji period. The main findings from my analyses of the account book kept by Yayota are summarized as follows.

The business of the Takahashi family seems to have suffered from the expanding inflow of foreign indigo. The family's business revenues, mainly based on the indigo industry, stagnated, while expenditures such as the cost of fertilizers, wages and household expenses had a tendency to increase. Thus from the viewpoints of the business balance and the ordinary balance the business of the family had stagnated since the second quarter of the 1890's and had a clear tendency to deteriorate toward the end of the 1890's. Therefore the second quarter of the 1890's was the critical turning point in the family's business. Nevertheless profits gained from business activities in this period were not spent on surviving this turning point, but were wasted on paying extraordinary household expenses. Consequently the Takahashi family missed an important chance to survive this turning point.

In the late Tokugawa and early Meiji periods structural changes in the Awa indigo industry were in progress and indigo cultivators who grew indigo leaves

developed to become middle and small indigo manufacturers. In 1878 the number of such indigo manufacturers was 4004¹⁰⁾. However, most of them disappeared later as time passed in the Meiji era. In such a historical context, I have dealt with the case of the Takahashi family who failed to survive the critical period of change in history. What can be derived from the analyses of the business of the family seem to be applicable to most other cases in the Awa indigo industry in this period. This is explainable from the fact that only a handful of people in the Awa indigo industry were successful in changing their goods range from Awa indigo to artificial indigo and furthermore entering the sales business of chemicals.¹¹⁾ However, it is true that there were exceptional cases where a handful of people in the Awa indigo industry succeeded in surviving the critical turning point. It is inferred from my previous analyses of those cases that with structural changes of the Awa indigo industry in the late Tokugawa and early Meiji periods their business style changed significantly, and they had potential for future progress¹²⁾.

10) On this point, see Masatoshi Amano, *Awa-ai keizaishi kenkyū*, *op.cit.*, pp.196-197.

11) See, Yokichirō Miki ed., *Awa-ai fu shiwa-zusetsu-hen* [*Grand history of the Awa indigo industry — historical stories and illustrations*], (enlarged Tokushima: Miki Sangyō Co.,Ltd.,1963) p.218.

12) On this problem, see Masatoshi Amano, *Awa ai keizaishi kenkyū*, *op.cit.*, pp.103-223.