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Rural Entrepreneurs in the Cotton Weaving Industry in Japan

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Contents

1. Introduction

Textile industry has been an important industry for the Japanese economy for a long period of time. The industry had already established an crucial position in the Japanese economy in the Tokugawa period (1603-1867). The national level distribution networks were already functioning well for various textile products in the Tokugawa period, and both local and national wholesalers played important roles for distributing products. There were already many local production areas of textile products in Tokugawa period and the putting out system, which is one of the main subjects of this paper, was already observed in various places.

The change from autarky to free trade in the end of Tokugawa period (1859) gave great shock to this industry. On the one hand, competitive foreign textile products, both yarn and fabrics, came from foreign countries and severe competition restructured the domestic industry. On the other hand, international trade gave opportunities for domestic producers to sell their products in foreign countries.

Japan established itself as one of the largest exporters of textile products in the world in the 1920s, and since then textile industry had been a major export industry for Japan until the beginning of the 1970s. Table 1 shows the share of textile industry in the total exports and output of Japan from the period 1882 till 1970. The shares, both in exports and in outputs, were very high. Note that cotton textile industry was the majority in these figures.

Although the structure of the industry changed many times during this period, the industry now still keeps many of the characteristics which it had more than 100 years ago when Japan opened its market to the rest of the world. Active use of putting out system and the role played by wholesalers are typical examples of the traditional business practices.

To study the historical development of Japanese textile industry in the turn of the century is quite useful for understanding how the industry developed and how it came to the present form. This kind of historical study will also provide useful insights on the general topic of this project, "the role of rural entrepreneurs in Asia", since textile industry is a typical rural industry and the development of the industry has been supported by the activity of many local traders and farmers.

There are vast literature on the history of textile industry in Japan. Both industry level semi-macro studies and micro level analyses of various production regions are

available. Since most of the studies are reported in Japanese, it will be useful to survey this literature. Although comprehensive survey is far beyond the scope of this paper, we provide a rough survey of the literature in the beginning part of this paper.

The major part of this paper is based on Tanimoto's previous study of one particular production area, Iruma. The study is micro analysis of production and distribution activities in a narrow region. It is based on detail documents of a few local merchants in this area in the period 1850 through 1925.[1] By using these documents, we can draw a detailed picture of the structure of various transactions in this region.

Iruma is an interesting case for our project, since it is located in a rural area and its products were mostly for the domestic market. The cotton textile industry received strong impacts from international trade, and some production areas in Japan became heavily inclined to exports. However, Iruma was completely dependent on domestic market. This dependence on domestic market was supported by the network of wholesalers, local merchants, local wholesalers, national wholesalers and financial agents. To analyze the structure of transactions among these wholesalers as well as producers-farmers is essential for the study of the evolution of rural entrepreneurs in the cotton textile industry in Japan.

The putting out system is one of the most important elements in our study. In fact, textile industry in its historical form as well as in its contemporary form, has many kinds of putting out system. This contrast to the case, say of England, where factory production system replaced putting out system in an early stage of the development of the industry. Putting out is still very visible in many places in the present textile industry in Japan, not only in cotton weaving industry but also in other textile materials, although the styles of putting out are different among different materials. Iruma's case is useful to see how putting out system emerged, since putting out emerged only after 1890 in this region, although putting out system was observed much earlier in some other regions. Data is available both for the periods before and after the putting out practice emerged, so it is possible to compare these two periods. Quality control in its broad meaning is quite important for the emergence of putting out system in this area, although this is only one of several reasons we can think of as factors generating putting out system in general. In fact major reasons for the emergence and development of putting out system are different for some other regions.

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[1] Due to limited availability of data, Tanimoto utilizes a few different sources of business documents of different merchants and connects them.

The rest of this paper has the following structure. Section 2 presents a brief picture of the cotton textile industry of Japan from the latter half of the 19th century to the early 20th century. Section 3 then discusses the structure of Iruma production area for the period before putting out system emerged. We discuss how production was organized in Iruma and how fabrics were traded in the market. Section 4 then discusses the period after putting out practice emerged in this region. We discuss why putting out emerged in this region and how the system changed the production structure in Iruma. Section 5 discusses contemporary forms of putting out system in the textile industry and compares them with our Iruma case. Section 6 provides brief concluding remarks.

2. Overall historical picture of cotton textile industry in Japan

In the latter half of Tokugawa period, there were already many local production areas of cotton production and the distribution networks were well developed. In this period the procurement pattern of cloths by ordinary people took three forms, namely, purchase of second hand cloths, home production of cotton apparels from cotton material, and purchase of new cotton cloths from the market. Although most of the people in rural areas purchased second hand cloths or made their cloths by themselves from raw materials, there were certain portion of population who purchased new cotton cloths. According to a study in Yamaguchi prefecture (Chosyu), about 23 % percent of the population with relatively higher income purchased new cotton cloths.[2]

Japan was under autarky until 1859, and opening of the market to the rest of the world in 1859 gave considerable impacts on the structure of the industry. The export of silk, which is not the main concern of this paper, grew rapidly right after the opening of the market. However, cotton fabric products, which is the main concern of this paper, were not exported much in an early stage. Both yarn and fabrics were imported from foreign countries. Imported yarn replaced hand made domestic yarn.

The availability of inexpensive imported yarn changed the competitive position of various production areas. Iruma, the case of which will be discussed in details below, took advantage of using imported yarn and expanded its share in the national market. Some of the production areas, which not only weaved textiles but also spinned their own yarn, lost their

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[2]Saito and Tanimoto [1989].

competitive position as the cheap yarn was imported from abroad.[3]

Import of cotton yarn far exceeded the domestic production of cotton yarn right after the opening of the market. Figure 1 shows the size of imports and domestic production of machine spun cotton yarn from 1874 till 1914. According to this study domestic production reached the level of imports only in the middle of 1880s. The large volume of imported yarn since the opening of the market till 1890s played an important role for the development of new production areas such as Iruma as will be explain in the next section.

The domestic production of cotton yarn by large factories started in the 1880s. As shown in Figure 1, the pace of the expansion of the domestic production of cotton yarn in the 1880s and in the 1890s was very fast. Expanding use of cotton yarn by domestic weavers was the most important factor supporting the expansion of domestic yarn production. Although exports of cotton yarn started from 1890, the share of exports of domestically produced yarn of spinners was less than 6 % in 1895. Note also that own use of cotton yarn in the textile division was negligible around 1885 and that most of the yarn produced were supplied to independent weavers in Japan. In this sense fabric production regions in various parts in Japan played an important role for sustaining the growth of domestic yarn production.

Figure 2 shows the trends of cotton fabric markets from 1860 till 1895. Import of cotton fabrics expanded rapidly after the opening of the market until the early 1870s. At the peak import was about 34 % of the domestic consumption. Domestic demand also expanded rapidly in this period: the amount of demand in 1895 was more than three times as large as that in 1875. Behind this high growth of domestic demand was the changing pattern of consumers' procurement of cloths. As we mentioned, before the opening of the market, second hand use and home production were dominating forms of clothing procurement, and purchase of new fabrics was restricted to relatively wealthy families. However, in the latter half of the 19th century, people's procurement of cloths shifted from second hand use and home production to purchase of new fabrics. Reflecting this changing pattern of demand, especially in rural sector, the growth rate of demand for fabrics in the rural area was

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[3]Tanimoto [1992] compares two (fabric making) production areas, one which purchased cotton yarn from other producers and the other which purchased cotton material and spinned yarn by themselves. It was easier for the former type of producers to switch from domestic yarn to imported yarn: yarn merchants established in the production area played an important role in the shift to imported yarn. In the latter type of production area where cotton yarn was produced from cotton material, incentives for switching to imported yarn were much weaker. According to Tanimoto [1992], this difference in their approach to imported yarn was reflected in the pattern of regional industrial growth: the former expanded their share while the latter declined toward the end of the 19th century.

higher than the national average. According to Saito and Tanimoto [1989], increasing income of farmers and the fall of the relative price of cotton fabrics relative to the prices of other goods were crucial factors for this growth in demand.

As we can see in Figure 2, this growth of domestic demand supported the growth of domestic cotton fabric production. As we will see below, there was clear difference between imported fabrics and domestically produced fabrics in this period. It is important to note that domestic distribution system played an important role for meeting the expanding demand and domestic production. Newly rising wholesalers in Tokyo, such as Chogin and Benichu (Chu Itoh) were actively engaged in expanding their sales territories to such rural areas as Tohoku, Hokkaido, Chugoku, Shikoku and Kyusyu, all located far away from the centers such as Tokyo and Ohsaka. We will see the role of these large wholesalers in the next section.

There were many production regions of cotton fabrics in Japan. After the opening of the market, there were substantial restructuring in these regions. Roughly speaking the production regions were classified into two large categories: one was the regions engaging in mass production of white cotton fabrics, and the other was the regions producing small volume differentiated cotton fabrics. For the former type, large firms having both spinning and weaving divisions contributed to a large portion of the national production in more recent years.[4] There were also several production areas where the former type of products were produced under putting out system. For the latter type, namely differentiated products there were various local production areas each specialized in its own differentiated product. Iruma, on which we will discuss in details in the next two sections, was a typical case of the latter type.

The products of local production networks were mostly for the domestic use. Only the products by large spinning-weaving firms were exported in the 1890s. However, the exports of the products of local production networks gradually expanded and it became an important part of Japanese exports in the 1920s.

Since we are interested in rural production system, we restrict our attention to local production networks and pay little attention to large spinning-weaving firms (large spinning firms having weaving division). As will be discussed later, putting out system

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[4]However, large firms producing both yarn and fabrics was not so important in the 19th century in the cotton textile industry in Japan. Its share in the total production of cotton textiles in Japan was about 5 % in 1989. Their presence became more visible after Japan-Russia War (1904-5): its share was 22 % in 1905 and became 41% in 1914. Note that the rest of the share were those of local production networks, which depended on putting out system.

played important role in these local production networks. According to Abe [1990], among the 448,609 weaving firms (or houses) registered in the 1905 statistics of The Ministry of Agriculture and Commerce, 35% were independent weavers and 65% were under putting out contracts. Among 35 % independent weavers, 1% were relatively large factories having more than 10 workers, 31% were small independent weavers having less than 10 workers, and 3 % were wholesalers. (Note that these shares were in terms of number of firms (houses)). Thus, putting out was common practice of this industry in this period.

We could observe putting out system even in Tokugawa period. There were two types. One was "Watagae Sei "(Cotton offer system) and the other is "Dashibata sei" (machine rental system). Under "Watagae Sei", wholesalers provided farmers with cotton material and received the outputs. The fee for farmers were often paid by cotton material. Under "Dashibata Sei", wholesalers provided farmers with looms and cotton yarn and collected fabrics. Although there were many areas where wholesalers were just engaged in sales of materials and purchase of the outputs (thus no putting out), there were also some regions where the above mentioned putting out systems were observed. As we will discuss below, putting out was not active in Iruma until 1890s.

3. Early form of local production system: Iruma, 1850-1880

We illustrate how local production network in textile industry functioned in the early period (the latter half of 19th century) by using a case study of Iruma area.[5]

Cotton products in Iruma expanded its markets by the activities of local merchants whose origin were farmers in this region. The construction of sales network to the local center was crucial for the products in Iruma to have access to national market. The distribution network, supported by a sophisticated payment system, promoted the expansion of the sales. Hachioji city, the local center for Iruma, was successful for collecting various products in this region, and newly emerging large wholesalers in the national centers such as Tokyo and Osaka considered Hachioji city as one of the important places for their procurement of the textile products. Distribution of the products was supported by these traders, and production was supported by family production.

Iruma in Saitama Prefecture is a typical rural production area of cotton textile

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[5]The analysis in this section is based on Tanimoto [1986].

industry. It was located in a rural agricultural area about 30-40 kilometer northwest of Tokyo. The production of cotton textile in Iruma area started in the beginning of 19th century and it had become one of the new leading cotton textile production areas of Japan in 1890s. This area produced differentiated cotton fabric products mostly for domestic uses. Thus, this production area is in the second category in the classification of Section 2.

The structure of production and distribution of the products produced in this region in the period 1850 through 1880 is illustrated in Figures 3 , 4 and 5. Figure 3 illustrates the production relation in a village, and Figures 4 and 5 illustrates the distribution network of the products. Main players in this picture are (1) local merchants near the village, (2) local wholesalers near the local city, (3) farmers, (4) yarn merchants, (5) financial intermediaries, and (6) national level wholesalers.

Local merchants played a role of channel leaders in this local production network. They purchased cotton fabrics at local markets or directly from local farmers and sold them to local wholesalers. Local market ("ichi") was the center for local transactions. Market opened regularly in certain dates at each local town.[6] Some local merchants who collected cotton fabrics from farmers brought those fabrics to the markets for sale and some others purchased the fabrics at the market. These local merchants then sold the fabrics they purchased to local wholesalers.

Tanimoto [1986] studied the transactions of a typical local merchant, Hosobuchi family. The record reported an interesting pattern of change of the transactions this family organized. In the early period (in the 1850s), the family purchased the products from farmers and sold them in the local markets(See Figure 4). The amount of transactions of this family expanded considerably since then. Figure 5 illustrates the pattern of the transactions of this family in 1880s. In 1880s, the amount of transactions expanded considerably, and the family purchased the products not only from farmers but also in local markets. The family sold the products to the local wholesalers living in Hachioji (neighboring large local city). Hosobuchi family expanded transactional relations with large local wholesalers in Hachioji city and by these transactions the family expanded their business.

Let us next look at the relation between farmers and local merchants (Figure 3). In this period we cannot observe putting out system yet. Local merchants simply purchased finished cotton fabrics from farmers. The local merchants purchased fabrics from farmers

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[6]For example, in a local town Ogimachiya village market opened on 3, 8, 13, 18, 23, and 28 every month.

by cash. Farmers purchased wooden handheld loom and yarn, and made fabrics by their own risk. They then sold fabrics to the local merchants. Note that the problem of incentives, which will be discussed in the next section, was not serious in this system. Farmers took their own risk.

Note that the price of wooden handheld loom was about 1.5 yen, while the output of cotton fabric is about one yen per tan (3.3~3.5 square meters). So, the amount of investment required for farmers was not large. This low investment cost was an important factor for the establishment of rural production networks.

For textile production we can observe typical division of labor in family members. Usually, one family owned one or two looms. Male workers were engaged in agricultural production and only female workers were involved in weaving. We can observe some seasonal fluctuation (Figure 6) in the production of textile products, which obviously reflected the cycle of agricultural activities.[7] Female workers were involved in weaving activities when they were not asked to supply agricultural labor service.

Farmers purchased yarn from yarn merchants (Figure 3). Yarn merchants lived in the local village and purchased domestic yarn from neighboring yarn production villages and purchased imported yarn from importers.[8] The transactions of yarn between yarn merchants and farmers were usually by cash or by draft, but deferred payments were also observed. Deferred payment made it easier for farmers to purchase yarn for their production. This area originally purchased yarn from near distance (but not in the same village) production area through the channel of yarn merchants, but gradually local yarn were replaced by imported yarn. This should be contrasted to the case of some other production areas where both weaving and spinning were conducted in the same village. In the latter case replacement by imported yarn was delayed and the delay hindered the development of the production region, since imported yarn was much cheaper.

Let us now discuss briefly the position of local wholesalers in the local commercial center (Hachioji). As we mentioned above, Hachioji was the local center of this production area. It originally started as one of local markets for textile products, but had gradually become the center of wider area of this region. Not only cotton products of Iruma but also

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[7] Major agricultural products in this area were barley wheat, tea and sericulture, which requested intensive labor input (especially female labor input in the latter two) in May, June and July.

[8] According to Tanimoto [1986], a local yarn merchant in Iruma had direct transactions with yarn traders in Tokyo.

other products including silk products were collected in Hachioji and shipped to large markets such as Tokyo. Large wholesalers in Hachioji had branches in Tokyo and were involved in active transactions with large national wholesalers in Tokyo. Note that, as we mentioned before, such new national wholesalers as Chogin and Benichu (Chu Itoh), were very active to expand their sales territories to various parts of Japan. Some large merchants in Tokyo had strong ties with local wholesalers in Hachioji and purchased cotton fabrics of Iruma. Through such a network the products collected in Hachioji were shipped to the whole nation.

Let us next discuss the payment system supporting the distribution system. In the beginning cash was used for the transactions of the products. However, commercial credits were gradually introduced as the amount of transactions expanded. Figure 7 illustrates the flow of payments among wholesalers in 1871. In this picture we have four individuals; local wholesalers in the local center (Hachioji), local merchants collecting products from smaller trader and selling to the large local wholesalers, small local merchants collecting products from farmers and selling them to large local merchants, and financial agent. The transaction between the local wholesalers and the local merchants were paid by "tegata"[9] (draft), which were discounted by the financial agents. There is no commodity transaction between local merchants and the financial agents. The transactions between large and small local merchants were made by "kawase" [10](money order), and this "kawase" is like a check using the account of the financial agent.

Note that commercial credits were given from local merchants to the local wholesalers. These credits were important method for local merchants to explore new market for their products. However, active use of commercial credits also gave financial shortage for local merchants. The role of financial agents were important in this respect, since local merchants could discount drafts through these agents. The financial network in this sense supported the expansion of sales of products in Iruma to the national market.

Financial transactions became more sophisticated later. Figure 8 illustrates the financial flow of this region in the period 1877 through 1882. Although the basic structure of financial flow did not change from Figure 7, there are more merchants involved in the transactions between small local merchants and local wholesalers. Financial credits by draft were used for facilitating the transactions.

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[9]Promissory notes issued by buyers.

[10]money orders issued by local merchants.

4. Development of the putting out system

Although putting out was not observed during the period of 1850-1880 when Iruma became one of large local production regions of cotton textile products, the practice of putting out was gradually spreading in this region since then.

The reason for the emergence of putting out system is different among various production regions. In the case of Iruma quality control problem is a crucial factor for the emergence of putting out system. As various production areas developed in Japan, competition among local production areas became severer. Under such competitive environment quality of products became crucial factor for the success of the products. Here, by quality of products we mean not only such simple quality elements as scratch but also such elements as design and style of the products. In fact, cotton fabrics in Iruma became recognized as a local brand in the national market. Wholesalers, both local merchants and local wholesalers became more conscious about these factors.

In order to establish local brand of Iruma, it became more and more important for local merchants to standardize quality of their products. So, the merchants started to give dyed and sized yarn (not undyed yarn) to farmers and to get fabrics with specified pattern and color. Traditional transaction relation, under which farmers purchased yarn, weaved fabrics and sold to the merchants, were not suitable for standardization of products. Putting our method was a natural choice by the merchants to achieve this kind of standardization.

Note that putting out is not the only way for achieving standardization. Factory production may be more desirable for achieving standardization. In fact, the comparison between Japan and England is quite interesting in this respect. In England factory production system rather than putting out was chosen. Hiring workers and monitoring their behavior in factories are certainly better for controlling quality. Interestingly enough this was not what happened in Iruma.

To understand the reason why putting out, not factory production, was chosen in Iruma, it is useful to consider in what respects putting out system is superior to factory production and in what respects it is not. One of the strength of putting out system is its flexibility. By organizing putting out system wholesalers can be more flexible about the size of their outputs. When market is good, they can increase transactions with farmers, while market is weak they can diminish transactions. However, in the case of factory production, the owner of the factory must make commitment to the size of output because of

a large amount of fixed capital.

The other advantage of putting out system is the availability of cheap labor. Note that only female workers were involved in the production of cotton products in Iruma, and these female workers were engaged in cotton production only when they did not have to engage in agricultural works or house works. For these female workers it was important to be able to stay at home since they could use their spare time for weaving. Opportunity costs for working in factories were quite high for these female workers.

From the view point of farmers putting out give far more flexibility of working hours than being employed in a factory. It also gives opportunities to enter the industry without taking much risk. Putting out arrangement makes it possible for farmers to have more than two merchants to deal with. Thus, farmer-weavers are less dependent on merchants than workers are on factory managers.

Of course, factory production system is better than putting out system in several respects. First, quality control is far more easier under factory production than under putting out: this is particularly so for the issue of embezzlement as will be discussed below. Second, it is much easier under factory production system to achieve production stability than under putting out system. Since labor input by subcontracting weavers fluctuated with the schedule of agricultural activity, merchants should have had difficulty of production stability. In fact flexibility of production, which we mentioned above as one of the merits of putting out system and instability of production under putting out system are the two sides of the same coin. Third, factory production is better than putting out when technology is subject to scale economies. When powered looms were introduced into this industry, factory production replaced a large portion of farmer-type putting out production. Scale economy based on expensive machines makes factory production more suitable than putting out arrangement.[11]

Both factory production system and putting out system have some strong points. So, it is not possible to conclude which system was better without specifying environments the industry faced. The fact that putting out was more often used in Japan than in England implies that there were several factors in Japan which made putting out more suitable than factory production. The following points from our case study of Iruma are interesting in this respect.

Table 2 shows how the merchant coped with fluctuation of demand. This table gives

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11 However, as explained in the next section, even now we can observe various kinds of putting out arrangement in textile industry in Japan. Thus, shift to powered loom did not destroy putting out arrangement in this industry.

the distribution of the amount of transactions with each farmer and the number of farmers among different category of transactions. The merchants had a large volume of transactions with the farmers who had long-term transactional relations with the merchant, while there were a large number of farmers with whom the merchants had just small amounts one year spot transactions, and the local merchant could cope with fluctuation in demand. We guess that the farmer-weavers having short term transaction relation with this merchant had transactions with some other merchant or merchants. As we will mention in the next section, that is the case even under the putting out arrangement in the contemporary textile industry.

Long-term transactional relation is a key for quality control issue. Under long-term transactions farmer-weavers have less incentive to cheat.[12] The farmer-weavers might compare short-run gain from cheating (cheating of many forms from such obvious cheating as embezzlement to more subtle cheating as less efforts on quality improvement) with long-run loss of losing transactions with the merchant. The longer was the transactional relation and the larger was the rent from the transactions, less were the incentives to cheat.

Note that the issue of embezzlement was an important issue for putting out arrangement.[13] When farmers purchased yarn by themselves, embezzlement could never arise. Under factory production system it was difficult for workers to cheat by stealing yarn. Thus, embezzlement (that is, cheating of yarn) can occur only under putting out arrangement. When farmers were provided yarn from merchants, they had incentives to cheat some yarn for their own use. Thus, under putting out arrangement merchants must prepare some mechanisms to discourage cheating. Long-term transactional relation is one of such mechanism.

By the combination of large volume of transactions with a small number of farmers having long-term transactions and small volume of transactions with a large number of farmers having short period transactions, merchants could get good quality products from the farmers with whom it had long term transactional relations. Spot transactions with a large number of farmers gave flexibility for the merchants for the amount of products they procured.

The question then arises as to why putting out was not used in England in spite of

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12 This behavior pattern is analyzed in various ways by the theory of repeated game.

13 See for example John Styles [1983], and Randall [1990].

several advantageous positions of putting out system. We do not have any good explanation now. But we guess population density may be one factor explaining difference between Japan and England. Population was much more dense in Japan than in England. Dense population allowed wholesalers to organize putting out system in a relatively narrow region. Geographical concentration allowed wholesalers to have better monitoring. Community-type human relation and other intimate relations might provide better incentives for farmers not tocheat.

Table 3 is interesting in this respect. This table illustrates what transactions one particular local merchant did in 1897 and in 1918. This table shows the amount of transactions in each village and their share in the total transactions. As the table shows, transactions of this merchant became much more geographically concentrated in 1918 than in 1897. Thus, as putting out practices expanded, the merchant made the geographical range of its transactions smaller. By this kind of restriction of the geographical distance the merchants would have better control of quality.

We have to mention the role of public support here. As in other local production areas, local government public supports played some important role for the development of Iruma production area.[14] For the case of Iruma, the roles of industrial association and technical school should be mentioned.

In 1900 the Japanese government enacted "Juyo Bussan Dogyo Kumiai Ho (Law on Industrial Associations of Important Products". Under this law industrial association in a local area should be established if the consensus on the formation of the association is made by more than two thirds of producers of the products in the same category, and then all producers are forced to be members of the association. Under this law the association must have some inspection members in it, these inspection members check the products of the association members, and if there is any cheating, punishment is levied on the member.

Based on the above law, "Musashino Orimono Dogyo Kumiai (Industrial Association of Weavers in Musashino)" was established and the activities of this association became active since around 1910. "Seizogyo-bu Seinen Bukai (Young Members Group of Weavers)" was formed in the association, and the member of this group visited weavers and examined the quantity of yarn brought in and fabrics brought out in order to check the possibility of embezzlement.

The association purchased several looms in order to establish the standardization of

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[14]See Itoh and Urata [1994] for the role of government support for the development of local production networks.

the products in the area. The association also forced the members to use only the dyeing factories authorized by the association.

Another association ("Hosho Sekinin Musashi Orimono Shinyo Hanbai Koubai Kumiai") was also established: the purpose of this association was to get subsidized financial support from the national as well as from the local government to purchase yarn.

The prefecture government (local government)started "Kawagoe Senshoku Gakko (dyeing school)" in 1907. The people who were educated in this school became the core members of new generational local entrepreneurs in this area. The engineering teachers in this school were also involved in the inspection activity of the association.[15]

It is not easy to evaluate how effective these local government supports were for the development of Iruma production area. However, it should be noted at least that the local government put various efforts to nurture local production area. This is not unique to Iruma or to weaving industry. Similar supports can be observed in many other areas and in many other industries in Japan.

5. Comparison with contemporary putting out system

Although our main concern in this paper is historical forms of putting out system in the cotton textile industry of Japan, it is useful to review briefly contemporary forms of putting out system. It is important to note that putting out system is common practice even in the contemporary textile industry of Japan. In fact, putting out is more commonly observed in Japan than in other countries. This is not only the practice observed in the textile industry but also in other industries such as automobile industry and electronic industry. (See Itoh and Urata [1994] for the structure of putting out system in the automobile parts, silverware and synthetic fiber textiles.)

We refer to two cases of putting out practice we can observe in the contemporary textile industry.[16] One is the case of synthetic fiber textile industry, where extensive putting out relation can be observed between large chemical companies (or wholesalers) and

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[15]These are based on Tokorozawa-shi [1989].

[16]The following cases are based on Itoh and Urata [1994] for the case of synthetic fiber textile industry and on Findlay and Itoh [1994] for the case of wool textile industry.

weaving houses. The other is the case of wool fabric weaving where a large number of small weavers have putting out relation with parents weavers.

In the synthetic fiber textiles a large portion of weavers have putting out contracts either with large chemical companies or local wholesalers. Let us explain briefly a typical putting out contract between chemical companies and weaving houses. Chemical companies, which are large listed companies, produce synthetic fiber yarn from chemical process, and delegate these yarns to weaving houses for weaving. Weaved fabrics are returned to the chemical companies for the finishing process and chemical companies sell these weaved products to the market through various channels. Weaving houses are subcontractor for chemical companies: weaving houses do not engage in marketing process of their products nor they take any risk for selling their products. The chemical companies play not only the role of manufacturers as the producers of synthetic fiber yarn but also the role of marketing organizer. The role played by chemical companies has some similarity to the role played by the merchants in our Iruma example. The local weaving houses depend heavily on chemical companies for various services such as marketing, product development and risk taking. Note that all the weaving houses in synthetic fiber industry are small and medium size firm: the number of employees are less than 300 and the majority are less than 50. By this dependence small and medium size local weaving houses can survive in a very competitive market environment.

Large chemical companies also gain in various ways from putting out system. The chemical companies can enjoy flexibility from putting out system just like the case of Iruma we explain in Section 4. They can adjust the amount of production by adjusting the orders they give to weaving houses. Like the case of Iruma, subcontracting weaving houses are ranked according to the degree of intimacy for each chemical company. Stable order is given to the weaving houses with which the chemical company has intimate relation, while order to less intimate weavers fluctuates considerably depending on market conditions. The latter type of weaving houses have transactional relation with various chemical companies as well as local wholesalers so that they can spread their risk.

This system of putting out in the synthetic fiber textile industry emerged in the postwar period. After the invention of new synthetic fiber materials a group of leading local weaving houses asked large chemical companies to start putting out system. This request is based on the weavers' lack of ample financial resources for purchasing expensive synthetic fiber yarn. This request from weaving houses for putting out contract was also beneficial for chemical companies, since they did not have to make investment on weaving process. The existence of the network of weavers in local areas made it possible for large chemical

companies to enjoy rapid expansion of production of synthetic fiber textiles. It is also important to note that through this contemporary putting out arrangement traditional small scale weaving houses could survive under the modern technology of synthetic fibers.

Note that the leading local production area of synthetic fiber textiles are located in the Japan sea side of Japan (Fukui and Ishikawa prefectures) which was originally the production area of traditional silk textiles. This local production network started more than 100 years ago and have gradually changed its products. In that sense we can observe historical continuity. There had been substantial concentration of producers in this area, not only weavers but also finishing companies, textile machine producers and textile wholesalers. This production area also nurtured textile machine industry and dyeing and printing industry: there are some modern technology firms emerged from these industries.

Let us next discuss briefly the other type of putting out system, the case of wool textile weaving.[17] Ichinomiya is the largest wool textile production area in Japan and there are a large number of weaving houses there. Contrary to the case of synthetic fiber textiles weaving houses of woolen cloth are independent from large spinning companies. Weaving houses purchase wool yarn from spinning firms by their own risk and sell their weaved fabrics to apparel companies: putting out is not so common between wool spinning and weaving. Although there are some weaving houses which are subcontractors for spinning firms, they are not the majority of the industry.

However, we can observe other type of putting out relation, namely putting out relation between large weaving houses and small weaving houses. According to a study in the late 1980s, there were about 250 parent weaving houses and about 4000 to 5000 subcontracting weaving houses in the Ichinomiya area. We can observe extensive putting out transactions between parent weaving houses and subcontracting weaving houses. The subcontracting weaving houses are usually family run business, and the number of workers per one weaving house is less than three. These small weaving houses accept orders from larger weaving houses. These small weaving houses are given yarn and specification of fabrics they weave and are paid in the piece rate: it is typical putting out relation with all risks taken by parent weaving houses.[18]

The structure of putting out relation between large weaving houses and small

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17The following argument is based on Findlay and Itoh [1994].

18Note that putting out relation can also be observed between wholesalers and small weaving houses and between spinning firms and small weaving houses. Here, we do not discuss these putting out system.

weaving houses is similar to the case of Iruma or to the case of contemporary synthetic fiber textiles. For a large parent weaving house subcontracting small weaving houses are classified according to the degree of intimacy. Some weaving house is 100 % dependent on one parent weaving houses, while there are some weaving houses which have transactions with more than two larger weaving houses. Parents weaving houses tend to offer stable order to 100 % dependent small weaving houses while adjust the amount of order to less dependent weaving houses. The latter type weavers transact with more than two parent weaving houses as well as wholesalers in order to stabilize the orders they receive.

Just like the case of cotton textiles in Iruma and synthetic fiber textile in Fukui-Ishikawa, this kind of putting out arrangement allows parent weaving houses to cope with demand fluctuations. Long term relation between parent weavers and some small weavers is a base for their cooperative relation.

It is important to note that there are wide variety of products even in a narrow category of wool fabrics, not only a wide classification of male and female products, but also finer classification such as fashionable products vs. basic products, piece dying vs. yarn dying, mono color products vs. complicated pattern products and so on. Skill for each product is different and there is some room for specialization of skill. In fact we can observe specialization of each small weavers in some type of product. By this specialization and putting out the production network can make efficient skill accumulation and product diversity.

This wool production area, Ichinomiya, has a long historical background just like synthetic fiber weaving area. It was originally an area producing cotton fabrics and silk fabrics and gradually shifting to wool fabrics. We can thus observe historical continuity in this area and present putting out system is the product of long history of this production area.

6. Concluding remarks

Comparing the two examples of putting out system in the contemporary textile industry with the historical case study of Iruma, we can observe some similarity among them. The similarity can be summarized as follows.

(1) Putting out system allows flexibility for parents firms (wholesalers). By adjusting the amount of order to small weavers, parents firms (or wholesalers) can change the amount of total production as well as the allocation of various products.
(2) We can observe long-term transactional relations with parent firms and some (but not all) small weavers. By the long term relation each side has incentive to be cooperative to the other, and the problem of embezzlement is mitigated.
(3) Putting out system often has historical continuity, and the use of agricultural labor for the off-farm seasons is an important factor for the emergence of putting out system. However, as time goes on and as the production area is establishes, small weavers tend to specialize in weaving activities.
(4) Putting out relation can continue while changing substantially its contractual form when drastic technical change occurs such as introduction of new materials.
(5)The traditional network of putting out relation often became a nursery of modern technology firms such as machine manufacturing, dyeing and printing firms. In Japan many modern firms were nurtured by textile industry. For example, Toyota was originally a loom producing company.

It is surprising that such a traditional industry as textile industry can survive in a high wage country like Japan in such a competitive international market environment. Findlay and Itoh [1994] point out the importance of domestic market for the survival of textile industry and the role of putting out relation can play for the industry. Flexibility and risk sharing capacity supported by subcontracting system is crucial for the industry to supply differentiated high quality products. It is interesting to note that very similar reason can be applied for the emergence of the production areas such as Iruma.

It is dangerous to jump to an easy conclusion that domestic market is an important driving force for the emergence of rural enterprises. However, we can observe similar pattern of the development of rural enterprises for other industries such as silverware. So, more research should be tried for the distribution network in the domestic market. As we explained in our example of Iruma, not only putting out relation in the local production area but also national wide network of wholesalers is crucial for the emergence and growth of rural production areas.

Although we did not discuss much the role of public supports in this paper, it is important to note that public support, especially that by local government, played some important role for the development of local production networks. As discussed in detail in Itoh and Urata [1994], local government often played important role to nurture local

production network in various parts in Japan. There were various types of policy measures the local government introduced: to mention a few, establishment of local industrial association, invitation of high skilled engineers from other part of Japan and purchase of machineries from abroad. We mentioned that such local government supports did play some role in Iruma. It is an important feature of Japanese rural enterprises that concentration of similar producers can be observed. Local public technical centers and industrial associations were often channels for technological information.

There are another aspects which we do not touch in this paper: that is, the role of export for the development of local production area. Textile industry became an important export industry for Japan and expanding exports should have had crucial effects on the structure of local production network. For the case of silverware reported in Itoh and Urata [1994], the structure of industry changed substantially when the production area shifted from traditional local production area to export center of the products. Iruma is not a good example for this kind of study, since it disappeared when powered looms were introduced to the industry. However, we should mention that there were several production areas of textile products in Japan whose growth were based on expanding exports.[19]

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[19]Kikuchi [1995] in this volume gave an interesting case study of rural entrepreneurs which depends on export market.

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year	the share in manufactured goods imports	the share in manufactured goods output
1882-91	35.2	27.8
1892-1901	52	34.7
1902-11	50	26.8
1912-21	51.3	30.1
1922-31	55.5	30.1
1930-39	43.7	23.7
1951-55	41.5	18.3
1966-70	14	8.2

Table 1: The share of textile industry in manufacturing sector

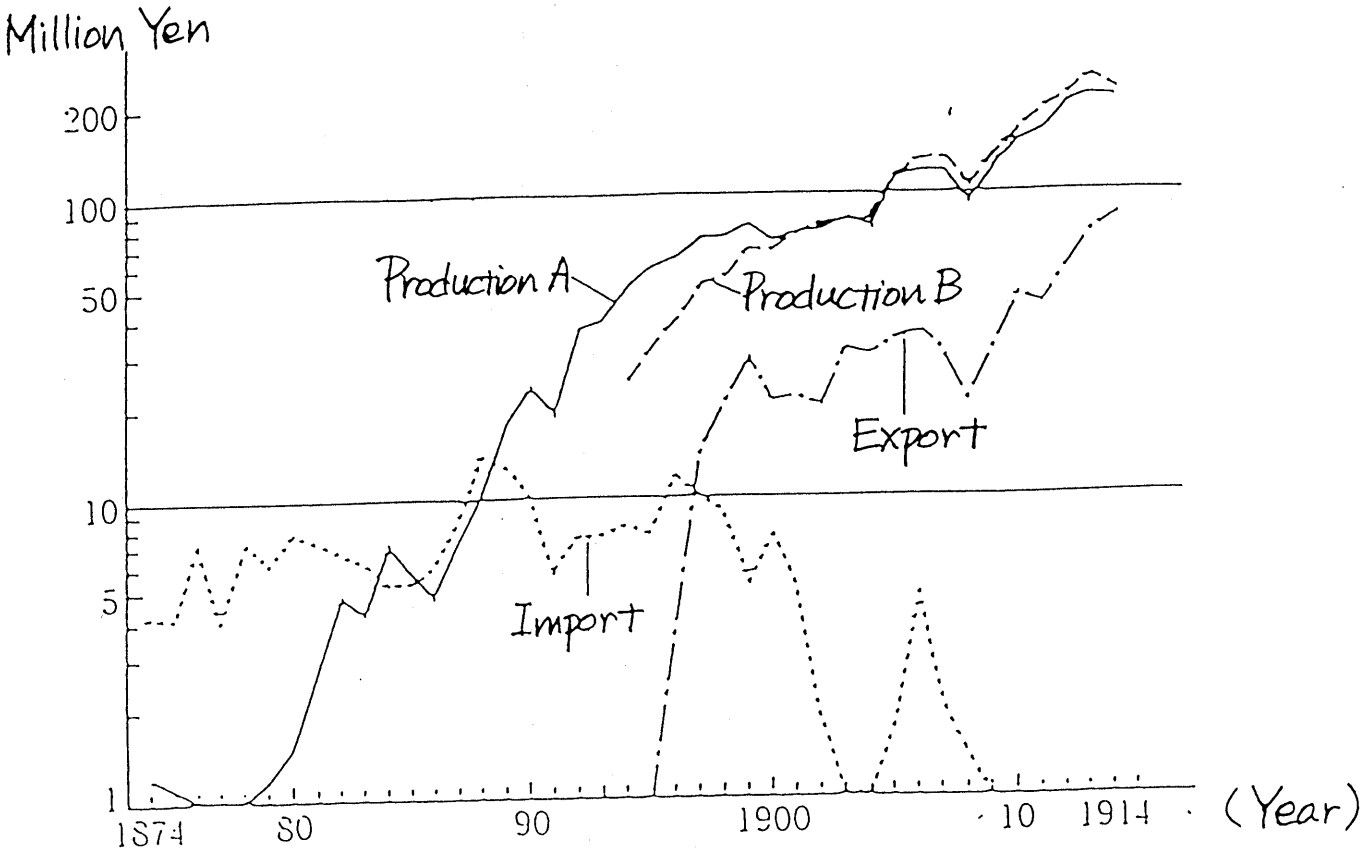
Source: Yamazawa [1984]

transaction years	volume of transactions (tan)	share
1 year	26649	5.8
2 years	34719	7.6
3-4 years	52146	11.4
5-9 years	156870	34.4
10-14 years	112683	24.7
15-19 years	50304	11
more than 20 years	22682	5
total	456053	100

Table 2: Distribution of transaction years in the total transactions in 1896-1925

County	village	1898		1918	
		transaction volume	share	transaction volume	share
Toyooka	Takakura	445	4.1	6123	27
	Machiya			386	1.7
Iruma	Iriso			60	0.3
Higasikaneko	Hananoki			90	0.4
	Koyata	5110	46.7	8541	37.7
	Niihisa	1010	9.2	4661	20.6
Mizutomi	Sasai			228	1
Motokaji	Asu	13	0.1	117	0.5
	Fusuko			115	0.5
	Noda			590	2.6
Kaneko	Negisi	138	1.3	781	3.4
	Kamitaninuk	777	0.7		
	Taninuki	26	0.2	564	2.5
	Nakagami	12	0.1	85	0.4
Miyadera	Ogayado			12	0.1
	Omori			135	0.6
	Nihongi			142	0.6
	Unoki	200	1.8		
	Imai	973	8.9		
	Teratake	363	3.3		
	Nanokaichib	169	1.5		
	Daimon	286	2.6		
	Fujihashi	412	3.8		
	Mokurenji	1231	11.2		
	Mine	286	2.6		
	others	202	1.7	13	0.1
Unknown					
Total		10953	100	22643	100
Top 3 village			677.1		85.3

Table 3: Geographical distribution of producers



production A is based on the estimate in Shinohara [1972]
production B is based on data of "Kindai-teki Boseki Gaisha"

Figure 1

Output and Trade of Cotton Yarn

1874-1914.

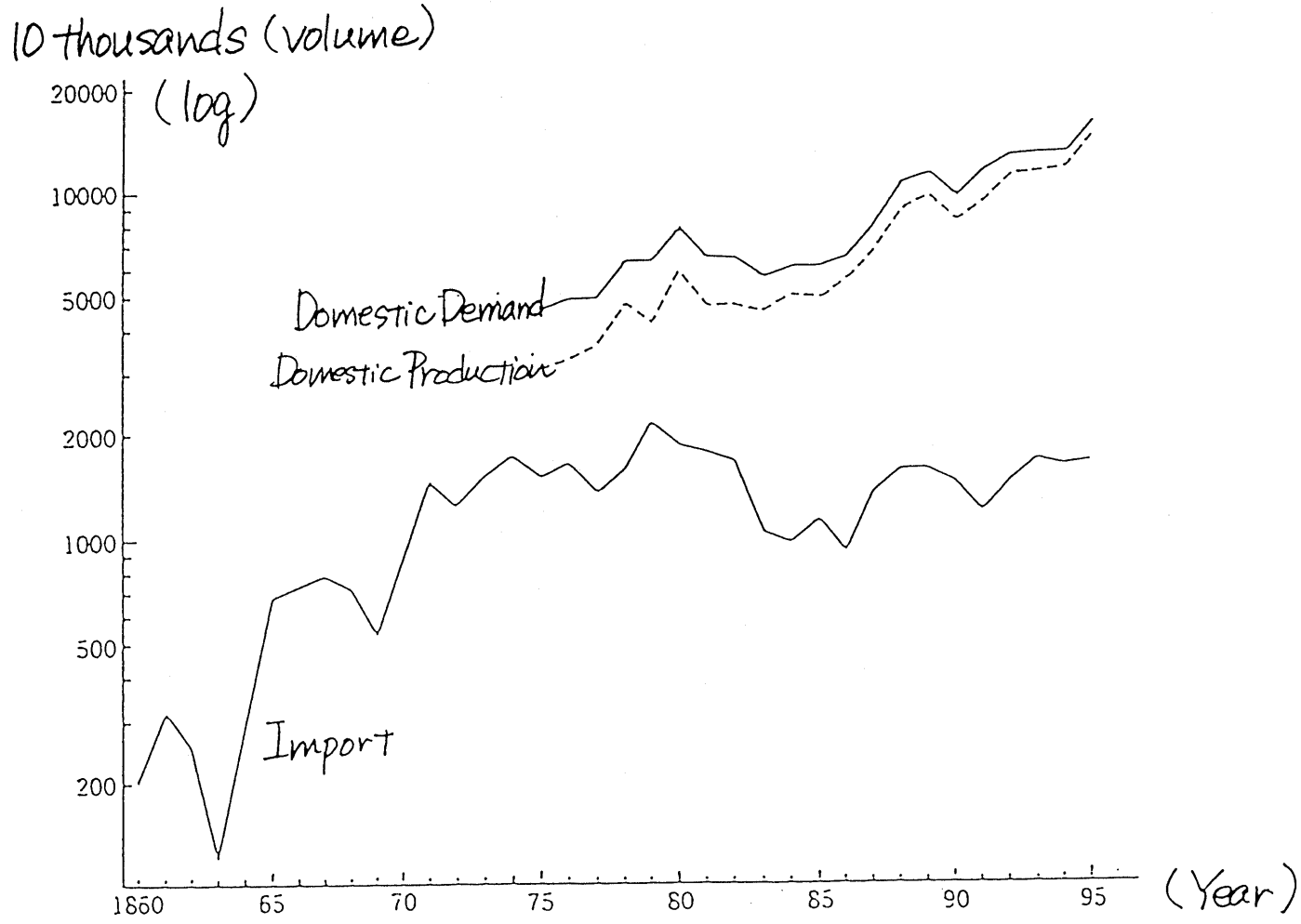


Figure 2 Demand of and Supply for Cotton Fabrics in Japan : 1860-1895.

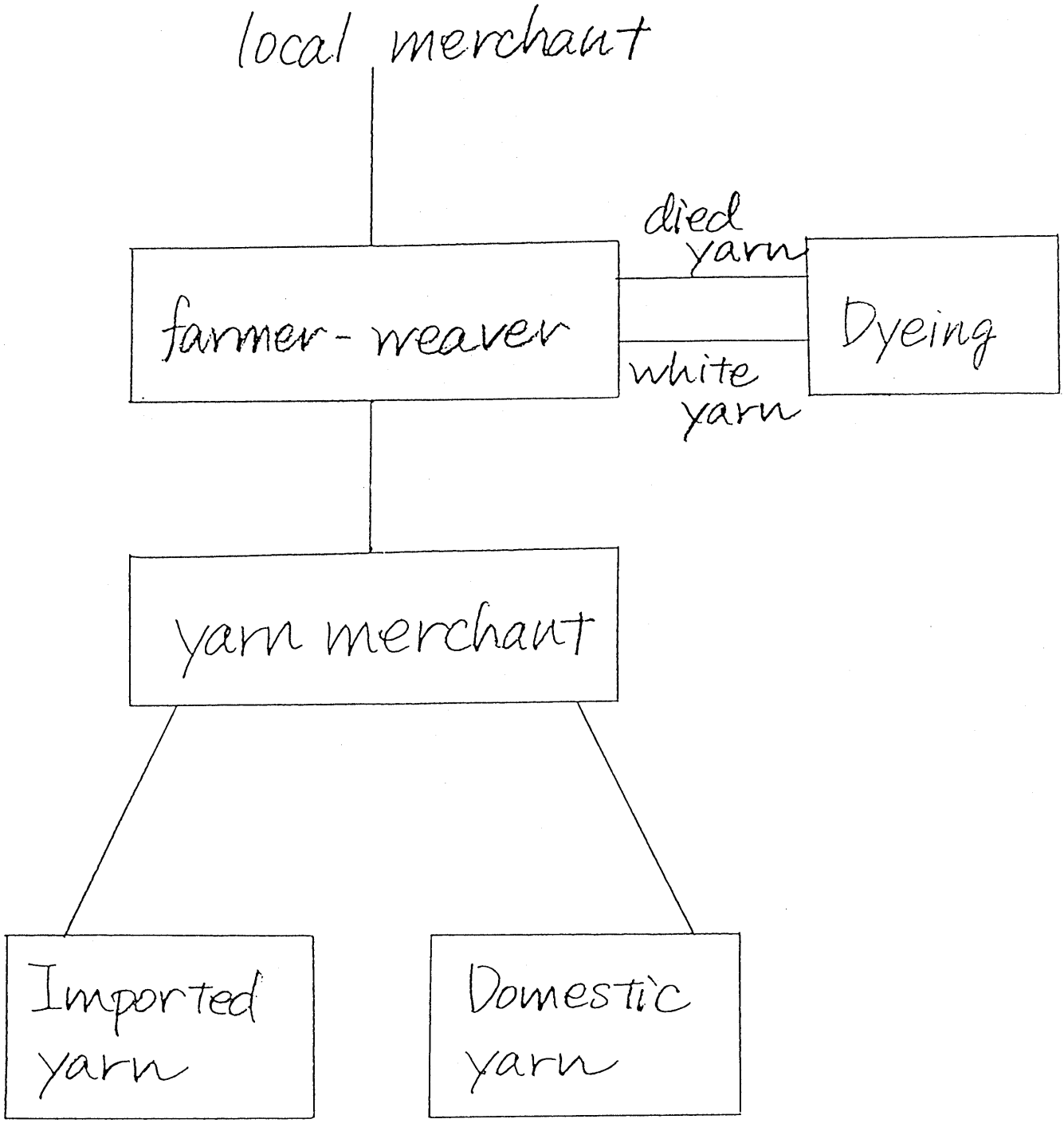

local merchant
died yarn
farmer-weaver
Dyeing
white yarn
yarn merchant
Imported yarn
Domestic yarn

Figure 3

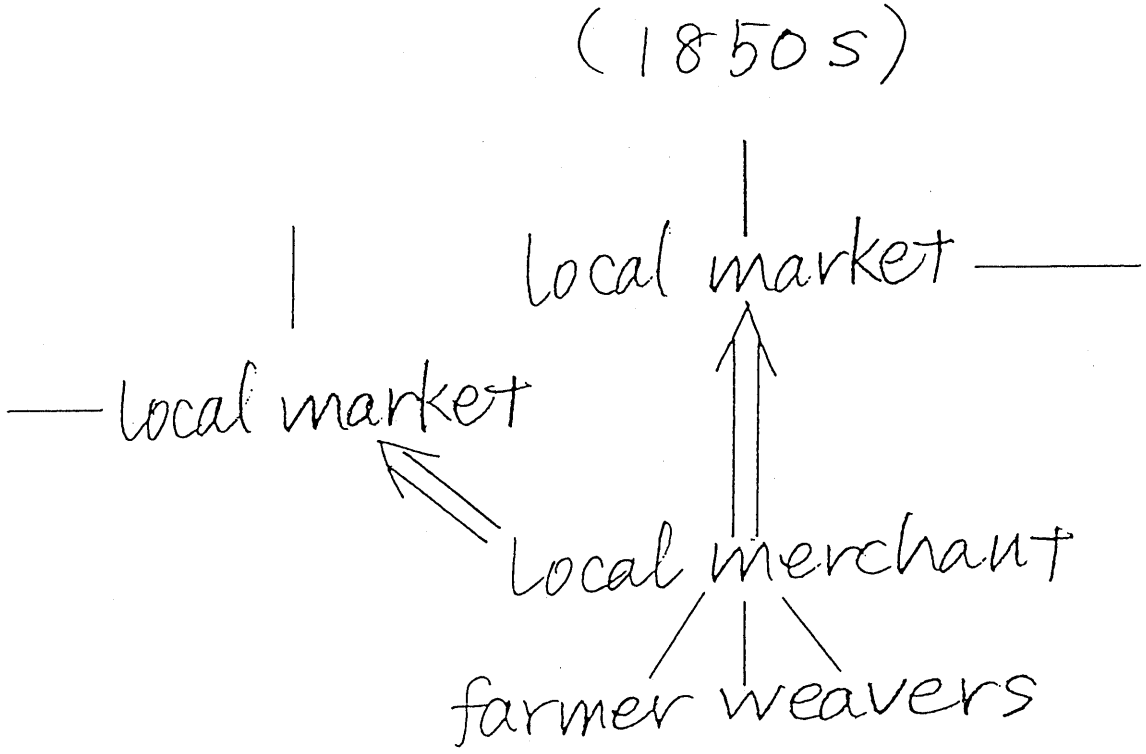

(1850s)
local market
local market
local merchant
farmer
weavers

Figure 4

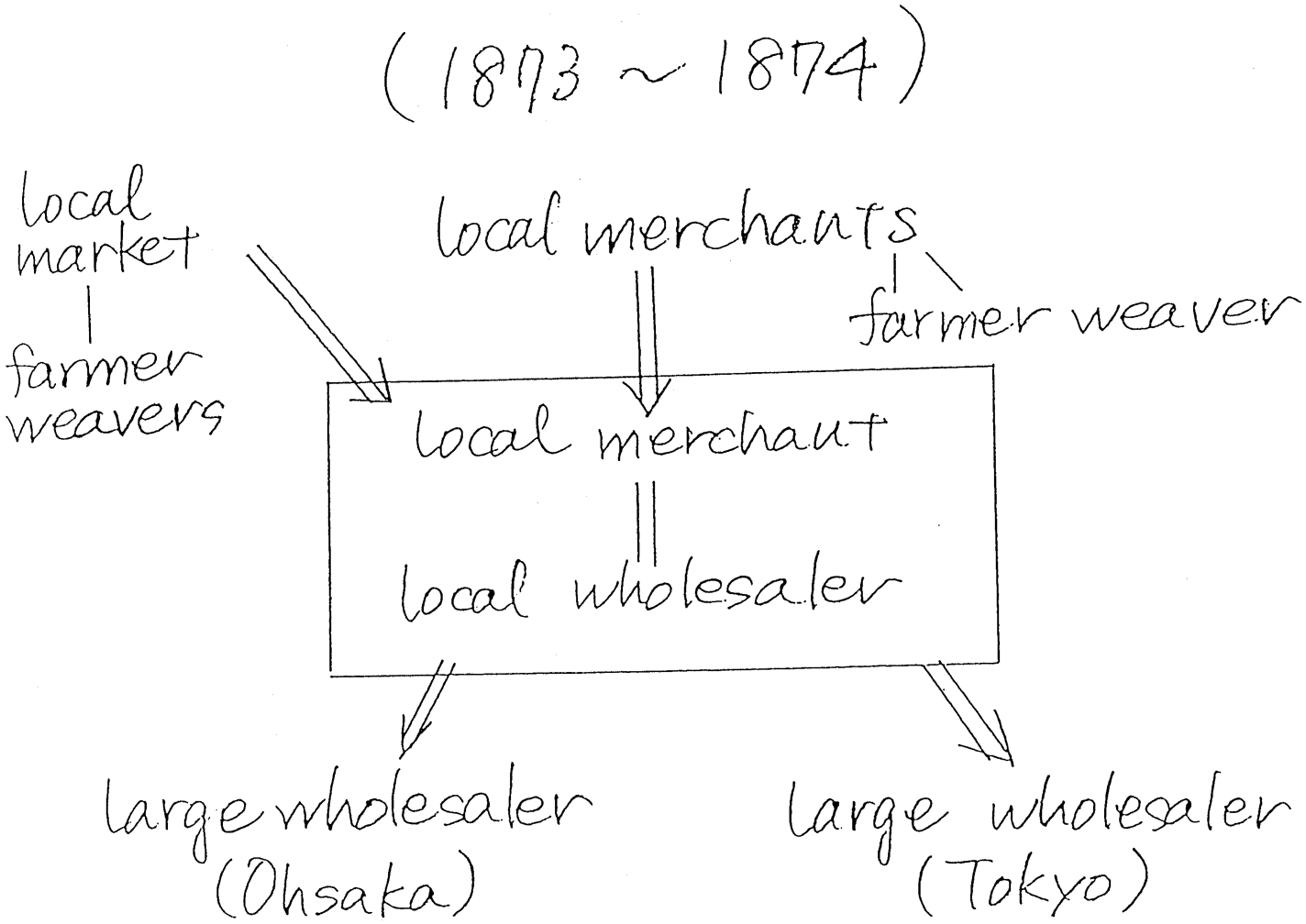

(1873 ~ 1874)
local market
farmer weavers
local merchants
farmer weaver
local merchant
local wholesaler
large wholesaler (Ohsaka)
large wholesaler (Tokyo)

Figure 5

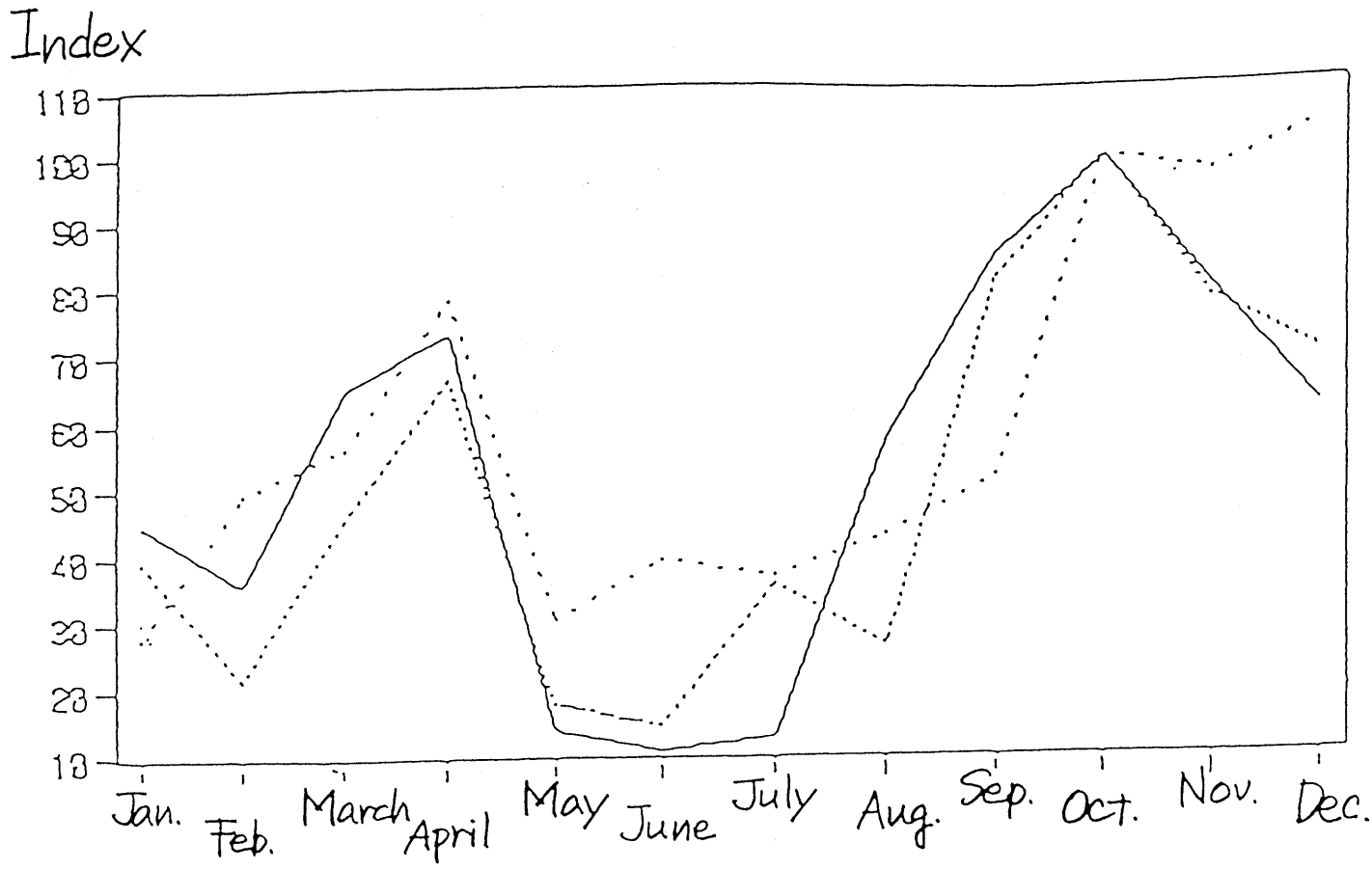

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Figure 6

Payment System (I)
(1871)

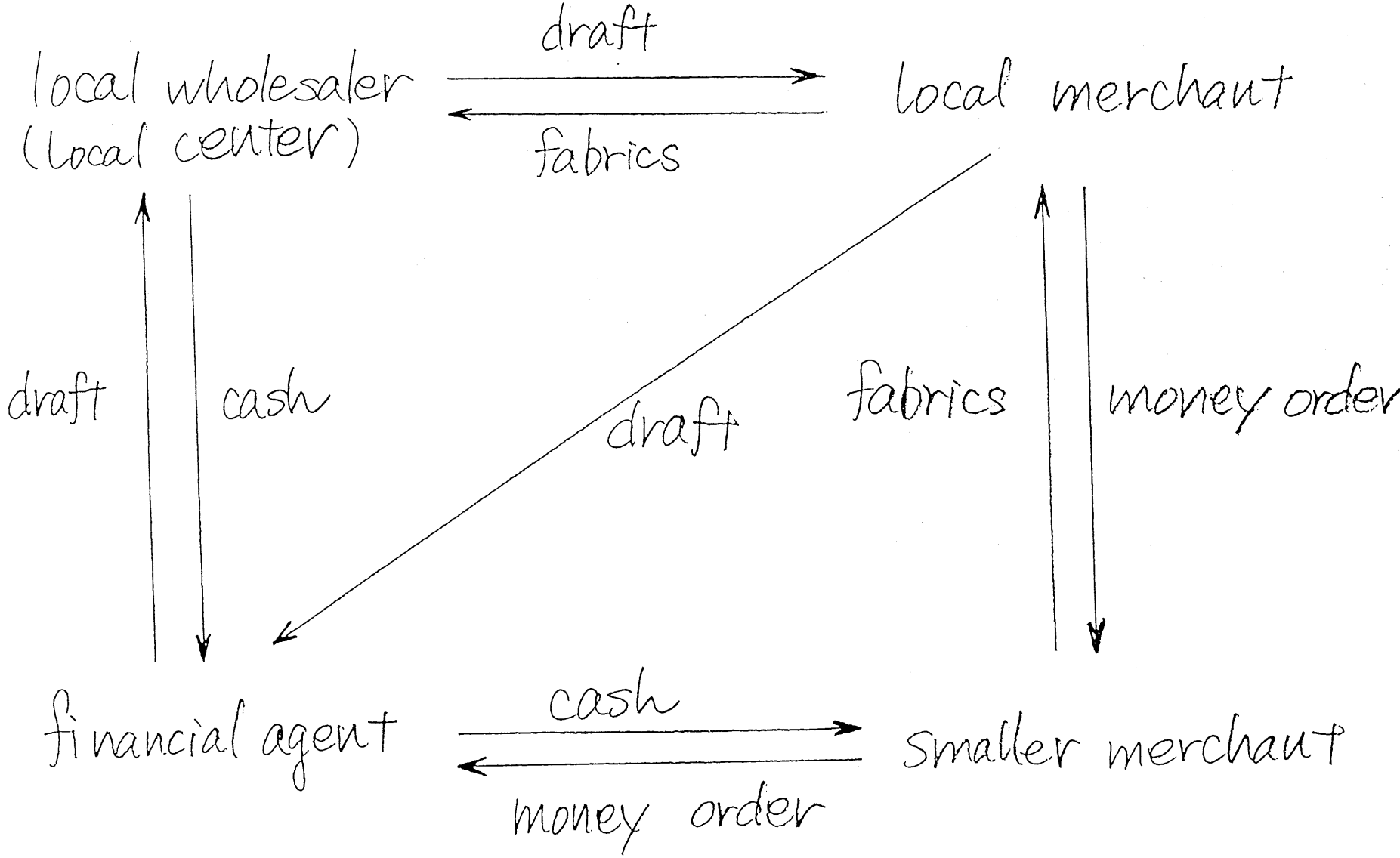

Figure 7

Payment System (II)
(1877 – 82)

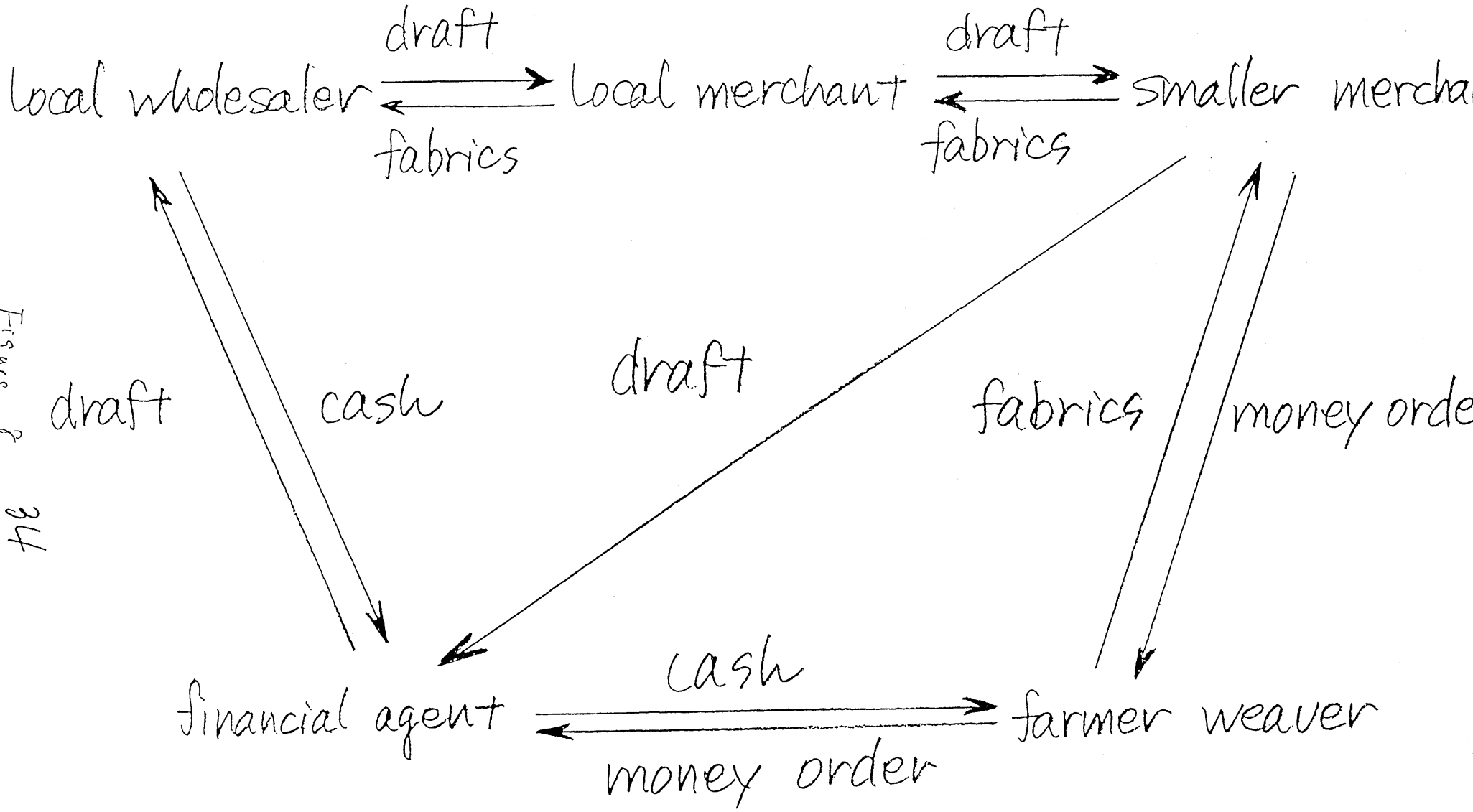

Figure 2