

A HISTORICAL STUDY ON THE DEVELOPMENT PROCESS OF JAPANESE PRIVATE SUBURBAN RAILWAYS - The Contribution of Their Subsidiary Business and Public Support -

Takatoshi TAMEKUNI, Dr.Eng.
Secretariat Staff
General Planning & Public Relations Div.
Japan Society of Civil Engineers
1-Chome, Yotsuya, Shinjuku-ku,
Tokyo 160, Japan
Fax: +81-3-5379-0125

Yoshio HANZAWA, Dr.Eng.
Professor
Dept. of Transportation Engineering
College of Science and Technology
Nihon University
7-24-1, Narashinodai, Funabashi,
Chiba 274, Japan
Fax: +81-474-69-5219

abstract : This paper researches that even through the demand was less, why and how Japanese private railways could constructed the suburban railways in Tokyo Metropolitan Area before World War II. From this research, the following event was verified. The prewar suburban railways of Tokyo area could promote diversification of their business with subsidiary business in their course of development. And they went through with an undertaking. For example, they supplied the electricity supply to the region and constructed the department store etc. Since these companies excited the demand of transport and reckoned up the inner subsidy and maintained stability on the management.

1. INTRODUCTION

The city area of Tokyo had been expanding without losing its function according to progress and modernization, since the beginning of Meiji era(1868-). One of the major factors which made it possible was the construction of suburban railways connecting several sub-city centers to the suburbs.

There were a lot of thin populated districts in the suburbs of Tokyo before the World War II, which means that the visual demand for the construction of railway were not large. However, suburban railways had been constructed under the investments of private companies, which played an important role in the development of the city of Tokyo. Why and how was this possible ?

The study for these issues are very important to show the future ways for suburban railways and other public utilities in large cities.

The studies on the establishment and the process of the development of suburban railways have been implemented mainly in the field of geography. Most of these studies focus on the phenomena caused by the construction of suburban railways and try to analyze the phenomena from the view points of the management, the characteristics and the specialization of the function of the railway companies. (e.g. JTERC(1991), Nakanishi(1979), etc.)

On the other hand, the studies on the development of cities have been implemented in the field of urban geography. The studies try to explain the process that cities have been developed step by step by analyzing from the aspect of regional developments in cities. (e.g. Yamaga(1993), etc.)

In the field of urban planning, their studies show that the infrastructures of transportation have contributed to the growth of certain cities. And they also show that the sprawl districts have grown bigger because the infrastructures had been provided radiately from the midtown area before the urban improvement project was carried out. (e.g. Yoda(1991), etc.)

In addition to these studies, we also need to study on the basis of local managerial policy, characteristics, and resident opinion in order to analyze and evaluate the process of development of suburban railways in Tokyo, the city which has remarkably developed its function as a metropolis.

With the background seen above, we focus on the subsidiary business which was measured and put weight as the managerial policy of Tokyo. And we attempt to analyze how the subsidiary business was related to the regular business while suburban railways in Tokyo had been getting bigger. Then we study its management policy of each private companies, public guarantee and revenue of the construction of railways in Tokyo area.

2. SYSTEMATIC GUARANTEE ON BUSINESS DEVELOPMENT OF SUBURBAN RAILWAYS

2.1 Business Development and Public Guarantee

It is assumed that the relationship with public guarantee such as governmental subsidy plays an important role in the process of business development of suburban railways including its subsidiary business. Hence we consider public guarantee of private railways before World War II.

Table 1 summarizes the laws and systems with regard to the private railways.

The private railways in the early days such as Nihon Railways were cordially protected by the government at their construction partially because their routes were main lines.

Table 1 Laws and System with regard to the Private Railways

| Law (year) | Railways | Characteristics |
|------------------------------|---|--|
| Private Railways Act (1887) | Nihon Railways | * Guarantee for stock interest, supply of deficient funds, free lease of national land. |
| Private Railways Law (1900) | Sanyo, Kyushu Railways Tobu Railways | * Donation of 5 million yen (14 years) governmental subsidies, etc. * Protection and promotion subject to the patent treaty. * Protection and control (the government's rights of purchase 25 years after license). * Reinforced control (reinforced the government's rights of control). |
| Railways Mortgage Law (1905) | | * Security as Railway Foundation became possible. |
| Light Railways Law (1910) | Tojo, Musashino Railways | * Less strict regulations than Private Railways Law (license procedure, facilities, fares). * Light Railways Subsidy Law (governmental support for the first 5 years if the income is less than 5% of construction cost). |
| | | ↓ |
| Local Railways Law (1919) | Odawara Express Railways Meguro Kamata, Tokyo Yokohama Electric Railways | * Management is tentatively secured and funds collection was easy. * Railway construction connected with party politics (as interest, means to expand power). * Consolidated Private Railways Law and Light Railways Law |

-The Contribution of Their Subsidiary Business and Public Support-

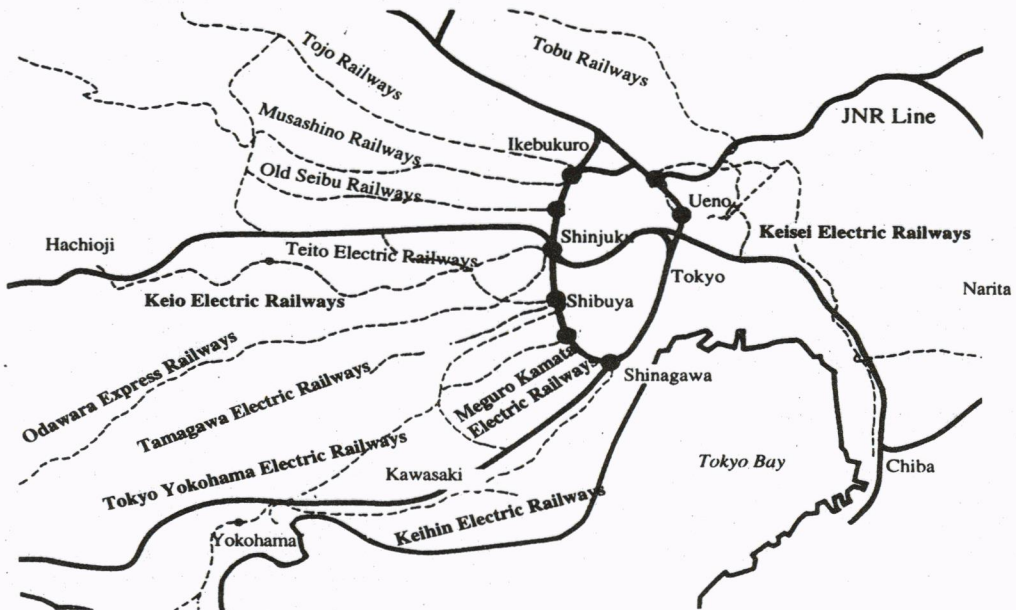


Figure 1 Railway Routes of Tokyo Area before World War II

Another reason was that the government intended to purchase them in the future. One of the subsidies to the suburban railways we are going to mention here is the Private Railways Law which came into force in 1900. The Private Railways Law defined the position of railway transportation as a special privilege of the Commercial Law. Next, the Railway Mortgage Law came into force in 1905. Money was easy (slack) because equipments and cars were mortgaged as the Railway Foundation.

The law of government ownership came into force in 1906. Because of the law, the private railways formed the character of local railways. However, the laws that controls the license and the operation of main railway lines were left as they were when the private railways had the character of main railways. Therefore the regulations private railways as local railways were too strict and electric railways were applied mostly by the Railways(street railways) Act.

Accordingly, the government had enacted a new Light Railways Law and it came into force in August, 1910. As compared with the Private Railways Law, this alleviated the regulation a lot in regard to the level and the procedure of license and in regard to the regulation of facilities and railway fare. Further, the government carried out the Light Railways Subsidy Law from January in 1912. This law regulated that if the return was less than 5% for the construction cost, the government would help to make up for the shortage to 5% for five years only. Thus, the subsidy, after the railway started business was established by the government. As comparing with the post Local Railways Subsidy Law, the dependent rate of the subsidy was relatively low. But the effect of the subsidy policy increased an application of the license of railway and successive transformation of existing private railways into the light railway.

The Light Railways Subsidy Law which was enacted in March, 1911 as the number 17th of the law was converted into the Local Railways Subsidy Law by the Local Railways Law which was enacted in 1919. This law was partially revised in March, 1921 and it reads as follows in Section 1.

" The government may supply an amount equivalent to 5/100 of the construction cost of each business year up to ten years from the opening date of its railway business to a local railway. In the aforementioned case, if the profit of each business year exceeds the amount equivalent to 2/100 of the construction cost, the surplus amount shall be deducted from the aforementioned amount. " (Horie(1927))

Officially this law was revised to satisfy the local transportation by promoting the flotation of private railways. The truth was that it was revised so that the government can see the private railways as feeder lines of the National Railways after the railways were nationalized. In addition to that, the Railway (street railway) Law came into force in 1921. In 1937, the Local Railways Subsidy Law was revised and the government adopted a protective policy positively changing the former construction subsidy to business subsidy. The government, however, started to control the business next year by promulgating the Land Transportation Business Adjustment Law which instituted the regional blocks.

2.2 Supply of Funds from Debentures and Debts

The Local Railways Law provides that the local railway companies must pay one tenth of the capital stock first. As for offering of debentures, however, an offer cannot be subscribed if the amount of the paid capital stock is less than 1/4 in accordance to the Commercial Law. Because a debenture is to borrow money from the market for supply of funds, the law intends to regulate such debts while the basis of a company is yet to be consolidated. Many railway companies have a large amount of initial investment for constructing new lines. Debentures which was issued as a measure for supply of funds play an important role.

As for the local railway companies, all of the funds except debentures and secured debts are floating debts. These floating debts are contracted at any time depending on the degree of a company's credit, and there are no special regulations for them. Concerning debts and the debentures described above however, many of them contract a measure of debts for initial investment for construction. These debts not necessarily advisable for the railway companies, because their financial burdens become remarkable due to yearly payments of interest. The suburban railways need a lot of investment especially for the construction a new line, when they develop the businesses. Therefore, they have to rely on the debts as a supply of funds.

3. SUBSIDIARY BUSINESS OF SUBURBAN RAILWAYS

3.1 Classification of Subsidiary Business

It is said that a suburban railway alone cannot secure its profit owing to its nature of diminishing cost. This is because a suburban railway has a strong external(leakage) effect on economies, and it tries to establish business by resolving it. Therefore, synergy of its sales is great, but it does not necessarily signify that synergy of its profit is also great. Namely, the services provided by a suburban railway are public goods, and internal support from diversification into unrelated business cannot be socially regarded as reasonable. These are the reasons, as pointed out, that railway enterprisers attempt of their own accord to diversify their business into the related fields.

One of the reasons which made a turning point for railway enterprisers was to take up subsidiary business in their business development. For the explanation of this reason, we can quote the Railways Nationalization Law enacted in 1906. This law defined the position of public railways as line(main line) traffic between areas and that of private railways as face (area) traffic. It may be said that the characteristics of private railways such as the city suburban type and the area based type were determined on this occasion. Consequently, it is assumed that the Railways Nationalization Law formed the incentive to subsidiary business. This in-

-The Contribution of Their Subsidiary Business and Public Support-

Table 2 Classification of Subsidiary Business of the Main Suburban Railways in Tokyo Area

| Companies | Applicable Law (Year of Opening) | Subsidiary Business | | |
|----------------------------------|-------------------------------------|--|--|--|
| | | 1st Year | After 5 Years | After 10 Years |
| Keihin Electric Railways | Railways Act (1899) | electricity supply | electricity supply | electricity supply amusement |
| Tamagawa Electric Railways | Railways Act (1907) | electricity supply | electricity supply amusement | electricity supply amusement real estate |
| Keisei Electric Railways | Railways Act (1912) | electricity supply real estate graveyard | electricity supply real estate amusement | electricity supply real estate amusement advertizement |
| Keio Electric Railways | Railways Act (1913) | bus transport electricity supply | bus transport electricity supply gravel | bus transport electricity supply gravel |
| Meguro Kamata Electric Railways | Local Railways Law (1923) | electricity supply invitation of schools | electricity supply real estate gravel invitation of schools | electricity supply real estate invitation of schools bus transport |
| Tokyo Yokohama Electric Railways | Local Railways Law (1926) | electricity supply real estate gravel | electricity supply real estate invitation of schools bus transport amusement | electricity supply real estate invitation of schools bus transport amusement |
| Odawara Express Railways | Local Railways Law (1927) | real estate amusement | real estate amusement | real estate amusement invitation of schools |

cludes regional development for developing demand of transportation and starting bus transport business of a supplemental relationship.

Table 2 shows the main suburban railways in the area of Tokyo before the World War II and classification of their subsidiary business.

3.2 Transition of Income from Subsidiary Business

Table 3 shows the percentage of income from subsidiary business to the income of the regular business in the early years after the opening of the suburban railways. It is said that a

Table 3 Percentage of Subsidiary Business in Early Years after Opening
unit (%)

| Companies | (Income from) Subsidiary Business / Main Business * 100 | | |
|----------------------------------|---|---------------|----------------|
| | 1st Year | After 5 Years | After 10 Years |
| Keihin Electric Railways | 9.4 | 2.9 | 14.6 |
| Tamagawa Electric Railways | 8.4 | 59.5 | 125.8 |
| Keisei Electric Railways | 103.0 | 83.8 | 51.4 |
| Keio Electric Railways | 116.7 | 45.5 | 45.2 |
| Meguro Kamata Electric Railways | 7.9 | 38.0 | 51.1 |
| Tokyo Yokohama Electric Railways | 96.0 | 49.0 | 27.0 |
| Odawara Express Railways | 71.0 | 5.0 | 4.0 |

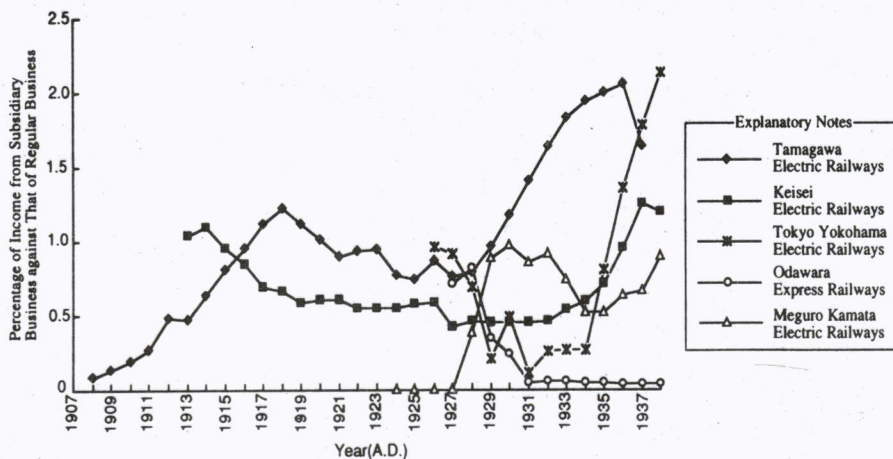


Figure 2 Percentage of Income from Subsidiary Business against Regular Business

railway company needs a large amount of funds for initial investment in construction. Railway company repay such as returning of the interest for the funds supplied from the year of opening business. This become a burden on its operation. What is more, a company cannot always make enough income from transportation from the beginning of its business. So, how to employ support from subsidiary business is regarded as an important subject. According to Table 3, the companies that made their subsidiary business effectively function from the year of opening their business are Tokyo Yokohama Electric Railways, Keisei Electric Railways, Odawara Express Railways and Keio Electric Railways. And the companies that made their subsidiary business function in the early years after opening their business are Tamagawa Electric Railways and Meguro Kamata Electric Railways.

Concerning the five companies of the above, Figure 2 shows additionally the transition of percentage of income from the subsidiary business against that of the regular business from the year of opening their business.

Figure 2 shows that concerning Tokyo Yokohama Electric Railways and Odawara Express Railways the percentage of their income from subsidiary business was very low in the 1930's. This coincides with the period when these companies were in financial difficulties and under state subsidy subject to the Local Railways Subsidy Law. It can also be verified by the fact that Tokyo Yokohama Electric Railways increased the percentage of income from subsidiary business from 1935, after the subsidy was terminated. Judging from such facts, it was presumably difficult to positively tackle subsidiary business unless the management of the company itself was in a stable condition, even though subsidiary business was said to be an internal support.

Based on the above-mentioned results, we take up and concretely analyze Keisei Electric Railways of the (street)railways system and Tokyo Yokohama Electric Railways of the local railways system.

4. ANALYSIS ON THE SUBSIDIARY BUSINESS OF KEISEI ELECTRIC RAILWAYS

4.1 Public Guarantee and Supply of Funds

Figure 3 shows transition of debentures and debts as supply of funds for Keisei Electric

-The Contribution of Their Subsidiary Business and Public Support-

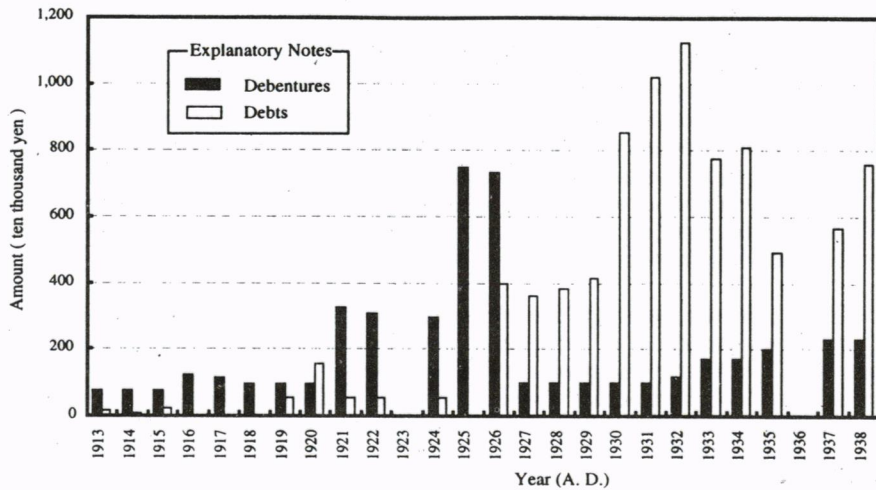


Figure 3 Supply of Funds of Keisei Electric Railways

Railways. As Keisei Electric Railways was established with the Railways Act as its applicable law, the company's position was politically defined as a supplement to the road traffic. Accordingly, as regards supply of funds, its financing was from the market in accordance with the Secured Debenture Trust Law(enacted in 1905) and the Railways Security Law(promulgated in 1909). As the debentures set a limit equal to the capital stock, the limit amount of debenture issue will be raised by capital increase by means of issuing new shares. From Figure 3,we can understand that Keisei Electric Railways did financing positively by debentures in the late Taisho era and did positive fund raising by borrowing in the Showa era.

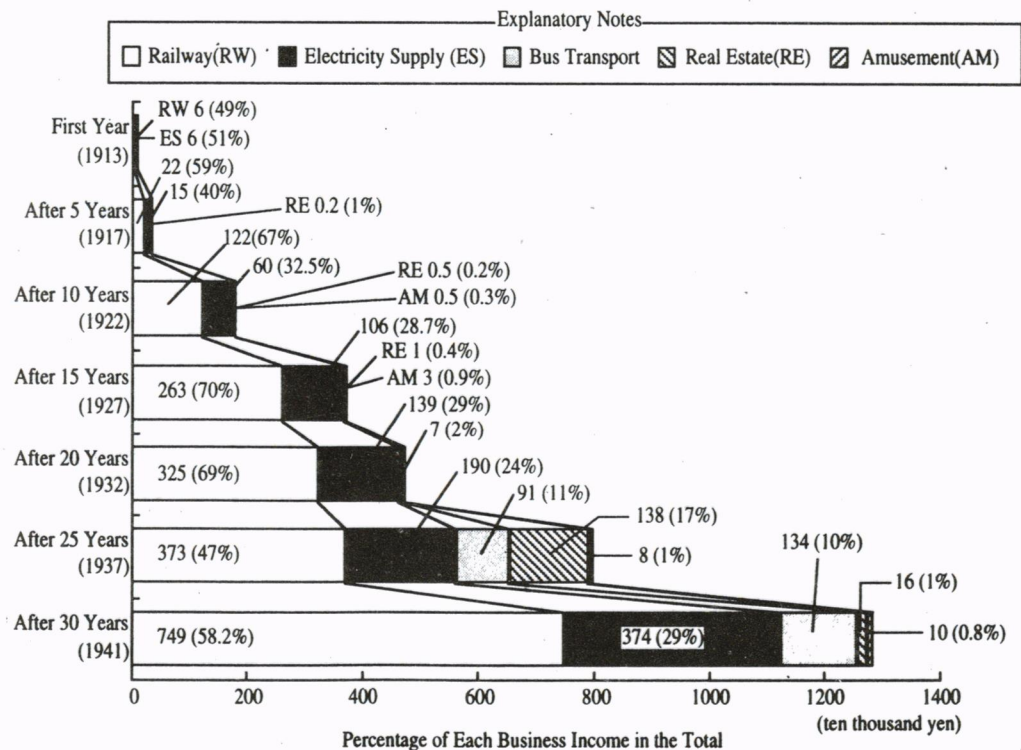


Figure 4 Transition of Income from Each Business of Keisei Electric Railways

4.2 Transition of Business Income

Figure 4 shows transition of each business income in the case of Keisei Electric Railways. The subsidiary business of the highest percentage for Keisei Electric Railways was electricity supply. The remarkable difference from Tamagawa Electric Railways, however, is that percentage of that income exceeded 50% from the beginning and it was more than the income from the regular business. This was due to the fact that Keisei Electric Railways had started electricity supply even before opening of its railway business. In other words, it is assumed that the income from electricity supply became a great internal support at the opening of the railway business or initial investment in construction.

From 1932 to 1937 the income of the company as a whole increased greatly, while increase of income from the railway business slowed down owing to electrification of the Ochanomizu-Chiba part of the National Railways Sobu Line, its competitor at the time. This was due to increase of income from the bus transport business and real estate business, which makes us assume the positive diversification of business of Keisei Electric Railways. In brief, it is presumed that its positive promotion of development of the areas along the railway for the purpose of increasing the number of passengers had an incentive effect to the remarkable increase of income from the railway business in 1938.

4.3 Transition of Financial Situation

In order for a suburban railway to promote diversification of its business including subsidiary business, it needs capital backup for the management purpose. Accordingly, we pay attention to transition of net profit (earnings of the company) in the financial statements to consider soundness of its business. The data used here were quoted from the railway statistic data from 1919, the year the Local Railways Law was promulgated, to 1938, the year the Land Traffic Business Adjustment Law was promulgated.

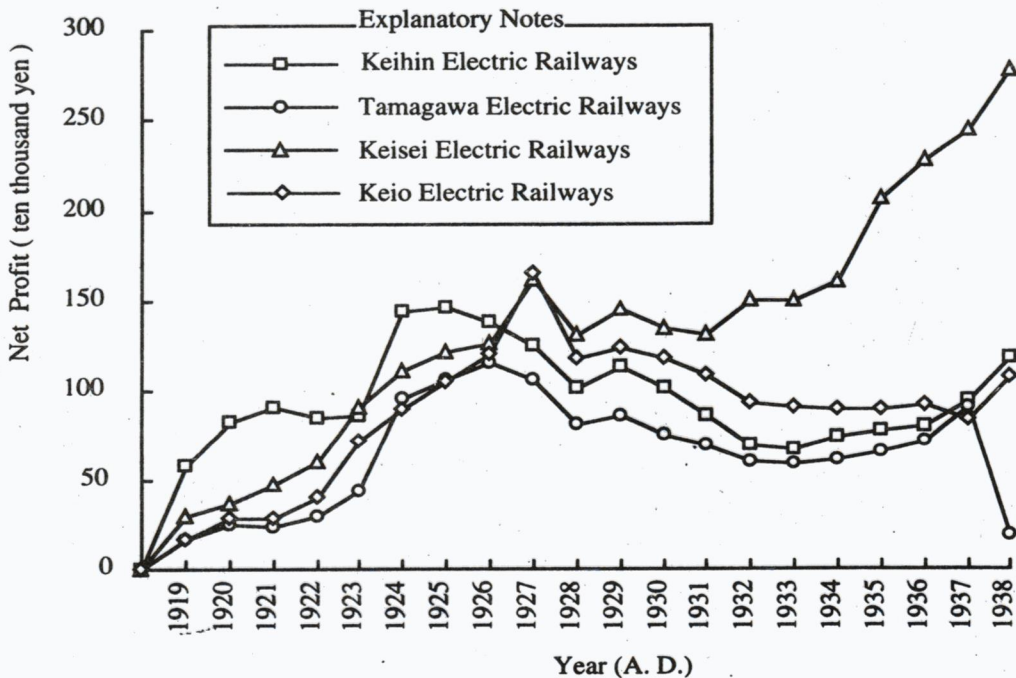


Figure 5 Transition of Net Profit of Suburban Railways of Railways System

-The Contribution of Their Subsidiary Business and Public Support-

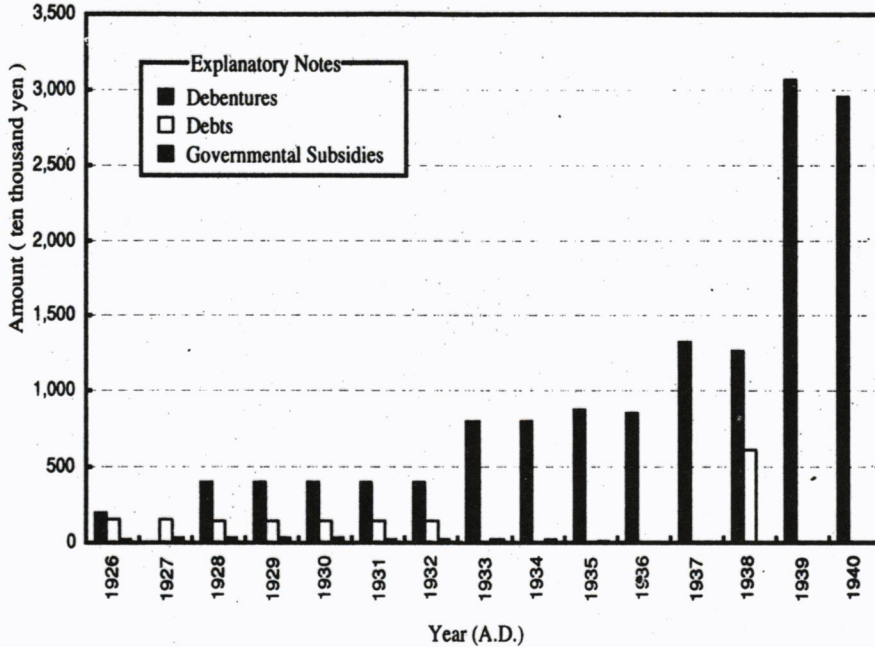


Figure 6 Financing of Tokyo Yokohama Electric Railways

Figure 5 shows transition of net profit of a suburban railway of the (street)railways system. As a general trend, transition of net profit is favorable as to the railways system. Especially, the net profit increased drastically after the Great Kanto Earthquake in 1923 and tended to decrease in the subsequent era of early Showa. Concerning this fact, as the railways system extended its lines radially from the city area of Tokyo to the suburbs, it is presumed that expansion toward Tokyo's suburbs after the Great Kanto Earthquake was remarkable in the areas along the lines of the railways system. It is also assumed that the trend of decrease in early Showa had much to do with influence of the Showa Financial Panic. Amid such situation, however, Keisei Electric Railways favorably showed a trend of increase without any noticeable trend of decrease and resulted in adding up to net profit of almost three million yen in 1938. This fact signifies that Keisei Electric Railways before the World War II continued favorable growth as an excellent company from a managerial viewpoint, and it has also financially verified the aggressive management carried out by this company including diversification of its business.

5. ANALYSIS ON THE SUBSIDIARY BUSINESS OF TOKYO YOKOHAMA ELECTRIC RAILWAYS

5.1 Public Guarantee and Supply of Funds

Figure 6 shows transition of the government subsidies subject to the Local Railways Subsidy Law, debentures and debts of Tokyo Yokohama Electric Railways. Although Tokyo Yokohama Electric Railways received the subsidies in accordance with the Local Railways Subsidy Law for ten years after opening its business, the amount was by no means large from the financing viewpoint. On the other hand, issue of debentures was apparently overwhelming as regards financing. It is also possible to regard the issue of debentures as assurance of credit of the company. This is assumed to be a result supporting the background of Tokyo Yokohama Electric Railways having been established by economic assistance of Meguro Kamata Electric Railways whose parent company was Garden City Company. Nevertheless, the fact that such financing from the market was possible is assumed to be the background of positively tackling subsidiary business.

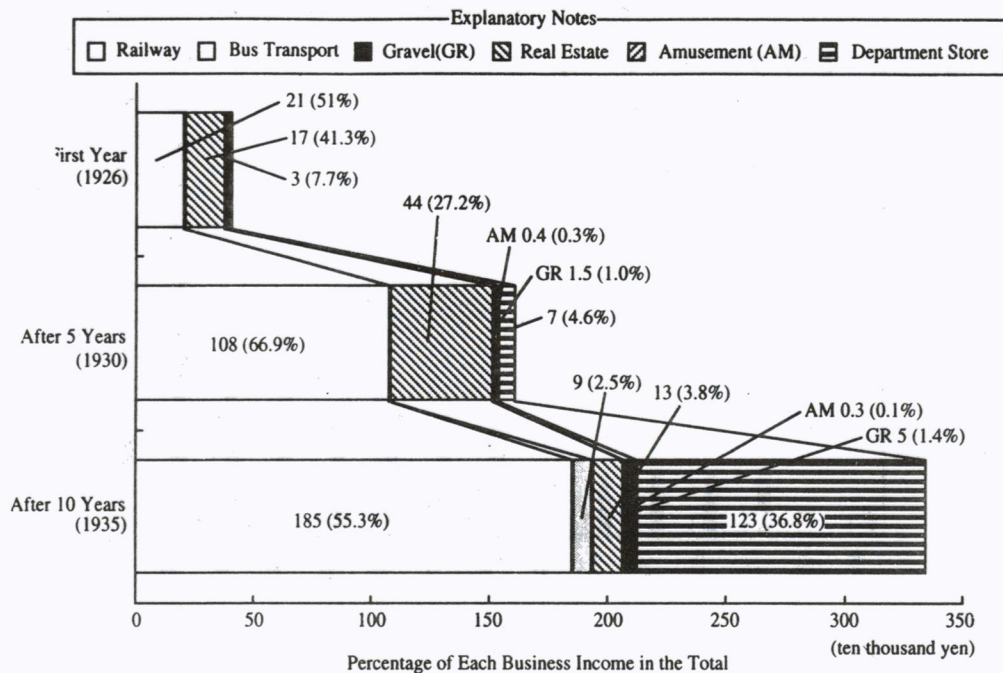


Figure 7 Transition of Income from Each Business of Tokyo Yokohama Electric Railways

5.2 Transition of Business Income

Figure 7 shows transition of each business income concerning Tokyo Yokohama Electric Railways. Tokyo Yokohama Electric Railways has many kinds of subsidiary business, which indicates its remarkably positive attitude towards diversification of its business. Up to five years from its opening year, percentage of real estate was very high. Since it opened Toyoko Department Store at Shibuya Station as the first terminal department store in Kanto directly managed by a private railway in 1934, income from the department store business became very high in place of the real estate business till then.

The areas along the lines of Tokyo Yokohama Electric Railways soon after its opening of business were absolutely rural. Partly because Tokyo Yokohama Electric Railways was established by capital participation of Meguro Kamata Electric Railways whose parent company was Garden City Company, both companies were in cooperation and positively engaged in sales of housing lots in these areas. To be concrete, they earned a lot of income from real estate business by starting sales of housing lots of Shinmaruko and Hiyoshi between 1926 and 1930.

In 1935, the income from the department store business increased drastically, which was caused by opening of Toyoko Department Store in 1934. It is presumed that the success of Toyoko Department Store had much to do with the effects of the previous development of the areas along the lines. In brief, this success presumably became a good opportunity to define the position of subsidiary business (grasping development of the areas along the lines and the terminal development as one) of postwar private railways as their management strategy.

5.3 Transition of Financial Situation

We considered above based on net profit of the railways system. Though this consideration

-The Contribution of Their Subsidiary Business and Public Support-

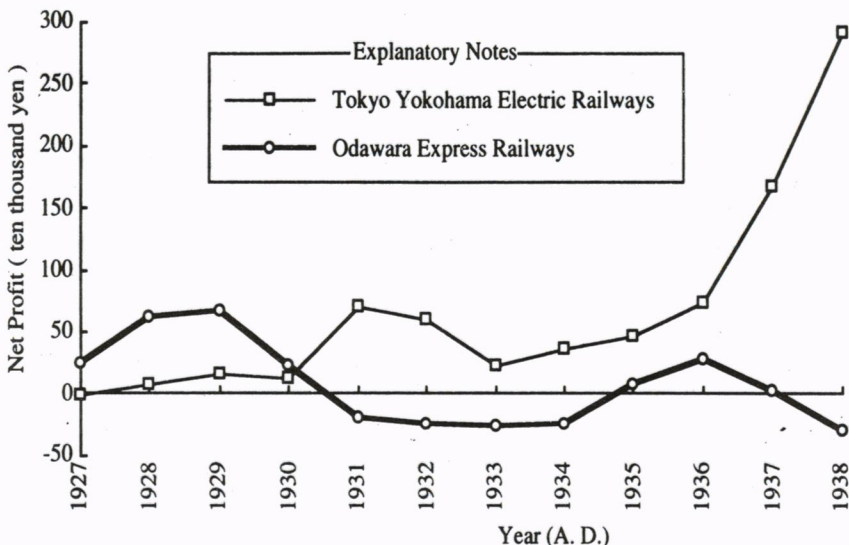


Figure 8 Transition of Net profit of Suburban Railways of Local Railways System

we focus on soundness of business based on transition of the records of the suburban railways(the local railways system) applicable law was the Local Railways Law.

Figure 8 shows net profits of the suburban railways of the local railways system. Figure 8 signifies that Tokyo Yokohama Electric Railways did not successfully make a profit from its opening but went through hardships during the transition of ten years after its opening. We can see that its net profit suddenly turned to increase, from 1937, ten years after its opening.

During this period, Tokyo Yokohama Electric Railways showed positive management including diversification of business, although increase of profits started after it was merged by Meguro Kamata Electric Railways(parent company) and only its name was succeeded in 1937. In other words, the net profits from this year on may be referred to as the net profits of Meguro Kamata Electric Railways.

Despite the fact that from its opening prior to that year Tokyo Yokohama Electric Railways cooperated with Meguro Kamata Electric Railways as its affiliate company of capital participation to diversify its business with subsidiary business, the net profits still remained low. Considering this, it has presumably something to do with the fact that Tokyo Yokohama Electric Railways was granted the local railways subsidy which was from two to three hundred thousand yen each year during the ten years until 1935, although it has not been verified. In Figure 8, it is identified that the Odawara Express Railways seems to be successful on its business during first 4 years, but just after the year 5, it started to lose profit.

Actually, Odawara Express Railways had put a huge amount of funds on initial investment such as the construction of fully double-track railroad, even though its line pass the less population area and it was not expected enough demand. Thus, it has never earn any profit from the initial of its operation if it has not have the subsidiary business.

However, from Table 3 and Figure 2, it is easily observed that the portion of the income from subsidiary business was high so that it has made profit during first 4 years. According to the decline of the income from the subsidiary business, it was hardly to get profit.

6. CONCLUSION

The prewar suburban railways of Tokyo area could promote diversification of their business with subsidiary business in their course of development.

In this research, analysis was made on such a background and the relationship with their regular business in a verifying manner in relation to public guarantee and supply of funds.

Consequently, regarding the suburban railways organized in the railway system or organized with the Local Railways Law as their applicable law.

It was verified that they carried out subsidiary business positively based on the social background and tackled it as an internal support for stable management.

REFERENCES

- Japan Transport Economics Research Center(1991) Study on History of Traffic Theories(IV); **History of Traffic Theories Study Association**. JTERC, Tokyo.
- Nakanishi, K.(1979) **Study on History of Japan's Private Railways -Development of Urban Traffic and Its Structure**. Mineruba Shobo, Tokyo.
- Yamaga, S.(1993) **From Edo to Tokyo, and Now**. Daimyodo, Tokyo.
- Yoda, K.(1991) **Composition of Urban Area Development**. Kashima Shuppankai, Tokyo.
- Horie, S.(1927) **Local Railways Guide**. Tetsudo Shinbunsha, Tokyo.
- Keisei Electric Railways(1967) **55 Years' History of Keisei Electric Railways**. Tokyo.
- Tokyo Express Electric Railways(1973) **50 Years' History of Tokyo Express Electric Railways**. Tokyo.
- Ministry of Railways(1919-1938) **Railways Statistic Data (Taisho8-Showa15)**. Tokyo.