

INTA 28th World Urban Development Congress Management of Metropolitan Growth and Sprawl

“Comparison of Urban Management in Two Sectors in Metropolitan Tokyo”

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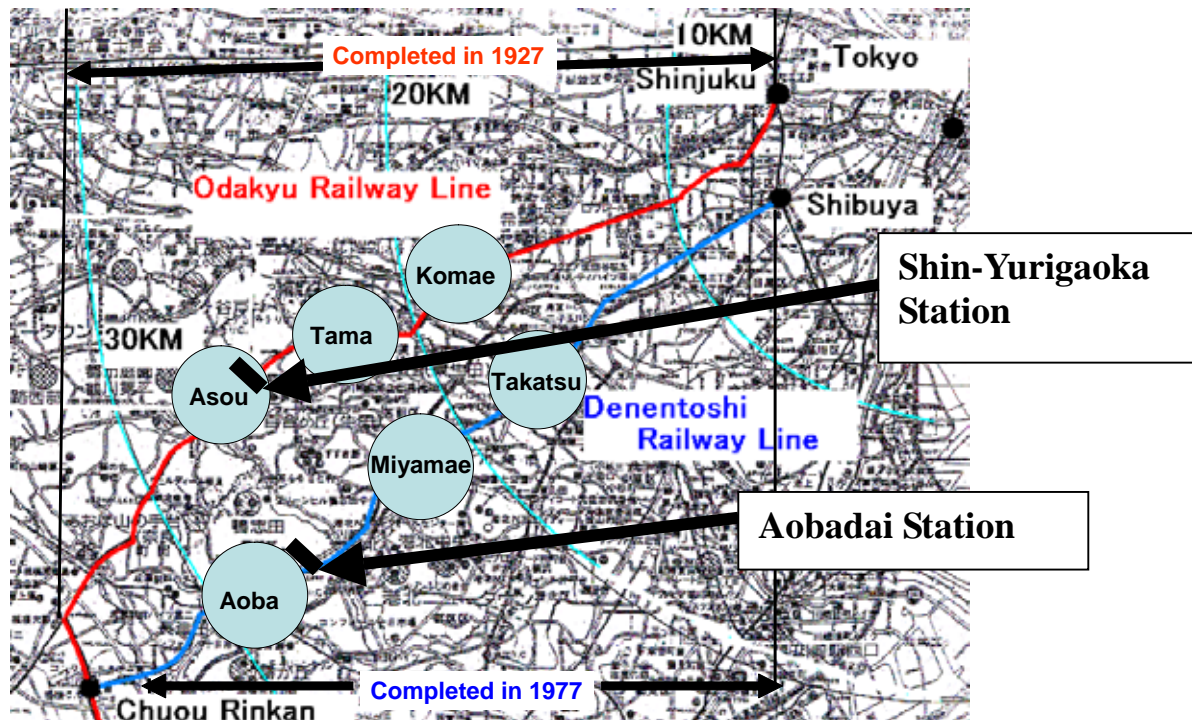
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1. Introduction

This study introduces two different management of urban development. One is the area along the Tokyu Denentoshi Railway Line and another is that of Odakyu Odawara Railway Line. The former shows the well programmed urban development and the latter shows the sprawl of historical development.

Fig.1 Location of Two Railway Lines



2. The Comparison of Planned Development Ratio

Two railway lines are running in parallel for the distance of about 30 kilometers from big business centers, one is Shinjuku and another is Shibuya. Odakyu Railway Line, starting from Shinjuku was completed in 1927 and it was far before the introduction of modern urban planning system. On the other hand, Denentoshi Railway Line was completed in 1977 and it was good timing to introduce the modern urban planning technique so called Kukakuseiri or Land Readjustment.

As a result, the kuakuseiri ratio along the Odakyu Line is lower than that of Denentoshi Line as shown in table 1. Kukakuseiri ratio is showing the ratio of well planned urban area against the total administrative area.

Table 1 Comparison of Kukakuseiri Ratio of Municipalities

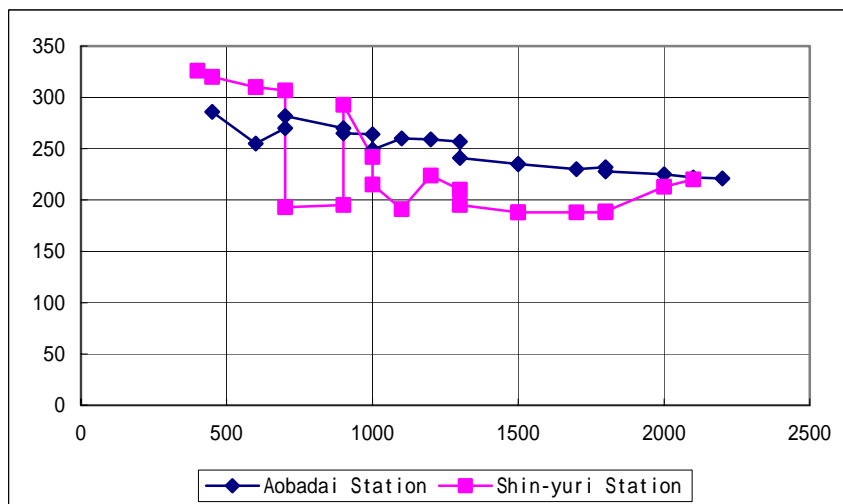
| Odakyu Line | Kukakuseiri Ratio % | Denentoshi Line | Kukakuseiri Ratio % |
|-------------|---------------------|-----------------|---------------------|
| Komae City | 1 | Takatsu Ward | 2 |
| Tama Ward | 8 | Miyamae Ward | 32 |
| Asou Ward | 15 | Aoba Ward | 29 |

The reason why Komae City and Takatsu Ward are showing such low rate would be that those areas are located in rather near suburbs served by existing railways and urbanization started right after The World War II. Then the planning administration fell behind under the post war confusions. On the other hand Miyamae Ward and Aoba Ward are showing high rate of Kukakuseiri Ratio and both are located along the Denentoshi Line. Tokyu Company, which is the main body of Denentoshi Line, purchased huge land area before the construction of the railway line, and tried to develop urban areas and the railway line in harmonious timing.

3. The Comparison of Land Price by the Distance from Stations

Fig.2 is showing the comparison of land price change by the distance from the stations. Aobadai Station is on the Denentoshi Line and 23 kilometers from Shibuya Terminal. It takes 25 minutes by express train. Shin-Yurigoka Station is on the Odakyu Line and 21 kilometers from Shinjuku Terminal. It takes 27 minutes by express train. The location of both stations is good enough to compare. X-axis is the distance from each station by meters and Y-axis is the Land Price by 1000 Yen per square meter.

Fig.2 Comparison of Land Price Change by the Distance from Stations



This suggests three important facts as follows.

(1) Odakyu Line (Shin-Yuri station) shows the higher land price in the areas within 1000 meters from the station except 2 exceptional points and Denentoshi Line shows the higher land price beyond 1000 meters. This means that the effect of railway service on the land price of Denentoshi Line continues further distance than that of Odakyu Line and Denentoshi Line area is more preferable from the viewpoint of asset management. 2 exceptional points of Odakyu Line would be the points located within the sprawled area.

(2) The longer history of Odakyu Line brought higher land price in the adjacent area of the station but it does not last longer distance because of the poor preparation of urban road and bus services.

(3) Even if in the near distance from the station, land price falls down by poor planning as shown by 2 exceptional points in Shin-Yuri area.

4. The Comparison of Land Price by the Distance from Each Terminal

Fig.3 shows that the land price at the terminals, Shinjuku and Shibuya, is extremely high and drops quickly to around one million yen per square meter. The samples are commercial areas in front of the stations or within 200 meters from stations. Odakyu Line just exceeds Denentoshi Line at Shinjuku terminal, areas within 5km and Machida City which is located at the distance of 30 kilometers from Shinjuku terminal. If we compare the both terminals, Shinjuku is the second biggest center in Tokyo region and much stronger than Shibuya area. Therefore, it is natural that Shinjuku exceeds the Shibuya in land price of commercial areas. Machida City is a big city with the population of half a million. The station of Odakyu Line is located at the city center and that of Denentoshi Line is in southern suburbs. Therefore, the land price of Odakyu Line exceeds that of Denentoshi Line.

Then it is also recognized that the land price is always higher along Denentoshi Line than Odakyu Line between the distances from 5 to 25 kilometers. This implies that the land along Denentoshi Line is more productive than that of Odakyu Line in general.

This fact can be explained by Fig. 4 that the Tokyu Company made an great effort to develop large scale new towns along the Denentoshi Railway Line and each railway station can keep wider catchments areas than that of Odakyu Railway Line supported by well planned arterial streets and bus services around railway stations.

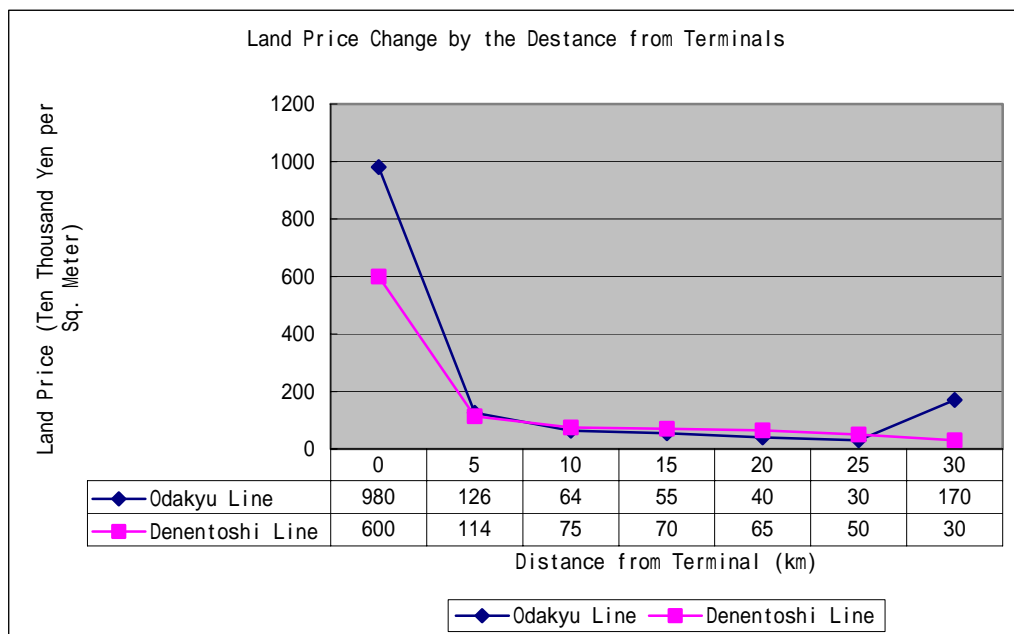


Fig.3 Comparison of Land Price Change by the Distance from Each Terminal

5. Outline of Tokyu Den-En-Toshi Project

Fig.4 shows the location of the project site. The area extends from 18 to 25 kilometers from Tokyo down town and is now recognized as one of the high ranked residential districts. This area was almost agricultural use about half a century ago, and Tokyu Company purchased 20-30% of them. Total project area is about 50 square kilometers and divided into 56 land re-adjustment project sites with the existing total population is about half a million.

Land re-adjustment project is one of the best techniques to develop urban areas under the close collaboration with land owners. Every land owner contributes to produce public land such as roads, rivers and parks within the expected development benefit. In this case, if a company buys 10 square kilometers of land by the price of 10 thousand yen per square meter and if two third of them (one third is for public contribution) would be sold by the price of 100 thousand yen per square meter, the development benefit would be about 500 billion yen or 5 billion US dollars. Then the company can return the construction cost of a railway and residential areas. It is also pointed out that private land owners can also enjoy the development benefit because the company buys only 20-30 % and 80-70 % of land remains in the hands of original land owners. This makes it easier to get the consensus of land owners.



Fig. 4 Location of Large Scale Newtown Development by of Tama-Den-En-Toshi Project

6. Model Calculation of Public Benefit

Model areas are the rectangular of 4 kilometers wide and 20 kilometers long along the two railway lines. And one area is divided into 10 rectangular cells of 4 kilometers wide and 2 kilometers long with a railway station in the center. The land price of each station front is assumed as follows base on the data of Fig. 3. Station 1 is the nearest station from down town side and station 10 is the end of the study area.

Table 2 Assumed Land Price of the Station Front (10 thousand yen per sq. meter)

| Station | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---------|----|----|----|----|----|----|----|----|----|-----|
| Odakyu | 61 | 58 | 55 | 49 | 43 | 38 | 35 | 32 | 30 | 100 |
| Tokyu | 72 | 71 | 70 | 68 | 66 | 65 | 60 | 52 | 45 | 40 |

Average land price of each cell is 70% of station front in case of Odakyu Line and 75% in case of Tokyu Line based on the data of Fig. 2. Then the total land value of each cell becomes as shown in Table 3.

Table 3 Total Land Value of Each Cell (Billion Yen)

| Station | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---------|------|------|------|------|------|------|------|------|------|------|
| Odakyu | 3146 | 3248 | 3080 | 2744 | 2408 | 2128 | 1960 | 1792 | 1680 | 5600 |
| Tokyu | 4320 | 4260 | 4200 | 4080 | 3960 | 3900 | 3600 | 3120 | 2700 | 2400 |

The grand total land value becomes 28,056 billion yen in case of Odakyu Line and 36,540 billion yen in case of Tokyu Line. The difference becomes 8,484 billion yen. Real estate tax rate in Japan is 1.4% and actual evaluation would be lower than that by half or two third. Therefore, actual tax rate would be assumed as 1%. This means about 85 billion yen or 800 million US dollars of expected annual real estate tax is lost in the area of Odakyu Line if we compare with that of Tokyu Line.

7. Conclusion

The lost public revenue is so big and will grow 10 times larger during the term of 10 years and reaches to the amount of 8 billion US dollars. This fact implies that the Tokyu Line area would have a great advantage to win the competition of regional welfare.

In such way, the planned development will have a great good effect for the future life and the regional development. It can be also said that the technique of land re-adjustment is very useful to get the consensus of large number of landowners.

Short introduction of the author

Hirohide Konami

Graduated from the University of Tokyo in 1966, and worked for the Japanese National Government as an urban engineer for 31 years. Studied in the city planning course of MA, GSD, Harvard University during 1971-72 and given Ph.D degree from the University of Tokyo in 1996.

After retirement from the national government, worked for Toyo University in Tokyo for 7 years and now the professor of Tokyo Jogakkan University, established in 1888, one of the most traditional women's schools in Japan.

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