The Significance of Landownership Change in Old Industrial Districts
The Case of Knitting Industrial Accumulation in Sumida, Tokyo

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Abstract
Sumida Ward, one of the old industrial districts in Tokyo, has undergone a prolonged period of deindustrialization. The socio-economic attributes of its land have played a major role in the reduction of activity. The purpose of this paper is to examine the relationship between landownership characteristics and the typology of present land use in the Knitting industrial accumulation located in Sumida, based upon analysis of a group of land parcels. Three main findings were made; first, there is a strong tendency for new owners to introduce new uses for land, replacing old ones. Second, the area has not gone through dramatic changes that could alter its nature because new owners generally purchased limited area. Large portion of land have remained in the hands of managers and/or their successors. Later owners have shown little tendency to set up new businesses after closing down the original knitting industry, instead they have converted the factories into houses. Third, the land parcels, which still support textile industries, have been utilized to integrate relatively many new usage types as well, thus enabling enrichment in the area's variety of uses.

Keywords: old industrial district; land parcel; landownership; land use change; Sumida

1. Introduction
Sumida Ward, one of Tokyo's old industrial districts, has undergone a prolonged deindustrialization process, as it has little vacant land or Brownfield for redevelopment. Despite of Sumida's favorable location, and the fact that land scarcity in Tokyo does not allow for much underutilization for land (Cybriwsky, 1998), the aggregate analysis of changes in Sumida's land usage profile characterized that change as mostly static or inactive (Nakadae, 1983). In urban economics, the patterns of restructuring in response to market shifts and downturns are related to three basic elements of the city - land, labor, and capital (Blakeley 1995). This means that the socio-economic attributes of land affect the area's metabolism in replacing old industries with new, more competitive ones. The purpose of this paper is to examine the relationship between landownership patterns and the typology of land use changes in the oldest industrial accumulation in Tokyo, the Knitting industrial zone located in Kamezawa and Ishihara in Sumida District, through an analysis of a group of land parcels belonging to this traditional, declining industry.

2. Methodology
Based on urban and economic historical reviews of Sumida, the textile industrial land parcels located in the second and third blocks in Kamezawa and Ishihara neighborhoods in southern of Sumida, has been selected for analysis for three reasons; First, this area has a declining, yet still a dominant textile industry, which has been considered the oldest accumulation in Tokyo modern industrial history. Second, the selected zone is located in the early-urbanized block in Sumida, which has a better management of land and a higher demand and acquisition rates than other zones (Sumida, 1986). In addition, the area's land zoning has promoted a relatively high rate of mixed-use utilization, and has encouraged integration of light industrial/commercial/residential functions (Sumida, 1998). Third, the textile Industries, due to their low negative externalities (Sumida, 1986), have been less affected by the planning regulations/restrictions enacted during the 1960s and mid-1970s. Therefore, the socio-economic attributes of the industry's land in this zone, and the attitudes of its landowners, have a greater influence on the area's economic cycle than do other factors.

The relationship between two variables - changes in land usage and changes in land ownership - will
be studied. The land usage changes are first analyzed based on either the continuity or the closure of the textile industries, then are analyzed according to typology, either of the replaced newly-introduced uses after the industry closure, or else of the integrated uses in the cases where the textile firms have survived. The land ownership changes are classified into three categories: land purchased by new owners (Type A); land owned by managers of textile industrial companies, or their inheritors (Type B); and "other" (Type C), which includes land parcels which have been with different owners or which have complicated ownership. A sample of 203 parcels, which had textile industrial companies at the textile economic peak in the year of 1967, is analyzed -the sample represents approximately 85% of the land parcels utilized by textile industries. The analysis and results are drawn from the land registration data² and the building use maps of each parcel during 1967 and 2006. The land registration database offers accurate information about the area, the changes in land ownership, the years when purchasing/inheritance occurred, and owners' home/headquarters addresses. The analysis of land use changes is based on comparing building usage maps from 1958, 1967, 1978 and 2006². In addition, the 1968 and 2006 lists of textile firms are used to provide the names and addresses of the firms, and the names of their managers.

3. Context

Ishihara and Kamezawa neighborhoods are located in old Honjo in the southern part of Sumida Ward in Tokyo (Fig.1.). In the Meiji Period -the beginning of Japanese modern industrial history- Honjo became a key location for Tokyo textiles industries (Sumida, 1987). However, the area and its industry were heavily damaged twice - during the 1923 Kanto earthquake and during the WWII Tokyo fire raid bombings by the United States. Post-World War II reconstruction changed the spatial character of the factories in Kamezawa and Ishihara (Sumida, 1985). Only small and medium-sized factories were reconstructed. In addition, other industries, such as metal and steel industries, began to flourish in this area. The economic growth of the area continued until the late 1960s, and this growth was characterized by a high accumulation of factories engaged in mass production. In 1967, there were more than 370 textile firms in Ishihara and Kamezawa alone (Table 1.). The area's decline started with the beginning of local division of labor, and the 1965 and 1972 regulations on organizing mixed industrial areas³. The slow growth period (1980~1993) started with the 'oil shock' of 1970s, and it saw changes in the consumer needs, with greater demand for higher-quality products from the early 1980s. Another, sharper decline began with the regional division of labor and the increase of imports in early 1990s. Since then, the area has been unable to adapt to emerging trends, and has gradually lost control over the production and distribution system (TKF, 1993). The map in Fig.2. and Table 1. below show the declines in the number of textile firms in the selected areas between 1967 and 2004.

![Map 1966](image1)

![Map 2006](image2)

![Table 1](table1)

4. Analysis

The present ownership structure: Based on land registration data, 173 out of the 203 parcels were manager-owned parcels during 1960s, 11 parcels were purchased by these managers in later years², and 20
parcels had other owners. The transactions were in three types, purchasing, inheritance, and exchange. Only transactions that changed the land tenure after 1967 are considered. Fig.3 shows the change in the area and the parcel number according to closure/survival of textile industry. Fig.4 shows the locations and the size of these parcels. Some of these parcels were sub-divided or assembled. Fig.5 classifies the typology of new uses that replaced the textile industry according to their land ownership change patterns, owner type (individual, combined, company, developer – fudosansha -, or public sector), and owner address (in same parcel or area, in Sumida, outside Sumida). And in Fig.6, the parcels that kept having textile industries are analyzed according to current building use and the integration of other uses along with the textile industry. The author distinguishes between two types of residential use; a house and a mansion. The mansion refers to a multistory apartment or condominium.

5. Discussion and Results
5.1 Continuity/closure of industry and land ownership change
As shown in Figs.3 & 4., 135 parcels (21081 m²) out of the 203 parcels (32371 m²) that had textile industries in 1967 have closed this industry and 68 parcels (11290 m²) still have this industry in 2006. 54 parcels out of the 135 are of type A and they represent 33% of the total area. This means that one-third of the area has new owners, which makes their influence on present industrial land use change generally limited relative to the influence of other types (particularly B), which form 60% of the total area.

5.2 Land use change and ownership patterns for parcels after closing industry
As shown in Fig.5., there is a clear difference between the typology of land uses that have been replaced by different types of owners, which can be explained as follows:
- House: Type A has 18% of its total area as house use, while it is 43% in type B, and in type C the share is 23%.
- Mansion: it is 37% for type A, only 10% in type B, and for or type C it is 8%.
- Mixed uses: It is only 5% for type A, 10% for type B, and 25% for type C.
The commercial use is 16% for the type A, less than 3% for the type B, and for the type C it is 25%.

Parking: less than 5% in type A, for 'B' it is more than 17%, and for C it is less than 7%.

Factory: It is 7% for the type A, and less than 1% for the type B.

This concludes that types A and C have inserted a better mixture of uses than type B. However, the influence of type A in forming the land use has started in late 1980s as shown in Fig.5.

On the owner typology side: In type A, 32% of the land is owned by developers, 30% by companies, 19% has joint ownership, and 15% belongs to individuals. In Type B, 62% of the area has individual owners, 33% has joint ownership, and only 4% belongs to companies. In type C, 68% is individually owned, while 7% is group-owned. This means that there is no dominant owner typology in type A, while individuals dominate B and C-type parcels. In addition, 48% of the individual-owned land in B is now used for houses, 19% is 'mansions', 10% is mixed-use, and only 3% is utilized for commercial uses. Therefore, these individual choices have in general been quite important in forming the present land use profile.

As for the owner address side: generally, 53% of these land parcels belong to owners whose addresses are on the same plot, 10% belong to owners from elsewhere in Sumida Ward, and 37% belong to owners from outside Sumida. In the type A grouping, 24 parcels of the 54 have their owners living on the same plot, with the largest share therein being joint owners (11 parcels), followed next by individuals (9 parcels). The other 28 parcels belong to owners from outside Sumida: 12 companies, 6 developers, and 6 joint owners. In type B, the owners of 41 land parcels are living on the same plot, 27 of the parcels are owned by individuals who converted their factories into houses, and the rest of the parcels are mostly owned by joint owners living on the same plot, with only 11 parcels having owners from outside Sumida. In type C, 10 out of 17 land parcels are owned from outside Sumida District, 8 of them are individual-owned parcels and two parcels have combined-owners. This means that 38% of the houses belong to owners existing or living on the same parcels, and they are largely of type B.
Generally the new uses, which replaced the textile industries by way of type B have not added as much to the area economy as have other types; on the contrary, they have intensified its residential character - particularly in terms of house use. This is due to the fact that many of the "type B" owners' premises, which were built during the period of high industrial growth, were home factories. After closing their companies, an owner/manager or inheritor often converted the building to mostly residential usage, and continued to live there.

5.3 Typology of integrated uses with surviving textile industries

The restructuring of the textile industries has shrunk the spatial needs of these industries inside Sumida (Sumida, 1987). This means that the 68 surviving firms may have extra space (especially as 22 of their land parcels exceed 200 m² in area - Fig.4.). Fig.6. shows the present building use of these 68 parcels; 35 of these parcels are now home factories and 8 parcels are exclusively for industrial use. 18 land parcels have integrated commercial uses beside textile firms in mixed-use buildings, and 7 parcels have newly-built 'mansions', where the old textile industrial firms are occupying limited space in the upper floors. The current managers of the surviving industries have relatively enriched the area usage mix by integrating new kinds of uses. However, based upon the previous section analysis, the home factory parcels may convert relatively easily to purely residential use after closure of the companies.

6. Conclusion

This paper aimed at drawing a more detailed picture, at the land parcel level, to help understand the relationship between types of land ownership and the current land use characteristics in the knitting industrial accumulation in Kamezawa and Ishihara, based on a registration database and related maps. Based on analytical results, there is a clear relationship between these two variables. Three main findings were drawn out. First, there is a strong relationship between new owners and the introduction of new land uses in place of old, declining ones. Second, the area has not gone through dramatic changes that would alter the nature of the area, since the land parcels purchased by new owners were of limited size, and since large portions of the land have remained with industry managers or their inheritors, who are often living on the same parcels, and who have exhibited a low tendency towards initiating new businesses after closing out their former companies. Instead, the former managers/their inheritors generally converted their factories into houses. Third, land parcels with surviving textile companies have integrated new kinds of uses, thereby participating in the enriching of the area's usage mixture.

Notes
1 The area had also metal and machinery related industries that has been forced to relocate due to their negative externalities (Sumida, 1986).
2 The building registration database was not used as a source for analysis in this research because many of the existing buildings in the investigated area have not been registered yet.
3 The 1965 regulation law has forbidden the construction of large factories exceeding 1500 m² in the inner city. This area limit was reduced to 500 m² in 1972-second regulation law.
4 The lead in the production and distribution control shifted to the major apparel makers and DC (design character) companies which have flourished in Harajuku and Omotesando in West of Tokyo in the early 1980s.
5 In Sumida some factory managers were renting the land. Later on some of them purchased the land even after closing industry.

References
2) Land registration data. Sumida area (2006) www.touki.or.jp