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ENTRY REGULATIONS, TAX DISTORTIONS AND THE BIPOLARIZED MARKET: THE JAPANESE RETAIL SECTOR

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1. INTRODUCTION

Recently the Japanese retail sector has received growing attention in both academic research [(Krugman (1992), Miwa and Nishimura (1991)] and in international negotiations. In fact, the Japanese distribution system was one of the main issues in the Structural Impediment Initiative negotiation between the United States and Japan. Trade negotiators of the United States argued that the Japanese distribution system was very different from theirs and many other countries', and they blamed this difference for its inefficiency and closeness to imports. However, there is a deeper question academics must resolve – what exactly has caused the Japanese retail sector so different?

The most puzzling difference of the Japanese retail sector is its persistent "bipolarized" structure with respect to the sales per worker. On one hand, there are many small stores with very low sales per worker. On the other hand, there are large department stores, supermarkets, and discount stores with high sales per worker. The sales-per-worker ratio of small stores is less than half that of large stores. In contrast, in the United States and many European countries, the retail sectors have not shown such variation in the sales-per-worker ratio between small and large stores.

Until recently, almost all agreed that the bipolarized structure in the Japanese retail sector proved its backwardness and inefficiency. This view, the "conventional view", emphasized two policy distortions as impeding the modernization of the Japanese retail sector and thus keeping the bipolarized structure.

The first distortion is a particular set of regulations [Kuribayashi (1991), McCraw and O'Brien (1986)]. The Large-Scale Retail Store Law and its accompanying administrative guidance (so-called "Gyosei-Shido") virtually have controlled the entry and floor expansion of

large scale retail stores. Furthermore, many local governments have imposed additional entry regulations on large stores. These restrictions might allow incumbent large stores to enjoy monopolistic rents, and lead to higher prices. Since higher prices imply higher sales in yen terms for given quantity, this might explain the high sales per worker of large stores. High retail prices might also help many "inefficient" – low sales per worker – small stores survive in the market.[1]

The second distortion is the Japanese tax system, which favors the continuation of family business in retail trade even if unprofitable. Tamura (1986, p.76) shows that tax saving and deductions reduce the actual tax burden of a small-business owner to half that of a wage earner of equal income. This tax system might act as an exit barrier for "inefficient" small stores.

Recently, however, a "new view" on the Japanese retail sector has emerged. It explains the excessive number of small stores and their low sales-per-worker ratio as the result of rational adaptation of the retail firms to the Japanese retail market.

Most consumers in Japan live in small houses and frequently buy fresh food. Thus the large number of small neighborhood stores reduces the travel and storage cost of consumers [Caves and Uekusa (1976), Flath (1990)]. Many small stores provide daily free delivery, and customers enjoy contact with the store owner at a personal level. These spatial and personalized services of small stores are different from the services of large stores, which feature variety of merchandise, fancy packaging, product information, and additional store facilities such as a museum and a theater [Itoh (1992)]. Since small stores' services are much more labor intensive than large stores', it is no surprise to find that the sales-per-worker ratio of small stores is lower than that of large stores. Based on these arguments, proponents of the new view suggest that the effect of policy distortions is not as large as in the conventional view, and deregulation is not likely change the basic structure of the Japanese retail sector.

The purpose of this chapter is to examine whether entry regulations and tax distortions had a significant effect on the retail sector in Japan around 1985, when entry regulations were most restrictive and tax distortions were sizable. Taking account of the criticism of proponents of the new view, we distinguish large stores and small

stores as different segments of the retail sector, and investigate the effect of two distortions on the two segments. If we find their significant effects, it will support the conventional view and cast doubt on the new view. To our knowledge, this is the first such attempt in the study of the Japanese retail sector. Although there are many empirical studies on the Japanese retail sector, most of them use aggregate data and investigate only entry regulations. However, to see the validity of the conventional view, we should test the effects of both entry regulations and tax distortions on small and large stores separately.

This chapter proceeds as follows. In Section 2, we compare the structure of the retail sector in Japan, the United States, and France around 1985 to highlight the bipolarization in the Japanese retail sector, and explains two policy distortions in the Japanese retail sector, that is, entry regulations and tax distortions. A detailed account of the history of entry regulations in Japan is relegated to APPENDIX A. In section 3, we propose a benchmark model of the bipolarized market, and examine the validity of the conventional view that entry regulations and tax distortions have sizable effects on sales per worker of large and small stores. We establish that restrictive entry regulations increase the sales per worker of large stores if demand is not elastic and a significant portion of labor costs is the fixed cost, which seem satisfied in the Japanese retail sector. We also clarify the effect of tax distortions on sales per worker of large and small stores.

In Section 4, we first search for proper variables to measure the effect of these policy distortions. We then discuss the appropriate method testing the effect of these policy distortions, and present the results of empirical tests. Empirical results generally support the conventional view. We find that entry restriction increases the monopolistic power of the very large stores. Our findings further suggest that the very large stores have substantial fixed labor. Through these two effects, entry regulations increase the average sales per worker of very large stores. On the other hand, tax distortions significantly lower the average sales per worker of small stores. Section 5 offers concluding remarks.

2. THE RETAIL SECTOR IN JAPAN

2.1 BIPOLARIZED STRUCTURE

2.1.1 Bipolarization between Small and Large Stores

Table 1 shows the size distribution of retail stores in Japan, the United States, and France, with respect to (1) the dollar-sales-per-worker ratio, and (2) the share in the total dollar-sales. The table is based on the data in 1982, which is the year closest to our investigation period and in which comparable statistics are available among the three countries. Stores are classified with respect to the number of their workers. Comparable data are not available with respect to their floor space.[2]

It is clear that the Japanese retail market has two distinctive polar segments: small stores and large stores. First, we can confirm that dollar-sales per worker differs considerably between the two segments. The smallest stores segment, employing 1 to 2 workers, has a sales-per-worker ratio only one-fourth that of the largest stores segment, employing more than 100 workers. This bipolarization is found not only in the aggregated data such as Table 1, but also in data disaggregated into different retail sectors classified by commodity.[3] Moreover, both small and large stores have large shares in the total retail sales. Small stores employing 1 to 4 workers have a share in total sales 13% higher than large stores employing more than 50 workers. Small stores are not negligible segment in the Japanese retail sector.

These two features of bipolarization are not found in the United States. There is not much variation in the sales-per-worker ratio among scale segments. The share in total sales of small stores employing 0 to 5 workers is 19% lower than that of large stores employing more than 50 workers.[4]

2.1.2 Diversity within Small Stores

Japan is not the only industrialized economy having a bipolarized retail structure. In France, the share of small stores in the total dollar-sales is quite similar to that in Japan, and a large gap in the

Table 1: The Bipolarized Structure of the Japanese Retail Sector Compared with the United States and France: 1982

	Number of Workers per Store	Dollar Sales per Worker ($1,000)	Share in Total Sales (%)
Japan			
	1-2	33	14.0
	3-4	54	18.9
	5-9	75	22.0
	10-19	70	12.5
	20-49	71	12.6
	50-99	77	5.8
	100 ≤	128	14.3
	Small-Scale (1-4)		32.9
	Large-Scale (50≤		20.1
United States			
(Excluding store owner from the number of workers)			
	0-2	99	6.9
	3-5	96	7.5
	6-9	86	16.2
	10-19	86	14.8
	20-49	112	21.4
	50-99	122	16.6
	100 ≤	81	16.6
	Small-Scale (0-5)		14.4
	Large-Scale (50≤		33.2
France			
	1-2	56	18.9
	3-5	58	19.6
	6-9	65	13.3
	10-19	79	10.7
	20-49	100	12.7
	50-99	96	6.0
	100 ≤	102	18.8
	Small-Scale (1-5)		38.5
	Large-Scale (50≤		24.8

Note: Exchange Rate ($ 1 = 249.5 Yen = F 6.56)
Source: *A Comparative Study of the Distribution Sector*, Tokyo: Institute of Distribution Economics, 1988.

sales-per-worker ratio is also found between small and large stores.

However, there is a big difference between Japan and France. Only in Japan do we find a further division in sales-per-worker ratio within the small-store segment. In Japan, the sales-per-worker ratio of stores with no more than two workers, which mostly correspond to mom-and-pop stores, is only 60% of that of stores with 3 to 4 workers. Thus, we find diversity among small stores. At one end, there are a large number of mom-and-pop stores, which comprise 60% (53% in 1991) of all stores in Japan, with very low sales per worker. At the other end, there are small stores with relatively high sales per worker, and they constitute 24% (26% in 1991) of all stores in Japan.

2.1.3 Diversity within Large Stores

There is another difference between Japan and France. In Japan, stores with more than 100 workers, which are mostly large department and discount stores (we hereafter call them very large stores), exhibit much higher sales per worker than stores with 50 to 99 workers. There is not much variation in large stores in France. Thus, we found further diversity in Japan: diversity within large stores.

The high sales-per-worker ratio of very large stores in Japan is often attributed to the business practice of "persons on loan". In very large stores employing more than a few hundred employees, not only the sales workers of the stores but also the employees of wholesale and manufacturing firms sell their firms' products directly to consumers. They are called "helpers" or "persons on loan". Table 2-5 of Ito and Maruyama (1990) shows the top fifteen department stores in terms of the ratio of per sons on loan to the permanent staff. The ratio varies from 235% to 64% . Since these helpers are not counted as workers of those very large stores, the sales-per-worker ratio reported for those large stores is artificially higher than the true figure.

However, this factor cannot explain all the difference between very large stores and the other large stores. After examining the extent of this persons-on-loan practice, Maruyama et al. (1991) suggest that the true sales-per-worker ratio of very large stores in Japan must be close to that of France. This still implies a substantial dif-

Table 2: Persistence of the Bipolarized Structure of the Japanese Retail Sector

Store Size by Number of Workers per Store	Number of Stores		Share in Total Sales		Sales per Worker (ten thousand yen)	
	1982	1991	1982	1991	1982	1991
1-2	1036046	847185	14.0 %	10.8 %	789.9	1102.2
3-4	412701	416940	18.9 %	16.4 %	1276.6	1638.1
5-9	187898	214007	22.0 %	20.5 %	1775.8	2160.0
10-19	54156	71905	12.5 %	15.2 %	1664.4	2257.8
20-49	24270	33052	12.6 %	15.0 %	1678.0	2211.4
50-99	4519	5851	5.7 %	6.6 %	1823.9	2401.1
100 $\leq$	1875	2283	14.3 %	15.5 %	3034.7	4140.8
Small-Scale (1-4)	1448747	1264125	32.9 %	27.2 %	1010.9	1372.3
Large-Scale (50$\leq$)	6364	8134	20.0 %	22.1 %	2550.3	3406.3

Census of Commerce, 1982 and 1991.

ference in sales per worker between very large stores and the other large stores.

We can summarize the above description as follows. The Japanese retail sector is not only bipolarized between small and large stores, but also has substantial diversity within segments. This combination of bipolarization and diversity distinguishes the Japanese retail sector from those of other industrialized countries. Table 2 shows the changes in the Japanese retail sector after 1982 . The share of small stores is decreasing, but the basic features still hold.

2.2 POLICY DISTORTIONS

Among possible determinants of the bipolarized structure, two kinds of policy distortions have attracted much attention. One is the entry regulations based on the Large Scale Retail Store Law and the other is tax distortions favoring the continuation of family business.

2.2.1 Entry Regulations of Large Stores

In Japan, the entry of large stores is tightly regulated, while there is no regulation on entry of small stores. Entry regulations in the retail market were based on the Large Scale Retail Store Law

enacted in 1974, and amended in 1979 and 1991. The history of entry regulations on large stores in Japan is discussed in detail in APPENDIX A.

The most important characteristic of the entry regulations on large stores (especially in the period of our study: 1985 and 1986) is so-called "local-democracy rule." Although the authority to approve the entry of new stores and the expansion of existing stores is vested in the central government, that is, the Ministry of International Trade and Industry, the Ministry virtually requires entering large stores to get consent of existing local stores in the region by means of administrative guidance. Moreover, local governments also issue ordinances of the same nature on entry of medium-to-large stores. In short, Japanese entry regulations endow incumbent stores with substantial bargaining power with respect to new entrants, and incumbents bargain with potential entrants. The process of implementing the Large Scale Retail Store Law clearly show the regulations to be typical examples of "acquired regulation", as defined by Stigler (1971).[5]

Thus, actual implementation of the entry regulations virtually creates a new market trading the right to enter the regional retail market. The sellers are incumbent stores, particularly small stores. The buyers are potential entrants. The bargaining between local incumbent stores and a potential entrant determines the "price" of the right of entry. The payment to local incumbent stores takes various forms: direct bribe, donation, offering a store space in the planned large store building, and so on.

The entry cost consists of this "price" of the entry right and the various costs of entry negotiation. The components of the negotiation cost are the payroll cost of the negotiators, and the interest payment for the deposit on the store site, and so on. Tsuruta and Yahagi (1991, p.305) show the actual components of the entry cost which one supermarket firm in their sample incurred. The sample supermarket firm spent about 685 thousand dollars for the entry cost of a new large store with floor space ten-thousand square meters.[6] In this example, the "price" of the right of entry formed 35% of the cost of entry.

Strict regulations based on the local-democracy rule increase the

bargaining power of incumbent stores in the negotiation with entrants. Powerful incumbent stores can prolong the period of negotiation, and can raise the price of the right of entry. Therefore, the entry cost is higher in the region with a tighter local regulation. Because of the nature of actual implementation described above, the intensity of entry regulation varied among prefectures [Kusano (1992, Ch.2), Nihon-Keizai-Shinbun (1990, Ch .2)]. We therefore can test the effects of entry regulations by comparing prefectures. Thus our task boils down to obtaining the regulation index representing the restrictiveness of entry regulations in each region, which we will take up in Section 4.

2.2.2 Tax Distortions on Small Stores

There are many provisions in the Japanese tax system, favoring the continuation of small stores even though their operation is not profitable in the usual sense. Let us first consider the income tax, which is based on a self-assessed report. Several loopholes exist in the existing tax report system, which favor the owner-proprietors and allow them to avoid income tax in various ways. For example, owner-proprietors may select a white-form reporting on their business income. A white-form report does not require the examination by a licensed tax accountant. Thus, small stores filing white-form sometimes over-report business expenses, and under-report their sales. Family-run stores, in particular, have another source of tax avoidance: the ambiguous border between household consumption and business expenses. Tamura (1986, Ch.3) summarizes the various tax provisions favoring small store owners as of the 1980s.

Because of this tax report system, the actual income of small store owners is considered as being much higher than that appearing in the formal statistics. These loopholes in the income tax system, as in the case of entry regulations, were instituted under the political pressure of small business owners.

Among various forms of tax distortions, the distortion in the inheritance tax system may be the most important distortion with respect to the behavior of small stores. This is because real estates are the most valuable among all inheritable assets for most Japanese

households.

For the period of our empirical investigation (1984-86), the inheritance tax allowed deduction for the inherited land less than 200 square meters.[7] The deduction rate was 40% from the current value of the land if it was used only for business purposes. The deduction rate was 30% if land was used only for residence. For a store adjacent to a residential space (most of family-run stores), the deduction rate is 40% for store space, and 20% for residential space. Since the land price level was very high in Japan, this rate difference implied a considerable tax saving if the store continued its retail business.

The advantage of land as inheritance tax shelter was more apparent if it is compared with the other assets. Securities were evaluated at their market value. Therefore, to avoid inheritance tax on their real estates, small-business owners had incentive to keep their business even though it was not profitable.

Moreover, the favorable treatment of land as inheritance tax shelter was in sharp contrast with its unfavorable treatment in capital gain taxes. Realized capital gains from short-run land holdings were heavily taxed, while there was no capital gain tax on securities. In addition, in our investigation period, the capital gain tax was reduced to one-half if the period of land ownership exceeded ten years. This, combined with favorable treatment in the inheritance tax system, gives small-business owners incentive to hold their stores as long as possible.

These tax distortions favoring small business in effect might act as exit barriers for small stores, since exiting from the market implied the loss of inheritance-tax saving as well as other forms of tax saving. We will investigate their quantitative effect in Section 4.

3. THE MODEL

In this section, we present a model of the bipolarized retail market, which is based on the description of the Japanese retail sector described in the previous section. As discussed in Section 1, proponents of the new view strongly oppose treating small and large stores in the same way. They emphasize that small and large stores offer different services, and face different costs in Japan [Itoh (1992)].[8]

Taking this new view into account, we explicitly model small and large stores offering different, but substitutable services. In addition, the heterogeneity of small stores is also taken into account.

3.1 DEPARTMENT STORES AND MOM-AND-POP STORES

Let us consider a city consisting of two parts, the downtown and the suburb. Consumers live solely in the suburb, and small mom-and-pop stores are also located there. In contrast, the downtown is the business and shopping district where large department stores are located. Consumers' traveling cost is assumed to be negligible within the suburb and within the downtown. However, consumers incur a substantial cost when they move between the suburb and the downtown.

Both mom-and-pop stores and department stores sell the same product. However, mom-and-pop stores and large department stores offer different service. Some mom-and-pop stores offer free delivery, and some make regular house-calls. Thus, mom-and-pop stores differentiate themselves in service, and thus imperfectly (or more precisely, monopolistically) competitive. The variety of service mom-and-pop stores offer is noted by many observers such as Flath (1990). All the more distinctive in the Japanese retail market is variety and quality of service that large department stores offer, by which they try to differentiate themselves from their competitors. Many observers (at least in the period we study, which is the years 1985 and 1986), cite the variety of merchandise, courtesy of sales clerks, fancy wrapping, and amenity of shopping that distinguish Japanese department stores. Some have even in-house museums and restaurants. For this reason, we adopt the unconventional suburb-downtown framework with service differentiation both in the downtown and the suburb, instead of more conventional locational framework of the retail market, in which location is the only difference among stores.

In addition to the difference in service, information they provide to consumers is also different between mom-and-pop stores and department stores. Department stores use various forms of advertisement to inform their price and service to consumers. By contrast,

mom-and-pop stores are passive in the sense they wait for consumers to drop in. A huge discrepancy in advertisement expenditure has been observed between large and small stores in Japan.

To motivate demand functions described below, we first describe the consumer behavior. For simplicity, we assume that the consumer buys one unit of the product, and visit only one store. (Or equivalently, this consumer's opportunity cost of search is zero for the first search, but infinity for the rest.) The consumer does not have information about mom-and-pop stores since mom-and-pop stores do not advertise their offer, while the consumer has information about price and service of department stores. We assume the following two-step systematic shopping behavior of consumers: The consumer assesses the offer of department stores first, since he has perfect information about their offer. If the best offer of department stores (adjusted for the traveling cost to the downtown) guarantees higher utility than the reservation utility level, the consumer goes to the downtown and buys from the department store having the best buy. However, if the best department-store offer is smaller than the reservation utility, the consumer visits one of mom-and-pop stores in his neighborhood randomly and buys from it. The reservation utility is determined by the consumer's prior knowledge of the offer distribution of mom-and-pop stores. Here, we *assume* this behavior, although this systematic search behavior may be derived as the optimal strategy under uncertain environment.

Let us now focus on the behavior of stores. We first analyze large department stores, and then extend our analysis to mom-and-pop stores.

We assume that large department stores are symmetric in demand, the variable cost, and the fixed cost. This is a reasonable assumption in aggregate analysis like ours, since large department stores adopt state-of-art technology and idiosyncratic factors are likely to be canceled out in aggregation. (Here, large department stores correspond to "very large stores" in Section 2.)

Since large department stores offer differentiated product-service mix, they are imperfectly competitive. The product demand that the i-th department store faces depends on its price, P_L^i, their competitors' price, $P_L^k \mid_{k \neq i}$, and the number of large department stores

in the downtown, N_L. It is also depends on the distribution of the reservation price among consumers, Θ.

Let the demand function be

$$Y_L^i = D_L\left(P_L^i, P_L^k\,|_{k\neq i}, N_L, \Theta\right), \tag{1}$$

while the variable cost function is

$$C_L^V = C_L^V\left(Y_L^i\right). \tag{2}$$

Let F_L be the large department store's fixed cost of operation, and E_L be the cost of entry for large department stores determined by the entry regulations described in the previous section. For given distribution Θ of reservation prices, the symmetric equilibrium price P_L and equilibrium number N_L of large department stores in the downtown is then determined by (1) the first order condition of maximizing the profit $P_L D_L - C_L^V(D_L) - (F_L + E_L)$ with the symmetry condition $P_L = P_L^i = P_L^k$ such that

$$P_L\left\{1 - \epsilon_L^{-1}\right\} = \frac{\partial C_L^V}{\partial Y_L^i}\left(D_L\left(P_L, P_L, N_L, \Theta\right)\right) \tag{3}$$

where $\epsilon_L = -\frac{\partial \log D_L}{\partial \log P_L^i}\left(P_L, P_L, N_L, \Theta\right)$ is the own-price elasticity of demand evaluated at the equilibrium prices and equilibrium number of large department stores, and (2) the zero profit condition of large department stores

$$P_L D_L - C_L^V(D_L) = F_L + E_L. \tag{4}$$

Let us now consider mom-and-pop stores. For the same reason as large department stores, we assume mom-and-pop stores are symmetric in demand and the variable cost. In contrast, however, we assume that mom-and-pop stores are *asymmetric in the fixed cost.*

Variable costs for mom-and-pop stores consist mainly of the merchandise cost (wholesale price), which is relatively homogeneous among mom-and-pop stores. However, there is good reason to assume substantial difference in the fixed cost. The description of the Japanese

retail market in the previous section shows that typical small mom-and-pop stores have their owner-appropriator and some of their family members at work, and use a part of their house as store space. Thus, explicit as well as implicit labor cost is largely a part of the fixed cost, rather than the variable cost. And there is big difference among small stores with respect to sales per worker (including owner-appropriator). This suggests that some have high fixed labor costs to generate demand, while others can serve the same demand with low fixed labor costs. Moreover, since the size of stores is small and relatively homogeneous among small stores, the major difference among small stores is in this fixed labor input to serve the demand.

Consider the choice of mom-and-pop stores. Under the assumed systematic shopping behavior of consumers, the demand at the mom-and-pop store is the residual demand of large department stores. Let M be the total number of consumers. Then, the residual demand $M - N_L D_L$ is distributed among mom-and-pop stores, depending on their own price and the average mom-and-pop price. Let P_S^i and P_S be, respectively, the price of the i-th mom-and-pop store and the average of the mom-and-pop store prices. The demand at mom-and-pop stores is assumed to be

$$Y_S^i = D_S\left(P_S^i, P_S, D_L, M, N_L, N_S\right), \tag{5}$$

where N_S is the number of small stores, and their variable cost C_S^V is assumed to be

$$C_S^V = C_S^V(Y_S^i). \tag{6}$$

Let $F_S = \Gamma(N_S)$ be the inverse of the distribution function of the fixed cost among mom-and-pop stores and T_S be the value of tax saving due to tax distortions as described in the previous section if mom-and-pop stores continue their business. Then, the equilibrium price of mom-and-pop stores, P_S, and equilibrium number of mom-and-pop stores, N_S, are determined by (1) the first order condition of the maximizing the profit $P_S D_S - C_S^V(D_S) - F_S + T_S$ with the symmetry condition $P_S = P_S^i$ such that

$$P_S\left\{1 - \epsilon_S^{-1}\right\} = \frac{\partial C_S^V}{\partial Y_S^i}\left(D_S\left(P_S, P_S, D_L, M, N_L, N_S\right)\right) \tag{7}$$

where $\epsilon_S = -\frac{\partial \log D_S}{\partial \log P_S^*}(P_S, P_S, D_L, M, N_L, N_S)$ is the own-price elasticity of demand evaluated at the equilibrium prices and equilibrium numbers of department and mom-and-pop stores, and (2) the zero profit condition of mom-and-pop stores.

$$P_S D_S - C_S(D_S) = \Gamma(N_S) - T_S. \tag{8}$$

The overall equilibrium in this retail market has a distinctive *recursive structure*. The equilibrium price and equilibrium number of department stores are determined independently of mom-and-pop stores, by the entry cost E_L and fixed cost F_L of department stores in addition to the distribution of the reservation price Θ. In contrast, the equilibrium price and equilibrium number of mom-and-pop stores are determined by not only their fixed cost and monetary value of the tax saving, but also parameters determining the price and number of department stores.

The crucial assumption bringing the recursive structure here is that the reservation utility level is assumed to be exogenous. It depends on the fact that department stores and supermarkets advertise their offer intensively while mom-and-pop stores do not, so that consumers have good information about current offer of department stores and supermarkets while they do not have information about current offer distribution among mom-and-pop stores. The systematic search assumption of this chapter is justified for consumers whose time cost is high and do not search extensively among mom-and-pop stores. This is a reasonable first-order approximation of consumer behavior in the Japanese retail market.

3.2 THE BIPOLARIZED STRUCTURE

We are concerned with what maintains the bipolarized market structure described in Section 2, which is the wide gap in the average sales per worker among different store-size segments. According to the conventional view of the Japanese retail market explained in Section 1, (1) entry regulations of large stores exemplified by the Large Scale Retail Store Law, and the (2) tax distortions favoring continuation of business of small stores are the major factors maintaining the bipolarized structure. As explained in the previous section, the

restrictiveness of entry regulations can be represented by the entry cost E_L. The magnitude of tax distortions on small stores is also shown to be gauged by the value of tax saving T_S. In the following discussion, we examine the effect of entry regulations and tax distortions on sales per worker of both large stores and small stores using the model of the bipolarized retail market, and thus clarify conditions in which the conventional argument holds true.

3.2.1 Entry Regulations and Sales per Worker

Suppose first that entry regulations are one of the most important factor shaping the Japanese retail market as the conventional view stress. As explained in Section 2, the entry cost E_L differs considerably among regions. We first consider its effect on large stores' sales per worker, and then examine that on small stores' sales per worker.

Let us compare two regions: region A and region B. They are identical in demand and cost. Suppose that regulations are more restrictive in region B than region A. The average sales per worker in the large stores segment, which is dubbed as LSPW, is

$$LSPW = P_L \left(\sum_{i=1}^{N_L} D_L^i / \sum_{i=1}^{N_L} L_L^i \right) \tag{9}$$

Under the maintained assumption of the symmetry, the log of the average sales per worker of large stores is decomposed into the price part and the labor-productivity part:

$$\log LSPW = \log P_L + \log \left(D_L / L_L \right). \tag{10}$$

Assuming that the demand elasticity is not very much sensitive to a change in its arguments, an increase in the entry cost E_L increases the equilibrium price P_L under standard assumptions on demand and cost ($\frac{\partial D_L}{\partial P_L^i} < 0, \frac{\partial D_L}{\partial P_L^k|_{k \neq i}} > 0, \frac{\partial D_L}{\partial P_L^i} + \frac{\partial D_L}{\partial P_L^k|_{k \neq i}} < 0, \frac{\partial D_L}{\partial N_L} < 0, \frac{\partial C_S^V}{\partial Y_S^i} > 0, \frac{\partial^2 C_S^V}{\partial (Y_S^i)^2} > 0$). Therefore, the first term in (10) is higher in region B than in region A. Moreover, the sign of the effect of the entry cost E_L on the second term, the average labor productivity, is also likely to be positive in the Japanese retail market.

It should be noted that the effect of the entry cost on the average labor productivity cannot be determined without further specifying the production technology and demand function. To see this, let us first consider the case in which labor inputs are all variable ones. With a conventional concave production function, the average labor productivity decreases as output increases. Thus, an increase in the entry cost decreases the average labor productivity, since the increase raises the price which in turn decreases the output. Because (10) shows that the sales per worker is the composite of the price and the labor productivity, the effect of an increase in the entry cost is ambiguous on the sales per worker of large stores.

However, a sizable part of labor inputs is fixed in the Japanese large retail stores. There are many permanent workers mainly doing management jobs. Moreover, although a number of part-time workers engage in over-the-counter sales activities, a significant part of them are engaging in keeping amenity of shopping and running museums, which is not directly related to the sales volume. Labor inputs necessary for such service are fixed. With the economy of scale due to fixed labor inputs, the average labor productivity increases as output increases. In this case, both the price and the average labor productivity increase as the entry cost increases, resulting in a higher sales per worker. Then, a tightly regulated region (Region B) has the higher average sales-per-worker ratio than does a loosely regulated region (Region A).

In sum, the conventional view that a tighter entry regulation raises the average sales-per-worker ratio is valid so long as there are significant fixed labor inputs. This condition seems to hold in Japan, so that we expect a positive effect of entry regulations on the sales per worker of large stores.

Let us now consider small stores. The conventional view also stresses another effect of entry regulations, namely, on the sales per worker of small stores. It claims that a higher retail price caused by regulations enables traditional low-sales-per-worker stores survive, resulting in a lower average sales per worker in the small-store segment.

In the Japanese small-store segment, traditional family-run stores and entrepreneurs coexist. On one hand, as was discussed in Section

1, many traditional family-run stores are located in the residential zone. The major source of their income may not be retailing. Aged retired family members or the spouse of the main income earner usually take care of their stores, which utilize a part of their residential space. The loose zoning in Japan makes these family-run small stores possible.[9] These features of the family-run small stores result in their low sales per worker. First, the high ratio of old workers in the traditional family-run stores implies that more workers are needed to serve customers than otherwise [Sato (1991)]. Second, the existence of other income sources lowers the incentive for actively involving in retail business.

On the other hand, there are some entrepreneurial small stores with high sales per worker. These store owners specialize in retail business without side jobs. They often hire store clerks other than family members. In the model presented earlier, we formulate this heterogeneity as the difference in the fixed labor inputs.

Let us consider the two regions again. In the same way for large stores, we can decompose the average sales-per-worker ratio in the small-store segment into the price level and the average labor productivity.

$$SSPW = P_S \left(\sum_{i=1}^{N_S} D_S^i / \sum_{i=1}^{N_S} L_S^i \right) \tag{11}$$

Under the maintained assumption of the symmetry, the log of the average sales per worker of large stores is decomposed into the price part and the labor-productivity part:

$$\log SSPW = \log P_S + \log \frac{D_S}{\left(\frac{\sum_{i=1}^{N_S} L_S^i}{N_S} \right)} \tag{12}$$

When the entry cost is higher in Region B than Region A, the small-stores' price P_S is also higher in Region B than Region A under standard assumptions similar to those assumed in the case of large stores. This difference in the small-stores' price induces more small stores to stay in the market in Region B than region A. Since the marginal small store has a higher fixed labor input, the average labor

inputs, the denominator of the second term in (12), is higher in Region B than Region A. Thus, entry regulations on large stores decrease the average quantity per worker, as the conventional view suggests. However, their overall effect on the average sales per worker of small stores is ambiguous, since the average sales per worker is the sum of the average quantity-per-worker and the price, the latter of which is higher in Region B than Region A.

Moreover, the effect of the entry regulation on the small stores' price is at best an indirect effect, which might be small if consumers are not sensitive in price differential between large and small stores. It is often argued that the Japanese consumers are not sensitive to the differential, at least in the period we study. Thus, there is no *a priori* reason to expect a significantly negative coefficient of the effect of regulations on the small stores' sales per worker.

3.2.2 Tax distortions and Sales per Worker

Let us now consider the effect of tax distortions, that is, T_S. On one hand, since the model has a recursive structure, T_S has no effect on the large stores. Therefore, we do not expect significant effect of tax distortions on large stores.

On the other hand, a lower T_S implies a lower small-store price P_S under standard assumptions on demand and cost. This causes a higher average quantity-per-worker, as in the case of entry regulations. If this quantity-per-worker-increasing effect dominates the price-decreasing effect, then we have a significant negative sign as the conventional view suggests. However, if the latter is larger than the former, we obtain a significant positive sign. Since tax distortions have a direct effect on small stores, we expect a significant effect, except for an unlikely case of exact cancellation of the two effects.

4. EMPIRICAL ASSESSMENT

This section evaluates quantitatively the effect of entry regulations and tax distortions on the Japanese retail sector. Our strategy is to compare regions with varying intensity of entry restriction and tax distortion, and to get quantitative estimates of their effect. Thus,

our first task is to measure the magnitude of entry restriction and tax distortions among regions. Then, we specify regression equations based on the model developed in the previous section, and discuss estimation methods we take. Finally, we discuss the results of estimation, which are summarized in several tables.

4.1 MEASUREMENT OF ENTRY RESTRICTION

As far as we know, there are few studies measuring the relative intensity of entry regulations. In the study of the Japanese retail sector, Flath (1990) uses the number of department stores per household in each prefecture as a proxy of the severity of the entry restriction. His regulation index, however, erroneously picks up all factors affecting the number of large stores in a prefecture in addition to the effect of the entry regulation.

We are able to obtain information on the existence of local entry regulation on medium-size stores with floor space less than 500 square meters, which are not covered by the Large Scale Retail Store Law. From this data set, we construct a local regulation coverage ratio, and use it as a proxy of the entry cost. The basic premise is that a region severely raising the cost of entry for medium-size stores must also severely increase the cost of entry for large stores. Unlike the index of Flath (1990), our index is based directly on entry regulations, thus avoid the problem of picking up factors other than regulation. The data is based on the survey implemented by the Economic Planning Agency, which generously provides us the data set.

The local regulations on medium-size stores often cover only new stores set up by "large retail firms", which are defined in the Special Adjustment Law for Retail Sales (so-called Sho-Cho–Ho).[10] The head offices of these large retail firms, such as Daiei and Mituskoshi, are located in Tokyo or Osaka. Thus, the local regulations specific to these large retail firms are intended to protect local retail stores from large retail firms. This is a partial revival of the Department Store Law, which regulated a retail firm, not a store (see Appendix A).

Corresponding to this feature of these local regulations, Economic Planning Agency classifies local regulations on medium-size stores

into fifteen categories. First, the local regulations are classified into three groups with respect to parent firms: large retail firms, medium-to-small retail firms, and all retail firms (i.e., both). Medium-to-small retail firms planing to open new stores are usually local firms. Second, within each parent-firm category, the Agency classifies local regulations according to the floor space regulated. The floor space is ranked into five categories: 1-500, 101-500, 201-500, 301-500, and 401-500 square meters. These data cover all 47 prefectures and 1030 cities, towns, and villages. All cities with population more than a hundred thousand are covered.

We construct our regulation index based on this information about city-specific regulations. Prefecture-specific regulations are equally assigned to all cities in the prefecture. We rank local regulations, and assign an ordered dummy variable for each city. There are two steps in this procedure.

First, *irrespective of the regulated floor space*, cities regulating both large and medium-to-small retail firms are assigned a higher rank than those regulating only large retail firms.[11] We make this distinction, since a local retail firm can open a new store despite local regulation against new stores, if this regulation only covers stores built by nation-wide large retail firms. Many cities apply different regulation thresholds to the floor space of new stores, based on the characteristics of their parent firms. As expected, there are *no* cities regulating only the medium-to-small retail firms nor ones regulating medium-to-small retail firms more severely than large retail firms.

Second, within the classification by parent firms, we assign a higher rank to a city regulating smaller floor space. There are fifty possible combinations of these regulation criteria, but only sixteen combinations are actually observed. We assign an ordered dummy from 0 (no local regulation) to 15 (the severest local regulation) for each sampled city.

Based on this detailed local regulation information at the city level, we aggregate the city regulation indices into a prefecture regulation index. This is partly because we do not have the other city variables needed in the empirical test, and partly because the prefectural government induces the city level regulation [Tsuruta and Yahagi (1991, p.308)]. Seventeen prefectures had the prefecture-specific

regulation in our period of investigation (1985-86).

We use two weights for the aggregation. The first weight for a city dummy is the ratio of the large stores' floor space in the city to that in the prefecture. The large store here is the store with floor space in excess of 500 square meters. Thus even a city with the highest local regulation rank is neglected, if there is no large store in the city. Intuitively, we amount to calculate the ratio of the large stores' floor space protected from new entry by various regulations. This aggregation is appropriate for the analysis of large stores, because only the incumbent large stores can enjoy monopolistic rents by the entry restriction.

As explained in Section 1, there is considerable diversity in sales per worker with respect to store size even within large stores, so that it may be misleading to treat very large stores and the other stores. In order to incorporate this consideration into our investigation, we construct two other prefectural regulation coverage ratios for two segments of large stores: TYPE-1 stores with floor space larger than 1,500 square meters and TYPE-II stores with floor space between 1500 and 500 square meters. This two-type classification follows the one in the Large Scale Retail Store Law (see Appendix A).

The second weight is the ratio of the city population to the prefecture population. Thus even a city with no large store has some weight in this index. The intuition behind this weight is that protection from the threat of entry may benefit incumbent small stores.

Table 3 presents the regulation indices in the 47 Japanese prefectures.[12] Two remarks are in order here. First, the usage of the rank dummy as one independent variable is an imperfect method to measure the effect of the entry regulation. By doing so, we implicitly assume that the increment in local regulation at each rank is the same. The best specification is to include the 15 dummy variables separately. Unfortunately, we cannot adopt this method in the empirical test with 47 cross-prefecture observations. Second and more important, even our regulation index cannot avoid the "endogeneity" problem which Flath (1990) points out. The more the local incumbent stores are enjoying monopolistic rents, the more incentive they have for getting the more restrictive entry regulations. Under the local democracy rule described in Section 2 and APPENDIX A, there is a strong pos-

Table 3: Regulation Indices Based on Local-Regulation Coverage

Prefecture (From North to South)	Weighted by Floor Space Ratio			Weighted by Population
	Total REG	TYPE-I REG1	TYPE-II REG2	REGP
Hokkaido	2.22	2.27	2.11	1.25
Aomori	0	0	0	0
Iwate	5.77	6.04	5.42	3.13
Miyagi	10.51	11.15	9.04	6.13
Akita	0	0	0	0
Yamagata	0.64	0.79	0.32	0.72
Fukushima	1.84	1.94	1.6	1.19
Ibaraki	0.92	0.8	1.18	0.76
Tochigi	0.87	0.89	0.84	0.57
Gunma	0.12	0	0.38	0.25
Saitama	6.6	6.4	7.04	5.43
Chiba	8.51	9.22	6.31	6.3
Tokyo	5.24	4.61	6.86	4.19
Kanagawa	6.61	6.72	6.29	5.76
Niigata	7.35	7.91	6.23	3.55
Toyama	0	0	0	0
Ishikawa	0	0	0	0
Fukui	2.61	3.07	1.76	1.21
Yamanashi	5.79	6.61	4.3	2.91
Nagano	6.01	6.56	5.02	3.19
Gifu	5.2	5.13	5.4	3.38
Shizuoka	7.79	7.82	7.73	5.91
Aichi	7.14	6.63	8.61	5.31
Mie	0	0	0	0
Shiga	0.73	0.64	1.12	0.3
Kyoto	4.24	4.05	4.63	3.55
Osaka	10.37	9.61	12.29	7.78
Hyogo	5.14	5.3	4.85	3.56
Nara	0	0	0	0
Wakayama	2.83	2.78	2.98	1.66
Tottori	0	0	0	0
Shimane	0.42	0.4	0.45	0.2
Okayama	4.12	4.08	4.22	2.63
Hiroshima	1.37	1.53	0.97	0.89
Yamaguchi	2.7	2.93	2.23	1.81

(continued to the next page)

Table 3 (continued)

Prefecture (From North to South)	Weighted by Floor Space Ratio			Weighted by Population
	Total REG	TYPE-I REG1	TYPE-II REG2	REGP
(continued from the previous page)				
Tokushima	0	0	0	0
Kagawa	5.63	6.67	4.87	3.49
Ehime	6.7	6.88	6.39	4.11
Kochi	0.78	1.11	0.48	0.76
Fukuoka	3.9	3.75	4.19	2.68
Saga	9.14	8.46	10.24	4.2
Nagasaki	7.9	7.58	8.74	4.58
Kumamoto	9.17	9.3	8.88	4.84
Oita	7.96	8.2	7.26	5.52
Miyazaki	3.78	3.96	3.27	2.41
Kagoshima	7.64	7.1	8.53	4.49
Okinawa	0	0	0	0

Note: Regulation Index is based on the data complied by the Economic Planning Agency data between 1980-8.

sibility of endogenous regulation. In the empirical tests, we consider this endogeneity problem explicitly.

4.2 MEASUREMENT OF TAX DISTORTIONS

To assess the effect of all forms of tax distortions on the structure of the Japanese retail market is difficult since almost all tax distortions are nation-wide and have not changed for a long period of time. In this respect, the distortion in the inheritance tax system is the only one which is substantially different among regions, because of the different land price levels among regions. Since land is the most important inheritable asset for Japanese households, we expect a substantial effect of the distortion. In sum, regional land prices can capture the regional difference in the effect of distortionary taxes. We use the average residential land price in each prefecture, because most traditional family-run stores are located in residential areas.

4.3 REGRESSION EQUATIONS

The model of previous section shows that the equilibrium prices of large and small stores are determined by entry regulation on large

stores and tax distortions on small stores, in addition to demand and cost conditions. Since we do not have reliable prefectural price data classified by the store size, we use the average sales per store as a proxy of price. If stores are symmetric in demand and variable cost within each category as we have assumed in the previous section, then the average sales per store is

$$P_j \frac{\sum_{i=1}^{N_j} Y_i^j}{N_j} = P_j D_j$$

where $j = L, S$. In equilibrium, there is a positive one-to-one relationship between the price and the average sales per store so long as the market-price elasticity of demand (i.e., the elasticity of demand if the store's price is the same as the other stores' price) is sufficiently small. This assumption is likely to hold because large stores in Japan carry many necessities alongside with luxury items.

We consider two specifications, taking account of the possibility of endogenous regulation. The first specification assumes the exogenous or predetermined regulation index (REG, which corresponds to E_L in the model). For the sales per store as a stand-in of price, we assume

$$\log LSPS = (REG)\beta_L + \log X_L \gamma_L + u_L \tag{13}$$

$$\log SSPS = (LSPS)\beta_S + \log X_S \gamma_S + (LAND)\xi_S + u_S \tag{14}$$

and for the sales per worker, we assume

$$\log LSPW = (REG)\beta'_L + \log X_L \gamma'_L + u'_L \tag{15}$$

$$\log SSPW = (LSPS)\beta'_S + \log X_S \gamma'_S + (LAND)\xi'_S + u'_S, \tag{16}$$

where the regulation index is

$$REG = given. \tag{17}$$

where $LSPS$ is the large-stores' sales per store, $SSPS$ is the small-stores' sales per store, $LSPW$ is the large-stores' sales per worker, $SSPW$ is the small-stores' sales per store, and $LAND$ is the residential land price. The terms u_L and u_S are assumed to be well-behaved

classical disturbances. The term X contains other independent variables determining demand and cost.

The specification of (13), (14), (15), (16) and (17) follows the recursive structure of the model, in which the small-store segment does not affect the equilibrium price of the large-store segment. [13] In contrast, the large-store regulation (REG) affects the small stores segment through $LSPS$.

The second specification assumes the endogeneity of the regulation index REG, and replace (17) with:

$$REG = \alpha + (LSPS)\beta_R + (SSPS)\gamma_R + u_R. \tag{18}$$

The more monopolistic rents the incumbent stores enjoy, the more intensively they oppose the entry of new large stores. Here the level of monopolistic rents is measured by their sales per store as a stand-in of their price level.

We conduct cross-prefectural investigation: thus, the number of samples is forty-seven. Data concerning large stores are surveyed in 1985, while those about small stores are surveyed in 1986. Actually, this is the only combination which allows us to compare the large- and small-store segments across regions in the same period.

Taking account of the heterogeneity among large stores explained in Section 2, we consider two definitions of large stores. The first definition is stores with floor space in excess of 500 square meters, which are the stores whose entry is regulated by the 1979 amendment of the Large Scale Retail Store Law. This group includes both TYPE-I and TYPE-II large stores discussed before. We simply call them the *Large Stores*. However, this may be too broad to represent the high sales-per-worker segment of stores with more than fifty employees in Tables 1 and 2. Therefore, the second definition of large stores includes only TYPE-I large stores with floor space in excess of 1500 square meters, which corresponds to the definition of the Large Scale Retail Store Law, and which we hereafter call the *TYPE-I Large Stores*. It should be noted that the Type-I Large Stores and the rest of the Large Stores (i.e., TYPE-II large stores) are regulated differently as explained in APPENDIX A.

Demand factors are represented by the income per capita in a prefecture, which is common to the large and small stores segments.

As cost factors, we consider the wage level, rent payment, and wholesale price index. These cost variables are different between large and small stores. Since the capital market in Japan is well developed nation-wide, we assume that the cost of capital is the same among prefectures, so that it is ignored in the following empirical analysis. However, it should be noted that we allow the cost of capital differs between large and small stores, since we consider small and large stores separately. APPENDIX B discusses the general problem of getting data about the Japanese retail market, and reports the sources of data used in our empirical investigation.

4.4 PROCEDURE

We first test the significance of entry regulation on sales per store as a stand-in of price based on (13) and (14). Here we investigate possible difference between Large Stores in general and TYPE-I Large Stores. We investigate the issue both under the exogenous-regulation hypothesis (17) and the endogenous-regulation hypothesis (18).

After testing the significance of the entry regulation, we turn to our main focus: the effects of the entry regulation and the tax distortion on the difference in the *average sales per worker* both in the large- and small-store segments, based on (15) and (16). We examine the validity of the conventional view on the bipolarized retail structure in Japan.

In all regressions, we try a dummy for Tokyo. As capital and center of the various transportation and informational networks, Tokyo enjoys extraordinary concentration of corporate activities. The resulting corporate consumption may distort the sales figures of large stores in Tokyo, since large corporations usually buy from large stores.

4.5 ESTIMATION METHOD

Under the recursive structure in the exogenous-regulation specification, the ordinary least square method yields the consistent and efficient estimates. However, all dependent variables are the averaged statistics in a prefecture. Thus, we apply the weighted least

square method (WLS) to estimate the exogenous-regulation specification. As to the sales per store as a dependent variable, the weight is the numbers of stores in each store-size segment in each prefecture. Similarly, the weight is the number of workers for the sales per worker.

In the endogenous regulation, the model becomes a simultaneous-equations system. There are three endogenous variables: for example, $LSPS$, $SSPS$, and REG in the regression for sales per store. Since we are not confident in the specification for the determinants of the regulation index (18), we apply the limited-information estimation method, specifically the two-stage least squares. All regressions are weighted as in the exogenous-regulation specification.

Adjusted R^2 has little meaning in the weighted regressions, although we report it in the following analysis. For this reason, as an indicator of goodness-of-fit, we calculate the correlation coefficient between the actual and estimated dependent variables. We call it ACTFIT, and it is reported alongside with adjusted R^2.

4.6 HETEROGENEITY OF LARGE STORES

Let us first examine possible heterogeneity among large stores. Table 4 reports the effect of regulation index on $LSPS$, the sales per store of Large Stores with floor space in excess of 500 square meters, while Table 5 shows the effect on $T1LSPS$, the sales per store of TYPE-I Large Stores with floor space in excess of 1,500 square meters.

Columns (1) and (3) of Table 4 report the results of the exogenous-regulation specification for $LSPS$. Although the sign of the coefficient on the regulation index REG is positive, it is not significant. Columns (2) and (4) report the results of the endogenous-regulation specification. The coefficient on REG is significant at the 10% level. With the Tokyo dummy, it is significant at usual 5% level. However, the Hausman test on the endogeneity of REG does not support the endogenous-regulation specification [Hausman (1978)]. Thus, we cannot conclude that the entry regulation increases the sales per store of Large Stores through raising their monopolistic rent.

In contrast, the result on $T1LSPS$ of the sales per store of TYPE-

Table 4: 1985 Large Scale Stores: Sales per Store

Dependent Variable:
log(LSPS) = log(Sales per Large Store)
Column (1),(3): exogenous regulation
Column (2),(4): endogenous regulation

	(1)	(2)	(3)	(4)
METHOD	WLS	2SLS	WLS	2SLS
Constant	0.1120	1.1816	1.3440	3.6186
	(0.08)	(0.62)	(0.84)	(1.47)
log(INCOME)	1.9847	2.0755	1.3103	0.7864
	(6.77)	(5.57)	(2.59)	(1.08)
log(LWAGE)	0.0904	-0.2460	0.5539	0.6218
	(0.25)	(0.50)	(1.22)	(1.03)
log(LRENT)	-0.0147	-0.0906	-0.0208	-0.1072
	(0.24)	(1.01)	(0.35)	(1.16)
L.W.PRICE	1.0039	1.3381	0.7667	0.9047
	(2.20)	(2.20)	(1.63)	(1.44)
REG	0.0109	0.0534	0.0148	0.0637
	(1.25)	(1.91)	(1.66)	(2.18)
Tokyo			0.3003	0.5767
Dummy			(1.62)	(2.00)
Adjusted R^2	0.805	0.711	0.813	0.699
ACTFIT	0.791	0.693	0.822	0.705
SSR	1.124	1.775	1.055	1.853
Hausman's		2.560		3.086
Test Statistic				

Notes: a) Number of observations: 47 Japanese prefectures.
b) Numbers in parentheses are t-statistics.
Significance level at 10%: 1.68; 5% : 2.02.
c) SSR shows sum of squared residuals.
d) Hausman's test: critical value at 10%: 2.71; 5%: 3.84.
See APPENDIX B for the definition of variables.

Table 5: 1985 TYPE-I Large Scale Stores: Sales per Store

Dependent Variable:
log(T1LSPS) = log(Sales per Type-I Large Store)
Column (1),(3): exogenous regulation
Column (2),(4): endogenous regulation

	(1)	(2)	(3)	(4)
METHOD	WLS	2SLS	WLS	2SLS
Constant	1.1756	3.6017	2.5739	7.1393
	(0.59)	(1.04)	(1.17)	(1.69)
log(INCOME)	2.3440	2.6214	1.5716	0.6261
	(5.71)	(3.85)	(2.31)	(0.52)
log(LWAGE)	-0.2553	-1.0295	0.2740	0.3527
	(0.51)	(1.14)	(0.44)	(0.34)
log(LRENT)	0.0140	-0.1432	0.0030	-0.1677
	(0.17)	(0.91)	(0.04)	(1.05)
L.W.PRICE	0.7346	1.1351	0.4953	0.5090
	(1.20)	(1.12)	(0.79)	(0.49)
REG1	0.0204	0.1174	0.0250	0.1267
	(1.72)	(2.27)	(2.06)	(2.49)
Tokyo			0.3659	0.9418
Dummy			(1.42)	(1.87)
Adjusted R^2	0.712	0.457	0.719	0.460
ACTFIT	0.737	0.548	0.771	0.567
SSR	2.237	5.903	2.130	5.877
Hausman's		3.716		4.228
Test Statistic				

Notes: a) Number of observations: 47 Japanese prefectures.
b) Numbers in parentheses are t-statistics.
Significance level at 10%: 1.68; 5% : 2.02.
c) SSR shows sum of squared residuals.
d) Hausman's test: critical value at 10%: 2.71; 5%: 3.84.
See APPENDIX B for the definition of variables.

I Large Stores supports the hypothesis that the entry regulations raise the sales per store of TYPE-I Large Stores. In the case of TYPE-I Large Stores, the relevant regulation index is $REG1$ instead of REG. In Table 5, the coefficients on $REG1$ are all significant at the 5% level with one exception. The Hausman test supports the endogeneity of $REG1$ with the Tokyo dummy at the 5% level.

Thus we have a clear contrast between the regression for the Large Stores and that for TYPE-I Large Stores. This suggests that TYPE-I Large Stores are substantially different from the rest of Large Stores, which are TYPE-II large stores. This contrast implies that the entry regulation mainly benefits the very large stores: TYPE-I large stores.

There are several possible explanations. First, our investigation period (1985) may be too early to examine the effect of entry regulation on TYPE-II large stores. The regulation on TYPE-II stores began in 1979, while that on TYPE-I large stores had continued by and large since 1937. Six years might not be enough to generate a significant difference in the TYPE-II large-stores segment among prefectures.

Second, a cartel might be more difficult to form among incumbent Type-II large stores than among incumbent TYPE-I large stores. In our investigation period, there were 9,624 TYPE-II and 3,663 TYPE-I large stores in Japan. Bresnahan and Reiss (1991) argue that most of the increase in competition comes with the entry of the second and third firms in a market. The number of incumbent TYPE-II stores in each city is usually more than four, which may be too large to maintain an oligopolistic collusion.

Lastly, excess profit of TYPE-II large stores might not appear in the figures of sales per store. Most TYPE-II stores are supermarket stores whose distinctive service is low price. TYPE-II large stores may keep low prices to compete with TYPE-I and small stores, but play as an "oligopsony" against wholesale stores and other factor suppliers. We need data on profit margin to examine this hypothesis. Our wholesale price index is not good enough to investigate this issue (see APPENDIX B).

In sum, the results shown in Table 5 suggest that entry regulations have a sizable impact on very large stores, that is, TYPE-I Large Stores in increasing sales per store. However, their effect is

confined on this segment: entry regulations do not influence TYPE-II Large Stores in a significant way.

4.7 EFFECT OF POLICY DISTORTION

Table 6 presents the estimates for the sales-per-worker ratio of Large Stores, and Table 7 reports those of TYPE-I Large Stores. As expected from Table 4, the coefficients on REG are insignificant. In contrast, for the sales-per-worker ratio of TYPE-I Large Stores ($T1LSPW$), the coefficients on $REG1$ are all significant at the 5% level in any specification. Furthermore the coefficients on $REG1$ are more significant and stable for $T1LSPW$ than those for $T1LSPS$. These findings support our assumption of sizable fixed labor inputs in TYPE-I Large Stores.

Table 8 presents the estimates for the sales-per-worker ratio in Small Stores. The large-store entry regulation, through the sales per large store, does not have any significant effect. There are two possibilities: First, the large-store regulation has at most small effect on the small-store sector. Second, the large-store entry regulation raises the small-store price level but inhibits improvement of the average labor productivity, so that the two effects offset each other. The latter interpretation is more likely, since otherwise there is no rationale for small stores to oppose entry of large stores as they did in the past.

The Hausman's test statistics for the endogeneity of REG and $REG1$ are negligible in Table 8. We obtain the same results in the regressions for the sales per store of Small Stores (not reported). However, the possible specification problem in the endogenous-regulation equation (18) prevents us from drawing firm conclusions, since the sales per store of Small Stores as a stand-in of price may not capture the intensity of incumbent small stores' opposition against new large stores. The hypothesis that small stores do not affect local regulations seems implausible, because we have plentiful anecdotal evidence [Kusano (1992, Ch. 2)] against this hypothesis. We may have to seek other possible specification of determining the opposition intensity of local small stores against large stores' entry.

In addition to the main regression equations, we estimate small

Table 6: 1985 Large Scale Stores: Sales per Worker

Dependent Variable: log(LSPW) = log(Sales per Worker of Large Stores) Column (1),(3): exogenous regulation Column (2),(4):endogenous regulation	(1)	(2)	(3)	(4)
METHOD	WLS	2SLS	WLS	2SLS
Constant	4.2108	3.9751	4.9969	4.3883
	(6.82)	(5.36)	(7.39)	(4.85)
log(INCOME)	0.7744	0.7336	0.3794	0.5518
	(7.35)	(5.79)	(1.93)	(2.11)
log(LWAGE)	-0.1386	-0.0190	0.1260	0.0879
	(0.95)	(0.10)	(0.70)	(0.42)
log(LRENT)	-0.0509	-0.0264	-0.0555	-0.0326
	(1.97)	(0.77)	(2.25)	(0.98)
L.W. PRICE	0.4483	0.2350	0.2845	0.1914
	(2.29)	(0.87)	(1.43)	(0.80)
REG	0.0017	-0.0129	0.0046	-0.0092
	(0.47)	(1.21)	(1.24)	(0.82)
Tokyo Dummy			0.1606	0.0766
			(2.33)	(0.75)
Adjusted R^2	0.740	0.649	0.765	0.689
ACTFIT	0.717	0.578	0.736	0.624
SSR	0.175	0.242	0.154	0.207
Hausman's Test Statistic		2.129		1.713

Notes: a) Number of observations: 47 Japanese prefectures.
b) Numbers in parentheses are t-statistics.
Significance level at the 10%: 1.68; 5% : 2.02.
c) SSR shows sum of squared residuals.
d) Hausman's test: critical value at the 10%: 2.71; 5%: 3.84.
See APPENDIX B for the definition of variables.

Table 7: 1985 TYPE-I Large Scale Stores: Sales per Worker

Dependent Variable:
log(T1LSPW) = log(Sales per Worker of Type-I Large Stores)
Column (1),(3): exogenous regulation
Column (2),(4): endogenous regulation

	(1)	(2)	(3)	(4)
METHOD	WLS	2SLS	WLS	2SLS
hline Constant	4.0044	4.1894	4.4223	5.3728
	(7.68)	(6.47)	(7.51)	(5.28)
log(INCOME)	0.7903	0.8440	0.5848	0.3321
	(8.98)	(7.47)	(3.53)	(1.18)
log(LWAGE)	-0.0910	-0.2074	0.0455	0.0939
	(0.75)	(1.24)	(0.30)	(0.41)
log(LRENT)	-0.0330	-0.0537	-0.0359	-0.0712
	(1.53)	(1.81)	(1.68)	(1.91)
L W. PRICE	0.2895	0.4604	0.2022	0.3145
	(1.78)	(2.02)	(1.18)	(1.19)
REG1	0.0089	0.0226	0.0104	0.0332
	(2.90)	(2.31)	(3.25)	(2.57)
Tokyo			0.0860	0.2252
Dummy			(1.46)	(1.96)
Adjusted R^2	0.848	0.787	0.852	0.719
ACTFIT	0.772	0.729	0.782	0.671
SSR	0.126	0.188	0.120	0.272
Hausman's		2.175		3.323
Test Statistic				

Notes: a) Number of observations: 47 Japanese prefectures.
b) Numbers in parentheses are t-statistics.
Significance level at 10%: 1.68; 5% : 2.02.
c) SSR shows sum of squared residuals.
d) Hausman's test: critical value at 10%: 2.71; 5%: 3.84.
See APPENDIX B for the definition of variables.

Table 8: 1986 Small Stores: Sales per Worker

Dependent Variable:
log(SSPW) = log(Sales per Worker of Small Stores)
Column (1),(3): exogenous regulation
Column (2),(4): endogenous regulation

	(1)	(2)	(3)	(4)	(5)	(6)
METHOD	WLS	2SLS	WLS	2SLS	WLS	WLS
Constant	4.1463	3.4338	3.2454	2.0343	3.6911	3.0752
	(5.09)	(2.19)	(3.29)	(1.04)	(4.92)	(3.30)
log(INCOME)	0.3148	0.1731	0.3869	0.1829	0.2562	0.3213
	(2.12)	(0.57)	(2.53)	(0.57)	(1.94)	(2.23)
log(SWAGE)	0.4132	0.4260	0.4484	0.4728	0.4537	0.4663
	(3.36)	(3.21)	(3.64)	(3.28)	(3.66)	(3.75)
log(SRENT)	0.1518	0.1106	0.1483	0.0854	0.1161	0.1233
	(2.83)	(1.17)	(2.81)	(0.83)	(2.24)	(2.36)
S.W. PRICE	-0.3412	-0.4840	-0.0801	-0.2581	-0.3063	-0.1295
	(0.87)	(0.98)	(0.19)	(0.48)	(0.79)	(0.31)
log(T1LSPS)	-0.0502	0.0826	-0.0440	0.1580		
	(0.84)	(0.33)	(0.75)	(0.58)		
REGP					0.0081	0.0047
					(1.36)	(0.70)
log(LAND)	-0.1065	-0.1434	-0.0983	-0.1530	-0.1317	-0.1191
	(2.73)	(1.81)	(2.54)	(1.81)	(3.68)	(3.18)
Tokyo			-0.0954	-0.1094		-0.0763
Dummy			(1.56)	(1.52)		(1.11)
Adjusted R^2	0.655	0.613	0.667	0.573	0.664	0.666
ACTFIT	0.759	0.744	0.766	0.728	0.763	0.769
SSR	0.224	0.251	0.211	0.274	0.218	0.211
Hausman's		0.295		0.569		
Test Statistic						

Notes: a) Number of observations: 47 Japanese prefectures.
b) Numbers in parentheses are t-statistics.
Significance level at 10%: 1.68; 5% : 2.02.
c) SSR shows sum of squared residuals.
d) Hausman's test: critical value at 10%: 2.71; 5%: 3.84.
See APPENDIX B for the definition of variables.

stores' regressions which directly include the regulation index as an independent variable. The regulation index in these regressions is weighted by the population ratio in the sampled city ($REGP$). As explained in the section of measuring entry restriction, this can be considered as a test of how the protection from the threats of large stores' entry affects the performance of the small-store segment. Columns (5) and (6) of Table 8 report the results of WLS. The coefficients on $REGP$ are also insignificant.

On the other hand, the coefficients on LAND are all significant on the small-store segment. One may challenge that $LAND$ picks up the rent component of cost. However, we include the rent payment ($SRENT$) of the small stores explicitly. The coefficients on $LAND$ and those on $SRENT$ always have opposite signs. Thus, we can conclude that $LAND$ picks up the effect of the distortional tax system, particularly in the inheritance-tax system, and that the distortion acts as an exit barrier for the low-labor-productivity family-run small stores.

5. CONCLUDING REMARKS

In this chapter, we have shown that the Japanese retail market has a distinctive bipolarized structure in which sales per worker differ considerably between small and large stores and within themselves. We have compared two different views about factors maintaining this bipolarized structure: the conventional view emphasizing policy distortions and the new view downplaying their significance. Our results tend to support the conventional view. Policy distortions have significant effects in keeping the bipolarized structure.

However, we also note that the effect of policy distortions on the Japanese retail sector should not be evaluated solely by partial equilibrium approach like ours. These distortions protect jobs for aged workers in the small-store segment, which may otherwise be supported by transfer payments from the government. From this perspective, these "benefit" of policy distortions must properly be considered in the cost-benefit analysis of deregulation and tax reform.

This chapter still leaves much room for future research. Our empirical results, in particular, are no more than tentative. This is

mainly due to the usage of cross-prefecture variables. A prefecture may be too large for the empirical analysis of the retail market. For example, we cannot examine the validity of oligopoly collusion among large stores on the prefectural level. A direct test of the effect of entry regulations on price or profit margin data may be preferable.

We also need the investigation of the heterogeneity in the large-store segment. The difference may lie in management. The distinctive feature of department stores is its high quality of personal services, while that of supermarket stores is low prices and less personal service. A division of the large stores segment between the department and supermarket stores will shed new light on the competition structure among the large stores. The model also leaves in a black box the determination of regulation intensity. We may need a dynamic model of the retail market in order assess this issue. Nevertheless, this paper took the first required step toward understanding bipolarized market.

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Notes

[1]In this chapter, following the Japanese literature on this subject, we use "inefficiency" and "low sales per worker" inter- changeably.

[2]The U.S. figures for small stores are about stores employing 0 to 4 workers excluding proprietor, while the Japanese figures are for stores employing 1 to 4 workers including proprietor. This difference does not change the main message in the table.

[3]The data aggregated over commodities is more appropriate in Japan than in the other countries. This is because both department and large supermarket stores in Japan carry a much broader range of merchandise, including foods and electrical appliances, than do those of the other countries. Koyama and Togawa (1992 p.32 and p.78) explain the various reasons for this broad range of merchandise in the Japanese large stores.

[4]An international comparison of the sales-per-worker ratio has little implication, because sales-per-worker ratio is not a good measure of labor productivity. Baily (1993) shows that the labor productivity, measured by the value added per worker, in the Japanese retail sector is less than half of the U.S. level in 1988.

[5]The central theme of Stigler (1971) is that "regulation is acquired by the industry and is designed and operated primarily for its benefit" (p.3).

[6]This large store is located 60 kilometers away from Tokyo. The negotiation period (so-called adjustment period) was five years. We use the exchange rate \$1 = 168.5 yen in 1986.

[7]The explanation for the Japanese land tax system depends on the various documents of the Ministry of Finance in Japan. Noguchi (1989) provides a summary on this issue.

[8]Indeed, the cost structure is very different between small and large stores. Almost 60% of the small stores' operating cost is payroll, while that figure for large stores is 45%. In contrast, the share of advertising expenses is 6.6% in large stores, which is more than twice as high as 2.9% in small stores. (*Basic Survey*, 1986, see APPENDIX B.)

[9]In Japan, one can have business offices and stores in any area except for the First Type Residential Area. Even in the First Type Residential Area, however, one can open a store if he/she uses a part of one's own residence as a store space.

[10]The retail firms with capital more than ten million yen and hiring more than 50 employees.

[11]A better alternative is to separate large and the other retail firms, and assign different dummies. We gave up this method because of the degree of freedom in the empirical test.

[12]The index for Miyagi has missing observations in two big cities: Sendai and Izumi. Since they are well-known for their tight regulations, we assign the highest rank 15 for these two cities. In the empirical tests, we try a dummy for Miyagi in all regressions. The Miyagi dummy is insignificant in all regressions.

[13]Without cross-prefectural data of the small stores' price, we cannot implement a specification test on this recursive structure. A tentative test using sales per store as a surrogate of price, strongly supports the recursive structure.

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A LARGE SCALE RETAIL STORE LAW

A1 HISTORICAL BACKGROUND

In the 1930s, the department stores took aggressive position to increase their sales in order to be profitable during the severe depression of the period. The increasing share of the department stores during the depression spurred small store owners to form and join the grass-root opposition movement against the department stores. The opposition movement resulted in the first Department Store Law in 1937, a part of the regulatory framework for controlling the wartime

economy. The law required department stores to obtain a "business license", and official "permission" for construction of a new store, expansion of existing stores' floor space, change in store hours, etc. The regulatory authority was vested in the Ministry of Commerce and Industry, pre-war precursor of the Ministry of International Trade and Industry. It affected all retail firms with floor space in excess of 1,500 square meters in a same retail building.

After World War II, the first Department Store Law was abolished under the U.S. military occupation. However, the small store owners began to demand the revival of the law under the rapid expansion of department stores and the recession after the Korean War. The second Department Store Law, almost the same as the first, was enacted in 1956. The Ministry of International Trade and Industry was made responsible to implement the law.

The long history of regulation was culminated into the Large Scale Retail Store Law, enacted in 1974. The enactment was deeply influenced by two developments. First, there was a surge of supermarket stores, which were not regulated by the Department Store Law. Second, under the liberalization of foreign capital investment gradually implemented between 1967 and 1973, entry of large retail corporations in the United States seemed eminent and stirred fear among retail stores, regardless of their size.

Supermarket stores developed since the late 1950s. For example, a leading supermarket firm, Daiei, was established in 1957, and grew into the largest retail sales company in 1972. Supermarket firms had circumvented the Department Store Law by constructing a "Pseudo Department Store," in which supermarket firms established many affiliate firms in one store building with floor space more than 1,500 square meters. Since each affiliate had a floor space less than the regulation threshold, the Department Store Law was not applied to these pseudo department stores.

Small store owners and the small local department firms demanded the regulation of supermarket stores, while the large nationwide department stores and super market firms sought the deregulation of entry. The Ministry of International Trade and Industry initially intended to deregulate the entry of large stores, but the foreign capital-investment liberalization pressed by the U.S. government

changed the attitude of the Ministry. Both the Ministry and most retail firms were afraid of the rush of gigantic U.S. retail firms into the Japanese market. This lead to a political compromise among small-store owners, department stores, and supermarket firms resulted in the Large Scale Retail Store Law, which is schizophrenic in its purpose: it combined partial deregulation on existing stores and at the same time enlarge of the scope of regulation to all large-scale stores including supermarket stores, thus increased regulation.

The Large Scale Retail Store Law required notification in advance about the construction of new large stores, expansion of floor space, and the change in store hours. Based on the result of examination done by commission appointed by the ministry, the Ministry of International Trade and Industry had the authority to change of the store plan and to order some adjustment. However, the law stated that the entry itself was granted in due course. Thus, in principle, the entry of large stores were free. In contrast to the Department Store Law, the Large Scale Retail Store Law identified the store by actual store space not by firm: the Law regulated stores with floor space in excess of 1,500 square meters (3,000 square meters in ten largest cities (Seirei-Shitei-Toshi"). Thus the Law covered the pseudo department stores. It should be noted here that the floor space in the Law was that for retail business. The space for employees, restaurants, and corridors was not included in the floor space.

A2 STATED PURPOSES AND IMPLICIT GOALS

The first article of the Large Scale Retail Store Law stated its main purpose as "to promote the sound development of the retail trade sector". For that purpose, the Law "secures the business opportunities of small stores by adjusting the operation of large stores located near small stores". The Ministry of International Trade and Industry used the term "adjust" because the law may restrict even otherwise normal and legal operation of large stores, if it may significantly damage neighboring small stores [Ministry of International Trade and Industry (1991, Vol.13, p.507)].

Although the law mentioned consideration for the consumers' welfare, there was no doubt that one of its implicit purposes was

to protect small stores from the competitive pressure of large stores. However, the Ministry of International Trade and Industry's official position on entry regulation was at best ambiguous, often just mentioning the necessary *balance* of large retail firms and other small stores [Ministry of International Trade and Industry (1991, Vol.7, p.134)]. A council report to the Ministry gave a rationale that free entry might result in an oligopoly of large stores, and consequently lower the consumers' welfare [Ministry of International Trade and Industry (1991, Vol.13, p.513)]. But this was an Antitrust issue, and the Antitrust Law, not the Large Scale Retail Store Law, was the appropriate legal apparatus. In fact, the enactment of the Antitrust Law in 1947 was cited as a reason for abolishing the first Department Store Law.

The unemployment problem, particularly that of the aged workers, was the Ministry's implicit rationale for protecting the incumbent small stores. It is often argued that small retail stores absorbed surplus and aged workers in Japan, as a traditional sector in the dual economy model. The owner-proprietor in the distribution sector was the most stable group after World War II, involving two-million workers with little fluctuation between 1950 and 1985 [Yoshikawa (1992, p.121)]. Thus, the entry of large stores was considered as not a pure economic problem, but a social or unemployment problem [Ministry of International Trade and Industry (1991, Vol.7, p.146)]. This gave small-store owners disproportionate political bargaining power.

We should also point it out that incumbent large firms also had incentive to require entry regulations. These incumbent firms had to pay a high entry cost due to regulation, but they enjoyed the consequent monopolistic rents. Thus, incumbent large stores were beneficiaries of the regulation. Until recently, only one supermarket firm ever demanded the abolition of the Large Scale Retail Store Law [Kusano (1992, p.151)].

A3 ACTUAL IMPLEMENTATION

Entry regulation like the one based on the Large Scale Retail Store Law was not uncommon in the industrialized countries. France, Italy, and Belgium had laws directly regulating the entry of large

stores. In the United States, Great Britain, and Germany, zoning laws regulated the construction of new large stores [Baily (1993), Gregory (1993)]. The distinctive feature of the Large Scale Retail Store Law lied not in its purposes, but in the way the law was implemented, particularly in the 1980s after the amendment of 1979.

The formal procedure to open a new large store before the 1979 amendment was summarized in Figure 1 . The builder of a large building in which stores was to be located must file a notification of construction to the Minister of International Trade and Industry (Article 3 notification). The Minister made a public announcement, and no retail business operation could be started for the next six months. Each retailer planning to open a store in the building had to file its store plan to the Minister at least four months before its planned opening day (Article 5 notification). A store plan stated the planned opening day and store space in the new building.

The Minister inquired of the Large Store Council about the submitted store plan to determine whether the planned large store may significantly damage the business of the neighboring small stores. The council in turn inquired the plan of the local Chamber of Commerce in the area where the new large store plans to open. The local Chamber of Commerce set up the Committee to Adjust the Commerce Activities (hereafter abbreviated as CACA) to "accommodate different local interests and put together a local opinion". The CACA mainly discussed four issues on the new large store plan: floor space, opening day, number of days closed in a year, and store closing time. The CACA consisted of the representatives of the local incumbent stores, consumers, and scholars. The CACA reported to the Large Store Council, and the Large Store Council then reported to the Minister. Thus, the main part of the report of the Large Store Council to the Minister was actually determined in the CACA. It should also noted that this powerful CACA was created by the administrative guidance of the Ministry of International Trade and Industry, not by the Large Scale Retail Store Law.

Based on the report of the Large Scale Store Council, the Minister judged whether the new large store may significantly damage its neighboring small stores. If the Minister recognized possible significant damage, it "advised" the retail firm planning the new large

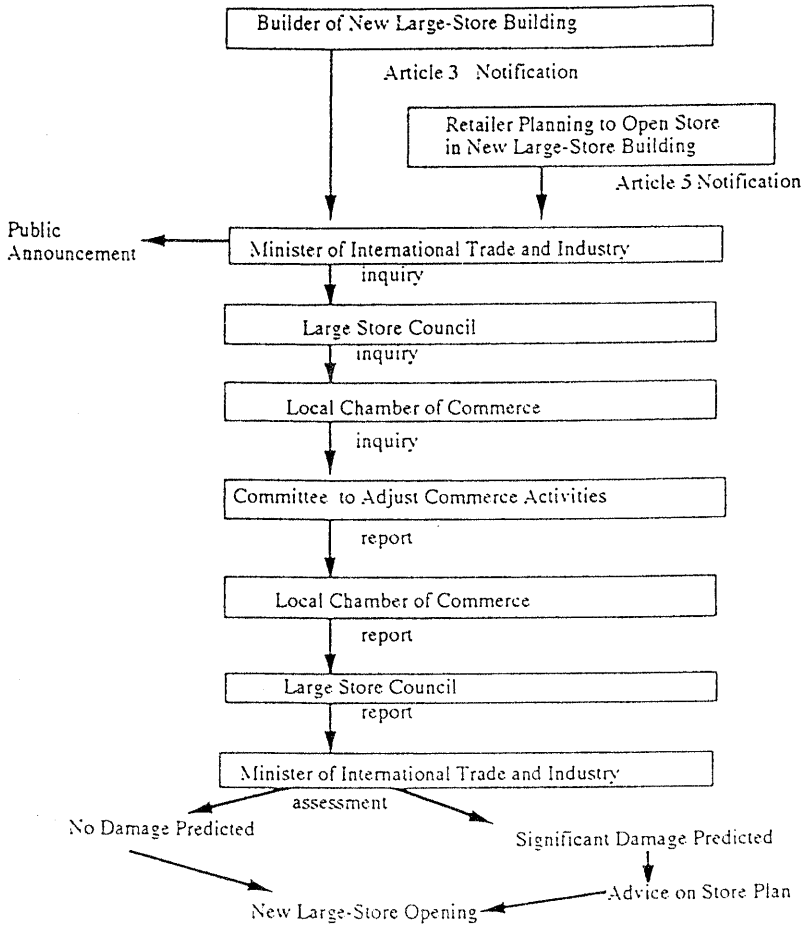

Figure 1: Procedure to Open TYPE-I Large Store: Before 1979 Amendment

Table 9: Number of Notifications Submitted: 1974-1978

	1974	1975	1976	1977	1978	Total
Article 3 Notifications	398	280	265	318	243	1504
Article 5 Notifications	3491	3168	4454	4545	5805	21463
Article 7 Advises	1	1	5	3	8	18

Note: Fiscal year.
(Source) Ministry of International Trade and Industry 1991 Vol.13, Table 5-4-7.

store to change its original store plan (Article 7). This advice should be made within three months after receiving the Article 5 notification. If the retail firm neglected the Minister's advice, the Minister could order the retail firm to comply (Article 8).

Formally, with or without changes in the original store plan, a new large store can begin its operation after the six months of review by the Ministry of International Trade and Industry. Thus, even after the enactment of the law, the proposed entry of large stores kept increasing in a dramatic pace. The article 3 notifications to the Minister amounted to 1,504 by 1978, while the number of large stores before the Large Scale Retail Store Law enacted was 1,700 (Table 9).

There were various reasons for the flood of new large stores. In 1974 when the Law was enacted, the Japanese economy was in serious recession caused by the first oil crisis. Many supermarket firms continued to expand their chain store operation to maintain their growth rate. At the same time, the large retail firms based on Tokyo and Osaka began to build new large stores in the local cities. Some local retail firms in turn built new large stores to counteract the advance of these nation-wide large retail firms. Some firms rushed to set up new large stores expecting the tightening of entry regulation under the recession. Their expectations became self-fulfilling, leading to the Amendment of 1979.

In addition to constructing new large stores, large retail firms diversified the design of new stores to avoid the Large Scale Retail Store Law. Large retail firms began to build medium-size stores with floor space less than 1,500 square meters ("pseudo large store").

Table 10: Number of Disputes on New Retail Stores

Size \ Year	1974	1975	1976	1977	Total	Number of Stores in 1974
more than 1500	1	6	8	14	29	2,262
1000-1500	1	32	71	183	287	1,766
500-1000	1	6	21	82	110	5,656
less than 500	0	1	5	29	35	1,476,567
Total	3	45	105	308	461	1,486,251

Notes 1) Period of investigation: May 1, 1975 - December 31, 1977.
2) "Dispute" means that the initial store plan was forced to change in order to comply local regulations.
3) "Year" shows the year when the adjustment negotiation began.
4) "Size" indicates the floor space in the initial store plan (unit: square meters).
(Source) Ministry of International Trade and Industry (1991, Vol.13, Table 5-4-8.)

They also began a new type of retail business which did not rely on huge floor space: convenience stores and specialty stores.

Under the recession, the flood of new large and medium-size stores again spurred the incumbent small stores to the opposition movement. Table 10 shows that there arose a number of local disputes concerning new stores, particularly medium-size stores with floor space between 500 and 1500 square meters. Further, the Ministry's ambiguous criteria examining the submitted store plans of new large stores worsened those disputes.

Soon after its enactment, small-store owners began to request amendment to the Large Scale Retail Store Law to tighten up the regulation. Small stores also pressured local governments, prefectures and cities, to regulate the large and medium-size stores. Under this political pressure, local governments set up ordinances and guidelines to regulate new stores. As of September 1978, thirty-nine prefectures (out of 47) and 170 cities, towns, and villages had local supplementary regulation on the entry of new large and medium-size stores [Ministry of International Trade and Industry (1991, Vol.13, p.518)].

Small stores finally succeeded in getting the amendment in 1979.

The main purpose of the amendment was to incorporate the local regulations into nation-wide procedure and to tighten up entry regulation. The coverage of the Law was widened. The amendment defined TYPE-II large stores as those stores with floor space between 500 and 1,500 (3,000 in the ten large cities) square meters, and began to regulate them. TYPE-II large stores were considered as medium-size stores before the 1979 amendment. TYPE-I large stores are those with floor space more than 1,500 (3,000 in large cities) square meters, which had been regulated since 1974. Many regulatory procedures were transferred from the Ministry of International Trade and Industry to local governments. The prefecture governors were vested with the authority to regulate the TYPE-II stores. As to TYPE-I stores, both mayors and prefecture governors can "express" their opinion about planned large stores to the Minister of International Trade and Industry. The article 3 and 5 notifications were to be filed through prefectural governors. This procedure gave the governors substantial power to regulate a new large store. Governors could reject a new large store by not accepting the notifications.

Figure 2 summarizes the adjustment procedure to open a new TYPE-I large store under the 1979 amendment. The negotiation period was extended at every stage. Moreover, under the 1979 amendment, local incumbent stores might be able to prolong the adjustment period infinitely.

The trick was the requirement of (i) a "prior explanation" to those who are concerned before the Article-3 notification, and (ii) official approval of the Preliminary Committee to Adjust the Commerce Activities (hereafter abbreviated as PCACA) before the Article-5 notification. Both procedures were not stipulated in the amendment, but were based on the official notice of the Ministry of International Trade and Industry, clarifying the procedure to implement the amendment.

In the prior explanation, a retail firm planning to open a new large store was obliged to explain the store plan not only to the Ministry, but also to the prefectural government, to the city or town government, to the local Chamber of Commerce, and to incumbent small stores near the planned large store. In PCACA, the retail firm planning to open a new large store had to reach an agreement with local incumbent stores in four terms: floor space, opening day, number

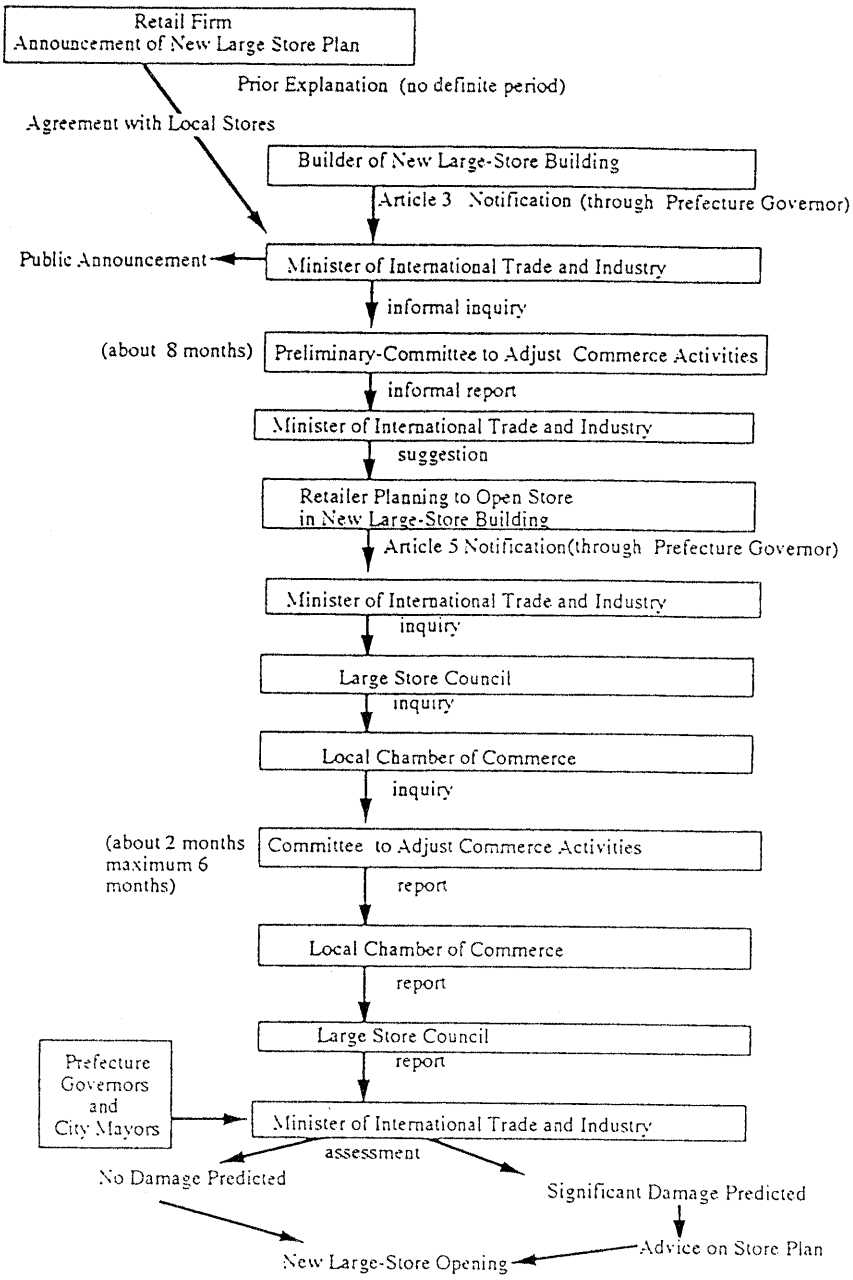

Figure 2: Procedure to Open TYPE-I Large Store: After 1979 Amendment

of days closed in a year, and store closing time. Before the amendment, these four terms are the issues discussed in the Committee to Adjust the Commercial Activities (CACA). The administrative guidance of the Ministry changed the place of local adjustment from the Committee to the Preliminary Committee, to Adjust the Commerce Activities, and thus the Committee itself became a place where the agreement was simply authorized. Unlike the Committee which consisted of the representatives of the local incumbent stores, consumers, and scholars, most Preliminary Committees consisted only of local store owners [Kusano (1992, p.22), Tsuruta and Yahagi (1991, p.305)]. Moreover, the Ministry advised unanimous agreement in both the Preliminary Committee and the Committee.

The requirements of "prior explanation" and the introduction of the Preliminary Committee in the adjustment process gave local incumbent stores a strong bargaining power. In extreme cases, local incumbent stores could deter the new large store plan by *not attending* the prior explanation. The pre-adjustment in the Preliminary Committee between entering and incumbent stores made the Committee powerless, only to which consumers' interest was represented.

A4 ADDITIONAL LOCAL REGULATIONS

Furthermore, the continuing political pressure of small store owners resulted in new local regulations after the 1979 amendment. As it was made clear before, one of the major purposes of the 1979 amendment of the Large Scale Retail Store Law was to integrate local rules into nation-wide ones, in order to make entry regulations consistent nation-wide. However, the effort of the Ministry was simply collapsed before the wave of additional regulations of local governments. This relative shift of regulatory power from the central government (the Ministry of International Trade and Finance) to local governments (both prefectural and municipal) and the strong influence of local incumbent stores in the adjustment process were often dubbed as local democracy by proponents of the regulation, as opposed to centralized decision of the central government.

There were two types of local regulations. One was the additional requirements made by local governments on the procedure of

the opening a new large store under the Law, which often called as "Uwanose-Kisei" (Add-on Regulations), and the other is the regulation on new stores with floor space less than 500 square meters, which was dubbed as "Yokodashi-Kisei" (Extended Regulations).

Some local governments, for example, the city of Tokyo, Kanagawa, and Morioka, required large store entrants to obtain a documented agreement of locals to accept the Article 3 notification. Still in other cases, local governments such as the city of Kyoto "advised" large store entrants to reach an agreement with local incumbent stores. As of 1989, twelve prefectural governments and 105 city governments required the documented agreement with local incumbent stores (Add-on Regulations). Similarly, twenty-three prefectures and 991 city governments had local ordinances regulating the new stores with floor space less than 500 square meters (Extended Regulations) [Tsuruta and Yahagi (1991, p.304-307)]. Since the Large Scale Retail Store amended in 1979 did not regulate entry of stores with floor space less than 500 square meters, the entry of these medium-size stores often negotiated only between entrants and incumbent stores, leaving consumers neglected.

Under these additional regulations, the period of adjustment to open a new large store became longer and longer. The sample survey of Tsuruta and Yahagi (1991) shows that it took about seven years for large supermarket firms to go from announcement of a new store plan to actual opening, while the formal procedure of the 1979 Large Scale Retail Store Law required only thirteen months. On average, planned floor space of entrants was reduced by more than 30% in 1981. Further, it should be noted that these figures were only about stores which actually succeeded in entering the market. There were many cases in which retail firms were forced to give up their new store plan. Table 11 shows that the development of large stores was substantially reduced in the 1980s.

A5 SUMMING UP: "LOCAL DEMOCRACY" RULE

In short, the history of the Large Scale Retail Store until 1985 and 1986 which are the period of our study, shows a continuous and consistent pattern in the actual entry regulation of large stores. Al-

Table 11: Development of Large Stores in the 1980s

Year	1981	1982	1983	1984	1985	1986	1987	1988
Type-I	3256	3446	3644	3764	3869	3967	4117	4247
Large	247	190	198	120	105	98	150	130
Stores	8.21%	5.84%	5.75%	3.29%	2.79%	2.53%	3.78%	3.16%
TYPE-II	10257	10589	10812	11021	11201	11372	11579	11749
Large		332	223	209	180	171	207	170
Stores	4.87%	3.24%	2.11%	1.93%	1.63%	1.53%	1.82%	1.47%
Large	13513	14035	14456	14785	15070	15339	15696	15996
Stores	723	522	421	329	285	269	357	300
Total	5.65%	3.86%	3.00%	2.28%	1.93%	1.79%	2.33%	1.91%

Note: In each cell, the first line shows the number of stores.
The second line shows the annual gross increase in the number of stores.
The third line shows the gross growth rate.
(Source) Table VII-1-5 of Nihon-Keizai-Shinbunsha ed.
Analysis of Consumption and Distribution Trends in Japan.
Tokyo: Nihon-Keizai-Shinbunsha, 1990 (in Japanese).

though the Large Scale Retail Store Law does not state it or mean it, the administrative guidance of the Ministry of International Trade and Industry and local government ordinances endow incumbent stores with substantial power to bargain with new entrants for their entry. Regulations are not the benevolent bureaucrats' controlling the markets. Implementation of the regulations is the bargaining field of incumbents and entries. This is the distinctive feature of the Japanese entry regulations based on the Large Scale Retail Store Law system in the 1980s. This system was described by a high-ranking bureaucrat of the Ministry of International Trade and Industry officer as "Local Democracy Rule" [Kusano (1992, p.114)].

The Large Scale Retail Store Law, however, was amended in 1991 again under strong pressure from the United States. In this amendment, the regulation was loosened for the first time. However, it is still too early to tell whether the actual implementation of entry regulations is changed or not.

B DATA SOURCES

This appendix documents the data in the text and tables.

B1 PRIMARY DATA SOURCES

There are two primary statistics in the retail trade sector in Japan. The *Census of Commerce*, which is the census of all retail and wholesale stores, and the *Basic Survey of Commercial Structure and Activity,* which is based on sampling (its estimated standard error is 0.8% for "small stores" defined below). Although there are other data sources about the retail trade which are more detailed that the *Census* and the *Basic Survey*, they are neither census nor based on statistical sampling. The Ministry of International Trade and Industry complies both the *Census* and the *Basic Survey.*

We use the 1985 *Census* for large stores, in the *Volume of Large Scale Retail Stores.* We identify small stores as those with no more than four workers. Unfortunately, there is *no* cross-prefectural data in the *Census* about these small stores. We use the *Prefecture Table* of 1986 *Basic Survey* for small stores. The period of inquiry of the 1985 *Census* is from May 1, 1984 to April 30, 1985. That of the 1986 *Basic Survey* is from October 1, 1985 to September 30, 1986.

It should be noted here that there is difference between the *Census* and the *Basic Survey* with respect to the basic reporting unit. The *Census* gathers information about establishments, while the *Basic Survey* collects information about enterprises (i.e., actual firms). This may be problematic if small stores have branches outside the prefecture where their head office locates. However, since only 1.79% of these small stores have branch offices (in the 1979 *Basic Survey*), this possible problem can be ignored.

B2 VARIABLES AND DATA SOURCE

B2.1 Table 3

The Floor Space of Large Stores in a City and a Prefecture. Surveyed as of July, 1985. Taken from p.10-37 in: Tōyō Keizai Shinpōsha ed. Chiiki Keizai Sōran 1986, Tokyo: Tōyō Keizai Shinpōsha, 1986.

The Population in a City and a Prefecture. Resident Registration Population, as of September, 1985. Taken from Table 5 in: Zenkoku Shichōkai ed. Nihon Toshi Nenkan. 1986, Tokyo: Daiichi

Hōki, 1986.

B2.2 Tables 4 through 8

LSPS. Total yen sales of large stores divided by the number of large stores. Taken from Table 2 of: *Census, Large Scale Retail Store* Volume, 1985.

INCOME. Weighted average of per capita nominal income in each prefecture over 1984 and 1985 for the large stores' regressions, while weighted over 1985 and 1986 for the small stores' regressions. Taken from Table 6 of: Economic Planning Agency, Annual Report on Prefectural Accounts, 1992.

LWAGE. Weighted average payroll for sales persons of department stores and retail stores with more than nine workers. Weight is the number of workers in each category. Bonus payment is included. Taken from Table 2 of: Ministry of Labor. Payroll Census. Volume 4. 1984, 1985.

LRENT. Total actual rent payment of retail firms with 50 to 99 workers divided by the number of workers of these stores. Data is taken from Table 2 of: *Basic Survey,* 1986, Report of Summary.

Since these large retail firms often have branch stores outside the prefecture where the head office locates, this LRENT is not a precise measure of the actual rent payment. The most appropriate is the imputed rental payment of large stores for the standardized store space, which is unfortunately not available.

L.W.PRICE. Wholesale price for supermarket stores in the prefectural capital. Taken from: Management and Coordination Agency, Statistics Bureau, National Survey of Prices, Volumes of Wholesale Price, 1982, 1987. Since there are many missing values in the original statistics, so that we are obliged to calculate it for several representative commodities.

T1LSPS. Total yen sales of TYPE-I large stores divided by the number of TYPE-I large stores. Taken from the same source as LSPS.

SSPS. Total yen sales of small stores divided by the number of small stores. Taken from the same source as LRENT.

SWAGE. Total payroll of small stores divided by the number of

workers of small stores. Data is taken from the same source as SSPS.

SRENT. Total rent payment of small stores divided by the number of workers of small stores. Data is taken from the same source as SSPS.

Both SWAGE and SRENT are likely to underestimate the true payment. SWAGE may not include all payment to family workers. Similarly, family-run small stores may not report the rent payment to their actual floor space in their residence.

S.W.PRICE. The wholesale price for "ordinary retail stores", which means small stores. Data is taken from the same source as L.W.PRICE, and has the same problem as L. W. PRICE.

LAND PRICE. The average price in the residential zone. Taken from Table 3 and 4 of: National Land Agency, Report of the National Land Statistics, various issues.

LSPW. Total yen sales of large stores divided by the number of workers of large stores. Taken from the same source as LSPS.

T1LSPW. Total yen sales of TYPE-I large stores divided by the number of workers of TYPE-I large stores. Taken from the same source as LSPS.

SSPW. Total yen sales of small stores divided by the number of workers of small stores. Taken from the same source as LRENT.