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The Costs and Benefits of Tenancy Rent Control in Tokyo

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Abstract

We develop a theoretical and empirical model of the costs and benefits to tenants of tenancy rent control. We develop a theoretical model in which landlords cannot foresee the tenure length of prospective tenants. It predicts that if landlords are sufficiently risk averse, and protect themselves from the worst possible outcome, tenancy rent control raises the initial rent just enough to offset the landlord's cost of compensating tenants for removal costs. Short-term tenants incur the costs and long-term tenants receive no benefits from tenancy rent control. Empirical analysis using data from Tokyo provides evidence consistent with the theory.

Keywords: Tenancy rent control; The costs and benefits; Asymmetric information

JEL classification: D61 (Allocative Efficiency; Cost-Benefit Analysis); D82 (Asymmetric and Private Information); K12 (Contract Law); R21 (Housing Demand); R31 (Housing Supply and Markets); R38 (Government Policies, Regulatory Policies)

1 Introduction

A fixed-term tenancy contract that enables landlords to refuse renewal of an expired rental contract was introduced in Japan on March 1, 2000. Until then, the Japanese private rental-housing market had been regulated by 'tenancy rent control' referred to by Basu and Emerson (2000).[1] Under this control, it is almost impossible for landlords to refuse renewal of a rental contract that has expired, if the current tenant wants to continue it. Thus, they cannot put their housing to an alternative use, even if it is more profitable to do so. Furthermore, to prevent eviction based on rent increases, judicial precedents from tenancy suits have established that the contract-renewal rent, which is the rent for an incumbent tenant, is not permitted to exceed the rent of comparable newly rented units. Several countries have similar controls, e.g. Canada, France, Germany, India, Italy, Sweden, Switzerland, and some parts of United States.

Tenancy rent control allows landlords to choose a nominal rent freely when renting their housing to a new tenant. Therefore, landlords will offer a higher initial rent to compensate for the loss of contract-renewal rent suffered during occupancy. On the other hand, if tenants are long-term tenants, i.e. if tenants want to renew the rental contract when the tenancy expires, they will be willing to pay more in the current period, because they can reduce rent payments in the future. In fact, if the rental-housing market is competitive, and all tenants are long-term tenants and all landlords know this, tenancy rent control raises the initial rent just enough to offset a fall in the contract-renewal rent so that the expected value of the rent stream is kept constant. Therefore, in this case, raising the initial rent has no impact on long-term tenants. However, if there are short-term tenants, i.e. if there are tenants who do not want to renew the contract, the conclusion will be different. Under tenancy rent control, landlords will prefer short-term to long-term tenants. Tenants, however, will better know their tenure duration than landlords, and thus this asymmetric information creates an adverse selection problem for landlords. To mitigate the disadvantage of the adverse selection

[1] Basu and Emerson (2000) explain that tenancy rent control allows landlords to choose a nominal rent freely when taking on a new tenant, but places restrictions on raising the rent of, or evicting, an existing tenant.

problem, landlords offer rent based upon the average tenure duration that they expect. Hence, short-term tenants pay rents that are too high and long-term tenants pay rents that are too low (Basu and Emerson, 2000; Iwata, 2002). Therefore, the only beneficiaries of tenancy rent control are long-term tenants, and short-term tenants incur the associated costs. Moreover, Iwata (2002) proves that if landlords are risk averse, tenancy rent control raises the expected value of rent above the rent sought by risk-neutral landlords. In this case, the benefits of tenancy rent control to long-term tenants is reduced.

Linneman (1987) used cross-sectional micro data for New York City in 1981 to measure the benefits of old-style rent control. At the time, rental units were a mixture of controlled and stabilized units, with a small uncontrolled unit sector, because rent control laws have vacancy decontrol-recontrol (VDR) provisions. These provisions permit rent increases once apartments become vacant, but future rent increases are limited. Thus, VDR provisions have properties similar to those of tenancy rent control. Linneman finds that rents in the stabilized sector do not differ significantly from rents in the uncontrolled sector. Therefore, Linneman defines the benefits of rent control for those who dwell in controlled units as the difference between the predicted controlled rent of a stabilized unit and the actual rent paid on that unit. Nagy (1997) follows this approach, but estimates the benefit of new-style rent control using micro panel data from 1981 to 1987 in New York City. Nagy finds that in 1981, rent-stabilized apartments had higher initial rents than uncontrolled apartments. However, between 1981 and 1987, rents grew more rapidly in the uncontrolled sector.[2] Since rent control increases rents in the uncontrolled sector, Early (2000) estimates the benefits and costs of rent control for each type of tenant, those in controlled, stabilized and the uncontrolled sectors, using the 1996 New York City Housing and Vacancy Survey.

Micro (panel) data themselves are hard to obtain for Japanese tenants. Therefore, Japanese economists try to measure the effect of tenancy rent control using only data showing charac-

[2]Because dwellings are durable, landlords will choose to undermaintain their dwellings until their output of housing services declines to a level that is supported by controlled rent. Considering landlords' maintenance expenditures , Murray et al. (1991) simulate the effects of rent control in Los Angeles. They find that the average rent will decline as a result of the control but that the proportion of the rent reduction due to undermaintenance increases over time. Thus, most of the tenants' benefits of rent control are realized early, while most of the costs are incurred later.

teristics of dwellings. For example, Ohtake and Yamaga (2001), Todate (1997), and Yamazaki (1999) use cross-sectional micro data in Tokyo. From these data, they compare the initial monthly rental of dwellings subject to tenancy rent control with those not subject to it. Like Nagy (1997), they find that tenancy rent control raises the initial rent that landlords offer, due to the loss of contract-renewal rent. However, these Japanese empirical studies do not measure the costs and benefits to tenants of tenancy rent control.

Considering data limitations, this paper develops a theoretical and empirical model to assess the costs and benefits to tenants of tenancy rent control in Tokyo, Japan. The rest of the paper is organized as follows. Sections 2, 3 and 4 examine a theoretical model that can be verified empirically. Section 5 shows how to measure the costs and benefits to tenants of tenancy rent control. Section 6 presents the results of the empirical analysis. Section 7 provides some concluding remarks.

2 A Theoretical Model

Because we can only obtain cross-sectional micro data, we consider a one-period competitive market model of rental housing. All landlords manage rental housing for one term. The building exists after this period. On the one hand, if landlords rent the building after the tenancy period, they obtain rental income. However, as the rental cost to the landlords of not being able to use the building themselves becomes ∞, they receive disutility from renting the building after the tenancy period. On the other hand, if landlords use the building themselves, they obtain some utility from it. Assume that the utility of each landlord for self-use is 0, i.e. it is larger than for the rental housing business. Then, landlords choose to use the building themselves after the tenancy period.

In the rental-housing market, a fraction, $(1-p)$, of tenants is willing to renew the contract after the expiration of the tenancy period, and a fraction, p, of tenants terminates the contract voluntarily due to transfer. We call the former 'type-c (contract-renewal type)', and the latter 'type-t (non contract-renewal and terminate type)'. All tenants know which type they are. We also assume that the capital market is perfect and the discount rate for tenants and landlords is 0.

2.1 Fixed-Term Rental Housing Model

First, consider a model without tenancy rent control. If landlords are allowed to provide a fixed-term contract, they can refuse the tenant's proposal to renew the contract. Information on intended tenure length thus has no effect on the rental-housing contract. Let us write the rent function as $R(h)$, where h is the chosen floor space in square meters.[3] The cost of h is given by $g(h)$, where $g_h > 0$, $g_{hh} \lesseqgtr 0$ for all h. Then, the landlord's profit can be written as

$$\Pi^F = R(h) - g(h), \tag{1}$$

where superscript F refers to fixed-term rental housing. From Eq. (1), the landlord's offer rent function can be written:

$$O^F(h; \Pi^F) = \Pi^F + g(h) \tag{2}$$

where

$$\frac{\partial O^F}{\partial h} = g_h > 0, \ \frac{\partial O^{F2}}{\partial^2 h} = g_{hh} \lesseqgtr 0. \tag{3}$$

Since landlords are identical, an equilibrium hedonic rent function would be equal to the offer rent function. Thus,

$$R^F(h) = O^F(h; \Pi^{F*}) \tag{4}$$

where Π^{F*} is the level of profit in equilibrium. Competition requires that profit is 0. Hence, $\Pi^{F*} = 0$, which satisfies Eq. (4).

Turning now to tenants: on the one hand, type-t tenants voluntarily vacate the dwelling after the tenancy expires. On the other hand, type-c tenants involuntarily vacate the dwelling,

[3]Hedonic theory provides a framework for studying the contribution of individual characteristics to the value of differentiated products such as houses. Thus the rent function $R(h) = R(h^1, h^2, \cdots, h^n)$, where h^i is measuring the amount of the ith characteristics, becomes non-linear. In this paper, however, we only take into account the relations between hedonic rent and the floor area of rental housing. The first reason is that Japanese economists are concerned with the relation between tenancy rent control and the floor area of rental housing (Iwata, 2002; Kanemoto, 1997; Yamazaki, 1999). That is, they assert tenancy rent control decreases the floor space of rental housing in Japan. The second reason is that other attributes are not continuous variables but qualitative variables. Therefore, we assume that tenancy rent control affects only floor space.

because tenancy rent control does not exist. Although their reasons are different, both types of tenant vacate the dwelling after the tenancy period.

We assume that all tenants have the same fixed income y, and consume housing floor space h and a composite good z, which serves as the numeraire. The budget constraint is given by $y = R(h) + z$. For simplicity, assume that the utility function of all tenants has a simple additive form:

$$U^F = u(h, \theta) + z,$$

where θ is the preferences parameter for housing floor space. Moreover, assume that

$$\frac{\partial u}{\partial h} > 0, \frac{\partial u^2}{\partial^2 h} < 0, \frac{\partial u}{\partial \theta} > 0, \frac{\partial u^2}{\partial \theta \partial h} > 0. \tag{5}$$

The meanings of the third and the fourth assumptions are discussed below.

After substituting for z using the budget constraint, the bid rent function can be written:

$$B^F(h; U^F, \theta) = u(h, \theta) + y - U^F \tag{6}$$

where

$$\frac{\partial B^F}{\partial h} > 0, \frac{\partial B^{F2}}{\partial^2 h} < 0, \frac{\partial B^F}{\partial \theta} > 0, \frac{\partial B^{F2}}{\partial \theta \partial h} > 0, \frac{\partial B^F}{\partial U} < 0. \tag{7}$$

These properties follow immediately from Eq. (5) except the last property. The third property means that if tenant A has a stronger preference for a greater floor area than tenant B, i.e., θ of tenant A is larger than that of tenant B, then tenant A's bid rent will be higher than that of tenant B for all h. The fourth property means that the agent with the higher bid rent also has a higher marginal bid rent.

Since there are many types of tenant, dependent on θ, but only one type of landlord, the equilibria are described by the following:

$$R^F(h^{F*}) = B^F(h^{F*}; U^{F*}, \theta), \tag{8}$$

$$\frac{dR^F(h^{F*})}{dh} = \frac{\partial B^F(h^{F*}; U^{F*}, \theta)}{\partial h}. \tag{9}$$

where h^{F*} is optimum floor size and U^{F*} is optimum utility level. Since the utility function is separable, the unknown variable h can be obtained only from Eq. (9). Substituting this into Eq. (8), the unknown variable U^F can be calculated.

2.2 Just-Cause Rental Housing Model

Next, we consider a model with tenancy rent control. Recently, tenancy rent control was revised in Japan as we mentioned in Section 1. Until then, tenancy rent control had prohibited landlords from providing a fixed-term contract. That is, in order for the landlord to terminate the contract despite the tenant's desire for renewal, that landlord had to approach a court and prove just cause. Just cause is acknowledged by a court when the landlord's need for the housing unit is greater than that of the tenant.[4] However, since the 1960s the court has accepted just cause when the landlord paid compensation to the tenant for removal costs of involuntarily vacating the dwelling. We thus summarize this property of tenancy rent control as follows:

- If the landlord pays compensation to the tenant for removal costs of involuntarily vacating the dwelling, the court accepts just cause.

That is, compensation for removal became the complement of just cause. It is said that compensation for removal is determined on a case-by-case basis, and that these costs cannot be easily predicted in advance. The fundamental view of compensation for removal, however, is compensating the tenant's loss for involuntarily vacating the dwelling. Hence, in this paper, we interpret the complement of just cause:

- If landlords compensate tenants by paying them an amount equal to the difference between their rent and the alternative rental housing, then just cause will be accepted. Moreover, the conditions of the alternative rental housing would be equivalent to that of the current dwelling.

From this, we assume that if the landlord pays compensation for removal $\alpha(h)$ to the type-c tenant at the end of tenancy period, where $\alpha(0) = 0$, $\alpha(h) > 0$, $\alpha_h > 0$, and $\alpha_{hh} \lesseqgtr 0$, then just cause is approved by the court.

[4] Since the cost to the landlord of not being able to use the building after the tenancy period is ∞, it is always efficient for the landlord to reside in a building after the expiry of the tenancy term in our model. The court, however, cannot observe both the landlord's need for the building and the need of the type-c tenant. Furthermore, the court has a tendency to underestimate the landlord's utility and overestimate the type-c tenant's utility due to tenure security.

We also assume that the court can prove just cause without compensation for removal when type-t tenants pretend to be type-c and take legal action. This assumption rules out opportunistic behavior by type-t tenants.

First, consider the effect of tenancy rent control on the type-c's bid rent function. From the assumption above, type-c tenants receive compensation for removal at the end of the tenancy period. Therefore, their net rent for the rental dwelling becomes $R(h) - \alpha(h)$. Noting that the discount rate for the tenant is 0, the bid rent function for type-c can be rewritten:

$$B^J(h; U^J, \theta) = u(h, \theta) + y + \alpha(h) - U^J \tag{10}$$

where superscript J refers to the just-cause rental housing.

On the other hand, because type-t tenants terminate the contract at the end of a tenancy period for themselves, they cannot receive compensation for removal. Therefore, their bid rent function is equal to Eq. (6).

We turn now to landlords, who must pay compensation for removal if they contract with type-c tenants. In this case, their net rent for rental-housing businesses becomes $R(h) - \alpha(h)$. On the other hand, if they contract with type-t tenants, their net rent for rental housing becomes $R(h)$. Hence, profit for the landlord becomes

$$\Pi^J = R(h) - \alpha(h) - g(h) \tag{11}$$

with probability $(1-p)$, and becomes $\Pi^F = R(h) - g(h)$ with probability p.

3 The Effects of Tenancy Rent Control

3.1 Symmetric Information

The equilibria to be described in this section are symmetric information equilibria, in the sense that landlords are assumed to know the type of any prospective tenant. In this case, landlords can choose to rent their dwellings to only a specific type of tenant.

If landlords rent their dwellings to type-t tenants, the fixed-term contract is validated even though tenancy rent control is in effect, because we assume that type-t tenants terminate the contract voluntarily. Therefore, the landlord's offer rent function for type-t is equivalent to

Eq. (2). Since the type-t's bid rent function equals Eq. (6), as noted, the equilibria are described by equations (8) and (9). That is, tenancy rent control has no effect on the type-t's contract if information is symmetric.

On the other hand, the landlord's offer rent function for type-c tenants can be written as

$$O^J(h;\Pi^J) = \Pi^J + g(h) + \alpha(h) \tag{12}$$

from Eq. (11). Competition requires that $\Pi^{F*} = \Pi^{J*} = 0$ in equilibrium. Therefore, the offer rent for type-c rises by just $\alpha(h)$ for any h. Since $R^J(h) = O^J(h;\Pi^{J*})$ in equilibrium, we have

$$R^J(h^{J*}) = B^J(h^{J*};U^{J*},\theta), \tag{13}$$

where h^{J*} is optimum floor area and U^{J*} is optimum utility level. Since $\alpha(h)$ is transferred from the landlord to the type-c tenant, Eq. (13) is equivalent to Eq. (8). Hence, the derivative of Eq. (13) with respect to h is equivalent to Eq. (9). This implies that tenancy rent control also has no effect on type-c tenant's contract if information is symmetric.

3.2 Asymmetric Information

We now consider the effect of asymmetric information on the type of tenant in the presence of tenancy rent control. This seems to be a more realistic approach. In this case, landlords face unexpected changes in their profits. To begin with, we assume risk-averse landlords. Expected utility for the risk-averse landlord can be written :

$$\Pi^A = p\psi(\Pi^F) + (1-p)\psi(\Pi^J)$$

where superscript A refers to asymmetric information and $\psi(\cdot)$ is a von Neumann-Morgenstern expected utility function such that $\frac{d\psi(\Pi^k)}{d\Pi^k} \equiv \psi'_k > 0$, $\frac{d^2\psi(\Pi^k)}{d\Pi^{k2}} \equiv \psi''_k < 0$ $(k = F, J)$.

Let $O^A(h;\Pi^A)$ be the landlord's offer rent function. The derivative of $O^A(h;\Pi^A)$ with respect to h is

$$\frac{\partial O^A(h;\Pi^A)}{\partial h} = g_h + (1-p)\Psi'\alpha_h \tag{14}$$

where

$$\Psi' = \frac{\psi'_J}{p\psi'_F + (1-p)\psi'_J}.$$

Since $\Pi^J < \Pi^F$, $\psi'_J > \psi'_F$. Therefore, $\Psi' > 1$. Consequently, a comparison of Eq. (14) with Eq. (3) yields,

$$\frac{\partial O^A(h;\Pi^{A*})}{\partial h} > \frac{\partial O^F(h;\Pi^{F*})}{\partial h}, \tag{15}$$

where competition requires that $\Pi^{A*} = \Pi^{F*} = 0$ in equilibrium. The landlord's offer rent function can be obtained from the integration of Eq. (15). Hence,

$$O^A(h;\Pi^{A*}) = \int \frac{\partial O^A(h;\Pi^{A*})}{\partial h} dh > \int \frac{\partial O^F(h;\Pi^{F*})}{\partial h} dh = O^F(h;\Pi^{F*}).$$

The assumption that there is only one variety of landlord yields

$$R^A(h) > R^F(h). \tag{16}$$

Next, suppose landlords are sufficiently risk averse that they try to minimize the maximum loss that might be suffered. Under maximin behavior, the landlord's offer rent function is equivalent to Eq. (12) because $\Pi^J < \Pi^F$. This result and Eq. (16) yield,

$$R^J(h) \geq R^A(h) > R^F(h). \tag{17}$$

That is, $R^A(h)$ is higher than $R^N(h)$ and lower than or equal to $R^J(h)$.

On the one hand, type-t's bid rent function equals Eq. (6) because type-t tenants terminate the contract voluntarily. Since the rental price is higher than the symmetric information case, from Eq. (17), their chosen floor space is smaller, thereby lowering their utility. On the other hand, type-c's bid rent function equals Eq. (10) because they receive compensation for removal. The rental price that the type-c tenant faces is lower than or equal to the symmetric information case from Eq. (17). If $R^J(h) > R^A(h)$, their chosen floor space is larger, thereby raising their utility. If otherwise, however, their chosen floor space is similar to the case where information is symmetric, and consequently the utility gain associated with tenancy rent control is 0.

4 Introduction of the Fixed-Term Tenancy Law

On March 1, 2000 the fixed-term tenancy law that enables landlords to refuse renewal of a rental contract that has expired was introduced in Japan. As Basu and Emerson (2000) and Iwata (2002) show, if landlords can offer a fixed-term tenancy contract, they do not face the adverse-selection problem. Suppose that landlords offer a fixed-term tenancy contract, and contract with a type-c tenant. Because the contract is a fixed-term tenancy contract, landlords can evict the tenant at the end of tenancy without compensation . Therefore, it is obvious that landlords will offer lower initial rent than in the case of just-cause rental housing. Landlords can also supply just-cause rental housing under this law. However, they do not face risk even in this case, because type-t tenants are not willing to contract for a dwelling that has a higher initial rent than fixed-term rental housing. That is, landlords contract only with type-c tenants. Therefore, both the offer rent and market hedonic rent rise by just $\alpha(h)$ for any h. Thus, although tenancy rent control is legally effective for just-cause rental housing, it is not economically effective after introduction of the fixed-term tenancy law.

In consequence, if the supply of fixed-term rental housing is admitted in the rental housing market, an equivalent result to that of Section 3.1 applies to this section.

5 Measurement of the Cost-Benefit

The data used in this paper comes from Recruit of August 1999 (before the amendment of the law), August 2000 (after the amendment of the law), and August 2001 in the Tokyo area. Each of these surveys describes the characteristics of dwellings, such as the market rent (the initial monthly rent) and floor area of rental housing in square meters. The fixed-term tenancy law was introduced in March 2000. Therefore, for the 1999 data all observations are just-cause rental housing. In 1992, however, a terminable rental contract is permitted only when landlords temporally vacate their housing for reasons such as a transfer, medical treatment, or nursing of relatives. That is, these rental contracts are not subject to tenancy rent control.[5] Hence, we can estimate both the market hedonic rent function of just-cause rental housing

[5]Todate (1999) estimates monthly rent of these terminable rental housing contracts and of just-cause rental housing to capture the effect of tenancy rent control on the price of rental-housing.

and fixed-term rental housing in 1999. Note that almost all tenants and landlords would have a rental contract controlled by tenancy rent control in 1999, because only a few landlords have the above reasons to supply fixed-term rental housing.

As we mentioned in Section 4, if the supply of fixed-term rental housing is admitted, both types of tenant neither incur a cost nor receive a benefit from tenancy rent control. Because just-cause rental housing does not include risk in 2000 and 2001, the data on just-cause rental housing that we can observe would lie on the $R^J(h)$. Let us suppose log-linear hedonic rent functions. Then, we can calculate the rent difference between $\log R^J$ and $\log R^F$ that can be written :

$$\frac{\log\left(R^J/R^F\right)}{\log h} = \alpha. \tag{18}$$

The costs and benefits were serious before the law was amended, because landlords faced the risk. Because the just-cause rental housing data that we can observe would lie on the $R^A(h)$ in 1999, the rent difference in 1999 can be written :

$$\frac{\log\left(R^A/R^F\right)}{\log h} = \beta. \tag{19}$$

Suppose that no tenants change their housing consumption level due to tenancy rent control.[6] Then we can measure the tenant's benefit or cost from tenancy rent control as, approximately, the difference between α and β. If we estimate $\alpha \geq \beta > 0$, the result is consistent with the prediction of our theoretical model in Section 3.2. On the one hand, if β is positive, type-t tenants incur a cost associated with tenancy rent control. On the other hand, if $\alpha > \beta$, type-c tenants receive a benefit associated with tenancy rent control. If $\alpha = \beta$, however, their benefit becomes 0.

6 Estimation and Results

Let **Rent** be the monthly rent (Japanese Yen) and **Space** be floor area (square meters). The hedonic rent functions then become

$$\log \text{Rent} = \log R(\text{Space}, \text{Space} \times \text{Just-cause}) \tag{20}$$

[6]This assumption is the same as Linneman (1987).

where **just-cause** is a dummy variable, which takes the value 1 if the housing is just-cause rental housing, and 0 if the housing is fixed-term rental housing. Our theoretical model predicts that the coefficient of space × just-cause will be positive. From Eqs. (18) and (20), the coefficients of space × just-cause in 2000 and 2001 are equal to α. Similarly, from Eqs. (19) and (20), that in 1999 will be equal to β. We predict that if the value of the coefficient of space × just-cause in 1999 is smaller than (equal to) that in 2000 and 2001, then type-c tenants receive a (no) benefit and type-t tenants incur a cost associated with tenancy rent control.

As in previous studies, however, we assume that rental-housing rent depends not only on housing floor area but also on its characteristics. Table 1 summarizes the mean/frequency for the variables used in hedonic analysis. The characteristics fall into two main groups: dwelling and geographical. We control dwellings' characteristics as follows; number of stories of a building above the ground (**story**), building age, and construction material of building. There are six categories for building age: **built 0** (new house), **built 1–5** years ago, **built 6–10** years ago, **built 11–15** years ago, **built 16–20** years ago, and **built more than 21** years ago. Build 0 is used as the reference group. Construction material is classified into the following seven different categories: buildings of ferroconcrete and steel ferroconcrete (the reference group), **SRC**, buildings of prefabricated concrete, **prefab**, buildings of wood, **wooden**, buildings of steel, **steel**, buildings of light gauge steel, **LGS**, buildings of autoclaved lightweight concrete, **ALC**, and others, **others**.

The following variables are buildings' geographical conditions. A dummy variable, **bus**, which takes the value 1 if the tenant uses a bus to the nearest railroad station, and 0, otherwise. There are five different categories for walking-time distance (minutes) from the nearest railroad station; **walk 1–5** (this is the reference group), **walk 6–10**, **walk 11–15**, **walk 16–20**, and **walk 21 and over**. Furthermore we control the nearest railroad line (65 categories) and the municipality (51 categories) in which the rental housing is located. Because there are many categories, we do not write these variables into the paper.

[Table 1 inserts here.]

Table 2 shows the results. The building age dummies are negative and significant. These imply that the quality of rental housing deteriorates, so that the building age is old. Since SRC structure is the strongest building, other coefficients are mainly negative and significant. The coefficients of the bus dummy and the walking time dummies are negative and significant, which is consistent with urban economic theory. The most important coefficients in our model are the coefficient of space × just-cause. As we predicted in the theoretical model, the coefficients of space × just-cause are positive and significant in all years. This implies that just-cause rental housing has a higher rent than that of fixed-term rental housing.

Note that almost all tenants occupy just-cause rental housing in 1999. Because rent for type-t tenants is set 1.8% higher than it would be in the absence of tenancy rent control, type-t tenants incur the costs. The revision of tenancy rent control removes these costs, because the costs are 0 after amendment of the law. Furthermore, we find that the rent difference in 1999 is almost equal to that in 2000 and 2001. That is, the coefficients of space × just-cause are about 2% in each year, i.e., 1.8% in 1999, 1.6% in 2000, and 2.2% in 2001. This implies that tenancy rent control raises the initial rent just enough to offset the amount lost in compensation for removal in 1999, implying that landlords must be playing maximin strategies. Thus, type-c tenants receive approximately a zero benefit due to tenancy rent control. This result is consistent with the prediction of the theoretical model in Section 3.2.

[Table 2 inserts here.]

7 Conclusion

A number of empirical studies of tenancy rent control in Japan show that tenure security raises the initial rent to compensate landlords for the loss of the contract-renewal rent suffered during occupancy. These studies, however, do not take tenants' behavior into account. Therefore, they cannot determine the costs and benefits of tenancy rent control to tenants. The purpose of this paper has been to provide a theoretical model for empirical studies focusing on asymmetric information about tenure length between tenants and landlords, to test whether tenants incur the costs associated with tenancy rent control.

The theoretical analysis predicted that if landlords are risk averse and protected themselves from the worst harm possible, tenancy rent control raises the initial rent just enough to offset the amount lost in compensation for removal. Tenancy rent control thus imposes the costs on short-term tenants, and provides no benefits to long-term tenants.

We tested this prediction using parameters estimated in the Tokyo area. The results showed that landlords are sufficiently risk averse that the initial rent is raised by just the loss in compensation for removal. This implies that there are costs to short-term tenants and no benefits to long-term tenants associated with tenancy rent control. Therefore, the effects of tenancy rent control are consistent with the theoretical prediction.

Due to the absence of information on the identity of tenants, we assume that tenancy duration for all tenants is determined outside our model. That is, the tenant types are given. However, tenants can modify how long they will stay in the dwelling. Basu and Emerson (2000) find that tenancy rent control reduces tenant mobility if tenant types are determined endogenously. Ault, Jackson, and Saba (1994), Linneman (1987), Munch and Svarer (2002), and Nagy (1997) also find empirically that tenancy mobility is reduced by rent control. If tenants alter tenure length due to tenancy rent control, the costs and benefits associated with tenancy rent control will change. We leave the issue of the impact of Japanese tenancy rent control on tenancy duration for future research.

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Table 1 Frequency/Mean

Variable	1999 Mean	1999 S.D.	2000 Mean	2000 S.D.	2001 Mean	2001 S.D.
Rent	110,345	83,321	108,436	71,400	113,882	85,921
Space	37.603	21.892	37.585	19.988	38.591	22.227
Story	2.890	2.290	2.889	2.233	2.986	2.414
Building age						
Built 0	0.089	0.285	0.093	0.291	0.038	0.191
Built 1–5	0.141	0.349	0.135	0.342	0.223	0.416
Built 6–10	0.291	0.454	0.246	0.431	0.197	0.397
Built 11–15	0.266	0.442	0.291	0.454	0.293	0.455
Built 16–20	0.119	0.323	0.123	0.328	0.117	0.322
Built more than 21	0.094	0.291	0.112	0.316	0.132	0.339
Construction material						
SRC	0.605	0.489	0.585	0.493	0.606	0.489
Prefab	0.012	0.108	0.013	0.115	0.010	0.101
Wooden	0.173	0.378	0.172	0.378	0.157	0.364
Steel	0.124	0.329	0.144	0.351	0.138	0.345
LGS	0.077	0.266	0.074	0.261	0.077	0.267
ALC	0.008	0.089	0.005	0.072	0.007	0.083
Others	0.001	0.037	0.002	0.042	0.005	0.069
Bus	0.029	0.167	0.033	0.179	0.030	0.171
Walking time						
Walk 1–5	0.363	0.481	0.356	0.479	0.362	0.481
Walk 6–10	0.400	0.490	0.388	0.487	0.392	0.488
Walk 11–15	0.171	0.377	0.178	0.383	0.179	0.383
Walk 16–20	0.033	0.178	0.040	0.196	0.034	0.180
Walk 21 and over	0.004	0.064	0.004	0.066	0.004	0.064
Number of observations	4412		6324		8442	

Table 2 Results from regression of hedonic rent function

Variable	1999		2000		2001	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Space	0.731***	0.007	0.711***	0.005	0.733***	0.005
Space × Just-cause	0.018***	0.005	0.016***	0.003	0.022***	0.003
Story	0.032***	0.004	0.038***	0.003	0.041***	0.003
Built 1–5	−0.025***	0.009	−0.025***	0.007	−0.032***	0.009
Built 6–10	−0.020**	0.008	−0.038***	0.007	−0.061***	0.009
Built 11–15	−0.083***	0.008	−0.083***	0.007	−0.089***	0.009
Built 16–20	−0.174***	0.010	−0.172***	0.008	−0.163***	0.009
Built more than 21	−0.214***	0.010	−0.225***	0.008	−0.251***	0.009
Prefab	−0.064***	0.020	−0.075***	0.016	−0.023	0.016
Wooden	−0.043***	0.007	−0.038***	0.006	−0.027***	0.005
Steel	−0.040***	0.007	−0.030***	0.005	−0.027***	0.005
LGS	−0.063***	0.009	−0.063***	0.007	−0.061***	0.007
ALC	−0.076***	0.024	−0.043*	0.024	−0.014	0.020
Others	0.033	0.058	−0.063	0.042	−0.030	0.025
Bus	−0.190***	0.014	−0.183***	0.011	−0.220***	0.011
Walk 6–10	−0.024***	0.005	−0.024***	0.004	−0.024***	0.004
Walk 11–15	−0.065***	0.006	−0.059***	0.005	−0.071***	0.005
Walk 16–20	−0.110***	0.013	−0.106***	0.009	−0.133***	0.009
Walk 21 and over	−0.097***	0.034	−0.102***	0.026	−0.144***	0.025
Intercept	−0.385***	0.021	−0.315***	0.018	−0.400***	0.017
Adjusted R^2	0.911		0.903		0.907	
F statistics	359.51		469.61		650.93	
Number of observations	4412		6324		8442	

***, **, or * indicates the significance level of 1%, 5%, or 10%, respectively.