This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Housing Markets in the U.S. and Japan

Volume Author/Editor: Yukio Noguchi and James Poterba

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-59015-1

Volume URL: http://www.nber.org/books/nogu94-2

Conference Date: January 3-4, 1991

Publication Date: January 1994

Chapter Title: Land Prices and House Prices in Japan

Chapter Author: Yukio Noguchi

Chapter URL: http://www.nber.org/chapters/c8819

Chapter pages in book: (p. 11 - 28)

1   Land Prices and House Prices in Japan

Yukio Noguchi

1.1 Introduction

Japan has had a serious housing problem throughout most of the postwar period. Although the problem of absolute scarcity of dwellings no longer exists, housing conditions remain extremely unsatisfactory today although Japan has become one of the world's largest economic powers. Spaces are narrow, locations are inconvenient, and related social infrastructures are insufficient. Above all, houses are extremely expensive.

One may propose a number of reasons why the housing problem remains serious in Japan. But no one would deny that the single most important reason is land prices, which are significantly higher than in other countries and have continued to rise almost every year during the postwar period. The sharp rise in land prices during the latter half of the 1980s has aggravated the problem. It is widely recognized that the land price problem is not only the heart of the housing problem but also one of the most serious social and economic problems of present-day Japan.

In this paper, I discuss major issues related to the land problem in Japan, focusing on the land price issue. In section 1.2, I present several facts and data. I point out that the housing problem in large cities in Japan is almost synonymous with the land price problem, because most of the housing cost consists of land purchase cost. I also point out that the extraordinary land price inflation during the 1980s in the Tokyo and Osaka areas has considerably lowered the house-purchasing power of wage income. Section 1.3 is the discussion of the cause of the recent land price inflation. The focus of the discussion is bubble versus fundamentals. My conclusion is that the land price inflation during the 1980s cannot be explained unless the bubble element is introduced. This is

Yukio Noguchi is professor of economics at Hitotsubashi University.

demonstrated in two ways: first, by showing a difference between present dis-
counted value of rents and the actual land price, and second, by showing the
deviation of the actual price from the price obtained from a land price equation.
Section 1.4 is an examination of structural factors underlying the chronically
high land price in Japan. I argue that the essential cause for high land prices is
not the absolute shortage of land but various social and economic factors that
enhance the value of land as a type of marketable asset. Particularly important
are distortions brought about by the tax system and the Land Lease Law. Fi-
nally, in section 1.5, I review recent trends in government land policies and
discuss their implications.

1.2   The Housing Problem and the Land Price Problem

1.2.1   Share of Land Purchase Cost in Housing Cost

In order to evaluate the relative weight of the land price problem in the hous-
ing problem, I calculate the share of land purchase cost in housing cost for
model cases in several Japanese cities.[1] The figures shown in table 1.1 indicate
a large regional difference in the nature of the problem. In local cities, the
share is less than one-half. In small local cities, it is somewhere around 30–40
percent. This ratio is about the same as that in other countries. Thus, in these
cities, the land problem is not the major obstacle to improving housing condi-
tions.

The situation is considerably different in large cities, however, where the
land purchase cost is over 60 percent of housing costs. In the Tokyo and Osaka
areas, it is nearly 90 percent even in suburban sites. The ratio becomes as high
as 98.5 percent in the central district of Tokyo. In these regions, therefore, the
housing problem is almost synonymous with the land problem or land price
problem.

At this point, one may wonder why Japanese people stick to buying a house
with land rather than renting a house or buying a house with leased land. One
reason is the supply-side condition. As discussed in section 1.4, the new supply
of leased land is virtually nil due to the excessive protection of the lessee's
right provided by the Land Lease Law. It is true that there are new supplies of
rented houses, but most of them are for students, single persons, or couples
without children who will not occupy the house for a very long period. This is
due to the protection of tenants provided by the Building Lease Law. It follows
that one is forced to buy land at a certain stage of one's life cycle if one wishes
to live in a decent house. This is true not only for a detached house but also
for a condominium, because land purchase cost is included in the condomin-

---

1. In this calculation, a detached house of a standard size (site 167 square meters, house 89
square meters) is assumed. The land price used in this calculation is local government benchmark
price (Kijun Chika, July 1989).

Table 1.1   **Share of Land Cost in Housing Cost for Model Cases**

	Land Price per Square Meter[a]	Land Cost (a)	Construction Cost (b)	Total Cost (c)	Ratio (a/c)
Tokyo					
Minato	580	138,371	2,047	140,418	0.985
Suginami	106	25,289	2,047	27,336	0.925
Machida	39	9,304	2,047	11,351	0.820
Other big cities					
Osaka	60	10,020	1,469	11,489	0.872
Nagoya	26	4,342	1,469	5,811	0.747
Hiroshima	17	2,839	1,469	4,308	0.659
Fukuoka	14	2,338	1,469	3,807	0.614
Local cities					
Otaru	4	668	1,469	2,137	0.313
Akita	5	835	1,469	2,304	0.362
Toyama	8	1,336	1,469	2,805	0.476
Kurashiki	6	1,002	1,469	2,471	0.406
Miyazaki	6	1,002	1,469	2,471	0.406

Notes: Prices are 10,000 yen. Assumptions are: (1) site, 167 square meters; house, 89 square meters. (2) Housing construction cost per square meter: 230,000 yen in Tokyo, and 165,000 yen in other cities.

[a]Land price is local government benchmark price (Kijun Chika), National Land Agency (July 1989).

ium price. The demand-side reason is that people regard a house as an asset that produces capital gain. In fact, it is said that people buy a house in order to own rather than to live.

It follows that, as far as the housing problem in large cities is concerned, the land price problem is the most important element. I will therefore confine my argument in this paper to the land price issue.

1.2.2   Level of Land Price

As is well known, land prices in Japan are extremely high compared to those in other countries. Since systematic data are difficult to obtain in other countries, a comparison is made here only with U.K. data.[2] Residential sites that command the highest prices in the United Kingdom are located in the inner city of London, and the price of land was about £4 million per hectare, or £100,000 per square meter, in 1986. According to table 1.2, which shows the government benchmark prices (Koji Chika) of residential sites in Japan, one square meter of land at locations in Tokyo comparable to the above site in London costs £4 million, or forty times that in London.[3] Needless to say, inter-

2. Valuation Office, Property Market Report no. 46, Autumn 1986. Comparison with the United Kingdom is meaningful because its natural conditions are similar to that of Japan.

3. There are several land price indices: (1) government benchmark price (GBMP, Koji Chika): about 70 percent of market price; (2) local government benchmark price (Kijun Chika): same level

Table 1.2   Residential Land Price Index (1983 = 100)

	1984	1985	1986	1987	1988	1989	1990	1991
Greater Tokyo	102.2	103.9	107.0	130.1	219.3	220.2	234.7	250.2
Tokyo	102.9	105.9	112.7	169.6	283.2	265.3	264.5	264.8
Special								
wards	103.2	107.2	117.9	208.5	300.5	284.9	286.0	286.9
Kanagawa	102.0	103.6	106.0	118.8	220.7	203.9	205.3	211.3
Saitama	101.5	102.0	102.3	104.7	167.3	181.5	202.0	226.4
Chiba	101.8	102.6	103.4	109.8	179.3	210.3	261.6	312.6
Greater Osaka	103.6	106.7	109.5	113.2	134.3	178.2	278.1	296.2
Osaka	103.5	106.9	110.4	115.2	138.9	188.2	298.5	304.8
Kyoto	103.9	107.1	110.5	114.3	124.5	164.1	274.2	315.1
Hyogo	103.6	106.0	107.1	109.7	140.1	182.6	269.3	292.2
Nara	103.2	105.8	107.7	109.5	112.7	143.0	214.8	235.2
Greater Nagoya	102.4	104.0	105.5	107.2	115.0	139.9	160.9	191.1
Aichi	102.2	103.7	105.1	106.7	115.1	135.6	163.9	192.7
Mie	103.7	106.0	108.1	109.9	112.2	118.0	136.0	173.8

Source: National Land Agency, Koji Chika (benchmark land price), published yearly.

Notes: Government benchmark price (Koji Chika). The indices are those of January 1 of each year indicated. For example, land price in Greater Tokyo has increased by 234.7/220.2 in 1989.

national comparison of land prices must be done with caution, because the underlying legal system as well as the nature of land price in statistics may be different in different countries. Even considering these conditions, the above data would be sufficient to demonstrate the abnormal level of land prices in Japan.

There is an important caveat to this fact, however. If we compare the cost of using space as represented by office rental, we find no significant difference between the two countries. The cost of renting one square meter of office space at Marunouchi, a business district of Tokyo, is around £200,000 per year including guarantee deposits. In London, it costs £100,000 at locations comparable to Marunouchi, meaning that office rental at Marunouchi is only twice as high as that in London. Thus, space utilization cost as measured by the office rental costs in Japan, surprisingly, is not so high as the land price would lead us to believe. This poses a puzzle: if land price is the discounted present value of rents, why is land price in Japan so high?[4]

as the GBMP; (3) assessed price for the inheritance tax (Rosenka): about 70 percent of the GBMP; (4) assessed price for the property tax: ratio to the GBMP is lower than the Rosenka. The ratios are different in different locations. The GBMPs are calculated for about twenty thousand standard points on January 1 every year. Price of each point is evaluated by two official appraisers. The Evaluation Committee of the National Land Agency reviews the reports by the appraisers and makes final judgments. The prices are presumed to capture the "normal prices." Thus both discounted present value of rentals and actual transaction prices at similar locations are taken into consideration. Local government benchmark prices are calculated in a similar way.

4. Structural factors discussed in section 1.4 provide partial answers. In addition, the difference in expected future growth in rentals is an important factor. While rentals reflect present use of
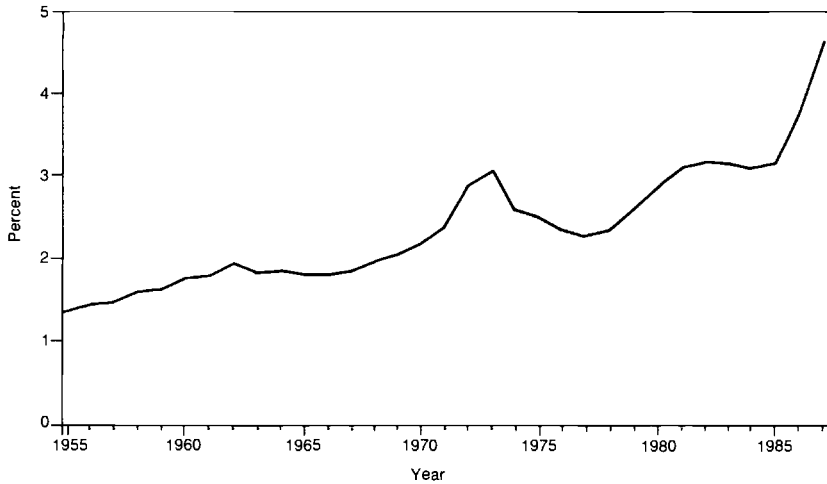
Fig. 1.1   Ratio of land asset to GDP
Note: Land asset is total private land value in the National Account Statistics.
Source: Economic Planning Agency, *Kokumin Keizai Keisan Tokei Nenpo (Yearbook of National Account Statistics),* issued yearly.

1.2.3   Rate of Increase of Land Price

Figure 1.1 shows the long-run trend of nationwide land value in terms of the ratio to GDP. The ratio has a long-run upward trend. This reflects a long-run increase in land productivity brought about by the land use conversion from agricultural to urban use and by the accumulation of capital. The average annual growth rate is about 2 percent for the period 1955 through 1985. Increases of this magnitude seem to be reasonable. Thus, as far as the trend in the national average until the mid-1980s is concerned, land price increase cannot be regarded as extraordinary.[5]

The ratio shows short-run fluctuations from time to time, however. The deviation from the trend first occurred in the early 1960s, and then in the early 1970s. The deviation during the second half of the 1980s is the third burst in the postwar period. This kind of fluctuation, rather than the long-run trend of land price increase, should be regarded as problematic.

Table 1.2 shows the trend of land prices in the three major urban areas in Japan during recent years. In Tokyo, land prices almost tripled during 1986 and 1987. During this period, income increased approximately 10 percent. Thus, house-purchasing power of wage income decreased to less than one-half of what it was two years earlier.

---

land, in many cases there are possibilities of converting land into more productive use in the future. Such possibilities may be reflected in land price.

5. Regression analysis in section 1.3 supports the hypothesis that the ratio of land value to GDP has been constant since 1977.

Table 1.3   Ratio of Average Condominium Price to Annual Income

	1984	1985	1986	1987	1988	1989
Greater Tokyo	5.64	5.62	5.36	6.48	8.14	8.62
0–9 km area	6.93	6.95	7.10	10.89	15.62	15.31
10–19 km area	6.15	5.78	5.93	7.93	10.43	10.68
20–30 km area	5.20	5.12	4.94	5.86	7.25	8.18
Greater Osaka	4.44	4.36	4.13	4.34	4.94	6.27
Greater Nagoya	3.53	3.54	3.45	3.51	3.89	4.27

Source: Toshi Kaihatsu Kyokai, *Jutaku Kakaku to Sarariman Syotoku tono Kairi Zesei no ta meni (For the reduction of the discrepancy between housing prices and workers' income),* issued yearly.

Notes: Average annual salary is 6.4 million yen. (The same figure is used for all areas.) Average space of a condominium is 75 square meters.

Table 1.3 shows this fact in a more concrete way. It is usually said that the most expensive house that can be purchased by an ordinary worker is about five times the annual salary. If the price of a house is within this limit, interest payments would be less that one-seventh of annual salary in cases where half of the purchase cost is financed by a loan and the interest rate is 5 percent. In 1984, the average price of a standard condominium in Tokyo was roughly within this limit. But the average ratio of condominium price to annual income rose to 8.6 in 1989. This means that the share of interest payments to annual income would be 22 percent with the same assumptions. If we consider the repayment of principal, the total payment would be somewhere around one-half of annual income. This means that it has become impossible for an average worker to purchase a house in Tokyo, based solely on wage income.

1.3   An Analysis of the Recent Land Price Inflation

1.3.1   Is Concentration in Tokyo the Major Cause?

In this section, I analyze the extraordinary land price increase during the latter half of the 1980s. The most important issue in this discussion is whether the major cause was changes in the fundamentals, especially changes in the economic structure, or speculative bubbles. "Fundamental price" of land is the discounted present value of future rentals. "Bubble" is the difference between the actual price and the fundamental price.[6]

If land price increases are caused by changes in economic structure, the increases result from a rise in land productivity. Hence, policies that directly aim at reducing land prices should not (or cannot) be taken. Land price reduc-

6. There are of course many difficulties in calculating the fundamental price. For example, "future rentals" means expected future rentals, which are unobserved variables. Additional difficulties are discussed in section 1.3.3.

Table 1.4   **Trends in Land Price and Office Rentals (indices: 1980 - 100)**

	Land Price, Commercial Districts		Office Rental		
Year	Tokyo	Osaka	Tokyo	Osaka	GNP
1980	100.0	100.0	100.0	100.0	100.0
1985	150.6	132.0	128.1	123.3	131.1
1989	413.9	297.4	231.0	152.0	161.7
1990	421.7	435.1	258.6	186.4	170.2

Sources: Land price: National Land Agency, Koji Chika (benchmark land price), issued yearly. Office rental: Japan Building Association, *Biru Jittai Chosa no ta meni (Summary of Building Survey),* issued yearly. GNP: Economic Planning Agency, *Kokumin Keizai Keisan Tokei Nenpo (Yearbook of National Account Statistics),* issued yearly.

tion can be expected only as a result of policies such as increases in the supply or urban land or diversification of economic activities to local cities. On the other hand, if a bubble is the major element, land prices can and should be the direct target of land policy, because land prices cannot be regarded as a proper signal for allocating the land resource.

Some people argue that land price inflation during the 1980s was caused by structural changes in the Japanese economy, especially the concentration of new economic activities in Tokyo.[7] The importance of Tokyo as an international city has undoubtedly increased, and new trends such as the internationalization of financial activities have increased the demand for offices, which has worsened the shortage of land in the central business district of Tokyo.

This is reflected in the trend of office rentals. As shown in table 1.4, the rate of increase in office rental costs in Tokyo was about the same as that of GNP until the mid-1980s and became greater during the late 1980s. It must be noted, however, that the rate of land price increase was greater than that of office rent. This means that the land price inflation in Tokyo cannot be explained only by the concentration of economic activities in Tokyo. Moreover, the increase of land prices was not isolated in the Tokyo area but diffused to other areas. The figures in table 1.2 indicate that, while rises in land price in the Tokyo area have subsided, the upward pressure on land prices spilled into the Osaka area, and then to Nagoya and other regional cities. If the concentration in Tokyo were the main cause, land prices in other cities would not have been affected. As shown in table 1.4, land prices in Osaka increased remarkably, while office rental costs grew at about the same rate as that of GNP.

7. Miyao (1988) argues that land price movement can be completely explained by changes in industrial and urban structure and changes in the interest rate.

1.3.2   Easy Money Policy

Let us next look at the relations between land price inflation in the 1980s and monetary policy during this period.

In an effort to curb the sharp appreciation of the yen following the Plaza Accord of September 1985, the Bank of Japan relaxed monetary conditions considerably. The official discount rate, which was 5 percent until January 1986, was lowered in several steps to a historic low postwar level of 2.5 percent in February 1987. Long-term interest rates also fell from 6.6 percent in October 1985 to 5.0 percent in February 1987, and further to 3.8 percent in May 1987.

It is generally believed that this provided the major impetus for land prices to soar. In fact, this period coincides exactly with the period in which land prices began to rise, especially in the central district of Tokyo. (As seen in table 1.2, residential land prices in the Special Wards of Tokyo increased by 78 percent in 1986.) Thus, there is no denying that the easy money policy was one of the major causes of the sharp increase in land prices during the 1980s.

Let us examine this point further. As shown in table 1.5, net purchases of land by the nonfinancial corporate sector increased dramatically during the latter half of the 1980s. Cumulative purchases during 1985–89 amounted to about 28 trillion yen. This exceeds the amount during the preceding five years by as much as 25 trillion yen. The difference can be interpreted as "speculative purchase." This amounts to 4.4 percent of the total holding of land by that sector, which was 567 trillion yen at the end of 1989.

On the other hand, lending from banks to real estate businesses increased by about 22 trillion yen during the same period. Besides, there was lending from "nonbanks" (lending institutions having no deposits). The increase dur-

Table 1.5   **Net Purchase of Land (billion yen)**

Fiscal Year	Nonfinancial Corporate Sector	Household Sector
1975	676	−1,911
1980	1,130	−3,764
1981	1,336	−4,062
1982	142	−2,864
1983	530	−3,316
1984	415	−3,170
1985	3,841	−6,781
1986	3,278	−6,308
1987	4,602	−8,288
1988	6,480	−10,926
1989	10,076	−14,475

Source: Economic Planning Agency, *Kokumin Keizai Keisan Tokei Nenpo (Yearbook of National Account Statistics)*, 1990.

ing this period is estimated at about 18 trillion yen. On the other hand, business fixed investment by real estate companies during this period was 12 trillion yen. This implies that about 28 trillion yen was spent for purchasing land.

To be precise, the net land purchase figure and the lending figure cannot be compared directly because the former does not include transactions within the sector and the latter refers only to the real estate business. However, these differences are not so great, since most of the purchases by the corporate sector consist of those made by the real estate companies and most of the sales are from the household sector. We can thus conclude that most of the speculative purchases of land were financed by lending from the financial institutions.

1.3.3 Calculations of the Discounted Present Value of Rents

I have argued above that the concentration of business in Tokyo and the easy money policy may have contributed to the land price inflation, especially in Tokyo. However, this does not mean that land price inflation can be completely explained by the fundamentals. Let us therefore examine how much of the actual land price increase can be explained by the above factors.

One way to do this is to calculate the theoretical price of land, which is represented by the discounted present value of rent, and compare it with the actual land price. This is not straightforward calculation, since the actual rent is far below the economically reasonable level, due to the Land Lease Law. Therefore, I use the data on rental costs of office buildings.[8] Needless to say, the result of this practice depends heavily on assumptions concerning the capitalization rate and the expected growth of rentals.[9] Here I chose these parameters so that the calculated land value in the central business district of Tokyo (Otemachi) becomes equal to the actual land value.[10] Because of this procedure, results obtained here are only the relative, rather than the absolute, level of the theoretical price.

The results are shown in the "theoretical price" column of table 1.6. In most of the locations in Tokyo, the market price of land is twice as high as the theoretical price. The difference is still larger in Fukoka and Sapporo. The

---

8. Theoretical land price was calculated by

$$(L + nB)r = anR - tL - snB,$$

where L = land price, n = ratio of the total floor space to site area (number of stories of building when 100 percent of site is used), B = construction cost, a = rentable space ratio, R = rental, t = property tax rate on land, s = property tax rate on building, and, r = required rate of return. Assumptions used for the calculation are n = 8, b = (10,000 yen per square meter) = 24, a = 0.7, r = 0.0411, t = 0.005, and s = 0.014. In the case of a residential house, B = 18, n = 1. (The value of B is slightly lower than what was assumed in table 1.1. This is due to the rise in construction cost.)

9. In the regression analysis reported in section 1.3.4, we find that capitalization rate is more stable than the actual interest rate. This does not, however, reveal what the appropriate capitalization rate is.

10. I chose Otemachi as the basis because it is a well-developed area, so that there would relatively little speculative element in land price. Since the assumed volumetric ratio is different from the actual value, the theoretical price is not exactly equal to the actual price.

same calculation was done for residential land using the data of apartment rentals, and the results are shown as theoretical prices in table 1.7. Again, the actual price is about twice as high as the theoretical price.

From these findings, we can conclude that land is valued considerably above its theoretical value. The difference between the theoretical and the market prices can be interpreted only as arising from excessive expectations for capital gains, namely, a speculative bubble.

1.3.4   Estimation of the Bubble Using a Regression Model

Another way to examine the existence and the magnitude of the bubble is to estimate a land price equation and to regard the difference between the estimated and the actual price as the bubble.

For this purpose, I consider a model in which land rent is a fixed proportion of product and land price is determined as its discounted present value. More specifically, I estimate the following equation:

Table 1.6   Prices of Selected Office Sites in Japan

	Current Market Price (¥10,000/m²)[a]	Annual Office Rental Cost (¥10,000/m²)[b]	Theoretical Price (¥10,000/m²)[c]
Otemachi, Chiyoda-ku	2,500 (1,650)	19.1	2,149
Ginza, Chuo-ku	2,300 (1,600)	11.5	1,203
Shimbashi, Minato-ku	2,850 (2,050)	12.9	1,377
Akasaka, Minato-ku	2,080 (1,300)	10.0	1,016
Nishi-shinjuku, Shinjuku-ku	2,860 (1,600)	11.6	1,216
Yokohama city	1,140 (635)	4.2	295
Umeda, Osaka	1,820 (1,210)	6.6	593
Fukuoka city	820 (600)	2.9	133
Nagoya city	940 (630)	4.2	295
Sapporo city	653 (430)	3.4	195

[a]Current market prices are based on the GBMPs reported in 1987. Those in parentheses are for 1986.
[b]Rents are based on a survey reported in the February 23, 1987 issue of *Nihon Keizai Shinbun.*
[c]Method for calculating theoretical price is described in footnote 8.

Table 1.7   **Prices of Selected Residential Sites in Japan**

Location	Market Price (¥10,000/m²)[a]	Rental Cost (¥10,000/m² year)[b]	Theoretical Price (¥10,000/m²)
Areas bordering on the Chuo Line			
Yotsuya	445	7.9	153
Nakano	110	4.2	71
Ogikubo	105	3.3	51
Kichijoji	93	3.1	46
Musashi-Koganei	48	2.6	36
Areas bordering on the Toyoko Line			
Shoto	545	6.9	131
Nakameguro	150	3.9	64
Jiyugaoka	170	4.3	73
Hiyoshi	54	3.2	49

[a]Market price represents GBMPs reported in 1987 (residential land within the radius of one kilometer from the nearby railway stations).

[b]Estimated rents for apartments are based on advertisements carried by *Shukan Jutaku Joho* (Weekly housing news), September 1987 (those units located within a distance of fifteen minutes' walk from nearby stations).

$$\log PLAND = a + b \log GDPLND + c \log INTRST + d\, GROWTH + $$
$$e\, ISLAND + f \log NEBDEN + g \log SECOND + $$
$$h \log TERTIA,$$

where $PLAND$ = real urban land price by prefecture, calculated as land value divided by urban area (100 yen per square meter); $GDPLND$ = real prefecture GDP per unit of urban land (100 yen per square meter); $INTRST$ = long-term real interest rate (yield of government bonds, annual percentage rate); $GROWTH$ = population growth rate (annual percentage rate); $ISLAND$ = dummy variable equal to one if prefecture is not on Honshu; $NEBDEN$ = population density in neighboring prefectures (number of people per square kilometer); $SECOND$ = share of the secondary industry in prefecture GDP (percentage); and, $TERTIA$ = share of the tertiary industry in prefecture GDP (percentage).

If the above theory of land price determination is correct, and if the long-term interest rate is the appropriate capitalization rate, then the coefficients b and c should be equal to one and minus one, respectively. The $GROWTH$ variable is used as a proxy for the expected growth of rents.[11] The $ISLAND$ and

11. I also tried the rate of growth of prefecture GDP. The coefficients of other variables are not significantly affected. Since the use of population growth produces a better result in terms of the standard error and the coefficient of determination, this result is reported here.

the *NEBDEN* variables have been used to capture spillover effects of economic activity. The former should have a negative sign and the latter a positive sign. The *SECOND* and the *TERTIA* variables are intended to represent possible differences in production technologies in different industries. All nominal variables were deflated by the GDP deflator.

The above equation was estimated using the forty-seven prefectures' data during the period 1977–87. The result is shown in table 1.8. The equation fits well with a fairly high coefficient of determination. All variables except for the log *SECOND* have significant coefficients with the right signs.

That the estimated value of *b* is close to unity supports the above theory of land price determination. On the other hand, the absolute value of the estimated coefficient of the log *INTRST* variable is significantly smaller than one. This seems to imply that the true discount rate used for capitalizing land rent is more stable than the observed long-term interest rate. In view of the fact that land does not depreciate so that rent can be obtained for infinitely long periods, this seems to be a reasonable result.

From the above analysis, we can conclude that the overall land price movement can be explained fairly well by the fundamentals. In fact, land prices calculated from this equation fit the actual price fairly well for regions other than the Tokyo and Osaka areas. This implies that land prices in these areas do not contain bubbles. Even for the Tokyo and Osaka areas, this equation explains actual land prices fairly well until the mid-1980s. Considering the relation between housing prices and income mentioned earlier, it can be said that land prices during this period were approximately the long-run equilibrium price.

For the latter half of the 1980s, however, actual land prices in the Tokyo and Osaka areas deviate considerably from the calculated value. Figure 1.2 shows this for Tokyo. This difference cannot be explained by factors such as land productivity and financial factors, and therefore is regarded as a bubble caused by excessive expectations for future capital gains. In Tokyo, the magnitude of the bubble was 54 percent of the actual land price in 1987.

Table 1.8   Land Price Equation

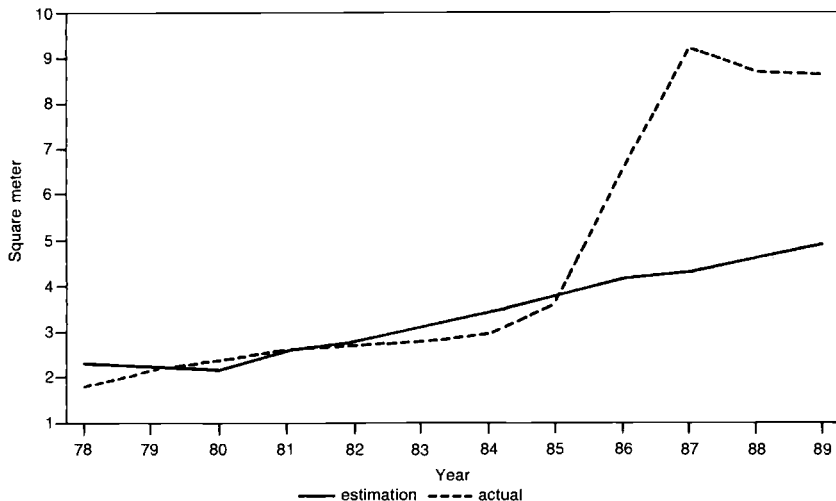|	Coefficient	Standard Error
Constant	−2.159	0.103
log *GDPLND*	1.097	0.038
log *INTRST*	−0.137	0.043
GROWTH	0.091	0.011
ISLAND	−0.161	0.013
log *NEBDEN*	0.085	0.023
log *SECOND*	0.110	0.130
log *TERTIA*	1.125	0.242
Coefficient of determination	0.839	

Fig. 1.2   Land price in Tokyo (100,000 yen per square meter)
Note: Estimated from the land price equation reported in table 1.8.

1.4   Structural Factors Underlying the Land Price Problem

1.4.1   Is Land Absolutely Scarce?

Section 1.3 discusses the extraordinary land price inflation during the recent years. As mentioned in section 1.2, another aspect of the land problem is chronically high land prices. This implies the existence of structural factors. In this section, I examine these factors.

Let us first see if physical constraints are important. Many people argue that the scarcity of land is the major cause of high land prices in Japan. It is true that the area of land of this country is small compared with other countries of similar population and that a large portion of it is covered by mountains. But if we compare the area of land devoted to urban uses, Japan is not worse off than those countries. In fact, the area of urban land accounts for only a tiny fraction of the national landmass—2 to 3 percent, depending upon the definition of urbanized area. This is small even in comparison with the habitable area, which is about one-third of the total amount of national land. The amount of total land available in Japan has thus little if anything to do with the land problem we face today.

Even in the urbanized areas, plenty of land is still underused or left idle. According to a survey by the Ministry of Construction, 65,000 hectares (approximately 160,000 acres) of land within the Greater Tokyo area could be developed into housing tracts.[12] This is equal to the area of the twenty-three

12. The available land consists of 36,000 hectares (89,000 acres) of farmland, 23,000 hectares (56,800 acres) of underused land (vacant lots and parking lots), and 6,000 hectares (14,800 acres)

wards of Tokyo. Moreover, most of the buildings do not use all the legally allowed capacity. To casual observers, urban land in this country may appear very densely used. In fact, the opposite is true. The volumetric ratio (the ratio of the floor space to the site area) authorized by the building code stands on the average at 242 percent, but only 40 percent of the authorized ratio is actually used.

The above fact can also be confirmed by international comparisons of rents. As we have seen, space utilization cost in Japan is not much different from that of the United Kingdom. This implies that the supply of space for urban use is not particularly low as compared to other countries.

To summarize, Japan, contrary to widespread belief, still has a surplus of land. This suggests that if the degree of land utilization is raised, many, if not all, of the problems associated with land will evaporate.

1.4.2 Distortions in the Tax System

The above argument suggests that what matters are social and economic factors rather than physical or natural factors. The most important is that people regard land as an asset. In fact, the puzzle in section 1.2.2 cannot be solved unless we understand that land in Japan is priced as an asset rather than as a factor of production.

One problem lies with the property tax.[13] The statutory standard property tax rate stands at 1.4 percent. The valuation of land for the property tax rate is very low, and the valuation is further lowered to one-quarter in the case of small residential sites. This makes the effective property tax rate much lower than the statutory rate.

In the early 1980s, the effective property tax stood at about 0.1 percent of the market price of land. As the local governments did not raise valuations in accordance with the rising market price in recent years, the effective tax rate in the Greater Tokyo area has dropped to about 0.06 percent. Thus, the tax liability for owning land has been reduced to a negligible amount. This is a major factor that encourages people to treat land as an asset. If it were costly to own land, not many people would leave their land vacant or in an inefficient use.[14] Another bias exists in the inheritance tax. Inherited land is valued at

---

of vacated factory sites, publicly held idle land and idle land belonging to the now defunct Japan National Railways.

13. It is often said that there are other tax advantages. For example, interest payment can be deducted, and losses incurred in the transaction can be offset for other income. But these provisions are not restricted to land. They are admitted to other types of assets as well.

14. It is generally believed that "the Japanese are deeply attached to the land they own." This is no more true than the contention that "Japan is short of land." This can be verified by the story about *nawanobi*—the difference between the area of farmland officially registered with the government and its actual size. In its early years, the Meiji government (1868–1912) tried to survey the nation's farmland to use the data for assessing the land tax, which was a fairly heavy tax. Since the resistance of farmers was so strong, it surveyed a few samples where possible at different locations and accepted voluntary reports filed by farmers. As a result, the bulk of the nation's

about 70 percent of the GBMP, which itself is about 70 percent of the market price. Hence, inherited land is valued at about half the market price for taxation purposes. Moreover, for small residential sites, the assessed value is further reduced by one-half. Although assessed prices have been raised to reflect recent rises in market prices, they were raised at lower rates, with the result that inherited land is valued at less than one-half of the market price in the Tokyo and Osaka areas. On the other hand, financial assets are assessed at the market value. This bias encourages people to hold inheritable assets in the form of land.

Furthermore, if one purchases land by borrowing money, one can reduce tax liabilities because borrowing can be deducted from the asset.[15] Consider a person whose asset is valued at x yen for the inheritance tax. If he borrows $2x$ yen and purchases land, his tax liability is reduced to zero. By doing so, he can save tx yen of inheritance tax, where t is the average tax rate. It follows that, for this person, effective valuation of land is $2x + tx$ rather than the market value $2x$.[16] Thus, the bias introduced by the inheritance tax has the effect of increasing the market price of land.

1.4.3 The Land Lease Law

Another problem lies in the Land Lease Law and the Building Lease Law, particularly the former. The Land Lease Law was strengthened during World War II as social legislation with the aim of strengthening the right of the lessee by bending the principle of freedom of contract provided in the Civil Code. During the war, a large number of families were faced with the danger of being evicted from their leased land or houses while their heads were called away for military duty, and this caused a serious social problem. With a view to protecting the right of the lessee and tenant, the government strengthened these laws. Under the strengthened provisions, a land lease contract is automatically renewed when the term expires, unless the landlord makes a formal objection without delay. The new contract is assumed to continue for the period of thirty years where there is a solid structure and twenty years for other cases. The objection of a landlord is admitted only in cases when he can show a personal

---

farmland was underreported. One may argue that farmers of the Meiji period underreported to reduce their tax liabilities because the smaller size they officially registered would not matter, for they had no intention of selling it on the market. If the tax rate were as low as the current property tax rate, they must have reported the full size of their farmland to protect its commercial value. Today, people hold on to their land in anticipation of higher prices because their exposure to property tax is at a minimum—serving to underscore that the tax rate, not the attachment to land, has profoundly swayed their attitude to landownership.

15. Since abuses of this provision became so apparent, the government has changed the valuation procedures. Under the new rule, if land is purchased within three years before death, it is evaluated at the purchase cost. The previous valuation rule still applies, however, for land purchases before that.

16. The tax rate t depends on the magnitude of the asset and the number of heirs. For typical cases, it is around 20–40 percent.

need to use the land or other "just causes," which are interpreted very strictly in the court.

The rents can of course be negotiated between the lessor and the lessee. If they fail to reach an agreement, they can request the court to determine the "fair and reasonable rent." Until the judgment is made, however, the lessee can continue to use the land by depositing the amount he personally deems reasonable to the court. Thus, the landlords have little negotiating leverage, and tenants have little incentive to accept increases in rents. As a result, the actual rents are left at irrationally low levels, and the rental market does not function properly. (Similar conditions exist for building leases. In actual practice, however, the revision of rents are more frequent than in the case of land lease, because the length of lease is in general shorter for rents.)

These two laws played a role in protecting the interest of the underclass during the years following their enactment. Now, however, they have outlived their relevance to the changed market reality, because they have in effect dissuaded landowners from leasing their holdings. To landowners, leasing is tantamount to selling land at a deep discount, whereas they stand to make huge capital gains by simply holding on to land, without incurring too much property tax liability.

Under such conditions, utilization of land actually penalizes its owner; the wisest way to manage land is to keep it idle or use it for a temporary purpose such as a parking lot until such time as he can make big capital gains on it. This is why there are so many vacant lots and underused parcels of land at unlikely places in urban areas.

1.5 Land Policies

In this section, I review the recent trend of government land policies and discuss necessary directions based on the analyses above.

1.5.1 Monetary Policy

The Bank of Japan changed its tight money policy in May 1989, when the official discount rate was raised from 2.5 to 3.25 percent. It was raised in several steps, and by the fifth step in August 1990, it became 6.0 percent. Long-term interest rates (yield of government bonds) rose from a low of 4.7 percent (April-June 1988) to 7.8 percent in August 1990.

It must be noted, however, that real interest rates did not rise as much as the nominal rate, since the rate of inflation rose during this period. (The annual rate of increase of the CPI, which was 0.1 percent in 1987, rose to 2.3 percent in 1989). In fact, the movement in nominal interest rates was not the same as that in land prices: land prices in Tokyo stopped rising in 1988, and in Osaka they continued to rise during 1989 (see table 1.2).

In addition to the general tightening of monetary conditions, the Ministry of Finance imposed a zero-growth restriction on the total amount of bank lending to real estate companies in April 1990. As a result of this restriction, bank

lending to real estate companies declined during 1990. This had a strong impact on land transactions and land prices. In fact, land prices in some districts in Osaka dropped significantly during the latter half of 1990.

1.5.2 Strengthening Landholding Taxes

In order to discourage speculative holding of land, landholding cost has to be raised. Strengthening the property tax would be the most powerful method to achieve this objective.

There is, however, strong opposition to this policy. Since more than half of all households possess land in some form or other, anti-property-tax feeling is strong. Thus, all political parties, including the Communist party, officially oppose any increase in the property tax. Confronted with this political condition, almost all local governments are reluctant to raise assessments in accordance with the rise in the market price of land. As a result, effective rates of property tax on land continue to fall even as land prices rise.

In spite of this situation, the national government has significantly changed its attitude toward land taxes. The Basic Land Law, which passed the Diet in December 1989, recognizes the importance of land tax, though in an abstract expression. The Subcommittee of Land Tax, which was established in the Tax Council in April 1990, released a report in October 1990, recommending the introduction of a new landholding tax. The new national tax is imposed on relatively large landholdings. If this tax were successfully introduced, land use patterns in Japan would change significantly. Unfortunately, however, the new tax was weakened significantly by the Liberal Democratic Party (LPD).

1.5.3 Liberalization of the Land Lease Law

In view of the fact that the Land Lease and Building Lease Laws are major causes of the land problem, choking the new supply of land and houses for lease, it is necessary to relax the restrictions imposed by them or to completely abolish these laws.

The Legislative Council of the Ministry of Justice has been studying options for amending these laws. It released a draft amendment in February 1989 and submitted it to the Diet in 1991. The amendment proposed a new type of leasehold called a "fixed-term leasehold," which was a step forward. Under this arrangement, the lessee must return the land to the landlord when the contract expires. The amendment, however, did not pass the Diet, due to objections by the opposition parties.

In principle, liberalization of contracts hurts neither the lessor nor the lessee. Unfortunately, this vital point is not recognized by the public, and the present laws are still regarded as necessary protection for the underclass.

1.5.4 Securitization of Land

Leasing of land means that its owner keeps economic benefits from ownership while the land is used by others. As mentioned before, however, few Japanese landowners are willing to lease land because of the disadvantage arising

under the existing Land Lease Law. Under such circumstances, securitization is an effective tool for separating ownership from the utilization right.

One possible method is for the government to issue government bonds whose value appreciates in step with a rise in the market price of land. This bond could be called a "land-price-indexed bond."[17] It in effect creates "paper land." The government would be able to use this bond to purchase land, especially land held solely for the purpose of obtaining capital gains. If the owners of idle land agree to securitize their ownership, their land can be used by the government or by other public bodies. In this way, the separation of ownership and the right to use the land would be realized.

A number of obstacles must be overcome before the land-price-indexed bond can be issued, such as the restrictions imposed by the Securities and Exchange Law and technicalities of taxation. These notwithstanding, to the extent that the land problem in Japan is rooted in the widespread attitude that land should be treated as a type of marketable asset, securitization of land could become one of the most powerful tools of land policy.

References

Economic Planning Agency. 1989. *Hesei Gannendo Keizai Hakusho (The 1989 economic White Paper)*. Tokyo: The Government Printing Agency. (English translation available).

Miyao, Takahiro. 1988. *Toshi to Kezai no New Trend (New trends in cities and economy)*. Tokyo: Nihon Hyoronsha.

National Land Agency. 1985–1989. *Tochi Hakusho (The White Paper on land)*. Tokyo: Government Printing Agency.

Nishimura, Kiyohiko. 1990. Nihon no Chikakettei Mechanism (The mechanism of land price determination in Japan). In Kiyohiko Nishimura and Yoshiro Minowa, eds., *Nihon no Kabuka Chika (Stock price and land price in Japan)*. Tokyo: Tokyo University Press.

Noguchi, Yukio. 1989. *Tochi no keizaigaku (Economics of land)*. Tokyo: Nihon Keizai Shinbunsha.

17. This idea was first proposed by me in 1979.