

Land Conversion at the Urban Fringe: A Comparative Study of Japan, Britain and the Netherlands

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Summary. In the 1980s, the multiplier between land values for agricultural and urban uses was found to run at 50–200 (times) or even higher in the areas surrounding expanding cities in Japan and Britain, compared to 2–3 in the Netherlands (no servicing costs considered). The Japanese experience suggests that this socially inexcusably large gap may result mainly from the speculative motives of landowners rather than from alleged excessive public regulations of development. A more desirable policy orientation is proposed, whereby landowners, either sellers or buyers of greenfields, should bear more explicitly the social costs of land-use conversion rather than merely relying on the loosening of development regulations to remedy problems.

Introduction

“Jumping from roof to roof, you can travel from Tokyo to Osaka (approximately 350 miles apart along the Pacific Megatropolis) without stepping on the ground” (Shiro Tobata).¹ This statement was made by Japan’s most respected former Vice-Minister of Agriculture, Forestry and Fisheries in the early 1960s when *kodo keizai seicho* (high speed economic growth) was about to start. The image vividly depicts the massive urban sprawls characterising development across the country in the latter half of the century.

In contrast, 20–25 minutes after the Inter-city train left London’s King’s Cross station for Edinburgh, Scotland, the author was impressed to see nothing other than green fields

extending to the horizon. The same was experienced when he left the Paris Montparnasse station by TGV for Bordeaux.

Over six million people inhabit this area (the Randstad formed by the four largest cities of the Netherlands, Amsterdam, Rotterdam, The Hague, and Utrecht), which thereby forms one of the largest urban regions of Western Europe. Yet, travelers from abroad arriving at Amsterdam’s Schiphol Airport are more likely to get the impression that they have landed in green, water-rich agricultural and recreational area rather than in the middle of a metropolis. They will search in vain for the sky-

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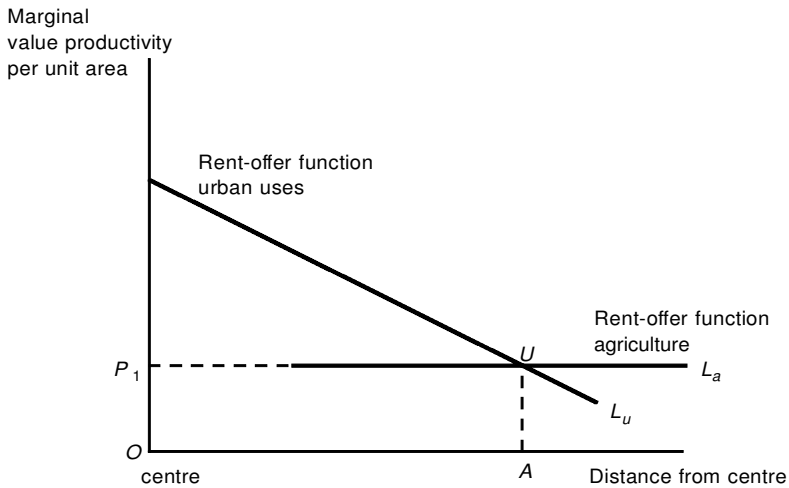


Figure 1. Allocation of land between urban and agricultural uses.

line of towering office buildings, so characteristic of the modern big city. Nevertheless, the urban structure is very compact, in spite of the lack of office towers. And *the separation of urban and rural land is uncommonly sharp* (Dieleman and Musterd, 1992, p. 1).

When the author lived in Holland for some time late last autumn, he shared exactly the same impression as the “travelers from abroad” which Dieleman and Musterd describe above.

Extremely high agricultural land prices (Tables 1, 3 and 6) ‘floated’ (Adams, 1994, p.35) by the hopes of conversion for urban uses are alleged to have impeded the restructuring of Japanese agriculture through enlargement of farm operations as intended by the Agricultural Fundamental Law of 1961 (Japanese Government, MAFF, 1997, pp. 78–79). The average size of Japanese farms increased marginally from 1.0 to 1.3 ha in area per farm during the period 1960–90 when per capita real GNP more than quintupled. That in Great Britain and the Netherlands increased more significantly from 32 to 70 ha and 9.0 to 16.0 ha respectively over the corresponding period.²

Japanese agriculture has failed to supply competitively the increasing domestic de-

mand, particularly in land-related divisions, such as grains and potatoes. Self-sufficiency in terms of supplied energy fell from 60 to 41 per cent from 1970 to 1989. On the other hand, in Great Britain and the Netherlands, which share similar land resource limitations,³ self-sufficiency increased from 48 to 74 and 71 to 100 per cent, respectively from 1970 to 1986 (personal communication, Mitsuhiro Nakagawa, National Research Institute of Agricultural Economics, Japan, 1997).⁴

Approximately 750 000 ha, nearly one-third of paddy fields, are set virtually idle and only one-tenth of it is double-cropped for wheat, barley, rape seed etc., which are in great demand. Land in Japan could have been exploited more efficiently for both the urban and rural interests had more appropriate land conversion policies been in effect.

Theoretical Models of Land Use

Figure 1 represents the simplest two-industry model. Industry *u* represents urban uses, mostly offices, and housing and industry *a*, agriculture, according to most introductory textbooks on land prices (see, for example, Winger, 1977, p. 95). It is assumed, for simplicity’s sake, that the rent-offer function for agriculture, L_a is flat, as its product is sold

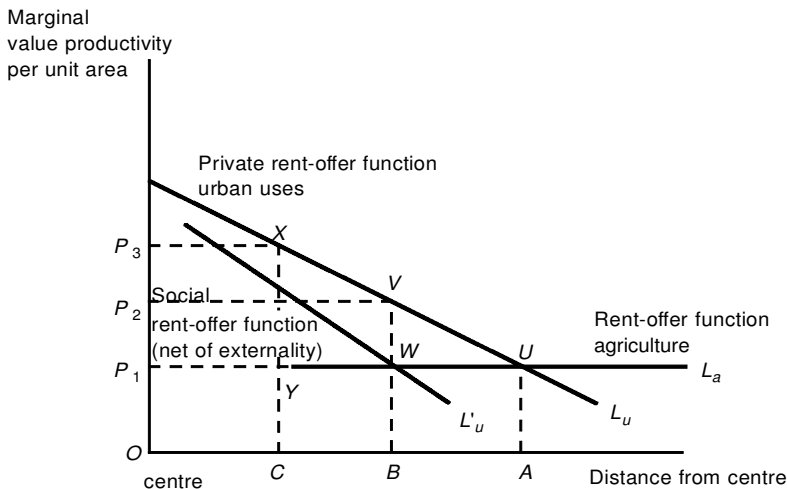


Figure 2. Allocation of land between different uses when (negative) externalities are present.

in large regional or national markets and that for urban uses, L_u is declining.

Under a free, unregulated market, the land between the centre and A will go to urban uses and all further land will go to agriculture. A represents the socially optimum demarcation where the L_u intersects L_a at U .

Figure 2 represents the more realistic case where externalities are present. Urban uses confer negative externalities such as pollution and congestion, whereas there are assumed to be no externalities associated with agricultural production. If we assume increasing (marginal) negative externalities as urban uses expand or increasing costs required for infrastructure and/or compensation, the rent-offer function net of these externalities, or the social demand curve becomes L'_u instead of L_u , intersecting L_a at W . This socially optimum demarcation at B can be achieved through public regulation if the magnitude of the social costs associated with urbanisation can somehow be measured objectively.

The land price (derived from rent) for urban uses at the socially optimum margin, B , would be then P_2 (equivalent) higher than that for agricultural use, P_1 .⁵ The balance, $P_2 - P_1$, should be equal to the marginal social cost at B . If virtually all additional

residents at the urban-rural fringe commute to the city centre to work, their addition would confer social costs on all other commuters in the form of congestion. This would add up to an enormous magnitude, and the loss of nearby green, open space from the dwellers in what was previously the urban edge should also be counted. If so, it may not be difficult to conceive intuitively that the difference between P_2 and P_1 logically exceeds P_1 by several factors, say by 5–10 times or more in some cases.

The socially optimum allocation between urban and agricultural uses can be achieved either by levying a 'Pegovian tax' equal to $V - W$ or $P_2 - P_1$ on land to be developed for urban uses or planning controls, such as planning permission in the case of Great Britain, zoning in the US and Japan, and planned development by the municipalities in the Netherlands. In any case, it is desirable that a good part, if not all, of the difference between P_2 and P_1 should accrue to the public, not to the owners of the land developed.⁶

Point C along the horizontal axis in Figure 2 represents the case of excessive regulation. Here the allotment of land to urban uses falls short of the socially optimum point, leading to even greater discrepancies between urban and agricultural land prices at the margin. As

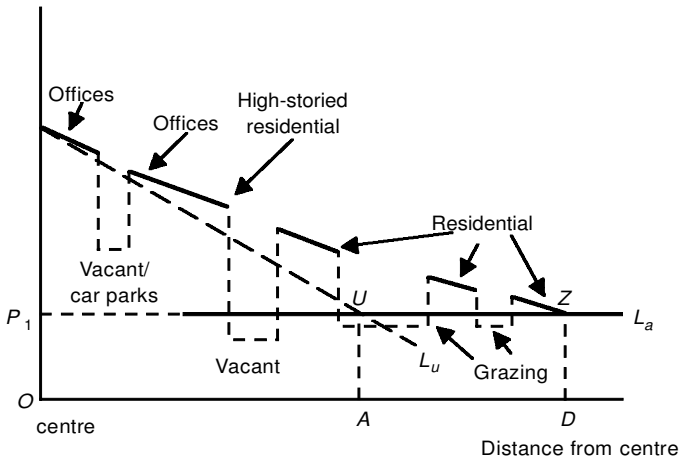


Figure 3. Actual land uses where speculation is dominant: the case of urban sprawls.

will be referred later in this paper, England in recent years is alleged to represent this case, a situation characterised by the charge, ‘No room! No room!’ (Evans, 1988). Today’s Randstad Holland has been similarly characterised: “Too many cows and not enough houses” (Wusten and Faludi, 1992, p. 27).⁷

Figure 3 demonstrates even more realistic actual cases pertaining to Japan in particular, where speculation dominates the land market with or without regulation. The basic structure of Figure 3 is the same as that in Figure 1 and the demand for urban uses at price P_1 is assumed to be the same at OA along the horizontal axis. As is the case with many parts of Japan, the area is divided into *toshika* (urbanising) and *chosei* (urbanisation-curbing) districts, although in practice it has not been very difficult to obtain development permission (for urban uses) in the latter districts.⁸

Some landowners, either in *toshika* or *chosei* districts, may have higher anticipated rents or prices for their land in the foreseeable future than they can get under present conditions. If they lease their land, normally on long-term contracts, or have some fixtures built on their land, they are likely to be in a less advantageous position when they want to use it for other purposes or to sell it in the future rather than keeping it in a less-intensive or relatively idle form.

This may explain, to some extent, why there are large areas left undeveloped or as surface car parks near the city centre, or vacant lots in the residential district, as shown in Figure 3. Likewise, some farmers in and around the city periphery, at point A , might be less inclined to invest for more intensive production. Instead, the owners prefer to leave their land for grazing, with little income from farming for some time-period.

Cities are usually surrounded on all sides by agricultural land. If development takes place sporadically, as shown linearly by Figure 3, or spatially by Figure 4, many landowners within the surrounding area may hope one day to be able to sell their land for development at a price substantially higher than its value in the current agricultural use. However, as can be observed in Figure 4, only a relatively small area of land would actually be demanded for development. “Development value thus ‘floats’ over an extensive agricultural area” (Adams, 1994, p. 35).

If this ‘floating’ happens, the agricultural production in the area tends to be adversely affected. Many farmers would become less willing, if not hesitant, to invest in improvements and even for maintenance. As the supply price of land owned by such farmers rises far above the current use value in the hope of

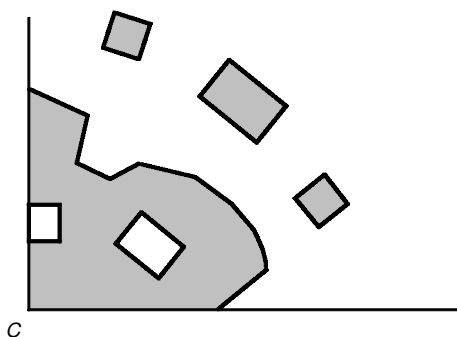


Figure 4. Actual land uses where an expanding city is surrounded by agricultural land with sporadic developments. *Note:* developed areas are stippled.

‘floating value’, those farmers who want to remain in agriculture would find it hard to enlarge their operations. As leasing involves somewhat long-term investments in many cases, the possibility of enlargement by acquiring adjacent farm land or entry by newcomers through leasing would be severely limited, if, in fact, the said leasing fees are not exorbitant.⁹

Comparative Case Studies

Public Policy for Land

Based on Toshi Keikaku-Ho (the Urban Planning Act) of 1968, most cities and the surrounding areas were delineated into *toshika* (urbanising) and *chosei* (urbanisation-curb) *kuiki* (districts), as mentioned previously. By the Act, *toshika kuiki* is defined as an area which should be urbanised within approximately 10 years after the delineation and *chosei kuiki* is an area where urbanisation should be curbed.

Virtually all the land within the former areas is basically free to be developed, only subject to the routine guidelines of governments, national, prefectural and/or city, and, in the case of large-scale development, rather elaborate, specific guidance by the local government. In contrast, new development is strictly regulated in the latter (*chosei*) districts. However, permission for development has been often granted in the case of large-scale sub-divisions for public housing and

facilities (see note 8) and *senbiki* (delineation) will be reviewed every 10 years or so. Therefore, all landowners, even in the remote country, if not adjacent to expanding big cities, may hope one day that their land will be demanded for development, especially when the economy is booming.

In the UK, however, virtually all ‘developments’ have historically been subject to planning permission.¹⁰ After the passage of the Town and Country Planning Act in 1947, each local authority was required to produce a development plan under the guidance of higher-level authorities. Many big cities are surrounded by green belts, areas in which development restrictions are stronger than in the wider countryside (Elson *et al.*, 1996a and 1996b). Applying for planning permission often proves to be a lengthy, and very costly, process (Barlow, 1993; Bramley, 1993; Evans, 1991; Adams *et al.*, 1992).

In the Netherlands, “the critical land problem for many centuries was how to prevent inundation of the land, caused by the erosion by the sea and sinking ground levels” (Needham, 1995, p. 1). This led to the Dutch having “quite unique national physical (land) planning which has forged links with provincial and, indirectly, with local planning” (Wusten and Faludi, 1992, pp. 18–19). As mentioned briefly in the previous section, “the municipalities act as both planning authority and the supplier of building land at the local level” (Badcock, 1994, p. 428). Munic-

Table 1. Housing and agricultural land prices in Great Britain, selected case-study areas (£1000s/hectare)

| Year | Reigate | | Wokingham | | Beverley | |
|------|---------|--------------|-----------|--------------|----------|--------------|
| | Housing | Agricultural | Housing | Agricultural | Housing | Agricultural |
| 1980 | 97.0 | 3.46 | 219.0 | 6.18 | 88.0 | 4.30 |
| 1985 | 629.0 | 4.45 | 474.0 | 5.56 | 140.0 | 5.30 |
| 1990 | 972.0 | 4.94 | 1070.0 | 6.79 | 480.0 | 4.94 |

Source: Monk *et al.* (1996, p. 504).

ipalities acquire land from the owners of greenfields, service it and resell or lease it to builders of houses and offices. It is estimated that 77 per cent of all building land was supplied by municipalities between 1978 and 1982, and the practice may not have changed since (Needham, 1992, p. 670).

Special mention should be made of the 'Green Heart' which is a green, open space aggressively preserved in the middle of the Randstat Holland.

Just as London's Green Belt (and other open spaces, see Turner, 1992) would be unthinkable without the conurbation it contains, so does the 'Green Heart' imply the urban form, containing urban development on the rim around an open area in the middle (Wusten and Faludi, 1992, pp. 17–18).

Land Prices

It is almost impossible to compare directly the price of land for housing and/or houses at the international level. This is due to various structural differences in the land and property markets, even setting aside problems associated with foreign exchange. For example, in Japan the land is usually developed by private real estate firms and then resold to owner-house builders (for owner-occupied housing) in individual units (see next section for the average size). In the Netherlands, however, it is developed mostly by municipalities and resold or leased to builders of social rented housing, sometimes at politically differentiated prices involving large

subsidies (Needham, 1992, p. 680; Dieleman, 1994b). It is estimated that,

in Amsterdam about 80 percent of the land is owned by the city government, while in Den Haag the figure (65 percent) is boosted by the addition of land supporting the State's institutions (12 percent) (Badcock, 1994, p. 430).

The author visited western Europe, mainly Great Britain and the Netherlands for a few months in the autumn of 1996. His impression as a 'traveller from abroad' is that housing is surprisingly cheaper in terms of rent or transaction price in the Netherlands and not appreciably cheaper in Great Britain than in Japan, while food in general is not remarkably cheaper in either country than in Japan, whether it is eaten at home or away from home.¹¹

Tables 1–3 show an approximate comparison of land prices for Japan, Great Britain and the Netherlands in the 1980s. The tables seem to indicate that: the price of housing land is by far the highest in Japan, whereas agricultural land prices vary relatively little among three countries when the precise uses and locations are ignored; and, the price of housing land rose dramatically both in Japan and Great Britain over the 10-year period in the 1980s, while very little real increase was observed in the Netherlands over the same period.¹² The problems of land conversion from agricultural to urban uses and changes in land prices over a longer period of time will be addressed in detail in subsequent paragraphs.

It has been often reported in the Japanese press that the north-western corner of Ginza

Table 2. Housing and agricultural land prices in the Netherlands (Hfl 1000s/hectare)

| Year | Serviced building land, social rented housing | Agricultural land farms/grazing land |
|------|---|--------------------------------------|
| 1982 | 1310 | 35.0/26.0 |
| 1985 | 1070 | 44.0/37.0 |
| 1990 | 1110 | 62.0/50.0 |
| 1992 | 1180 | 66.0/49.0 |

Source: Needham (1995, p. 11).

Table 3. Housing and agricultural land prices in Japan, excluding Hokkaido and Okinawa (1000s yen/hectare)

| Year | Agricultural land for farming use | | | Agricultural land for housing use | |
|------|-----------------------------------|-------------------------|------------|-----------------------------------|------------|
| | Agricultural area | Urban planning area | | Urban planning area | |
| | | Urbanisation curtailing | Urbanising | Urbanisation curtailing | Urbanising |
| 1975 | 12 900 | 56 000 | 139 000 | 97 000 | 228 000 |
| 1980 | 13 300 | 67 000 | 203 000 | 132 000 | 364 000 |
| 1985 | 16 800 | 97 000 | 211 000 | 182 000 | 522 000 |
| 1990 | 19 000 | 155 000 | 480 000 | 298 000 | 876 000 |

Sources: Personal communication, Hiroaki Kobayashi, National Research Institute of Agricultural Economics, MAFF, Tokyo; Japan Chamber of Agriculture (various years).

4th Street has the highest land value in Japan or even in the world, assessed at nearly US\$500 000 per sq m. This does not suggest that all the sites for buildings in downtown Tokyo are that expensive, although the metropolis of Tokyo may be the highest with respect to land prices in the world. As illustrated in Figure 5, rent tends to decline from the centre to the periphery of the city, sharply in London and Paris, but only marginally in Amsterdam and Brussels. This phenomenon of rent gradients might be of concern for some researchers but will not be discussed in this paper. Here the author will address the issue of land prices at the periphery or urban-rural fringe.

Figure 6, which replicates Figures 1 and 2, illustrates land prices at the periphery, P_1 under a free market (no externalities assumed), and P_3 with some planning control. Suppose the demand curve for urban uses or the rent-offer function of urban uses shifts due to greater activities in the city. The

additional land of AA' will be converted from agricultural to urban use with the land price at the periphery remaining at P_1 . If no additional land is permitted to shift from agricultural to urban uses in the presence of planning control, the land price will rise from P_3 to P_4 . Even if new additional land is permitted for urbanisation, a rise in land price will be inevitable if the addition falls short of CC' on the horizontal axis in Figure 6. This discussion assumes that the rent-offer function of agriculture stays more or less the same during the period in question, a consideration which may hold true for the countries discussed above over the past 15 years or so.¹³

Land Development Costs

Converting agricultural land to urban uses often involves investments in infrastructure such as roads, sewers, utilities and schools, as well as open space on the social scale and

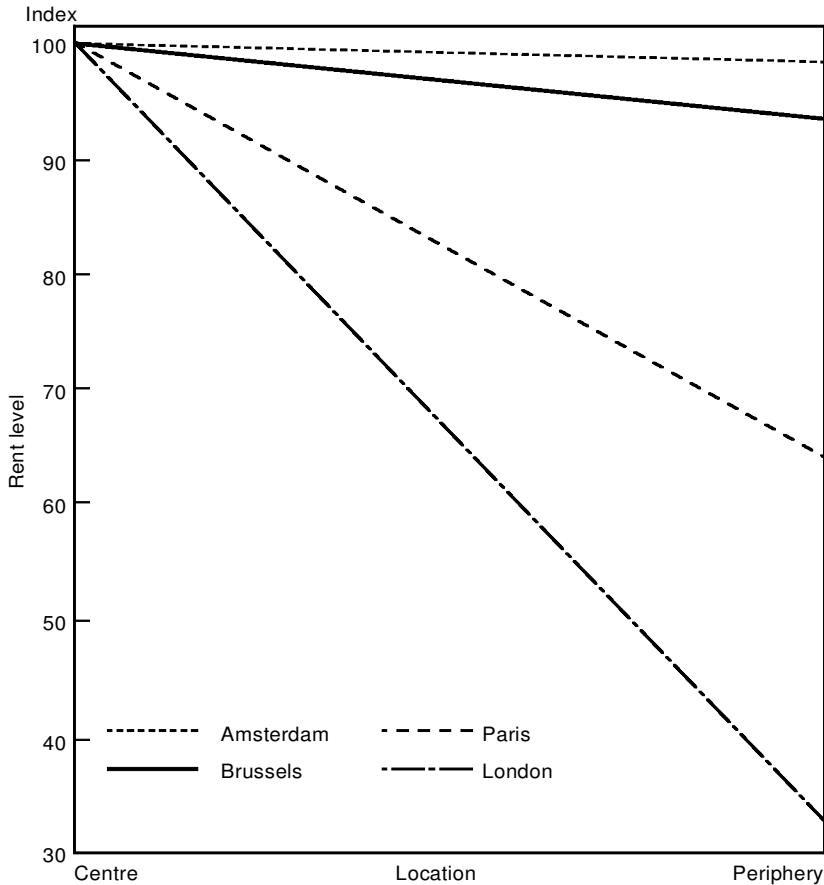


Figure 5 Rent gradients for selected European cities. *Source:* Badcock (1994, p. 432).

fencing, drainage, landscaping, etc., on the individual, private scale. When a small tract of land is converted in the already-developed area, it may not involve substantial costs, whereas developing a relatively large area for a 'new town', for example, would require a huge amount of direct/indirect expenses on the part of developers, local governments and communities. Who should bear these costs, and when, have always been major economic as well as political issues.

Servicing wet low land, as found in many parts of the Netherlands, for intensive urban uses, such as modern office buildings and multi-storey apartment complexes, requires much more expense than similar development of dry, high land areas which do not need large-scale provision of drains and hard

surfaces. In the case of Lindenholt, within the city of Nijmegen in the east of the Netherlands, servicing costs (in a narrow sense) alone accounted for nearly 60 per cent of the total land development cost, as compared to 13 per cent for acquisition costs (as shown in Table 4). Needham estimates that the total costs of preparing greenfield sites for housing construction (including acquisition) were around DFL 50 per square metre of the total plan area in the 1970s and in later years a little higher. Compensation for loss of existing use: DFL 4; compensation for land supplier: DFL 6; other costs (mainly servicing) DFL \pm 40 (Needham, 1992, p. 680). If the land developer (the municipality) disposes of around 50 per cent of land in an area planned for housing (re-

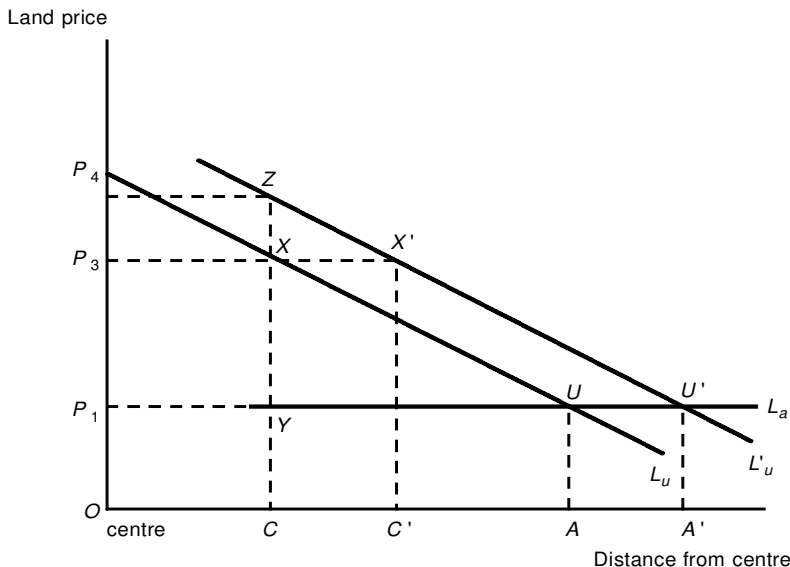


Figure 6. Land prices at the periphery where there is a free market and where there is some planning control.

servicing the rest for roads and public open space, etc.), the price which municipalities paid for acquiring rural land averaged around 10 per cent of the disposal price in the first half of the 1980s.

It is estimated by Barlowe (1978) that developing raw land for residential uses represents, in a typical example, 30–50 per cent of the price of average residential plots in the US in the 1970s, with the remaining 50–70 per cent spent for acquiring the raw land. A breakdown of typical servicing costs is shown in Table 5. The percentage cost of servicing raw land in the US seems substantially lower than that in the Netherlands (80 per cent), due to the easier civil engineering requirements. In addition, some of the costs associated with infrastructure investments are borne by the communities in the form of local tax in the US.¹⁴

In many parts of Japan, however, agricultural land has been converted for urban uses piecemeal in the surrounding areas of expanding cities, with infrastructure only inadequately prepared in advance. The average plot size of agricultural land converted to

housing sites, including those for construction of several individual houses and/or apartments in *toshika kuiki* was 364, 400 and 423 sq m, respectively in 1970, 1980 and 1990 (*Ownership Transfer and Conversion*, 11C, Vol. 2, various issues). In such a case as this, servicing farm land for residential uses costs almost nothing other than the extension of water pipes and electricity. The seller (the owner of previous farm land) gets net what the buyers would pay for housing sites. Migration of population into the area will often cause pollution, such as dumping of waste water into previously clear country brooks, and congestion on the narrow country roads, and will tend to squeeze the finance of local governments for more schools and public facilities.

The Gap between Agricultural and Urban Land Values

In the absence of any sort of planning control, the land value of urban use, say for residential purposes, should not exceed, at the urban periphery, that of agricultural use

Table 4. The finances of the land development process: the case of Lindenholt, Nijmegen

| | Hfl | Hfl |
|---|------------|-------------|
| <i>Expenditure</i> | | |
| Acquisition costs | | 21 400 000 |
| Attendant costs | | 439 000 |
| Demolition costs | | 526 000 |
| <i>Servicing costs</i> | | |
| Drains | 18 998 000 | |
| Hard surfaces | 37 997 000 | |
| Public open space | 10 971 000 | |
| Street lighting and fire hydrants | 6 596 000 | |
| Other works | 21 438 000 | |
| Total servicing costs | | 96 000 000 |
| Costs of making the plan | | 14 550 000 |
| Contribution to fund for 'supra-district facilities' | | 5 982 000 |
| Interest payments and cost increases | | 30 103 000 |
| Total | | 169 000 000 |
| <i>Income</i> | | |
| Lokatiesubsidie | | 6 100 000 |
| Land disposals | | 147 100 000 |
| Total | | 153 200 000 |
| Loss | | 15 800 000 |

Source: Needham *et al.* (1993), Table 6.1).

by the cost required for conversion. Actually, however, the market value of land for residential or industrial uses exceeds, to a considerable extent, that for agricultural purposes. The price for farming land, in turn, is far above the value derived from the net

rental return from agricultural production in many parts of Japan, if the extreme cases in the suburban areas of Tokyo and Osaka are excluded.

As shown in Table 6, which is derived from one of the recent OECD publications on land policy, the price of paddy fields, even in the agriculture promotion zone, is estimated at 20 million yen per ha, greatly exceeding the income capitalisation value of 3.6 million yen in 1993 in Japan. The paddy fields in the urbanising zone, which are free to be developed at any time, are estimated at 531 million yen, on national average. This is nearly 150 times that of the capitalisation value. Paddy fields in the urbanisation-curbing zone are estimated at 161 million yen per ha on national average, boosted outrageously above the rent-derived value, by almost 50 times. There is no question that these 'floating values' may have adversely affected Japanese agricultural production, not only in the urban

Table 5. Approximate percentage ratios of developing costs by major outlays: a case in Fort Lauderdale, Florida, USA

| | Percentage |
|------------------------------------|------------|
| Total expenditure | 100.0 |
| Surveys and grading | 8.0 |
| Street paving | 10.8 |
| Sidewalks | 7.3 |
| Water provision | 14.0 |
| Sewers | 25.2 |
| Drainage, etc. | 5.3 |
| Contractor fees, etc. | 12.6 |
| Taxes, insurance, legal fees, etc. | 17.0 |

Source: Barlowe (1978, pp. 205–206).

Table 6. Comparison of paddy field farm land prices by type and location in Japan, 1993

| | Million yen/hectare |
|--|---------------------|
| Urbanising zone, Tokyo | 3113 |
| Urbanising zone, all Japan | 531 |
| Urbanisation curbing zone, all Japan | 161 |
| Agriculture promotion zone, all Japan | 20 |
| Income capitalisation value, all Japan | 3.6 ^a |

^aThree-year average net rental return divided by a 5 per cent capitalisation rate.

Note: Different English translations are used in this table.

Source: OECD (1996).

periphery, but also in the predominantly agricultural areas. Such ‘multipliers’, of 50–150 times, between the values of land for agricultural and urban uses in Japan compare with those ranging from 50–400 in Great Britain in the 1980s and that of 129 in the South East of England in 1991.¹⁵ Many people seem to agree that the difference between agricultural and urban use land values is ‘staggering’, and ‘inexcusably large’ (B. Needham, personal communication, December 1996), serving to “preserve millions of acres unspoiled for the few and spoil the urban environment for the many” (Evans, 1991, p. 861). Evans and many others regret that “obtaining planning permission is itself financially profitable”. This results in what economists call, “rent-seeking expenditures as developers spend money trying to obtain planning permission. This expenditure results in no useful economic benefit, only a deadweight loss” (Evans, 1991, p. 869).

Japan and Great Britain may, at a glance, look the same with respect to the multiplier between agricultural and urban uses of land. However, a crucial difference should be emphasised here. It has been extremely difficult in Great Britain, considerably more difficult than in Japan, to obtain planning permission for development in rural areas. Thus, farmers or landowners in Great Britain have fewer expectations of success in obtaining permission for development in the foreseeable future.¹⁶ In other words, the hope value of

their land is relatively closer to the current use value than it is in Japan.

In these regards, the land planning system in the Netherlands seems to have functioned superbly efficiently. As already mentioned, the multiplier between the value of greenfields and building land looks to be around 10 at the surface, still substantially lower than in Japan and Great Britain. However, the real or comparable multiplier should stand at 2 or 3, at most, when considering the relatively very high servicing costs on one hand and the very high standard of environmental concerns on the other hand—for example, around 50 per cent of the area usually retained for public space as mentioned in the preceding section.

As noted above, most developments are undertaken by municipalities in the Netherlands. Needham succinctly states, “in practice, most acquisition takes place at around twice existing use value” (Needham, 1995, p. 20), “although it is extremely rare for compulsory purchase powers to be used” (Needham, 1992, p. 670). On the other hand, “in practice, municipalities have not made big profits on land development”, basically because it has been customary to sell building plots at a price set so that total disposals cover total costs (Needham and Lie, 1994, p. 209). The underlying economic reasons may be that competition between suppliers (mostly municipalities) is so severe that “it has been calculated that the current plans (for development sites for office buildings) are

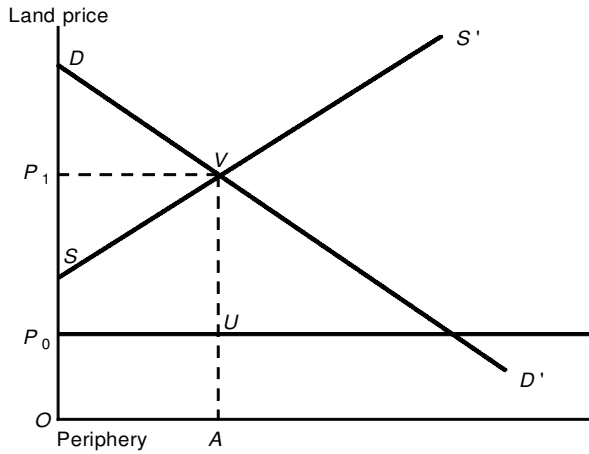


Figure 7. Land conversion from agricultural to urban use.

sufficient for the next 22 years (Utrecht), 26 years (The Hague), 32 years (Amsterdam), 75 years (Rotterdam)!" (Badcock, 1994, p. 445).

The Real Issues and Desirable Policy Orientations in Japan (and Great Britain)

Theoretical Framework

If the hope value is higher, rightly or wrongly, than the current use value or price, P_0 , no holders of property would be willing to sell unless the offered price exceeds their expected net future price discounted at the present value, P'_0 . In the case of land, the net annual return—i.e. the rental return, R , minus the property tax, T —should also be taken into consideration. In a simple mathematical formula, a minimum supply price P'_0 can be expressed as follows:

$$P'_0 \geq \frac{P_t}{(1+i)^t} + (R-T) \left(\frac{1}{1+i} + \frac{1}{(1+i)^2} + \dots + \frac{1}{(1+i)^t} \right)$$

where, P_t is the hope price at the t^{th} year; and i the capitalisation interest rate.

The future hope value may vary considerably from person to person even at the same

location and the capitalisation rate may also differ slightly. The supply curve SS' is thus drawn sloping upwards in Figure 7. No one would be willing to buy land for farming purposes at a price above OP_0 , unless they are planning to resell it for urban uses at higher prices.¹⁷ If economic activities increase in the city, leading to an increase in the demand for urban land, this demand can be represented by the line DD' intersecting SS' at the point V in Figure 7.

OA will be converted from agricultural to urban usage at the price AV or OP_1 at the margin, higher than agricultural use value, OP_0 . As suggested in the preceding section, the multiplier, OP_1/OP_0 can be as high as 50 or even 400 in Japan and Great Britain as compared to around 2 or 3 in the Dutch case, when servicing costs are not considered.

If a farmer in a particular urban fringe area anticipates with some certainty that the price of his land is likely to rise much faster than the interest rate he has in mind, he would tend to hold his land, even if the price offered today greatly exceeds the value derived from the current use. He may also attach some emotional value to his land due to his affinity with the area and so forth—a factor which is called 'consumer surplus' by Evans (1983, p. 173). On the other hand, the would-be buyer may rush to accept the price if it is

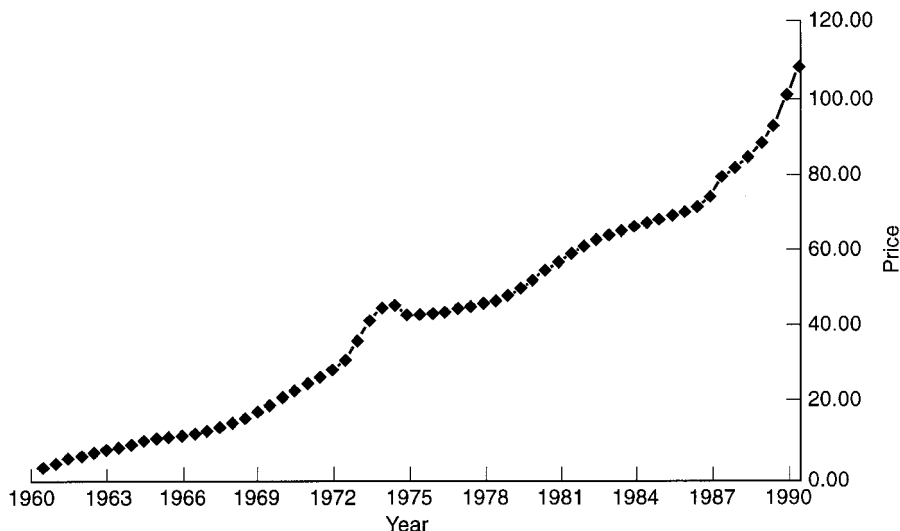


Figure 8. The land price index in Japan, 1960–90, for all land uses (commercial, residential and industrial). *Note:* March 1990 = 100. *Sources:* S. Mori, LTCB International Ltd, London, based on data from the Japanese Real Estate Institute, Tokyo.

considerably below the price he anticipates at a future date, when he will actually need the land for housing.

No one, either on the supply or the demand side, can predict future land price with accuracy. However, if the price has been rising at a fairly constant pace at least for a few years, one might be tempted to assume that it will continue. As a matter of fact, in Japan the land price kept rising steeply without falling, from the early 1960s until 1990 (as shown in Figure 8). A similar steep rise was observed in England from the mid 1970s to 1990 as shown in Table 1 and Figure 9.

Our model, Figure 7, may look too simplistic, compared, say, to Wiltshaw's supply diagrams (Wiltshaw, 1985, Figs 1–3). Facing the market reality of 'multipliers' as high as 50–400, the author is inclined to agree with Neutze in that "this (Wiltshaw's) approach seems unnecessarily laboured and artificial even for heuristic purposes" (Neutze, 1987, p. 381).

If the interest rate is high and/or the property tax levied on land is heavy, this would deter owners from holding land for speculative purposes. However, in a savings-rich

country like Japan, the interest rate from bank deposits has been lower in many years than the rise in CPI (Consumer Price Index).¹⁸ The property tax has been set at 1.7 per cent of the assessed value of land which has been set low for economic and political reasons. In Tokyo and Osaka and their vicinities, it is estimated that the assessed value of land represented only 10 per cent or less of its full market value in the 1980s (Noguchi, 1989, pp. 145–146), implying that the effective rate of property tax on land ran at 0.1–0.2 per cent, at most (Mori, 1990, pp. 217–222).

The property tax on agricultural land has been levied according to its use value instead of its market value. For example, one hectare of agricultural land located in the urban fringe of big cities like Tokyo and Osaka would easily sell for 1000 million yen before servicing for housing or factory sites (see Tables 3 and 6). As long as it is used for agricultural production, its assessed value for property taxation would run at 1–2 million yen, implying an effective rate as low as 0.004 per cent, at most, of its full market value, which is clearly quite insignificant.

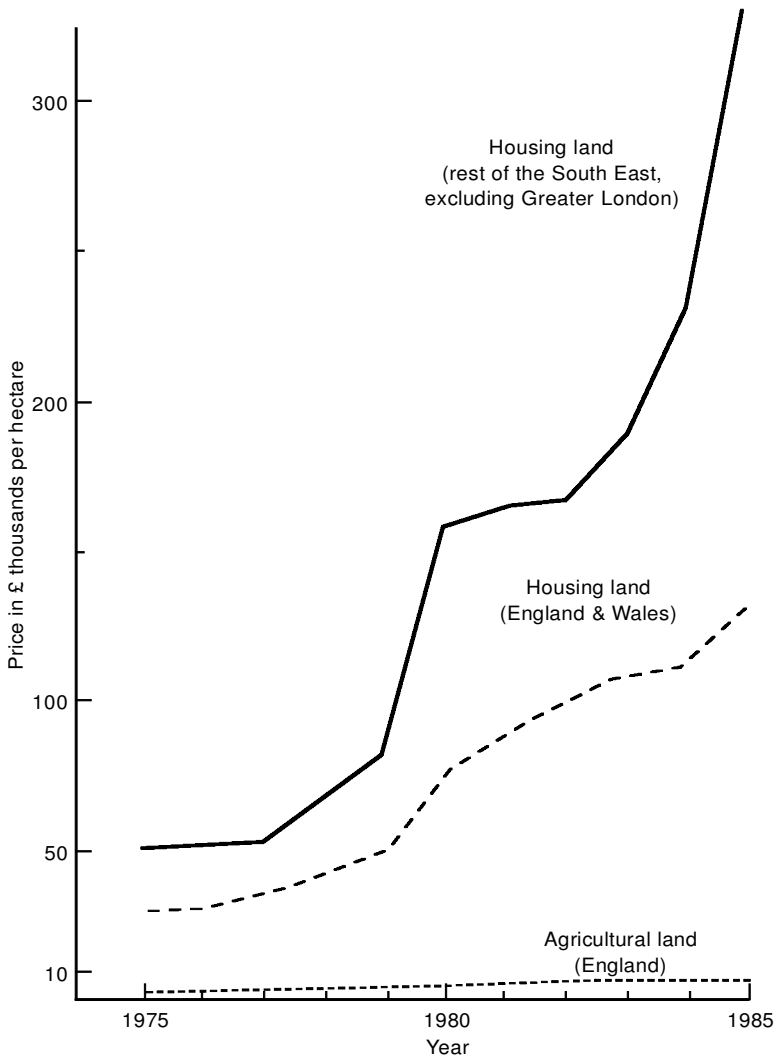


Figure 9. Agricultural and housing land prices in England and Wales, 1975–85. *Source:* Evans (1988), based on government data.

Starting in 1992, however, local governments in the vicinities of Tokyo and Yokohama, Nagoya and Kobe, Osaka and Kyoto began levying a property tax on agricultural land located within *toshikakuiki* (urbanising areas) according to its market value (*takuchi nami kazei*, taxation comparable to housing land), despite strong opposition from agricultural interests. And yet, the effective rate runs still below 0.1 per cent in most cases—insignificant in percentage but probably ex-

ceeding, in an absolute amount, the rental returns from agricultural production.

Policy Proposals

In Japan there has been a prevailing argument that a large amount of agricultural land in *toshikakuiki*¹⁹ would be converted to urban uses, should *takuchi nami kazei* (taxation according to housing value) be put into practice, this leading to substantial decreases in

housing land prices. The author was one of the few who were sceptical about this argument because, as he thought, the effective rate of the property tax on urban land itself was so low (only 0.1 per cent of the market value) that a sale of one-hundredth of the land in area would be sufficient for 10-year payments of the property tax on the entire holding. Or, as Noguchi put it, a conservative 2 or 3 per cent interest proceeds from a sale of one-twentieth of the land would suffice for the payment of the property tax permanently (Y. Noguchi, personal communication, 1991). So the effective rate should be increased substantially, some economists insisted. However in most municipalities, the revenue from property tax has been running at 35–40 per cent of the total revenue, balancing that from income-based local tax in Japan. No reason exists for raising the (effective) rate of property tax unless much bigger local governments are desired (see Mori, 1990, 1991).

If the economy continues to prosper, the demand for land for urban use will increase in area, encroaching on agricultural land in the urban periphery, and so its value and prices are very likely to rise in the long run. However, the real problems here are neither how to contain urban growth within the old city limits, nor how to control the surge in land prices for urban uses.²⁰ The real issues are: how to internalise the external diseconomies which accompany urban growth; who should pay the costs, and how; and, how to keep urban sprawl under control.

When urbanisation takes place in many parts of Japan, improvements in infrastructure such as roads, sewers and schools follow only belatedly and in an insufficient manner, particularly in *toshika kuiki* (urbanising districts). Often these costs have been financed by the tax revenues of those who have already lived in the same municipality. In the case of public railways, for example, the costs are paid by those who have been using the older section in the form of raised fares and more congestion. It has been quite rare for the former landowners, farmers, directly to bear the costs, as they sell their land as it

is, on the tacit assumption that the local governments will some day undertake investment in the infrastructure around their land.²¹ In most urban–rural fringes, farmers contribute very little to the revenue of the local governments, both from property tax on their agricultural land and from their incomes from agricultural production, despite the fact that many of them are actually ‘billionaires’ as landholders.²²

If the rule is that land should be serviced to high standards, as is the case in the Netherlands, and this includes not only improvements on and around individual plots, but also adequate contributions to local governments for subsequent larger-scale infrastructure investment, the net value farmers should get for raw land would be substantially less. If farmers located in *toshika kuiki* would take responsibility for internalising the social costs involved in urban development, they should not be accused of any development profits or planning gain which might accrue to them from development. However, if all of the development gains were siphoned through taxes, then there would be no incentives for private development, resulting in increases in housing land prices and ‘town cramming’ in the already-developed areas.

Only as long as the owners and/or purchasers of formerly agricultural land and private developers fully bear the cost of development (i.e. including internalisation of the social costs involved in development) is social justice achieved, by letting the market lead the way. Depending upon the growth rate of the general economy, the economic conditions of the area in question, and the social determination to protect the urban–rural environment, though, it would be inevitable for urban land to continue to rise in price in the long run. But, this rise would have been moderately lower than in past decades in both Japan and Great Britain, if the simple principle had been in operation whereby the owners, seller/buyers, of the land pay the full social costs of conversion. Further research is warranted to determine quantitatively what constitute externalities of development at the urban fringe in various cases.

Notes

1. Personal communication with Shiro Tobata when he served as Secretary General of Nōsei Chōsa Innkai (Agricultural Policy Committee), Tokyo.
2. Data courtesy of the Japanese Government, MAFF, Minister's Secretariat, Survey Division, June 1997.
3. Per capita arable land was 0.04 ha in 1990 in Japan, compared to 0.12 in Great Britain and 0.07 ha in the Netherlands, respectively, in the same year (*The World Almanac*, 1996).
4. Although the Netherlands does not produce much grain, it produces a large amount of horticultural products in terms of value. In 1990, 11 981 million Dfl of total horticulture (more than half flowers and plants), as compared to 478, 1490 and 840 million Dfl of cereals, potatoes and sugar beet, were produced (*Facts and Figures 1996/97*, Ministry of Agriculture, Nature Management and Fisheries, The Hague).
5. No servicing costs for converting agriculture land for urban uses are assumed at this point. These are discussed later in this paper.
6. It is not determined whether $P_2 - P_1$ is equal to the total cost of improvements in the infrastructure required to internalise the externalities of urban development.
7. "To preserve agricultural land close to urban agglomerations made sense in the 1950s when memories of wartime shortages were still vivid. What Schaefer (an Amsterdam politician) expressed so clearly is that agriculture is held responsible for overproduction and for a great deal of pollution ... So why preserve it?" (Wusten and Faludi, 1992, p. 27).
8. According to the latest *White Paper on Land* (1996, p. 308), published by the Japanese government Land Agency, a little more than 60 per cent of the total area permitted for development from 1989 to 1994 was located in *chōsei kuiki* (urbanisation-curbng districts). The situation was quite similar in previous years (see Mori, 1990, p. 214).
9. The cash rent for paddy fields is reported to average 20–25 per cent of the gross return from rice production in most areas (*Attached Statistics for 1996 White Paper on Agriculture*, p. 228). It can be understood, however, that most landowners are reluctant to lease their land in fear that it will not be returned when they want to sell it unless a large amount of compensation is paid to tenants which has often been the case in Japan.
10. "Planning and land use are subject to the Town and Country Planning Act which has remained essentially the same since 1947. According to the Planning Act, all uses of land should be defined within a 'use-class order'. For any development, planning permission is required. As in Germany, this gives the local government a strong instrument for control" (Needham and Lie, 1994, p. 207).
11. The price of most property is low by comparison with other developed countries. For example, the average price of a dwelling bought in 1992 (= 154.200 Hfl) was equivalent to 3.88 times the GDP per person (= 37.200 Hfl in 1992) or 1.8 times the GDP per household: the average price of a plot of land for dwelling (for sale, unsubsidized = 57,500 Hfl) was 1.54 times the GDP per person and 0.68 times the GDP per household" (Needham, 1995, p. 8). See also Dieleman (1994).
12. The price index GDP increased approximately 15 percentage points from 89.3 to 105.4 during the 10-year period from 1982 to 1992 in the Netherlands (Needham, 1995, p. 9).
13. The price that rice producers receive has been kept from rising since 1980. There has been little increase in productivity over the same period in Japan. Thus the rise in farm land prices, even for production purposes (Table 3), should be attributed to speculative motives.
14. "The percentage of local tax in Dutch municipalities is very low (5–6 per cent in the early 1980s) compared to that of municipalities in other European countries (approximately 55 per cent in West Germany, approximately 40 per cent in UK and France, respectively). American cities and councils, for instance, depend on taxation within their own territory for 70 per cent to 85 per cent of their general funds" (Dieleman, 1994a, pp. 31–32). Residents in the US pay for the social benefits largely by local tax payments after they move into an area.
15. Evans writes, "The price of land in agricultural use in the vicinity of Reading is of the order of £2,000 per acre, but with permission for residential development the price can rise to between £500,000 and £1 m per acre. The price might have been even higher one or two years ago" (Evans, 1991, p. 854). Monk *et al.* (1996), Adams and May (1992), and Adams *et al.* (1992) agree in presenting 'multiplier' figures ranging from 50–200 in Britain in the 1980s.
16. Based on their extensive case studies, Adams and May (1992) report the extent of landowners' involvement in the local planning process and their expectations of success in obtaining permission.

17. The fact that the price of paddy fields in the Agriculture Promotion Zone sold for 'production purposes' far exceeds the capitalisation value (Table 6) suggests that the purchasers might hold the hidden hope of future resale for development purposes.
18. The annual rate of increase in CPI averaged approximately 5.6, 8.7 and 2.8 per cent, respectively, in the 1960s, 1970s and 1980s, whereas that of the interest on a one-year bank deposit was approximately 5.6, 6.0 and 4.0 per cent, respectively, during the same periods.
19. When *senbiki* (delineation) based on the Urban Planning Act was completed in 1974, there existed 304 000 ha of agricultural land in *toshika kuiki*, accounting for 25 per cent of the total area designated by the act (Mori, 1990, p. 214).
20. Compared to most western European countries, Japanese seem to have exceptional preferences towards *kodate no uchi* (detached houses with their own gardens) even in the cities. This might accelerate the need for land space when housing demand increases. Some Westerners could argue that urban growth should be more wisely 'contained'.
21. Proceeds of a sale of agricultural land are usually heavily taxed by the national government at varying rates depending on factors such as how much, when, for what, etc. Therefore, the seller indirectly contributes to the public funds by not a small amount.
22. The great majority of farmers in and around the bigger cities are part-time farmers whose incomes from other sources are normally taxed.

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