EFFECTS OF LAND VALUE TAX ON LAND USE

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Anne Haila
Helsinki University of Technology
Otakaari, Espoo, Finland

There are many claims about the effects of land value tax on l
use that look incompatible at the first sight. On one hand the
is said to be neutral, i.e. having no effects on resource allo
tion. On the other hand this neutrality has been contested. On
hand land value tax is said to promote the intensification of
use. On the other hand this intensificational influence is que
tioned and the countrary claim is made that the tax might dist
the most efficient land use pattern.

In this paper the effects of land value tax on land use, on ch
in land use and on efficiency of land use are considered. Firs
the question of land use and land use change is examined with
help of rent theory. Second, the different kinds of consequenc
of land value tax for land use and efficiency of land use are
sified. Third, the meaning of the intensification of land use
considered.

1. Rent

Land rent in its general form could be defined as a landowner's
revenue from the use of land. The price of land or the price of
the right to the rent could be defined as the capitalized value
future rents. The rents that are manifested in the price of lan
are expected future rents. Real rents in the future could, how-
ever, be lower or higher than those expected and paid in advanc
in the price of land. The price of land is uncertain and imagin
in the sense that it does not necessarily correspond to the rea
izable rents. This uncertain and expectational character of lan
prices make them convenient soil for speculation.

Besides this imaginary and uncertain character of land prices
there is a second special feature connected with the ownership
and use of land. This is the possibility of alternative uses of
land. These two special features could be described using the
theory of rent in the following way.

I define *actual rent* as rent from the actual, real, present use of land and *potential or alternative rent* as rent from potential and alternative but not actually realized use of land. There is a whole series of potential or alternative uses and therefore a whole series of potential rents. These concepts are illustrated below (Figure 1):

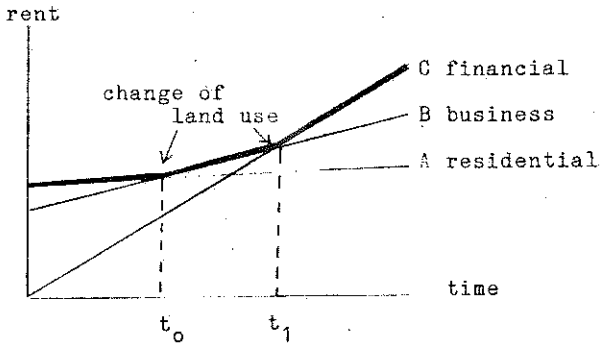

Figure 1: Actual rent and alternative rents

In Figure 1 the horizontal axis describes time and the vertical axis land rent. A, B and C describe rent functions from differen uses of land. If before the moment t_o the parcel of land is used for purpose A (residential use) then A describes actual rent and B and C potential or alternative rents. If the parcel of land is used for purpose C (financial use) between t_o and t_1 then C is actual rent and A and B alternative rents. If the parcel of land is used for purpose B (business use), subsequent to moment t_1 the B is actual rent and A and C alternative rents. From the point o view of the rent-maximizing user of land, the most important of the alternative uses is the alternative that yields the highest

rent. This rent could be called *rent from the most efficient use of land* (the thick line). If the landowner is making a land-use decision with reference to money revenue and is seeking to maximize the rent, he changes the use of land whenever the alternati rent exceeds the actual rent, at the moments t_o and t_1 in Figure

In most countries land use changes are restricted by institution constraints. These constraints affect the value or price or rent of land, as suggested in many presentations (see e.g. Virtanen 1967; Dunkerley 1983). The connection between rent and the planning process is illustrated in Figure 2.

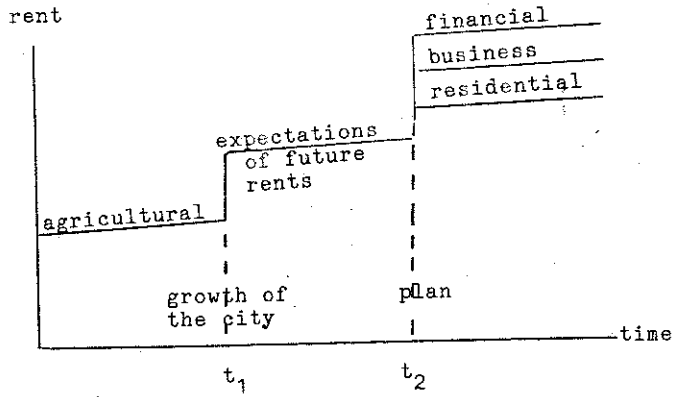

Figure 2: Rent and planning

In Figure 2 the horizontal axis describes time and the vertical axis rent. At the moment t_1 the expansion of the city into the surrounding countryside begins. Previous agricultural rents increase due to expectations of future development possibilitie At the moment t_2 there is a land-use plan made for the area. Thi differentiates between various land uses and rents, the site

planned for financial use yielding the highest rent and the site planned for residents yielding the lowest.

I call rent from financial use, business use and residential use as *rent from planned use of land*. The variation of this rent in time I call rent function. There is one difference between the rent functions described in Figures 1 and 2. In Figure 1 rent functions describe alternative possibilities of using land. All uses are economically possible and realizable, i.e. impose no losses on the user. The uses described in Figure 2 are not necessarily possible or realizable in the economic sense, i.e. the realization of the planned use might induce losses to the user. If, for example, the site is planned for retail trade use but there is not enough purchasing power in the neighbourhood, then the retail trade would yield losses. The uses in Figure 2 are institutionally permitted while in Figure 1 the uses are not necessarily permitted.

The concept of rent from the planned use of land describes one aspect of the second characteristic of land: the imaginary and uncertain nature of land prices. In countries where all development is strictly controlled and where large building companies more or less dominate land market the estimations of future rents by the seller and the buyer of land are in many cases based on the expectations of future plans. These estimations determine the market price. The price could be imaginary in two ways: first, expectations of future plans might be wrong; and second, if the future plans are estimated correctly, the plans could be unrealistic in the sense that the permitted use of land is not economically profitable, in which case the expected rent never becomes actual.

2. Rent and tax

Profitable and permitted changes of land use were considered abov Land-use change from the point of view of the rent-maximizing use was defined as profitable whenever the alternative rent exceeds the actual rent. In a similar way land-use change induced by land value tax (tax on rent) could be defined as being profitable when tax outlays exceed the actual rent. When tax outlays exceed the actual rent, the use of land yields losses to the user (the amoun that is confiscated exceeds the surplus yielded by the use). The effect of land value tax on land use, change of land use and effi ciency of land use depends on the tax base and the actual use of land. If we distinguish three possible ways of using land (not th most efficient use, the most efficient use and the planned use - the respective rents these yield being a_1, a_2 and a_3) and three different tax bases (actual rent, rent from the most efficient us of land and rent from planned use of land - the respective tax outlays being a_1^x, a_2^x and a_3^x), we get the following combination of the effects of the tax on land use (Table 1):

tax (tax base) / actual rent (land use)	a_1^x (actual rent)	a_2^x (rent from the most efficient land use)	a_3^x (rent from the planned use of land)
a_1 (not the most efficient use) $a_1 \neq a_2$ $a_1 \neq a_3$	no effect [1]	$a_2^x > a_1$ the tax [4] incites to intensify land use	$a_3^x < a_1$ no effect [7] $a_3^x > a_1$ the tax incites to realize the plan
a_2 (the most efficient land use)	no effect [2] (same case as in square 5)	no effect [5]	$a_3^x < a_2$ no effect [8] $a_3^x > a_2$ the tax imposes losses
a_3 (the planned use)	no effect [3] (same case as in square 9)	$a_2^x < a_3$ no effect [6] $a_2^x > a_3$ the tax imposes losses	no effect [9]

Table 1: The effects of land value tax on land use

(i) When the tax base is actual rent (first column and diagonal 1, 5, 9) there is no effect on land use, no incentive to increase the efficiency of land use. This is the same case as that describe by Bentick (1979) by CRI-tax (tax based on actual use value or current rental income). The tax is neutral.

(ii) If tax outlays are smaller than actual rent (cases $a_2^x < a_3$, $a_3^x < a_1$ and $a_3^x < a_2$ in squares 6, 7 and 8) the tax has no effect on land use.

(iii) When the tax base is rent from the most efficient use of land and the actual use is less efficient ($a_2^x > a_1$; square 4) the tax tends to intensify land use. The tax makes actual use less profitable and makes it profitable to change the use of land.

(iv) When the tax base is rent from the planned use of land, the actual use less efficient than the use indicated by the plan and the tax outlays higher than actual rent ($a_3^x > a_1$; square 7) the tax is an incentive for realizing the plan and induces the user to change the use of land in accordance with the plan.

(v) When the tax base is rent from the planned use of land, the present use is the most efficient use of land and the tax outlays higher than actual rent ($a_3^x > a_2$; square 8) the tax imposes losses upon the users using land in the most efficient way.

(vi) When the tax base is rent from the most efficient use of land the present use is planned use and the tax outlays higher than the actual rent ($a_2^x > a_3$; square 6), the tax imposes losses upon the user who uses his land according to the plan. The tax could promote the intensification of land use but a change of land use is prohibited by planning restrictions.

The most reasonable cases for land value tax are the cases (iii) and (iv). The tax acts as an incentive to intensify the use of

land or to realize the plan. In these cases, when the present use of land is less efficient than the taxed use of land, the tax has an effect on land use and could reasonably be used when trying to influence the land use pattern. Case (v) is an indication of insufficient knowledge on the part of planning and taxing authorities concerning the reasonable possibilities for using the land. The plan is unrealistic. Case (vi) is an indicatio of insufficient co-operation between planning and taxing authorities.

3. Tax and efficiency

It has been a usual claim that a tax on land value is always neutral, i.e., does not influence resource allocation and land use. For example, Netzer (1966, p. 205) writes that "the site value tax will be entirely neutral with regard to landowners' decisions, since no possible response to the tax can improve the situation". And Holland (1970, p. 6) writes that "unlike the tax on improvements, a tax on site value would be invariant with the development decisions. What was the optimal development in the absence of the tax will remain optimal in its presence". These claims are right in the sense that the tax does not influence the most efficient use of land. But if, in the absence of the tax, the land use is not the most efficient one, the tax could oblige the owner to intensify the use of land (in Table 1 case iii).

In recent discussions this neutrality argument has been undermined (see Bentick 1979 and 1983; Eckart 1983; Mills 1981 and 1982; Skouras 1978; Tideman 1982; Wildasin 1982). The non-neutrality argument or model could be represented in a following way (see e.g. Bentick 1979; Douglas 1980). There are supposed to be two alternative projects (or uses) for a parcel of land. These project are assumed to exclude each other, that is, if project A is chosen in time period 1 then project B could not be chosen in period 2.

Further, it is assumed that the user of land makes his land-use decisions with respect to the capitalized value of land. It is then shown that land value tax changes this capitalized value and therefore affects land-use decisions. The assumptions of this mod el are highly restrictive. First, the assumption of land use deci sions based on capitalized value is problematic if we take into consideration the imaginary and expectational, not necessarily realizable, character of the price of land. The assumption is als problematic as regards the way of making decisions. Second, the assumption of exclusive land uses is in many cases too restrictiv Land use could be changed without any change in the physical fra work. For example, apartments could be used as officies and facto ries as shopping centres. The planning of flexible physical frame works that would be suitable for some special use but which do nc at the same time exclude other possible uses could also be seen a a task for architects and planners (see Preteceille 1977). Thus, land-use changes in reality could be more flexible than assumed i this model, although not so flexible as described in Figure 1. Th assumption of exclusive uses of land is reminiscent of the theor of "ripening costs" by Ely (1920) which legitimizes land speculat

In Table 1 two cases were shown (iii and iv) where land value ta would promote an intensification of land use. Land value tax migh intensify land use if the actual use is less efficient than the use which serves as a tax base; land value tax might also influence the implementation of plans if the actual use is less efficient than the use which serves as a tax base. Planners are inte ested in the second case and advocates of free land markets in the first. Planners are interested in land value tax as an instrument of implementing plans. Although the planning authorities ha a nominal power to determine land use, they often haven't sufficient means to place a landowner under an obligation to use his land according to the plan. It is believed that land value tax might be an efficient instrument. However, the economic realizability of the plans is problematic. For example Finland is

"planned" for more than 11,5 million people, instead of the less than five million we have now (see Virtanen 1976).

Those who favour free land market instead of planning are interested in land value tax as a means to intensify land use. It is believed that land value tax would remove the monopolistic power of landowners, create free land market and intensify land use pattern (see e.g. Harrison 1983, p. 212 and 1984, p. 30).

Doubt is cast upon the view that land value tax promotes the most efficient land-use pattern by those who claim that land value tax might distort the most efficient land use pattern (see e.g. Mills 1972, p. 50). The argument leans to the view that the competitive pricing of any factor of production provides its owner with an incentive to use it efficiently. Heavy taxes would remove these incentives for efficient use.

The question of efficiency and land value tax could be clarified by considering the question of how landowners make their land-use decisions. In the modern non-neutrality models it is assumed that they make them with reference to the capitalized value of land. Figure 1 described the situation where landowners make land-use decisions with reference to the actual and alternative rent. In reality landowners might not be rational and maximizing agents. In his alternative theory of land prices Alan Evans (1983) suggests that landowners might assign their land a value different from the market value. A parcel of land may have special attributes to the owner. These special attributes may increase the subjective use value of land to the occupier above its exchange value in the market. The landowner may make his land-use decision according to this subjective use value instead of the exchange value (market value) and be satisfied with revenue lower than the rent from the most efficient use of land (e.g. in Figure 1 landowner may prefer to continue using his land in use A after the moment t_1). If land-use decisions are not made with reference to

the exchange value of land this means that the ensuing land-use pattern will not be the most efficient one.

The effect of land value tax is to substitute *a logic of exchange value* for *a logic of use value* in land-use decisions by conferring losses upon the owner if he is not using land in the most efficient way. This means the penetration of capitalistic relations, maximizing behaviour, into land market . Harrison foresees the far-reaching influence of this process when he speaks about "a land-market led renaissance in the cities" (Harrison 1984, p. 30).

Advocates of free market are right in the sense that without land value tax the land use decisions are not made according to the money-value of land and that land value tax would oblige the landowner to use land in the economically most efficient way. But in some sense those who doubt the intensification effect are also right. Mills thinks that the reason why we use market prices as rewards to encourage input owners to find the best use is because the planners and the taxers do not know the best use (Mills 1972 p. 50). If the land value tax is to intensify land use, the tax should be based on a use of land more efficient (or the most efficient) than the present one. But do taxers and planners know this? Mills has the right suspicion: who knows the most efficient land use better than the maximizing agent?

4. In conclusion

Land value tax is neutral in the sense that it does not determine what is the most efficient use. Without the tax the most efficien land use might not, however, be realized and the tax might oblige the landowner to use his land more efficiently. In this sense the tax influences resource allocation. By promoting the intensification of land use, the tax would substitute a logic based on

exchange value for a logic based on use value in land-use decision-making. In this sense the advocates of free land market are right. The tax would create capitalistic land market without monopoly elements. But promoting intensification through taxation is, however, problematic. If the purpose of the tax is to intensify land use, the tax should be based on the most efficient use or at least on more efficient use of land than the present one. But who can calculate this tax base in advance? Those who claim that land value tax might distort efficient land use are correct in the sense that the maximizing agent could know best.

But in a sense this way of posing the question is wrong. The question of efficiency and free market puts aside the question of land use *for* citizens, the use-value aspect of land use. Instead of purely economical questions we should therefore pose a whole series of *ethical* questions as regards the use values of the city. And I think that these questions are not incompatible with Henry George's individualistic ethics.

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