

The shift to land value taxation: A tale of a different future

In the midst of the current crisis, initially sparked by a housing bubble in the US, tax reform proposals become ever more relevant. The present paper elaborates one such proposal by using system dynamics. It presents the logic of the current property tax and an alternative land value tax system, it compares them and makes the case for the benefits of shifting tax from property to land value. Based on a simulation model consideration is given to the practical repercussions for energy consumption of the modern building stock which is a driver of final primary energy in most countries.

1. Introduction

While the diversity of institutions and economic instruments among countries is really astounding, there are two themes cutting across it: the economic crisis that has slowed or reversed growth trends around the world, and the need to get out of it. This is a systemic problem in nature which, as with all similar problems, does not have a single root cause, nor one all encompassing solution. Addressing the problem in its entirety is beyond the scope of this paper which focuses at one part only, that of value creation on an individual or collective basis.

Value creation is part of the solution to the crisis as it generates profit, employment and development. It is also a self reinforcing process under normal conditions, in that the more there is available, the more can potentially be produced. What does block the transformative potential of this process is property taxation amongst other factors. The debate on property taxation is quite extensive and exceeds the scope of the paper. It suffices to note that it spans two centuries as it was first argued against by Henry George in 1879, who proposed a tax on land instead. It is revived in present day arguments made by prominent economists such as Milton Friedman who claims that (Blaug, 1980, p472): “the least bad tax is the property tax on the unimproved value of land, the Henry George argument of many, many years ago”. The idea behind it is that land value tax induces land owners to develop their land, thereby reducing speculative intentions. At the same time reducing tax on property renders more revenue available for investments and development. In this sense the two taxes are complementary.

Taxation is a fairly broad and involved subject that encompasses many aspects of modern life. A tax system is fairly complex in its entirety and involves delayed responses and accumulation of stocks. These need to be taken into account, first in analysing and then designing - envisioning alternatives for the tax system. This paper is a first attempt at representing and exploring the land value tax argument in system dynamics terms, both through causal loop diagrams and modelling and simulation. Hence, the rest of the paper starts by developing and illustrating the generic argument

through a causal loop diagram and then it further elaborates this in the case of the residential sector. This is of particular importance as this sector makes up for a significant share of final energy consumed in most developed countries. Furthermore, there are severe constraints attached to it. Among them is the stock of buildings for which there is no easy way of overcoming the inertia it adds to the system simply because of the average building life cycle (Yucel, 2013).

2. Land Taxation

The aim of this paper is to explore the consequences of the implementation of Land Taxation in a geographic area and who this affects its dynamics. In order to show how the entire system could be influenced, a conceptual system dynamics model is illustrated using simple causal loop diagrams in order to gain insights and a broader knowledge on possible multiple effects that this policy would have. Causal diagramming would provide an initial conceptual map regarding the feedback loops that occur in such a system. Definitions, explanation and discussion about causal loop diagrams and feedback loops will be further presented in this part.

Taxation in general is a means of providing public services and thus contributing to social development and well being. Public schools and education, libraries, health infrastructure are based on this. The underlying assumption is that taxation is meant to provide for everybody, thus facilitating the general prosperity of communities and equality of their members. This is the underlying idea of taxation. But as often is the case intentions have unintended consequences in practice.

What is recognized as subject to taxation is ownership of property. This is taken to include a wide range of things, land, stocks, annual revenues etc. They might have no intrinsic value, but merely provide proof of ownership and this is in itself valuable on an individual level. In this respect money, solvent debts, book-accounts, are valuable individual property and are correctly included in any estimate of his wealth. But they are not related to the collective wealth of the community. Increasing them does not have an effect on the latter. Therefore if taxation is meant to improve the collective wealth, what is to be taxed should also have value to the community. Individual property is not a fit subject for taxation, and should not be considered, as it has no value in itself. It merely represents value, ownership, or the obligation to pay value.

The distinction made thus is between that which is the result of human labour and that which is not. Hence, land per se is not the result of human labour and it cannot be wealth for that matter, neither labour is. Given that all wealth and prosperity is produced by means of human labour, then taxing wealth in order to promote the general prosperity of a community is counterproductive.

Instead what should be taxed is the value attached to the land. Doing so, does not reduce the potential wealth that can be produced by the land or the intention of using land itself. In contrast taxing wealth reduces revenues and inevitably the rate at which wealth is produced (Figure 1). Furthermore, it motivates tax evasion, for example by taking wealth off the community to tax havens thereby hurting the collective benefits that could potentially accrue to the community had this wealth been deployed in a different way.

The possession of individual wealth requires human labour in order that individuals benefit from it and maintain it. Hence, taxing the result of this labour is in effect lessening the motive for engaging in wealth production. This has a dissipative effect on wealth. For example, if individual wealth is immobile wealth then it is also prone to decay, therefore without human labour it cannot be maintained or be used to produce further wealth. Nevertheless, the production of individual wealth confers also some benefits to the community. Putting land to productive use raises its value while the opposite does not (Figure 1). Therefore, it is possible to tax land value instead of individual wealth, and in this way avoid diminishing the stimulus to individual wealth production and tax evasion.

More specifically the economic rent of the land would come under taxation. This is the largest annual amount voluntarily offered for the exclusive use of a piece of land, regardless of any subsequent improvements it receives. So while individuals should be the sole beneficiaries of the revenue coming from land utilisation (e.g. farms or buildings) the economic rent will be returned to the community. This can be achieved by taxing land rent instead of revenue from land. The land user would pay only the economic rent, with no further taxes on industry or personal produce and no other forced contribution for governmental purposes.

This shift in taxation would put no additional burden on the land user. Since the economic rent is fixed by the payer and not by the payee he would pay the same economic rent as before. The rent though now goes to the community instead of the landowner and therefore speculative games and boom and bust like behaviour in the system are avoided. Overall, the increase in the value of the land that a community has, results from the efforts of the community and not the individual land owners.

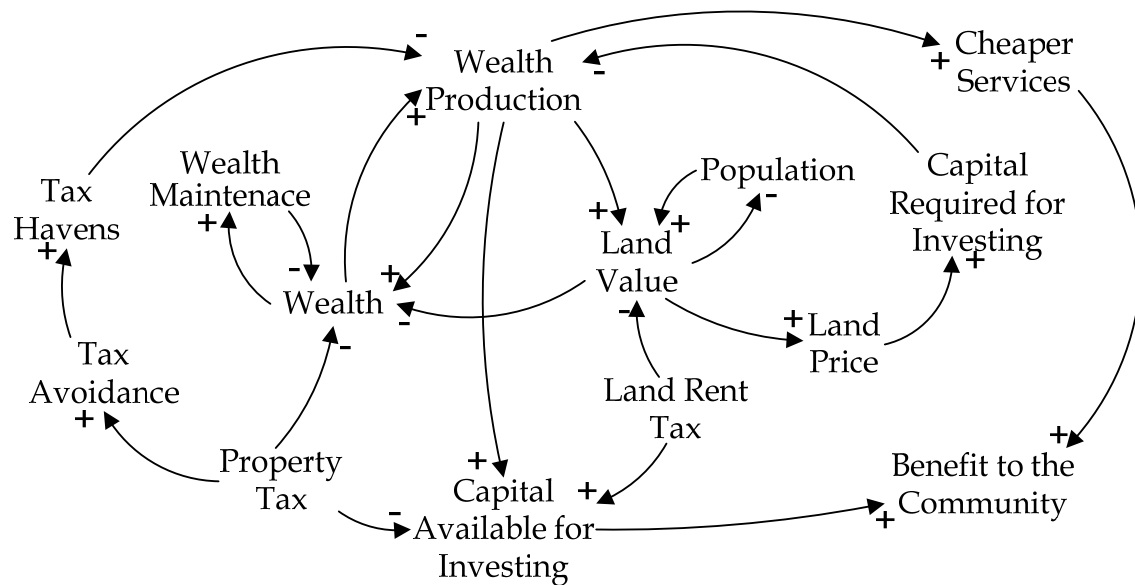


Figure 1 A generic causal loop of property and land value tax

3. A Focus on the Residential Sector

The previous section developed the general idea of shifting to land rent taxation. However, taxation being an all pervasive concept of economic life makes exploring the implications of this shift in their entirety a subject that would be best addressed through a research project. So, the rest of the paper will focus on the effect this shift could have on the residential building sector. This section builds on the exposition of the land rent tax in section 2, and develops further the causal loop diagram in Figure 1 specifically for the residential sector (grey shaded variables in Figure 2).

Private housing and building construction in general, carries the potential of transforming an area completely, by changing first and foremost the number of people that form a community and the kind of activities they can engage in. This represents value added to the community as a whole and generates flows of people willing to live there. Under the current tax regime though, owners would be taxed for the buildings they constructed with their own means. Imposing taxes on construction and subsequent renovations only works to stem the flow of investments and discourages others from making similar investments because of the costs they face. Thus the whole community is worse off in terms of value added to the space of its inhabitants. Furthermore, it induces a rise in land prices which is deterring population inflows to the community.

Applying the land rent logic to building taxes would imply that instead of taxing building construction and improvement, land rent is taxed. This leaves the natural inducement to further improvement uninhibited, and at the same time it counters an obstacle to further improvement and prosperity of the community. In broad terms what should be taxed is the increase in community prosperity not what contributes to it i.e. individual effort. The

taxing scheme should work so that it suppresses speculation and land price rises, and encourages investments.

Other examples where human activities increase land value are agriculture, manufacturing, commerce etc. These also generate employment and lead to population growth. Evidently the taxation of land rent, unlike property taxation, does not hinder but rather stimulates wealth creation. Tax on rent refers to annual land value. The economic land rent refers to the maximum amount that a tenant would be prepared to pay for use of the site.

There are other concomitant implications to such a tax shift. Land rent taxation is conducive to local taxation scheme because land cannot be moved. So this would naturally tend to decrease capital flight and taxes lost to foreign tax havens (Figure 2). Considerable potential for increased prosperity and the opportunities for advancement would emerge, if people kept all of the income and no capital disappeared into tax havens. Instead of coming up with ways to evade taxes, land owners would be pushed to put their land to its most productive current use, rather than hold it and wait for a rise in land prices. Land rent taxation in a sense attaches a carrying cost to land. With the price of land thus kept low, banks would lend for productive investments rather than to buy land.

The implications of the tax shift in the residential sector could be far fetching. This is one of the major energy consuming sectors across most countries. While there is considerable potential for reduction of energy consumption and CO₂ emissions there is also a lot of inherent inertia in most cases (Yucel, 2013). Therefore what is being put forward as a solution for this is renovation of the building stock in order to increase its energy efficiency. Another part to this is altering the consumption behaviour of tenants. The two issues are obviously related.

Drawing the connection with land rent taxation is obvious. Taxing home improvement keeps individuals from investing more in their houses and thus keeps the Energy Performance Coefficient (EPC) low. In contrast, if consumers pay taxes for the land they occupy then they will be inclined to get the most return out of it. This consists of two components: increasing the efficiency of their house through renovation, and altering their consumption pattern so that they reduce their expenses. While the latter can operate through property tax it simultaneously reduces the incentives the occupants have on increasing the efficiency of their house. Under the current taxing regime, urban buildings deteriorate, owners often don't renovate, because their property tax may rise. The end result is suburban sprawl and urban inefficient buildings left to decay. Shifting the property tax off buildings and onto land should in principle reverses these processes. By taxing buildings, however, a penalty is imposed on their optimum development as well as on the incentives for their maintenance. Moreover, taxes on buildings take away

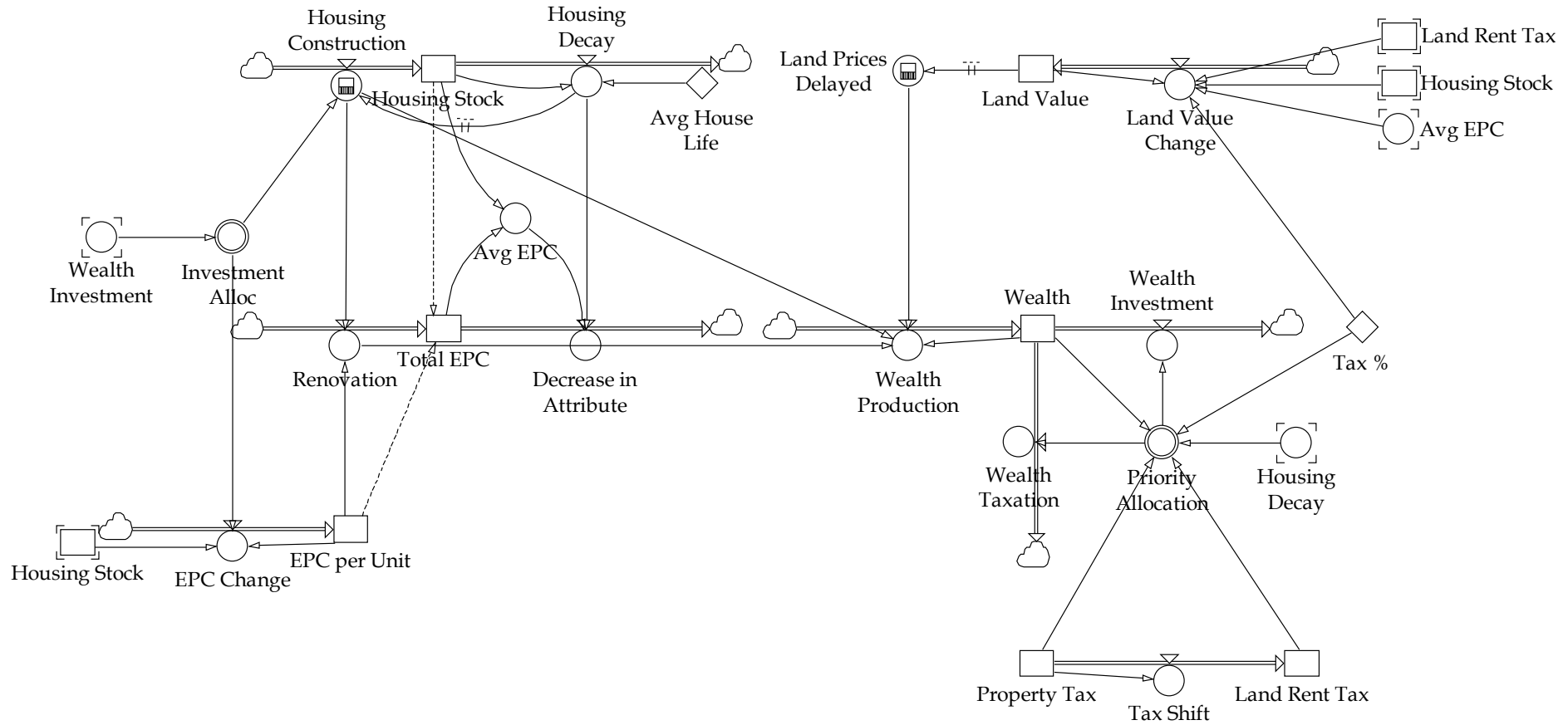


Figure 3 Stock and flow diagram of the model

5. Results

The model was simulated in three scenarios: (i) with the property tax on, (ii) where a transition from property tax to value tax takes about 30 years to complete and (iii) with the land rent value tax. Results of the model in the following figures confirm the initial hypothesis that the taxation scheme does make a difference, a favourable one when it comes to the building stock of a community. Its is also evident that initiating a transition can have some medium term benefits irrespective of how far it will proceed.

Figure 4 shows the wealth that is pertinent to the activities of housing and renovation only not the total wealth generated within a community. It is evident that the land tax (Wealth TL) performs considerably better than property taxation (wealth TP). Wealth creation does not exhibit in either scenario an ever increasing behaviour given enough time (more than 50 years).

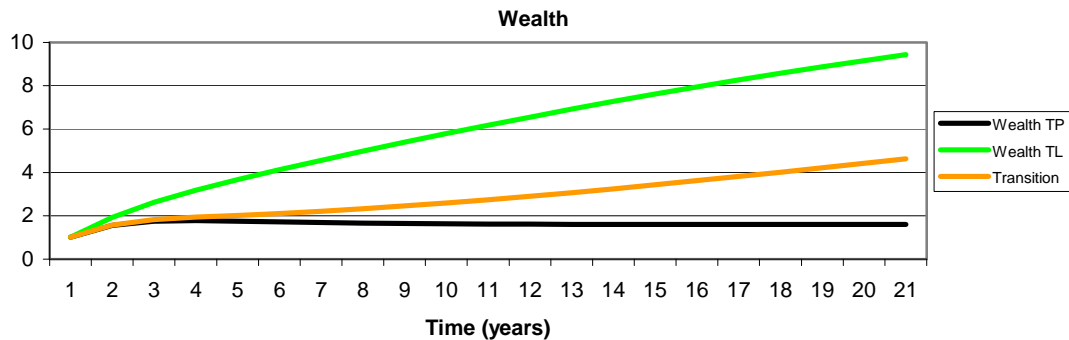


Figure 4 Wealth creation with Property Tax (PT) and Land Tax (TL)

A concomitant result to wealth trends is the land value that is created due to the increased activity of construction and renovation (Figure 5), there is more value to an area coming from the presence of housing stock which is newly constructed and has a lower average environmental impact (Figure 6). Because wealth taxation is not operating in the land tax scenario there is simply an abundance of resources with which to maintain and improve the housing stock.

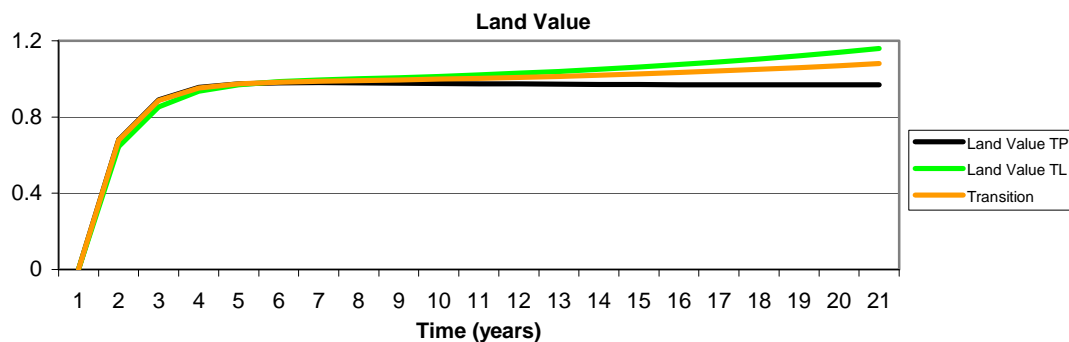


Figure 5 Land Value with Property Tax (PT) and Land Tax (TL)

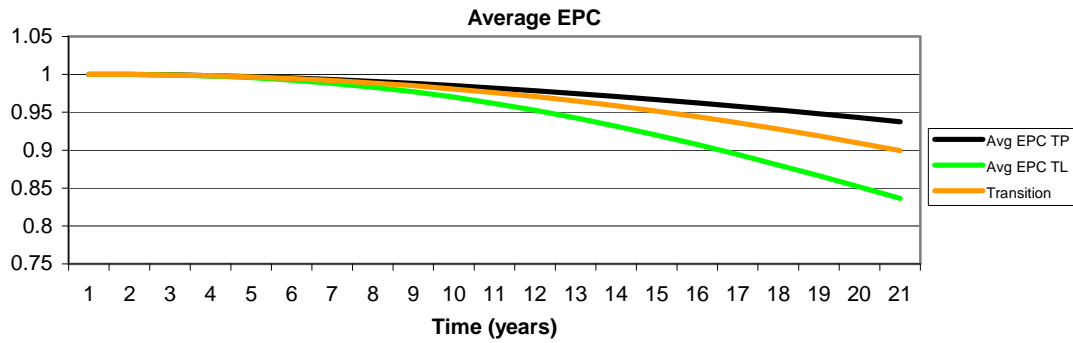


Figure 6 Housing Average Energy Performance with Property Tax (PT) and Land Tax (TL)

Finally, the abolishment of property tax (TP) allows maintaining housing stock much more effectively (Figure 7) while at the same time the EPC per unit is considerably improved.

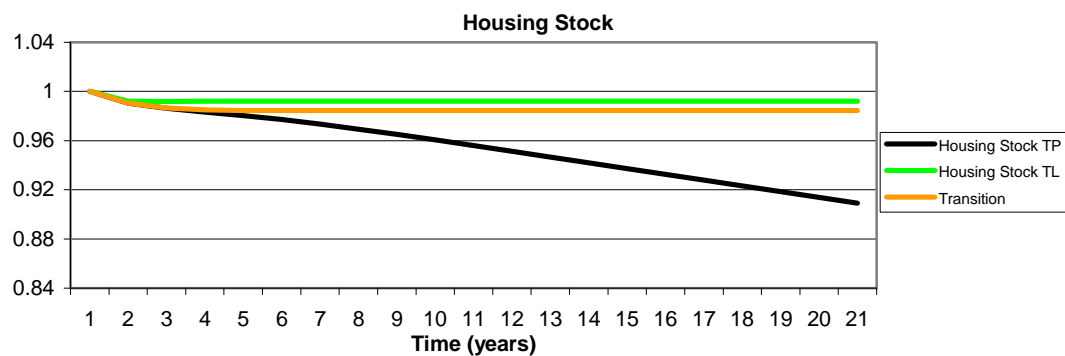


Figure 7 Housing Stock with Property Tax (PT) and Land Tax (TL)

Figure 8 illustrates the classic worse before better system behaviour of the EPC of the entire housing stock. It provides an illustration of the inertia that the system carries. The environmental performance in the land tax (TL) scenario is initially lower compared to the reference property tax scenario (TP). A considerable amount of time is required for a land rent tax reform to outperform it, even in the hypothetical scenario where this reform would be effective immediately. Allowing for the more realistic transition scenario shows that approximately a double amount of time is required to outperform the standard property tax scenario.

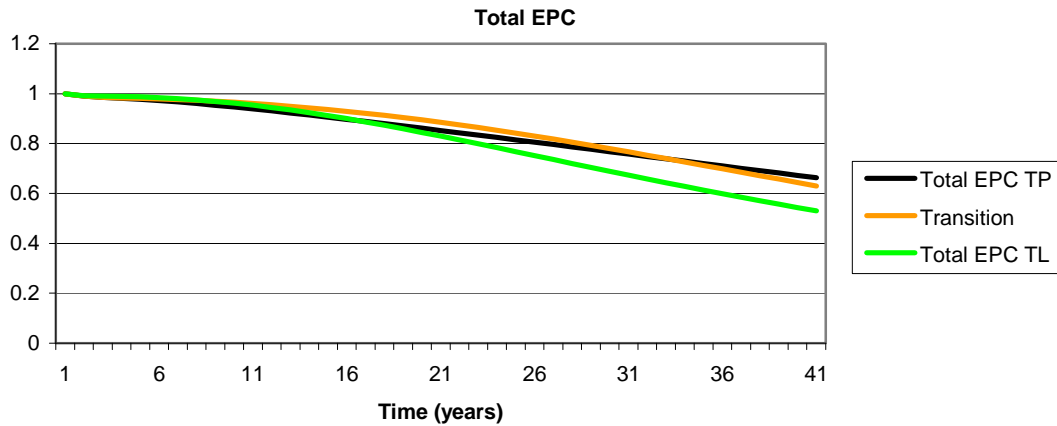


Figure 8 EPC evolution of the total housing stock

6. Discussion & Conclusion

Simulation results (Figures 3 – 7) provide a temporal illustration of the argument made with the causal loop diagram (Figures 1 and 2). They make obvious that the effect of the shift in taxation is positive. There is more housing stock available with a better environmental performance as a result of the availability of wealth which can be dedicated to maintaining and improving it. The repercussions of this for any residential community are bound to be positive. Residents of such a community are evidently in a better position than one where property tax is enforced. Moreover, what is arguably more difficult to capture with a quantitative model is the innate feeling of the members of such a vibrant and prosperous community where land tax is applied relevant to a community with deteriorating housing stock, the result of property tax.

Given that the residential sector is one of the major energy consuming sectors across most countries it follows that any means of controlling its energy consumption should be explored. There is considerable potential for reduction of energy consumption and CO₂ emissions but there is also a lot of inherent inertia in most cases (Yucel, 2013). Taxation is being put forward as a part of the solution to this problem in order to increase the energy efficiency of the housing stock. Another side to this is altering the consumption behaviour of tenants. The two issues are related of course and this implies that individual energy consumption should also be controlled in order to check any emerging rebounds effects (Herring and Sorrell, 2008). This is a subject for further investigation. Of particular interest is the envelope of possible future states that could emerge from the implementation of such measures. This would illustrate whether the new system outperforms the existing system over the entire uncertainty space. Therefore use of multi-model ESDMA to compare the traditional and proposed systems over the entire uncertainty space. Exploration of this envelope of states will be carried out using Exploratory System Dynamics Modeling and Analysis (ESDMA) to

explore dynamic complexity under deep uncertainty (Kwakkel and Pruyt, 2012a,b).

7. References

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