

# The Endowment Effect: A Behavioural Economic Perspective on Land Use Policy, Environmental Protection and Taxation

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**Abstract.** This essay explores the implications of the endowment effect in various fields including housing markets, environmental policies, and taxation. This essay clarifies the definition and importance of the endowment effect and inspected related literature on the topic of the endowment effect and the fields of application. In the housing markets, this phenomenon is examined from the perspective of the Chinese rural villager displacement programme. In this situation, the endowment effect is influenced significantly by attachment rooted in emotion, ownership of the property, and the replaceability of houses. In environmental policies, the endowment effect is found to result in disparate assessments of favourable outcomes and adverse consequences in the environment. This introduces the concept of the endowment factor as a tool for policymakers. In the realm of taxation, the endowment effect is discussed in relation to tax salience, influencing public perceptions and responses to tax policy changes. Mitigation strategies for the endowment effect such as vocational training, fair compensation, the use of agents, and providing accessible information are also discussed.

**Keywords:** Endowment Effect, Land Use Policy, Environmental Protection, Taxation.

## 1. Introduction

Understanding human psychology and its effect on economic decision-making is crucial for understanding markets and policies. Endowment effect, defined as the propensity in which individuals overvalue the items they own, regardless of the objective market value, has far-reaching implications and affects various fields and markets [1]. It can be related to the understanding of consumer behaviour, market dynamics, and policymaking.

In the early stage, Thaler made the first observation and he introduced the concept known as the “endowment effect”: he observed that frequently, individuals tend to ask for a higher price when relinquishing something they already possess compared to the amount they are willing to pay to get the same item [1]. After laying the theoretical foundation, in-field experiments ensued. In the study by Kahneman et al., various experiments were carried out to assess the validity and reliability of this theory [2]. They eventually confirmed the presence of such effect. In various experimental conditions, they found that the subject's Willingness to Accept (WTA) was notably greater than the Willingness to Pay (WTP), therefore empirically confirming the presence of the endowment effect. The findings opened new dimensions for the analysis in economic activities [2]. With both theoretical framework and empirical evidence, Kahneman, Knetsch, and Thaler later provided an exhaustive review and analysis of endowment effect, which was analysed in terms of its relationship to other behavioural economic biases such as individual's aversion to loss when they weigh potential losses more heavily than potential gains of equal value [3]. In the traditional model of economic prediction, individuals were assumed to be perfectly rational and always act in their best interests. The study by Kahneman et al. showed the significance of incorporating psychological and behavioural aspects into the analysis of the economic decision-making process [3].

From the 1990s to the early 2000s, interest in the real estate market soared as several major economies suffered from catastrophic failures. Researchers tried to investigate the role the endowment effect played within the housing market. In a study by Genesove and Mayer, loss aversion

and endowment effect were found to significantly affect housing prices and sellers' behaviours, and therefore create market inefficiency [4].

Moreover, it is useful to extend this effect to the domain of environmental conservation. The concept of WTA and WTP is often used to evaluate the economic values of environmental goods. These measures will help policy analysts to inform further decision-making. A study by Howrowitz and McConnel laid a solid foundation for later analysis. A large positive discrepancy in WTA and WTP could significantly impact environmental policy [5].

Finally, in the field of taxation, the concept of hidden taxes is an important area of study within the field. In McCaffery's study, the impact of the endowment effect on individuals' perception and acceptance of concealed taxes was investigated. McCaffery acknowledged the advantages that fully hidden taxes offer to the government while emphasising the need for a comprehensive cognitive theory of taxation to understand the underlying mechanism at which the endowment effect and other cognitive biases come into play [6]. By exploring the examples of the employer portion of payroll taxes and corporate income tax, McCaffery underscored the varying degrees of hiddenness and their implications, which would be critical for later discussions [6].

Based on the observed discrepancy between the WTA and WTP in the aforementioned fields, this research review will primarily analyse the contributing factors.

## 2. Definitions

The endowment effect, in behavioural economics, is defined as a cognitive bias or heuristics where people tend to attach a greater value to items they possess, regardless of their objective market value [1]. As Thaler pointed out, frequently, individuals demand a significantly higher price to part with an item they possess, as opposed to what they would be willing to spend if they were buying the same item [1]. Two key terms can be linked to this definition i.e., willingness to accept (WTA) and willingness to pay (WTP). The former indicates the minimum amount at which the owner of an item agrees to receive to part with the item, whereas the latter indicates the highest amount that buyers are ready to spend to acquire that item. This disparity between the valuation from the buyer and the seller has a direct impact on the market mechanism: the predicted market equilibrium by conventional theories would not be reached [3].

The endowment effect shares a remarkable association with loss aversion. These two psychological phenomena are intricately connected, often influencing individuals' behaviours and decisions. Loss aversion is first introduced by Tversky and Kahneman as the economic phenomenon in which the frustration felt when losing a certain amount of money seems to outweigh the joy felt when acquiring an equal sum [7]. The two are closely intertwined when analysing the underlying mechanism at work.

The gap between WTA and WTP can be explained by the idea that the act of giving up one item can be considered a potential "loss", while acquiring an item can be considered an overall "gain", and the aversion for loss is generally stronger than satisfaction from gains [8].

## 3. Application

### 3.1. Housing Market and Rural Land Use Policy

The housing market and land use policies provide empirical evidence of the endowment effect. Nash and Rosenthal's research delved into the realm of the endowment effect as applied to choices surrounding university accommodation [9]. The study found that learners who successfully secured their preferred residential hall demanded a more substantial sum to relinquish it (a concept known as Willingness to Accept or WTA), compared to the lesser amount that those who missed out on their top choice were prepared to offer (termed Willingness to Pay or WTP) to acquire it. The study discovered a notable endowment effect during both evaluation stages—the initial period immediately

posts the accommodation draw when students had secured their dormitory, and again following a period of residing in the lottery-chosen hall [9].

Based on the empirical evidence collected in the experimental setting, it is reasonable to assume that a similar phenomenon would be expected in the real-world housing market. Genesove and Mayer found out that the endowment effect and loss aversion had important implications for real estate markets in different macroeconomic environments [4]. In the US, for instance, if an economic recession is upcoming, the endowment effect and loss aversion would become even stronger, therefore leading to even lower trade volume and less market fluidity [4]. A more recent study by Bao and Gong set out to investigate the primary factor behind housing cycles and buyer behaviour within the housing sector. Through a combination of field trials and the use of both qualitative and quantitative data, Bao and Gong determined the significant impact the endowment effect has on creating prejudiced opinions in choices within the housing market [10]. They also observed that this influence is not consistently equal under varying market circumstances.

Based on the in-field statistics, the endowment effect can be seen as a key factor for market inefficiency and therefore policymakers and stakeholders should aim to minimise the impact of the endowment effect to achieve higher efficiency. In their research, Liu and colleagues examined the effects of the endowment effect within the context of the policy that encouraged villagers to voluntarily give up their rural homesteads and relocate to high-rise buildings in order to optimise the use of rural land resources [11]. The research aimed to shed light on the effectiveness of the policy in addressing land inefficiency. According to the findings of the research by Liu et al., a significant majority (70.62%) of the surveyed villagers displayed a pronounced endowment effect following the policy enforcement for the withdrawal from rural homesteads (WRH) [11]. The endowment effect, under this context, refers to the behavioural inclination of individuals to assign a higher value to rural homesteads when they possess ownership compared to when they do not [11]. Liu and colleagues' research revealed numerous elements influencing the endowment effect in this particular context [11]. Factors such as emotional attachment to the property, the status of property ownership (including property certificate and cognitive perception of the rights and ownership of property), as well as the substitutability of homes, were recognized as determinants. Emotional attachment and the perception of inheritance rights were found to intensify the endowment effect experienced by villagers. Conversely, the presence of official documentation regarding property ownership and the perception of rights and ownership had a negative influence on villagers' endowment effects [11].

Several potential policies have been proposed to mitigate the negative impact of the endowment effect. The mitigation of emotional attachment, and consequently the reduction of the endowment effect, could be facilitated through vocational training initiatives and the reinforcement of community culture [11]. By providing vocational training, individuals could acquire new skills and expand their employment opportunities, enabling them to adapt more effectively to new environments and mitigating potential psychological discomfort associated with relinquishing their rural homesteads [11]. Moreover, it is crucial to ensure the financial compensation offered to villagers is determined through a systematic and objective evaluation process that accurately assesses the value of their properties [11]. In cases where individuals relied on their land for their livelihood, such as full-time farmers, the land holds a lower degree of replaceability, thus justifying the provision of higher compensation. Non-economic compensation measures should also be considered, including the provision of consultation services and the establishment of accessible facilities for the elderly members of the community [11]. These multifaceted approaches could help facilitate a smoother transition for villagers while addressing their diverse needs beyond solely economic considerations.

### **3.2. Environment Protection**

Within the context of environmental policy, there are various ways in which the endowment effect can manifest. For instance, people have a tendency to value any actions or policies that potentially prevent environmental degradation more highly than the actions or policies that attempt to create new environmental benefits. The research by Knetsch argued that the endowment effect could lead to

different valuations of positive and negative environmental changes, and these differences should be taken into account in policy assessments [12]. Environmental changes can be different from other items or products, as the ownership is not clearly defined in legal terms. For environmental ownership, the paper used a normal or reference state to form the basis for any future evaluation, and this state was referred to as “psychological ownership” [12]. Often this reference state is the status quo, yet there are certain exceptions as it seems to be purely empirical concerning which state is most accurately encapsulating individuals' emotional response to a particular transformation [12].

Knetsch also suggested that the value one is willing to pay currently to ensure a profit in the upcoming future represents the amount of future gain [12]. Likewise, the amount an individual requires in the present to agree to a future deprivation signifies the present value of that future loss. Similar to how an individual is prepared to pay a lower sum for a profit than the compensation they require to tolerate a loss, it can also be anticipated that they would consent to pay a reduced amount currently for a potential gain than the amount they would require to concede to a future loss. The author suggested that this behaviour implies that individuals use different discount rates in the situation of gains than in the situation of losses, and this could prove instructive for policymakers to make more informed decisions when it comes to environmental changes, especially in the context of policies that prevent environmental damage and degradation and the policies to create new environmental benefits.

Dietz and Vermans also investigated similar psychological discrepancies between WTP and WTA in environmental changes. The research focused on the implication of the endowment effect on the discounting of future environmental benefits and costs. The discount rate plays a crucial role in economic and financial decision-making, particularly in assessing the value of long-term projects and investments [13]. Its significance extends to environmental policy, where it influences the evaluation of future environmental benefits and costs [13]. Research suggested that the endowment effect could impact the discount rate at which overall marginal utility decreases on an increasing path and increases on a decreasing path. In practical terms, this implies that the endowment effect lowers the discount rate when benefits are increasing, but raises it when benefits are decreasing [13].

Comprehending the sign and magnitude of this factor is essential for grasping its influence on investment in environmental protection schemes. The endowment factor can serve as a valuable tool for policymakers, enabling them to quantify the endowment effect and integrate it into their decision-making procedures. Because many types of investment or public policies aim to improve environmental quality and the result and payoff can only manifest in the future, including the effort in combating climate change and greenhouse emissions, anticipating the public opinion that might be affected by the endowment effect can help circumvent undesirable attrition [13].

### 3.3. Taxation and Tax Salience

Understanding the endowment effect can also enable policymakers to anticipate and shape public perceptions of policy adjustment and changes. This knowledge can help policymakers to predict that individuals may, under specific circumstances such as tax policy changes, exhibit greater resistance to tax increases (perceived loss), compared to policies associated with gains, such as tax cuts.

The endowment effect can be understood in the context of tax salience scholarship. Tax salience scholarship encompasses studies and research on how the perception and visibility of taxes affect an individual's behaviour and decision-making process. Tax salience plays a pivotal role in significant discussions such as the implementation of a value-added tax, budget deficit management, the abolition of the alternative minimum tax, conducting social welfare policy through tax expenditures, and automating and simplifying income-tax filing. Understanding tax salience is crucial for addressing these debates and making informed decisions on these matters [14]. Within the context of taxation policies, the ownership, or endowment, can be different from physical possession of an object, as the ownership is not clearly defined and the psychological perception depends on the reference point. The perception of a change as a lack of gain or loss is contingent upon how individuals frame their initial endowments. In the context of tax affairs, the manifestation of the endowment effect

can be influenced by taxpayers' perspectives—whether they consider taxes as loss or as diminished return. [15].

Specifically, in the context of employee and employer payroll tax, how the tax is presented can have a significant impact on the endowment effect of the taxpayers. The employer's share of the payroll tax is subtracted prior to workers receiving detailed information about their wages, which might result in employees perceiving it as reduced earnings from their labour. On the other hand, the portion of the tax paid by employees is revealed after they've been presented with their pre-tax income; thus, it is more prone to being viewed as a deduction or loss [15]. Gamage suggests that income tax contributions could be more likely to be classified as losses, stimulating a more potent endowment effect [15]. This is because taxpayers are obliged to determine their pre-tax incomes prior to receiving information about the government's proportion of these earnings. Thus, the endowment effect supports the hypothesis that taxes indirectly implemented result in less salience than taxes directly implemented: Should voters regard taxes that are directly applied as prospective losses and taxes that are indirectly applied as missed profits, the implementation of the former could potentially lead to a more significant endowment effect, making the indirect taxes as a more viable option for taxation policymakers [15]. It can be speculated even further based on the evidence presented, that the endowment effect can also cause the voters and taxpayers to diminish tax liabilities in the future if taxes levied at present are considered losses and future taxes are seen as unrealized profits [15].

The Endowment effect, in the context of tax salience, can be mitigated through the use of agents. A study by Arlen et al. [16] demonstrates that subjects involved in an agency relationship show a negligible endowment effect. Another research by List suggested that the endowment effect diminishes significantly with increased market experience [17]. Therefore, providing proper counselling to individuals who cannot afford lawyers or agents can greatly mitigate the endowment effect. Also, it is necessary for policymakers to provide more accessible information to individuals whose access to market information might be compromised.

#### **4. Discussion and Suggestion**

Overall, this essay has reviewed the empirical evidence that supports the existence and the impact of the endowment effect. Several strategies for mitigating the endowment effect have been proposed and investigated. However, future studies and research can still push the boundaries even further in the following applications.

In the field of housing market and rural land use policies, endowment effects could distort the market signals and lead to inefficiency. Future research can focus on several aspects that can further people's understanding. Firstly, researchers can set out to investigate the endowment effect in rural areas on a macroscopic level. Large-scale surveys coupled with inspection and analysis of official statistics could help paint a more holistic picture of the housing market. In addition, it can be beneficial to understand the impact of the endowment effect from a temporal standpoint. For instance, providing a satisfactory answer to the question that how the severity of the endowment effect changes over time and what socio-economic factors correlate with the change in the magnitude of the endowment effect can provide valuable insights.

In the field of environmental policies, future research and study can focus on how the endowment effect plays out differently in different environmental contexts. For instance, future studies could examine how the endowment effect functions differently in urban and rural settings, or in the context of local and global environmental changes. Understanding the differences may be beneficial to make more informed and flexible environmental policies. Besides, longitudinal studies that investigate the long-term impact of endowment effect on an individual's behaviours and attitude can shed light on the changes of individual's valuation of environmental goods.

Regarding the implication of the endowment effect in government taxation policy, future investigations can explore the differences in magnitude between groups with socioeconomic status. For instance, the low-income population may value their possessions more highly than the high-

income population. Therefore, understanding the differences across socioeconomic stratification might help enact more flexible tax policies. Moreover, future research can explore more variations in the types of tax. Questions with potential research significance include how much the magnitude of the endowment effect vary from direct tax to indirect tax and how tax on endowment can elicit a different psychological reaction from tax on income.

## 5. Conclusion

In summary, this essay examines the definition of the endowment effect, and the impact it has in various fields, including housing market, environmental preservation and taxation. Understanding its implication is crucial for policymakers to make informed decisions and then enact effective policies and strategies to alleviate the negative impacts of the endowment effect.

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