

DETERMINANTS OF CARBON TAX ACCEPTANCE IN MALAYSIA: THE INFLUENCE OF PUBLIC AWARENESS, PERCEIVED EFFECTIVENESS AND ENVIRONMENTAL ATTITUDES

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Abstract: Public acceptance is a critical factor in the successful implementation of environmental taxation policies, as insufficient public support may undermine their effectiveness in achieving emission reduction objectives. Among these policy instruments, carbon tax has gained considerable global attention as an important mechanism for mitigating climate change. In Malaysia, however, a comprehensive carbon pricing system has yet to be implemented, resulting in limited accountability for greenhouse gas emissions and weaker incentives for industries to reduce their environmental impact. Public acceptance of carbon tax varies across countries and is influenced by a range of economic and non-economic factors. This study examines three non-economic determinants of carbon tax acceptance in Malaysia: public awareness, perceived effectiveness, and environmental attitude. Drawing upon Heider's Attribution Theory, the study explains how individuals interpret environmental issues and policy measures and how these interpretations influence their acceptance of carbon taxation. Using survey data collected from 391 respondents, statistical analyses were conducted to examine the proposed relationships. The findings reveal that public awareness, perceived effectiveness, and environmental attitude all have significant positive effects on carbon tax acceptance. These results provide valuable insights for policymakers seeking to enhance public awareness, improve communication regarding the benefits of carbon taxation, and strengthen transparency in environmental governance. The study contributes to a better understanding of the social and psychological factors that influence public acceptance of carbon tax and offers practical implications for the design and implementation of future environmental taxation policies in Malaysia.

Keywords: Carbon Tax Acceptance, Public Awareness, Perceived Effectiveness, Environmental Attitude, Attribution Theory.

1. Introduction

The proposed introduction of a carbon tax, as highlighted in Malaysia's Budget 2026, represents a significant policy initiative in the country's efforts to address climate change and fulfil its commitment to reducing greenhouse gas emissions. The potential implementation of a carbon tax marks an important shift in Malaysia's fiscal and environmental policy framework, with far-reaching economic, social, and environmental implications. As governments worldwide increasingly adopt carbon pricing mechanisms to encourage sustainable practices and reduce emissions, Malaysia is also exploring policy instruments that can support its long-term climate

objectives. According to Muhammad Sukri Ramli (2025), the establishment of a robust national carbon pricing mechanism is essential for Malaysia to strengthen its position in global climate governance and demonstrate leadership in addressing environmental challenges. A well-designed carbon tax could encourage industries to reduce carbon emissions, improve environmental accountability, and accelerate the transition towards a low-carbon economy.

As illustrated in Figure 1.1, Malaysia recorded approximately 277.5 million tonnes of carbon dioxide (CO₂) emissions in 2022, representing an increase of 6.5 percent compared with the previous year (Worldometer, 2022). During the same period, per capita carbon dioxide emissions were estimated at approximately 8 tonnes, significantly higher than the global average. These figures highlight the growing environmental challenges facing Malaysia and underscore the need for effective policy measures to reduce greenhouse gas emissions and promote sustainable development. Despite growing concerns regarding climate change and environmental sustainability, public acceptance of carbon taxation remains uncertain in Malaysia, where concerns about the economic burden of taxation may affect support for such policies.

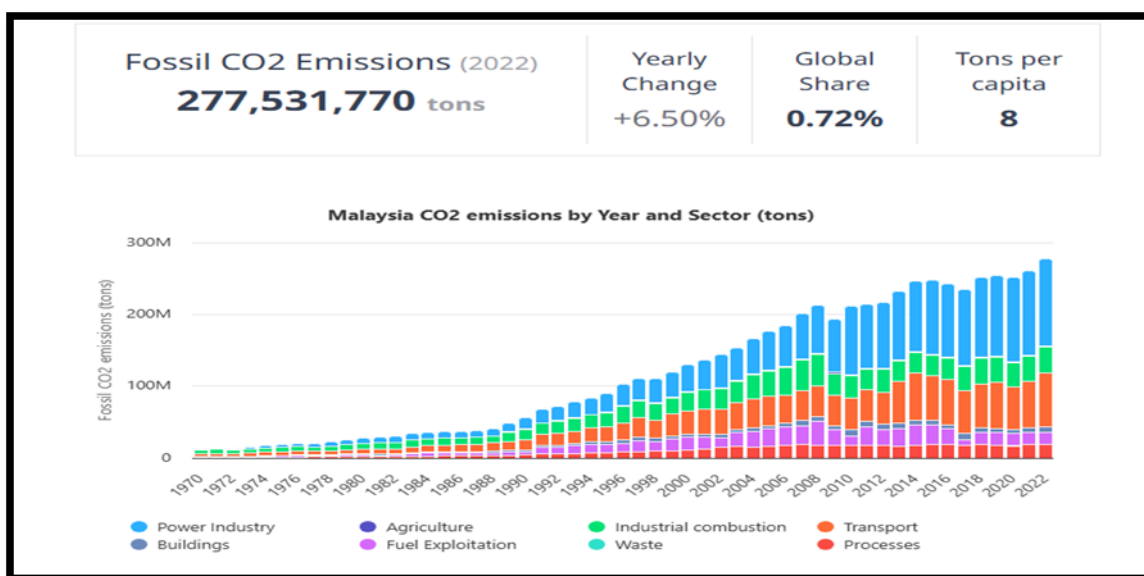


Figure 1: Malaysia CO2 emissions by Year and Sector (tonnes)

Historical data indicate that Malaysia has consistently recorded higher carbon emissions per capita than many of its regional counterparts. For example, in 2015, Malaysia's per capita carbon emissions were estimated at 7.27 tonnes, exceeding those of Thailand (3.64 tonnes) and even China (6.59 tonnes), highlighting the country's relatively carbon-intensive development trajectory (Malaysian Green Technology and Climate Change Corporation [MGTC], 2019). According to MGTC (2019), the average Malaysian lifestyle contributes more significantly to climate change than the average lifestyle in mainland China or Thailand. One of the major contributors to this trend is Malaysia's heavy reliance on privately owned vehicles as the primary mode of transportation. The country has approximately 29.4 million registered vehicles, comprising around 13.8 million cars and 13.0 million motorcycles. This extensive dependence on private transportation has considerable environmental consequences. In 2015, the transport sector emitted an estimated 61.4 million tonnes of carbon dioxide equivalent,

making it the second-largest source of greenhouse gas emissions after the electricity generation sector (MGTC, 2019).

While transport-related emissions illustrate the environmental impact of individual behaviour and mobility patterns, Malaysia's rising greenhouse gas emissions cannot be attributed solely to household activities. Energy-intensive industries have also emerged as significant contributors to the country's carbon footprint. Recent media reports have highlighted sector-specific sources of emissions. For instance, reports published by *The Edge Malaysia* in 2025 drew attention to the environmental implications of Malaysia's rapidly expanding data centre industry. RimbaWatch (2025) estimated that 14 newly planned data centres could collectively generate nearly 10 million tonnes of carbon dioxide equivalent annually. This amount is comparable to the emissions produced by approximately two million vehicles and is nearly equivalent to the total annual emissions of Papua New Guinea in 2023. The primary driver of these emissions is the exceptionally high energy consumption of data centres, combined with Malaysia's electricity grid, which remains heavily dependent on fossil fuels.

As of 2023, Malaysia's total carbon dioxide emissions were estimated at approximately 283 million metric tonnes of carbon dioxide equivalent, translating to 8.07 metric tonnes per capita. This represents an increase compared with 2022 and reflects the country's continuing upward emissions trend. On a per capita basis, Malaysia's carbon footprint remains significantly higher than the global average of 4.76 metric tonnes and has historically exceeded that of neighbouring countries such as Vietnam and Indonesia, despite Malaysia's relatively smaller population size (The Global Economy.com, 2023).

The energy sector remains the largest contributor to Malaysia's greenhouse gas emissions, accounting for more than 70 percent of total emissions, with electricity and heat generation representing the most significant sub-sectors. In addition, land-use change and forestry have contributed substantially to the nation's emissions profile, as deforestation has historically acted as a major source of carbon emissions, further increasing Malaysia's net greenhouse gas output (MGTC, 2019). This emissions profile underscores the urgency of implementing effective and socially acceptable policy measures to address Malaysia's growing environmental challenges.

In response to these concerns, Malaysia is exploring market-based policy instruments such as a carbon tax as part of its broader climate change mitigation strategy. Carbon taxation has been widely recognised as an effective mechanism for reducing greenhouse gas emissions by encouraging individuals and organisations to internalise the environmental costs of their activities. However, the successful implementation of a carbon tax depends not only on its economic effectiveness but also on public acceptance. In many countries, resistance to environmental taxation has limited policy effectiveness and hindered implementation efforts. Consequently, understanding the factors that influence public acceptance of carbon taxation has become increasingly important.

Despite growing interest in carbon taxation, empirical research on carbon tax acceptance in Malaysia remains limited. Previous studies by Izlawanie Muhammad et al. (2022) and Izlawanie Muhammad et al. (2023) have examined public acceptance of carbon tax and related factors such as perceived policy effectiveness and climate change concerns. However,

these studies do not simultaneously investigate the combined influence of public awareness, perceived effectiveness, and environmental attitude within a single integrated framework grounded in Heider's Attribution Theory. This represents an important gap in the literature, particularly in understanding how these non-economic factors shape public acceptance of a prospective carbon tax in Malaysia. Therefore, this study seeks to investigate the key determinants of public acceptance of carbon tax implementation in Malaysia. Specifically, the study focuses on three non-economic factors: public awareness, perceived effectiveness, and environmental attitude. The objectives of the study are as follows:

1. To examine the relationship between public awareness and public acceptance of carbon tax in Malaysia.
2. To determine the relationship between perceived effectiveness and public acceptance of carbon tax in Malaysia.
3. To examine the relationship between environmental attitude and public acceptance of carbon tax in Malaysia.

2. Research Problem Statement

While the introduction has outlined the broader emissions and policy context surrounding Malaysia's proposed carbon tax, this section focuses specifically on the research problem that underpins the present study, with particular emphasis on how public awareness, perceived effectiveness, and environmental attitude jointly influence public acceptance of carbon tax implementation in Malaysia. In response to escalating environmental challenges and rising greenhouse gas emissions, carbon taxation has emerged globally as an important policy instrument for reducing emissions by encouraging more sustainable behaviour and discouraging pollution-intensive activities.

In Malaysia, per capita carbon emissions have consistently exceeded the global average and those of many neighbouring countries, reflecting a relatively carbon-intensive development trajectory (MGTC, 2019). The proposed introduction of a carbon tax, as outlined in Budget 2026, represents a significant milestone in Malaysia's fiscal and environmental policy agenda and aligns with the country's commitments under the Paris Agreement to address climate change and promote sustainable development. However, the effectiveness of a carbon tax depends not only on its design and implementation but also on the extent to which it is accepted by the public. Public acceptance is a critical factor influencing the success of environmental taxation policies, as it affects both policy legitimacy and long-term compliance. Higher levels of public acceptance are generally associated with greater willingness to support policy implementation, comply with taxation measures, and adopt environmentally responsible behaviours, including the use of cleaner technologies and sustainable consumption practices (Zhang et al., 2024; Malerba et al., 2024). Conversely, limited public support may result in resistance, reduced compliance, policy dilution, or even policy reversal, thereby undermining the intended environmental outcomes of carbon taxation.

Understanding the factors that influence public acceptance is therefore essential for the successful implementation of carbon tax policies. This study focuses on three key non-economic determinants of carbon tax acceptance: public awareness, perceived effectiveness, and environmental attitude. Public awareness influences the extent to which individuals understand climate change, recognise environmental challenges, and comprehend the objectives and

implications of carbon taxation. Greater awareness may help reduce misconceptions about the policy and improve public understanding of its intended benefits. Perceived effectiveness refers to the extent to which individuals believe that a carbon tax can successfully reduce greenhouse gas emissions and contribute to environmental improvement, rather than functioning merely as a revenue-generating mechanism (Baranzini and Carattini, 2016; Beiser-McGrath and Bernauer, 2019). Environmental attitude reflects individuals' concern for environmental protection and their willingness to support policies that may involve personal or financial sacrifices in pursuit of long-term environmental sustainability (Kusumawardhani et al., 2024; Rotaris & Danielis, 2019).

Although research on carbon tax acceptance has expanded in recent years, empirical evidence from Malaysia remains limited. Existing studies have provided valuable insights into factors such as climate change concerns, policy effectiveness, institutional trust, fairness perceptions, and revenue allocation preferences. For example, studies by Izlawanie Muhammad et al. (2022) and Izlawanie Muhammad et al. (2023) have contributed significantly to understanding public acceptance of carbon taxation in Malaysia. However, these studies do not simultaneously examine public awareness, perceived effectiveness, and environmental attitude within a single integrated analytical framework. Consequently, there remains limited understanding of how these three non-economic factors collectively influence public acceptance of carbon tax implementation in the Malaysian context.

This gap in the literature constrains policymakers' ability to develop comprehensive communication and engagement strategies that address the different cognitive, psychological, and informational processes through which individuals form opinions about carbon taxation. A more integrated understanding of these determinants is therefore necessary to support the design of effective and socially acceptable environmental policies. Accordingly, this study is guided by the following research problem statement: to investigate how public awareness of carbon tax, perceived effectiveness of the policy, and environmental attitude jointly influence public acceptance of carbon tax implementation in Malaysia. By addressing this empirical gap, the study seeks to provide evidence-based insights that can support the formulation of carbon tax policies and communication strategies that are both environmentally effective and publicly acceptable. Ultimately, the findings are expected to contribute to Malaysia's broader efforts to reduce greenhouse gas emissions, strengthen environmental governance, and achieve its long-term sustainability objectives.

3. Literature Review

3.1 Theoretical underpinning: Attribution Theory

This study draws upon Heider's Attribution Theory to explain how individuals interpret environmental problems and policy responses and how these interpretations influence their acceptance of a carbon tax. Attribution Theory was originally developed to explain how individuals infer the causes of behaviour by distinguishing between internal (dispositional) factors, such as values, beliefs, and attitudes, and external (situational) factors, such as contextual conditions and institutional arrangements. When applied to environmental policy, this perspective suggests that citizens form judgements regarding policy acceptance by attributing responsibility for climate change and evaluating the likely outcomes of policy

interventions. These attributions may be directed towards individuals and society (internal attributions) or towards governments, institutions, and policy design (external attributions).

Several alternative behavioural theories have been widely used to explain environmental attitudes, pro-environmental behaviour, and support for environmental policies. For example, the Theory of Planned Behaviour (TPB) proposes that behaviour is primarily influenced by behavioural intentions, which are shaped by attitudes, subjective norms, and perceived behavioural control. Theory of Planned Behaviour has been extensively applied in studies examining environmental behaviours such as recycling, energy conservation, and sustainable consumption. Similarly, the Value–Belief–Norm (VBN) Theory explains pro-environmental behaviour by linking individuals' values and environmental beliefs to personal norms, which subsequently motivate environmental action and policy support. In addition, Social Exchange Theory has been employed to explain policy acceptability by emphasising how individuals evaluate the perceived benefits and costs associated with collective policy arrangements, including environmental taxation.

Although these theoretical perspectives are relevant to environmental policy research, the present study adopts Attribution Theory for two principal reasons. First, the primary focus of this research is not to predict a specific individual behaviour, such as energy conservation or recycling, but rather to understand how citizens evaluate and respond to a proposed carbon tax over which they have limited direct control. Specifically, the study seeks to examine how individuals interpret the causes of environmental problems and assess whether a carbon tax is likely to produce meaningful environmental outcomes. Attribution Theory is particularly well suited to capturing these causal interpretations because it distinguishes between internal explanations related to personal dispositions and external explanations related to policy design, institutional effectiveness, and government action.

Second, the three non-economic determinants examined in this study: public awareness, perceived effectiveness, and environmental attitude align closely with the internal–external attribution framework proposed by Heider. This provides a theoretically coherent and parsimonious basis for explaining carbon tax acceptance within a single integrated model. From an attributional perspective, public awareness and environmental attitude are conceptualised as internal attributions because they reflect individuals' knowledge, beliefs, values, and personal concern regarding climate change and environmental protection. Public awareness refers to the extent to which individuals understand the causes and consequences of climate change, as well as the role of carbon taxation as a climate mitigation instrument. Environmental attitude reflects individuals' pro-environmental values and their willingness to support environmental protection, even when doing so may involve personal or financial sacrifices.

In contrast, perceived effectiveness is conceptualised as an external attribution because it relates to individuals' evaluations of the carbon tax as a policy instrument. Specifically, it reflects the extent to which individuals believe that the carbon tax, as designed and implemented by the government, will effectively reduce greenhouse gas emissions and generate meaningful environmental benefits. Such evaluations are directed towards the policy itself rather than towards personal beliefs or values.

Accordingly, public acceptance of a carbon tax is expected to emerge from the interaction between internal attributions (public awareness and environmental attitude) and

external attributions (perceived effectiveness). Consistent with the principles of Attribution Theory, individuals are likely to integrate both dispositional and situational information when evaluating environmental policies and forming judgements regarding their acceptability. Therefore, Attribution Theory provides an appropriate theoretical foundation for understanding how cognitive, attitudinal, and evaluative factors jointly influence public acceptance of carbon taxation in Malaysia. By applying Attribution Theory to carbon tax acceptance, this study extends the theory beyond its traditional application in interpersonal judgement and demonstrates its relevance in explaining public responses to environmental taxation policies.

3.2 Carbon Tax Acceptance and Its Determinants

A carbon tax is a market-based policy instrument designed to reduce greenhouse gas emissions by imposing a monetary charge on the carbon content of fossil fuels and the emissions generated from their combustion. Grounded in the polluter pays principle, carbon taxation creates financial incentives for individuals and organisations to reduce their carbon footprint and adopt more sustainable practices (Beiser-McGrath and Bernauer, 2019). According to the Intergovernmental Panel on Climate Change (IPCC, 2022) global temperatures are projected to approach a 1.5°C increase above pre-industrial levels, highlighting the urgency of implementing effective climate mitigation measures. In response, many developed and developing countries have committed to achieving net-zero emissions by 2050. Carbon taxation has emerged as one of the most widely adopted policy instruments to support these commitments by internalising the environmental costs of greenhouse gas emissions (Ali, 2021).

Globally, carbon taxes have been implemented in numerous jurisdictions, including Argentina, Canada, Chile, China, Colombia, Denmark, the European Union, Japan, Kazakhstan, Korea, Mexico, New Zealand, Norway, Singapore, South Africa, Sweden, the United Kingdom, and Ukraine. Several other countries, including Brazil, Brunei, Indonesia, Pakistan, Russia, Serbia, Thailand, Türkiye, and Vietnam, have also considered introducing similar measures. According to the World Bank, 64 carbon pricing initiatives were in operation worldwide in 2021, with several additional schemes under development. Collectively, these initiatives covered approximately 20 percent of global greenhouse gas emissions.

In Malaysia, the proposed carbon tax forms part of the country's broader climate policy agenda. Under the Paris Agreement, Malaysia has committed to reducing carbon emissions by 45 percent from 2005 levels by 2030 (Sunita Rajakumar and Sieh, 2020). To support this objective, the government introduced the National Energy Efficiency Action Plan 2016–2025, which aims to reduce electricity demand growth by 8 percent and achieve cumulative greenhouse gas emission reductions of approximately 38 million tonnes of carbon dioxide equivalent. More recently, Budget 2026 confirmed the government's intention to introduce a carbon tax beginning with the iron, steel, and energy sectors, which are among the country's largest contributors to greenhouse gas emissions (Ministry of Finance, Malaysia, 2025;). Early estimates suggest that the tax rate may range between RM45 and RM150 per tonne of carbon dioxide equivalent. The proposed policy is also expected to complement the government's fossil fuel subsidy rationalisation strategy by encouraging renewable energy adoption and improving energy efficiency while allowing industries sufficient time to adapt.

Although carbon taxation is widely regarded as a cost-effective mechanism for reducing emissions, its effectiveness ultimately depends on public acceptance. Public acceptance refers to the extent to which individuals are willing to support, approve of, and comply with a policy based on their perceptions, attitudes, and behavioural intentions regarding its implementation and anticipated outcomes (Izlawanie Muhammad et al., 2023). Previous studies have shown that public acceptance is influenced not only by economic considerations but also by social, psychological, and environmental factors. Resistance to carbon taxation often arises from limited policy understanding, concerns about economic burdens, and doubts regarding policy effectiveness (Drews and van den Bergh, 2016). Consequently, understanding the determinants of public acceptance is essential for the successful implementation of carbon tax policies.

From the perspective of Attribution Theory, public acceptance is shaped by both internal and external attributions. Internal attributions relate to individuals' knowledge, beliefs, and values, whereas external attributions concern evaluations of policy design and institutional effectiveness. In this study, public awareness and environmental attitude are conceptualised as internal attributions, while perceived effectiveness is conceptualised as an external attribution.

Public awareness refers to individuals' understanding of climate change, its causes and consequences, and the role of carbon taxation as a climate mitigation instrument. Higher levels of awareness are associated with greater recognition of environmental risks and stronger support for climate policies (Harris and Howe, 2023; Hasanaj and Stadelmann-Steffen, 2022). Individuals who perceive climate change as a serious and personally relevant issue are more likely to support policy interventions aimed at addressing environmental degradation. Within the Attribution Theory framework, greater awareness strengthens internal attributions that climate change is a significant human-induced problem requiring policy action, thereby increasing support for carbon taxation.

Perceived effectiveness refers to the extent to which individuals believe that a carbon tax can successfully reduce greenhouse gas emissions and produce meaningful environmental outcomes. As an external attribution, perceived effectiveness focuses on evaluations of the policy instrument itself and the government's ability to implement it effectively. Previous studies have shown that individuals are more likely to support carbon taxation when they believe it will achieve tangible environmental benefits rather than serve merely as a revenue-generating mechanism (Beiser-McGrath and Bernauer, 2019; Izlawanie Muhammad et al., 2023). Conversely, doubts regarding policy effectiveness may reduce public support. Therefore, clear communication regarding the environmental benefits and expected outcomes of carbon taxation is essential for strengthening public acceptance (Gurbuz, 2022; Weber, 2010).

Environmental attitude reflects an individual's level of concern for environmental protection and willingness to support measures that promote long-term ecological sustainability. Individuals with stronger pro-environmental values are generally more supportive of environmental policies, including carbon taxation (Andhella et al., 2024; Poortinga et al., 2004). From an attributional perspective, environmental attitude represents an internal attribution because it reflects deeply held beliefs regarding environmental responsibility and stewardship. Individuals who attribute environmental degradation to human activities are more likely to perceive carbon taxation as a legitimate and necessary policy response. However, support for carbon taxation may also be influenced by broader socio-political and ideological

factors, including economic priorities and perceptions of government intervention (Chu and Yang, 2020; Poortinga et al., 2011).

On the whole, public awareness, perceived effectiveness, and environmental attitude represent important determinants of public acceptance of carbon taxation. Attribution Theory provides a coherent framework for integrating these factors by explaining how individuals combine internal evaluations of environmental responsibility with external evaluations of policy effectiveness when forming acceptance judgements. By examining these determinants simultaneously, this study seeks to provide a more comprehensive understanding of how Malaysians evaluate the proposed carbon tax and how policymakers can strengthen public support for its implementation.

In summary, public acceptance is a critical prerequisite for the successful implementation of carbon taxation. Enhancing public awareness through education and communication initiatives, demonstrating the effectiveness of carbon taxation through transparent policy outcomes, and fostering positive environmental attitudes can contribute significantly to public support. A better understanding of these factors will assist policymakers in designing carbon tax policies that are both environmentally effective and socially acceptable.

4. Conceptual Framework

The conceptual framework for this study is developed based on Heider's Attribution Theory and examines the influence of three non-economic determinants: public awareness, perceived effectiveness, and environmental attitude on public acceptance of carbon tax implementation in Malaysia. The dependent variable in this study is public acceptance of carbon tax, which refers to the extent to which individuals are willing to support, approve of, comply with, and legitimise the implementation of a carbon tax policy. Public acceptance is assessed through individuals' levels of support for the policy, perceptions of its fairness, and willingness to comply with the tax if it is implemented (Izlawanie Muhammad et al., 2022).

The independent variables are public awareness, perceived effectiveness, and environmental attitude. Public awareness refers to individuals' understanding of climate change, its causes and consequences, and the role of carbon taxation as a policy instrument for reducing greenhouse gas emissions. Perceived effectiveness refers to the extent to which individuals believe that a carbon tax can effectively reduce emissions and generate meaningful environmental benefits. Environmental attitude reflects individuals' concern for environmental protection and their willingness to support environmental policies that contribute to long-term sustainability.

Drawing on Attribution Theory, public awareness and environmental attitude are conceptualised as internal attributions because they represent individuals' knowledge, beliefs, and value orientations regarding environmental issues. Perceived effectiveness is conceptualised as an external attribution because it reflects individuals' evaluations of the carbon tax as a policy instrument and their perceptions of its likely outcomes. Accordingly, the framework proposes that these internal and external attributions influence the level of public acceptance of carbon tax implementation in Malaysia. Consistent with Attribution Theory, individuals are expected to evaluate carbon tax policies by combining internal judgements regarding environmental responsibility and awareness with external evaluations of policy

effectiveness. These evaluations subsequently influence their acceptance of carbon taxation. Figure 1 presents the conceptual framework of the study, illustrating the hypothesised relationships between public awareness, perceived effectiveness, environmental attitude, and public acceptance of carbon tax.

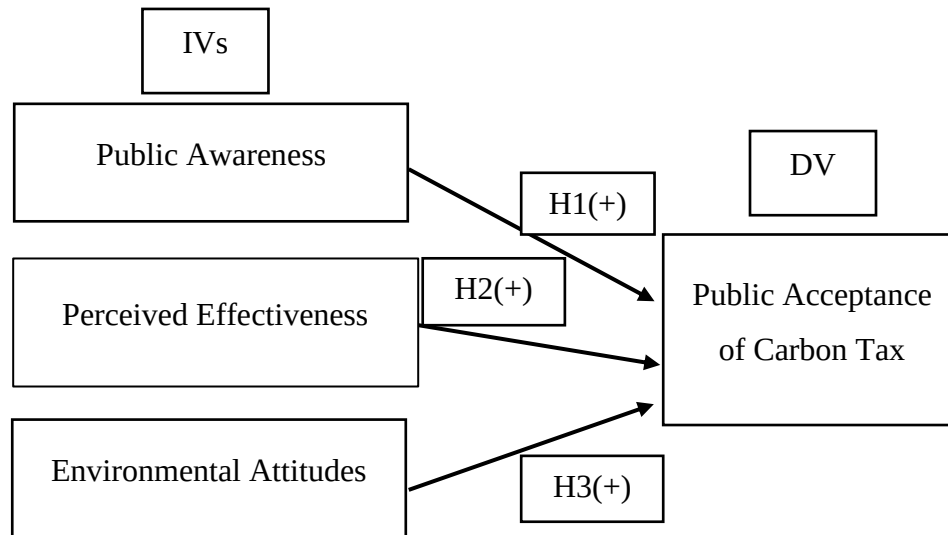


Figure 2. Conceptual framework

4.1 Public Awareness and Public Acceptance of Carbon Tax

Public awareness has emerged as an important determinant of attitudes towards environmental policies, including carbon taxation. In the context of this study, public awareness refers to individuals' understanding of climate change, the objectives of carbon taxation, its operational mechanisms, and its potential environmental and economic impacts. A higher level of awareness enables individuals to better evaluate the rationale and intended outcomes of carbon tax policies, thereby influencing their level of acceptance. Previous studies have consistently demonstrated a positive relationship between public awareness and support for carbon taxation. Kim et al. (2024) found that individuals with greater awareness of climate change and environmental policies tend to exhibit higher levels of acceptance of carbon taxes. Similarly, Cherry et al. (2010) and Kallbekken and Aasen (2010) reported that public acceptance increases significantly when individuals understand how carbon taxes operate and how they contribute to environmental improvement. Greater awareness helps reduce misconceptions surrounding carbon taxation, which is often perceived primarily as an additional financial burden. Instead, informed individuals are more likely to recognise the environmental benefits of carbon taxation, including its potential to reduce greenhouse gas emissions, encourage energy efficiency, and promote the adoption of cleaner energy sources (Neo et al., 2017).

From the perspective of Attribution Theory, public awareness represents an internal attribution because it reflects individuals' knowledge, beliefs, and understanding of environmental issues. Individuals who possess greater awareness are more likely to attribute climate change to human activities and to recognise the need for policy interventions to address environmental degradation. As a result, they may be more inclined to view carbon taxation as a necessary and appropriate mechanism for mitigating climate change. However, awareness alone may not be sufficient to ensure public acceptance. Other factors, including perceptions

of fairness and trust in government institutions, also play important roles in shaping public attitudes towards carbon taxation. Carattini et al. (2017) argue that even when awareness levels are high, acceptance may remain limited if individuals perceive the tax as unfair or lack confidence in the government's ability to manage and allocate tax revenues effectively.

Similarly, Slavoljub et al. (2015) emphasise that trust in public institutions can significantly influence support for environmental policies. These findings highlight the complexity of public acceptance and suggest that awareness must be accompanied by trust, transparency, and perceptions of procedural fairness. Nevertheless, the majority of empirical evidence suggests that greater public awareness contributes positively to public acceptance of carbon taxation. Individuals who understand the environmental challenges associated with climate change and the role of carbon taxation in addressing those challenges are generally more willing to support such policies. Therefore, public awareness is expected to play a significant role in shaping public acceptance of carbon tax implementation in Malaysia.

Accordingly, the following hypothesis is proposed:

H1: Public awareness has a positive relationship with public acceptance of carbon tax.

4.2 Perceived Effectiveness and Public Acceptance of Carbon Tax

Perceived effectiveness refers to the extent to which individuals believe that a carbon tax can successfully achieve its intended objectives, including reducing greenhouse gas emissions, encouraging the adoption of renewable energy, and promoting more sustainable patterns of consumption and behaviour. Previous studies have consistently identified perceived effectiveness as one of the most important determinants of public acceptance of environmental policies. When individuals believe that a policy can produce meaningful environmental outcomes, they are generally more willing to support its implementation despite any associated economic costs.

Kallbekken and Aasen (2010) found that individuals are more likely to support carbon taxation when they perceive it as an effective mechanism for addressing environmental problems and reducing emissions. Similarly, Bergquist et al. (2020) reported that public support increases when citizens believe that carbon taxation can generate tangible environmental benefits. These findings suggest that individuals may regard the costs associated with carbon taxation as a worthwhile investment if they are convinced that the policy will contribute to climate change mitigation and environmental sustainability.

The importance of perceived effectiveness has also been highlighted by Maestre-Andres et al. (2019), who argued that public confidence in a policy's ability to achieve its intended objectives directly influences both trust and acceptance. Conversely, doubts regarding policy effectiveness may reduce support for carbon taxation. Such scepticism often arises from concerns about policy implementation, uncertainty regarding environmental outcomes, or previous experiences with environmental initiatives that failed to meet public expectations (Carattini et al., 2019). Zeng et al. (2024) further noted that when environmental policies do not deliver visible or measurable results, public confidence may decline, thereby weakening support for future policy interventions.

From the perspective of Attribution Theory, perceived effectiveness represents an external attribution because it reflects individuals' evaluations of the policy instrument itself rather than their personal beliefs or values. Specifically, it concerns judgements regarding whether the carbon tax, as designed and implemented by the government, is capable of achieving meaningful environmental improvements. Individuals who attribute positive environmental outcomes to the policy are more likely to view carbon taxation as a credible and legitimate instrument for addressing climate change. In contrast, individuals who perceive the policy as ineffective may be less willing to support its implementation.

In the Malaysian context, where carbon taxation remains a relatively new policy concept, perceptions of effectiveness are likely to play a particularly important role in shaping public acceptance. Citizens' willingness to support carbon taxation may depend largely on whether they believe that the policy can deliver genuine environmental benefits and contribute to the country's climate change mitigation goals (Izlawanie Muhammad et al., 2022; Izlawanie Muhammad et al., 2023). Therefore, clear communication regarding the objectives, mechanisms, and anticipated outcomes of carbon taxation is essential for strengthening public confidence and increasing policy acceptance.

Overall, the literature suggests that individuals who perceive carbon taxation as an effective environmental policy are more likely to support its implementation. Consequently, perceived effectiveness is expected to have a positive influence on public acceptance of carbon tax in Malaysia. According to Attribution Theory, individuals are more likely to support a policy when they attribute positive and credible outcomes to the policy instrument itself. Therefore, higher levels of perceived effectiveness are expected to increase public acceptance of carbon taxation.

Accordingly, the following hypothesis is proposed:

H2: Perceived effectiveness has a positive relationship with public acceptance of carbon tax.

4.3 Environmental Attitudes and Public Acceptance of Carbon Tax

Environmental attitude refers to the degree of concern individuals have for environmental protection and their willingness to support actions that promote environmental sustainability, even when such actions may involve personal inconvenience or financial cost. A substantial body of research has demonstrated that pro-environmental attitudes are positively associated with support for environmental policies, including carbon taxation. Individuals who place greater importance on environmental protection are generally more willing to accept policy measures aimed at addressing environmental challenges and mitigating climate change.

Previous studies have consistently shown that environmental attitude is an important predictor of support for environmental policies. Dunlap et al. (2000) and O'Connor et al. (1999) found that individuals with stronger environmental concerns are more likely to support environmental regulations and taxation policies because they prioritise long-term ecological benefits over short-term economic considerations. Similarly, Maestre-Andres et al. (2021) reported that individuals with stronger pro-environmental values demonstrate greater acceptance of climate-related policy interventions. In the Malaysian context, Izlawanie Muhammad et al. (2022) found that environmental values and attitudes significantly influence

individuals' willingness to support environmental policies, including carbon pricing mechanisms.

From the perspective of Attribution Theory, environmental attitude represents an internal attribution because it reflects individuals' underlying beliefs, values, and personal responsibility towards environmental protection. Individuals with strong pro-environmental attitudes are more likely to attribute environmental degradation to human activities and to recognise the need for corrective policy measures. Consequently, they may be more inclined to perceive carbon taxation as a legitimate and necessary instrument for reducing greenhouse gas emissions and promoting sustainable development.

In countries such as Malaysia, where environmental awareness and climate change concerns are becoming increasingly prominent, individuals with stronger pro-environmental attitudes may be more likely to view carbon taxation as an appropriate policy response to environmental challenges. Their support is often driven by a belief that environmental protection should take precedence over short-term economic costs when addressing long-term sustainability issues.

Nevertheless, positive environmental attitudes do not automatically translate into policy acceptance. Other factors may influence whether individuals support a carbon tax, including trust in government institutions, perceptions of policy fairness, and beliefs regarding policy effectiveness. Zhao et al. (2023) observed that even individuals with strong environmental concerns may hesitate to support carbon taxation if they doubt the government's ability to implement the policy effectively or question whether the policy will achieve its intended environmental objectives. This suggests that environmental attitude, while important, operates alongside other cognitive and evaluative factors in shaping public acceptance.

Despite these considerations, the majority of empirical evidence indicates that individuals with stronger pro-environmental attitudes are generally more supportive of environmental taxation policies. Therefore, environmental attitude is expected to play a significant role in influencing public acceptance of carbon tax implementation in Malaysia. According to Attribution Theory, individuals who attribute environmental problems to human actions and who hold strong pro-environmental values are more likely to support corrective policy interventions such as carbon taxation.

Accordingly, the following hypothesis is proposed:

H3: Environmental attitude has a positive relationship with public acceptance of carbon tax.

5. Methodology

This study employed a quantitative research design to examine the relationships between public awareness, perceived effectiveness, environmental attitude, and public acceptance of carbon tax in Malaysia. The target population comprised Malaysian citizens aged 18 years and above, as this group represents current and future taxpayers who may be directly or indirectly affected by the implementation of a carbon tax. Malaysia, with an estimated

population of 34.2 million in 2025 (Department of Statistics Malaysia, 2025), provides a diverse demographic context for investigating public acceptance of environmental taxation policies.

Given the size of the population, it was impractical to survey all Malaysian citizens. Therefore, the minimum sample size was determined based on the guidelines proposed by Sekaran and Bougie (2016), which recommend a minimum sample of 384 respondents for populations exceeding one million at a 95 percent confidence level and a 5 percent margin of error. The study focused on Malaysian citizens aged 18 years and above from diverse demographic backgrounds, including differences in age, gender, educational attainment, occupation, and income level. These individuals live within a socio-economic environment where climate change, environmental policies, and taxation measures increasingly influence public perceptions and behaviours.

Data were collected using a structured questionnaire administered through an online survey. The questionnaire consisted of five sections. Section A collected demographic information, while Sections B to E measured the four main constructs of the study: public acceptance of carbon tax (8 items), public awareness (7 items), perceived effectiveness (8 items), and environmental attitude (5 items), resulting in a total of 28 measurement items. All items were measured using a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The measurement items were adapted from previously validated scales in the environmental taxation and carbon pricing literature and modified to suit the Malaysian context (e.g., Baranzini and Carattini, 2016; Beiser-McGrath and Bernauer, 2019; Izlawanie Muhammad et al., 2022; Izlawanie Muhammad et al., 2023). The complete list of measurement items and their corresponding source references is presented in Appendix A to facilitate assessment of content validity and construct validity.

The survey was distributed through online channels using non-probability convenience sampling and snowball sampling techniques. Respondents were recruited via institutional email lists, social media platforms, and messaging applications. A total of 391 valid responses were obtained and included in the final analysis. Participation in the study was voluntary. Respondents were informed of the purpose of the study and assured that their responses would remain anonymous and confidential. No personally identifiable information was collected, and respondents were free to withdraw from the survey at any time. Prior to the main data collection, a pilot study was conducted to evaluate the clarity, relevance, and comprehensibility of the questionnaire items. According to Bougie and Sekaran (2016), pilot testing involves administering the survey instrument to a small group of respondents to identify potential issues before large-scale distribution. Accordingly, this study conducted a pilot test involving 30 respondents before administering the questionnaire to the full sample.

Data analysis was performed using SPSS version 30.0. The analytical procedures included descriptive statistics, reliability analysis, Pearson correlation analysis, and multiple regression analysis to test the proposed hypotheses and examine the relationships among the study variables. The reliability analysis results are presented in Table 1. The findings indicate that all four constructs achieved Cronbach's alpha values exceeding the recommended threshold of 0.70, demonstrating acceptable internal consistency and reliability for all 28 measurement items. The detailed wording of the measurement items is provided in Appendix A.

Table 1. Reliability Statistic for Pilot Stud

Variables	Cronbach's Alpha	Number of Items
DV (Public Acceptance of Carbon Tax)	0.925	8
IV 1 (Public Awareness)	0.910	7
IV 2 (Perceived Effectiveness)	0.823	8
IV 3 (Environmental Attitude)	0.769	5

6. Results

This section presents the empirical findings of the study based on the 391 valid responses collected through the online survey. It begins with a profile of the respondents, followed by reliability and normality assessments, descriptive statistics, correlation analysis, and multiple regression analysis used to test the proposed hypotheses.

6.1 Profile of respondents

Table 2 presents the demographic characteristics of the respondents. The sample consisted of 391 respondents, of whom 71.4 percent ($n = 279$) were female and 28.6 percent ($n = 112$) were male. Although female respondents constituted the majority of the sample, the inclusion of both genders provides a broader perspective for examining public awareness, environmental attitudes, perceived effectiveness, and acceptance of carbon taxation.

A substantial proportion of respondents were aged between 21 and 30 years (41.7 percent), followed by those aged 31 to 40 years (27.1 percent). Respondents aged 41 to 50 years accounted for 13.0 percent of the sample, while 16.4 percent were aged above 50 years. Only 1.8 percent of respondents were below the age of 20. The broad age distribution enhances the representativeness of the sample, as perceptions of environmental issues and carbon taxation may vary across different age groups due to differences in lifestyle, economic circumstances, and environmental experiences.

With regard to educational attainment, more than half of the respondents held a bachelor's degree (56.0 percent). This was followed by diploma holders (17.6 percent), master's degree holders (14.1 percent), and respondents with Sijil Pelajaran Malaysia (SPM) qualifications (11.8 percent). A small proportion of respondents held a doctoral degree (0.5 percent). The relatively high level of educational attainment within the sample is noteworthy, as education has been associated with greater environmental literacy, stronger understanding of public policies, and an enhanced ability to evaluate the environmental and economic implications of taxation measures such as carbon taxes (Simpa et al., 2024).

In terms of monthly income, the largest group of respondents (45.0 percent) reported earning between RM2,001 and RM4,000 per month. This was followed by respondents earning between RM4,001 and RM6,000 (19.7 percent) and those earning below RM2,000 (16.9 percent). Smaller proportions reported monthly incomes of RM6,001 to RM8,000 (8.2 percent) and above RM8,000 (10.2 percent). These findings indicate that the majority of respondents fall within the middle-income category, which is particularly relevant given that income levels may influence perceptions of tax affordability, policy fairness, and willingness to support carbon taxation. Individuals with lower incomes may be more sensitive to additional financial costs,

whereas higher-income individuals may be more willing to support environmental policies due to lower price sensitivity and greater environmental awareness.

Regarding geographical distribution, more than half of the respondents resided in Selangor (52.4 percent), followed by Kuala Lumpur (13.6 percent). Smaller proportions were drawn from Johor (5.1 percent), Kedah (4.9 percent), Negeri Sembilan (4.6 percent), Pahang (4.1 percent), Melaka (3.3 percent), Perak (2.8 percent), Kelantan (2.0 percent), Pulau Pinang (1.8 percent), Perlis (1.3 percent), Terengganu (1.3 percent), Sarawak (1.3 percent), Sabah (1.0 percent), and Putrajaya (0.5 percent). The strong representation from highly urbanised and industrialised areas such as Selangor and Kuala Lumpur is particularly relevant, as residents in these regions may experience environmental issues such as pollution and urban congestion more directly, potentially influencing their attitudes towards environmental policies and carbon taxation.

Finally, in terms of occupation, more than half of the respondents were employed in the private sector (54.7 percent), while 24.6 percent worked in the public sector. Smaller groups included self-employed individuals (7.4 percent), students (4.9 percent), and respondents in other occupations (8.4 percent). The occupational diversity of the sample provides a useful basis for examining carbon tax acceptance across individuals with different economic backgrounds, employment conditions, and levels of exposure to environmental and fiscal policies. Overall, the sample comprises respondents from diverse demographic backgrounds in terms of age, education, income, geographical location, and occupation, thereby providing a broad perspective for examining the determinants of public acceptance of carbon tax in Malaysia.

Table 2: Demographic Characteristics of Respondents

Item	Frequency	N=391 Percent (%)
Gender		
Male	112	28.6
Female	279	71.4
Age		
Below 20	7	1.8
21-30	163	41.7
31-40	106	27.1
41-50	51	13
Above 50	64	16.4
Education Level		
SPM	46	11.8
Diploma	69	17.6
Bachelor's Degree	219	56.0
Master's Degree	55	14.1

PhD	2	0.5
Monthly Income		
Below RM2,000	66	16.9
RM2,001-RM4,000	176	45.0
RM4,001-RM6,000	77	19.7
RM6,001-RM8,000	32	8.2
Above RM8,00	40	10.2
Residential Area		
Perlis	5	1.3
Kedah	19	4.9
Pulau Pinang	7	1.8
Perak	11	2.8
Selangor	205	52.4
Kuala Lumpur	53	13.6
Negeri Sembilan	18	4.6
Melaka	13	3.3
Johor	20	5.1
Pahang	16	4.1
Kelantan	8	2.0
Terengganu	5	1.3
Sabah	4	1.0
Sarawak	5	1.3
Putrajaya	2	0.5
Occupation		
Government Sector	96	24.6
Private Sector	214	54.7
Self-Employed	29	7.4
Student	19	4.9
Other	33	8.4

6.2 Descriptive Statistics and Correlation Analysis

Prior to conducting the multiple regression analysis, descriptive statistics and Pearson correlation analyses were performed for all study variables. Table 3 presents the mean scores, standard deviations, and Pearson correlation coefficients for public acceptance of carbon tax, public awareness, perceived effectiveness, and environmental attitude. The descriptive

statistics indicate that all variables recorded moderate to relatively high mean scores, suggesting generally favourable perceptions of carbon taxation and the factors associated with its acceptance. These findings imply that respondents demonstrated a relatively high level of awareness of carbon taxation, positive perceptions of its effectiveness, and supportive environmental attitudes.

The Pearson correlation analysis revealed positive and statistically significant relationships among all study variables. Specifically, higher levels of public awareness, stronger perceptions of policy effectiveness, and more positive environmental attitudes were associated with higher levels of public acceptance of carbon tax. These findings provide preliminary support for the proposed theoretical relationships and suggest that the independent variables are meaningfully related to the dependent variable. Furthermore, the correlation coefficients were below the commonly accepted threshold for multicollinearity concerns, indicating that the variables are related but remain empirically distinct. This suggests that the constructs measure different aspects of respondents' perceptions and attitudes and are therefore suitable for inclusion in the same multiple regression model. Consequently, the correlation analysis supports the appropriateness of proceeding with further multivariate analysis to examine the relative contribution of each predictor to public acceptance of carbon tax.

Table 3. Pearson Coefficient of Correlation

Variable	PA	PE	EA	PAC
PA	1.00			
PE	.482**	1.00		
EA	.294**	.619**	1.00	
PAC	.367**	.575**	.620**	1.00

** . Correlation is significant at the 0.001 level (2-tailed)

6.3 Multiple Regression Analysis

Multiple regression analysis was conducted to examine the influence of public awareness, perceived effectiveness, and environmental attitude on public acceptance of carbon tax in Malaysia. The results indicate that all three independent variables significantly predict public acceptance of carbon tax. Among the predictors, environmental attitude emerged as the strongest and most significant determinant of public acceptance of carbon tax ($\beta = 0.430$, $t = 8.995$, $p < .001$). This finding suggests that individuals with stronger pro-environmental attitudes are more likely to support the implementation of a carbon tax. The result highlights the importance of environmental values and concern for environmental protection in shaping public acceptance of climate-related policy measures.

Perceived effectiveness was identified as the second strongest predictor of public acceptance ($\beta = 0.251$, $t = 4.815$, $p < .001$). This indicates that respondents who believe that carbon taxation can effectively reduce greenhouse gas emissions and contribute to environmental improvement are more likely to support the policy. The finding underscores the

importance of communicating the environmental benefits and expected outcomes of carbon taxation to the public. Although public awareness was also found to be a statistically significant predictor, its contribution was comparatively weaker than those of environmental attitude and perceived effectiveness ($\beta = 0.119$, $t = 2.784$, $p = .006$). Nevertheless, the positive relationship suggests that greater awareness and understanding of climate change and carbon taxation contribute to higher levels of policy acceptance.

Overall, the results of the multiple regression analysis indicate that environmental attitude is the most influential determinant of public acceptance of carbon tax, followed by perceived effectiveness and public awareness. These findings suggest that while increasing public awareness remains important, fostering stronger environmental values and enhancing public confidence in the effectiveness of carbon taxation may be more influential in strengthening support for carbon tax implementation in Malaysia.

Table 3: Regression Analysis among Variables

Variable	Coefficients Beta	t-value	p-value
Public awareness	0.119	2.784	0.006
Perceived Effectiveness	0.251	4.815	<.001
Environmental Attitude	0.430	8.995	<.001

Dependent Variable: Public Acceptance of Carbon Tax
 $R^2 = 0.455$, Adjusted $R^2 = 0.451$

7. Discussion

The first hypothesis examined the relationship between public awareness and public acceptance of carbon tax. The results of the multiple regression analysis revealed a positive and statistically significant relationship between these variables ($\beta = 0.119$, $t = 2.784$, $p = .006$). This finding indicates that individuals with higher levels of awareness regarding climate change, carbon taxation, and its intended environmental objectives are more likely to support the implementation of a carbon tax. Although public awareness was the weakest predictor among the three independent variables, its significant contribution highlights the importance of informing citizens about environmental issues and policy measures.

This finding is consistent with previous studies conducted by Cherry et al. (2010), Kallbekken and Aasen (2010), Baranzini and Carattini (2016), and Kim et al. (2024), all of which reported that greater awareness and understanding of environmental taxation are associated with higher levels of policy acceptance. Increased awareness may reduce misconceptions about carbon taxation, particularly perceptions that it represents merely an additional financial burden. Instead, informed individuals are more likely to recognise its potential environmental benefits, including reducing greenhouse gas emissions and encouraging sustainable behaviour. From the perspective of Attribution Theory, public awareness represents an internal attribution that reflects individuals' knowledge and understanding of environmental issues. Individuals who are more aware of climate change and its consequences are more likely to attribute environmental problems to human activities and to support policy interventions aimed at addressing those problems. Therefore, Hypothesis H1 is supported, indicating a positive and significant relationship between public awareness and public acceptance of carbon tax.

The second hypothesis examined the relationship between perceived effectiveness and public acceptance of carbon tax. The results demonstrated a positive and statistically significant relationship ($\beta = 0.251$, $t = 4.815$, $p < .001$). This finding suggests that individuals who believe that carbon taxation can effectively reduce greenhouse gas emissions and contribute to environmental improvement are more likely to support its implementation. The relatively stronger effect of perceived effectiveness compared with public awareness highlights the importance of citizens' evaluations of policy outcomes when forming judgements about environmental taxation.

The finding is consistent with previous studies by Carattini et al. (2019) and Maestre-Andres et al. (2019), which identified perceived effectiveness as one of the strongest determinants of public support for carbon taxation and other environmental policies. When individuals believe that a policy can produce meaningful and visible environmental benefits, they are generally more willing to accept any associated economic costs. Conversely, doubts regarding policy effectiveness may reduce support, even among individuals who recognise the seriousness of climate change. Within the Attribution Theory framework, perceived effectiveness represents an external attribution because it reflects evaluations of the policy instrument itself and the government's capacity to achieve the intended environmental outcomes. Individuals who attribute positive environmental outcomes to carbon taxation are therefore more likely to view the policy as legitimate and worthy of support. Accordingly, Hypothesis H2 is supported, confirming a positive and significant relationship between perceived effectiveness and public acceptance of carbon tax.

The third hypothesis examined the relationship between environmental attitude and public acceptance of carbon tax. The results of the multiple regression analysis revealed a strong and statistically significant positive relationship between the two variables ($\beta = 0.430$, $t = 8.995$, $p < .001$). This finding indicates that individuals with stronger pro-environmental attitudes are more likely to support the implementation of a carbon tax. Furthermore, environmental attitude emerged as the strongest predictor of public acceptance among the three independent variables examined in this study. This result is consistent with previous research, particularly Izlawanie Muhammad et al. (2022), who reported that individuals with stronger environmental concern are generally more willing to support climate-related policies, including carbon pricing mechanisms. Therefore, Hypothesis H3 is supported, confirming a positive and significant relationship between environmental attitude and public acceptance of carbon tax.

This study investigated the determinants of public acceptance of carbon tax in Malaysia by focusing on three non-economic factors: public awareness, perceived effectiveness, and environmental attitude. The analysis was guided by Heider's (1958) Attribution Theory, which proposes that individuals interpret events, behaviours, and outcomes through attributions that may be internal, such as beliefs, values, and attitudes, or external, such as policy characteristics, institutional arrangements, and government actions. In the context of carbon taxation, public acceptance is shaped by how individuals interpret both the causes of environmental problems and the likely consequences of policy interventions.

The regression model explained 45.1 percent of the variance in public acceptance of carbon tax, indicating that the three determinants examined in this study contribute substantially to explaining public support for the policy. The findings provide empirical support

for the study's conceptual framework and suggest that both internal and external attributional processes influence individuals' acceptance of carbon taxation. Consistent with Attribution Theory, environmental attitude and public awareness represent internal attributions that reflect individuals' values, beliefs, and understanding of environmental issues, whereas perceived effectiveness represents an external attribution related to evaluations of the policy's likely outcomes and effectiveness.

Public awareness was found to have a positive and statistically significant relationship with public acceptance of carbon tax, supporting Hypothesis H1. The findings suggest that individuals who possess greater knowledge and understanding of climate change and carbon taxation are more likely to support the implementation of the policy. This result is consistent with previous studies. Kusumawardhani et al. (2024) reported that public understanding of the objectives and benefits of carbon taxation significantly influences support for carbon pricing policies. Similarly, Baranzini et al. (2014) argued that increased awareness encourages individuals to view carbon taxation as a necessary instrument for addressing climate change, thereby increasing policy acceptance. Izlawanie Muhammad et al. (2022) likewise found that individuals who perceive carbon taxes as credible solutions to environmental challenges are more likely to support their implementation. These findings highlight the importance of effective public communication and educational initiatives in improving understanding of carbon taxation and strengthening public support for environmental policies.

Perceived effectiveness was also found to have a positive and statistically significant relationship with public acceptance, supporting Hypothesis H2. Within the Attribution Theory framework, perceived effectiveness represents an external attribution because it reflects individuals' evaluations of the policy instrument itself and its ability to achieve intended environmental outcomes. When individuals believe that carbon taxation can effectively reduce emissions, encourage sustainable behaviour, and contribute to environmental improvement, they are more likely to support its implementation. This finding is consistent with Maestre-Andres et al. (2021), who found that public support for carbon pricing increases when individuals perceive a clear connection between the policy and positive environmental outcomes. Conversely, Jager et al. (2021) observed that perceptions of policy ineffectiveness may reduce public support, as individuals may attribute poor outcomes to weaknesses in policy design or implementation. The findings therefore suggest that demonstrating tangible and measurable environmental benefits, such as reduced emissions, improved air quality, or greater adoption of renewable energy, is essential for strengthening public confidence and increasing acceptance of carbon taxation. Köppl and Schratzenstaller (2022) similarly emphasised that visible evidence of policy effectiveness plays a crucial role in building public support for carbon pricing mechanisms.

Among all the determinants examined, environmental attitude emerged as the most influential predictor of public acceptance of carbon tax. From an attributional perspective, environmental attitude reflects an internal attribution because it represents individuals' deeply held values, beliefs, and sense of responsibility towards environmental protection. Individuals with strong pro-environmental attitudes are more likely to attribute environmental degradation to human activities and to perceive carbon taxation as a legitimate and necessary policy response. This finding is consistent with Wicki et al. (2019), who reported that individuals with a strong sense of environmental responsibility are more willing to support climate-related policies, even when such policies involve personal or financial sacrifices. Similarly, Rotaris and

Danielis (2019) found that individuals who recognise the role of human activities in contributing to climate change are more willing to support carbon pricing measures. The present findings suggest that environmental values play a central role in shaping public acceptance of carbon taxation. Individuals who perceive climate change as a serious environmental challenge are more likely to recognise the need for policy interventions and are therefore more willing to support carbon taxation as a mechanism for reducing greenhouse gas emissions and promoting long-term environmental sustainability.

Overall, the findings demonstrate that public acceptance of carbon tax is influenced by a combination of cognitive, evaluative, and attitudinal factors. Consistent with Heider's Attribution Theory, individuals appear to evaluate carbon taxation through both internal considerations, such as environmental values and awareness, and external evaluations, such as perceptions of policy effectiveness. These findings suggest that policymakers seeking to increase public acceptance of carbon taxation should adopt an integrated approach that not only enhances public awareness but also strengthens environmental values and clearly communicates the effectiveness and benefits of carbon tax policies. Such efforts are likely to improve public support and facilitate the successful implementation of carbon taxation as part of Malaysia's broader climate change mitigation strategy.

8. Conclusion

This study provides empirical evidence that public acceptance of carbon tax implementation in Malaysia is significantly associated with public awareness, perceived effectiveness, and environmental attitude, with environmental attitude emerging as the strongest predictor. By focusing on these non-economic determinants and applying Heider's Attribution Theory as the theoretical foundation, the study contributes to the growing body of literature on environmental policy acceptance and offers valuable insights into the factors influencing public support for carbon taxation in Malaysia. The findings highlight the importance of both internal and external attributional factors in shaping public acceptance of carbon tax. Public awareness and environmental attitude reflect individuals' knowledge, values, and environmental concerns, while perceived effectiveness reflects evaluations of the policy's ability to achieve meaningful environmental outcomes. Collectively, these factors influence how individuals perceive and respond to carbon taxation as a climate policy instrument.

The study also offers several practical implications for policymakers. Efforts to strengthen public acceptance of carbon tax should extend beyond economic considerations and focus on enhancing public awareness, fostering pro-environmental values, and demonstrating the effectiveness of carbon taxation in reducing greenhouse gas emissions. Transparent communication, public education initiatives, and clear evidence of environmental benefits are likely to strengthen public confidence and support for the policy. As Malaysia advances its climate change mitigation agenda and moves towards implementing more comprehensive environmental policies, understanding the social and psychological determinants of policy acceptance will become increasingly important. By addressing these factors, policymakers can improve the likelihood of successful policy implementation and contribute to the achievement of Malaysia's long-term environmental and sustainability goals.

Despite its contributions, this study is subject to certain limitations. The use of non-probability sampling may limit the generalisability of the findings to the broader Malaysian population. Future studies may consider employing probability sampling techniques and examining additional factors such as trust in government, perceived fairness, political ideology, or revenue allocation preferences. Furthermore, future research could investigate the potential mediating or moderating role of variables such as brand trust, institutional trust, or policy transparency to provide a more comprehensive understanding of carbon tax acceptance.

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APPENDIX A

SECTION / SEKSYEN A

Kindly tick (v) the MOST appropriate response and complete the space provided.

Sila tandakan (v) pada jawapan yang PALING sesuai dan lengkapkan ruangan yang

Disediakan

1. Gender/Jantina
 - ☐ Male/Lelaki
 - ☐ Female/Perempuan
2. Age/Umur
 - ☐ Below 20/ Bawah 20
 - ☐ 21-30
 - ☐ 31-40
 - ☐ 41-50
 - ☐ Above 50/ Atas 50
3. Education Level/Tahap Pendidikan
 - ☐ SPM
 - ☐ Diploma
 - ☐ Bachelor's Degree/ Ijazah Sarjana Muda
 - ☐ Master's Degree/Ijazah Sarjana
 - ☐ PhD
4. Monthly Income/Pendapatan Bulanan
 - ☐ Below RM2, 000/Bawah RM2,000
 - ☐ RM2, 001-RM4,000
 - ☐ RM4,001-RM6,000
 - ☐ RM6,001-RM8,000
 - ☐ Above RM8,000/ Lebih RM8,000
5. Residential Area/Kawasan Perumahan
 - ☐ Kuala Lumpur
 - ☐ Selangor

- ☐ Putrajaya
☐ Other/Lain-lain: _____

6. Occupation/Pekerjaan

- ☐ Government Sector/ Sektor Kerajaan
☐ Private Sector/ Sektor Swasta
☐ Self-Employed/ Bekerja Sendiri
☐ Student/ Pelajar
☐ Other/Lain-lain

SECTION / SEKSYEN B

Instruction: Please tick (✓) the answer of your choice.

Arahan: Sila tandakan (✓) pada jawapan pilihan anda.

- 1 – Strongly Disagree / Sangat tidak setuju
 2 – Disagree / Tidak setuju
 3 – Neutral
 4 – Agree / Setuju
 5 – Strongly Agree / Sangat setuju

Code	Public Awareness
Kod	Kesedaran Awam
PA1	I am aware of the concept of carbon tax. / <i>Saya sedar tentang konsep cukai karbon.</i>
PA2	I have heard about the carbon tax policy from social media platform. / <i>Saya pernah mendengar tentang dasar cukai karbon melalui sumber media.</i>
PA3	I have heard about the carbon tax policy from government sources. / <i>Saya pernah mendengar tentang dasar cukai karbon melalui sumber kerajaan.</i>
PA4	I have heard about the carbon tax policy from educational sources. / <i>Saya pernah mendengar tentang dasar cukai karbon melalui sumber pendidikan.</i>
PA5	I understand that the carbon tax is aimed at reducing carbon emissions. / <i>Saya faham bahawa cukai karbon bertujuan untuk mengurangkan pelepasan karbon.</i>
PA6	I am aware that revenue from carbon tax can be reinvested in environmental protection or renewable energy. / <i>Saya sedar bahawa hasil daripada cukai karbon boleh digunakan semula untuk perlindungan alam sekitar atau pembaharuan tenaga.</i>
PA7	I believe Malaysians should be better informed about carbon tax policies. / <i>Saya percaya rakyat Malaysia perlu lebih diberi maklumat mengenai dasar cukai karbon.</i>

SECTION / SEKSYEN C**Instruction: Please tick (v) the answer of your choice.****Arahan: Sila tandakan (v) pada jawapan pilihan anda.**

6 – Strongly Disagree / Sangat tidak setuju

7 – Disagree / Tidak setuju

8 – Neutral

9 – Agree / Setuju

10– Strongly Agree / Sangat setuju

Code	Perceived Effectiveness
Kod	Persepsi Keberkesanan
PE1	Carbon tax is effective in reducing greenhouse gas emissions. /Cukai karbon berkesan dalam mengurangkan pelepasan gas rumah hijau.
PE2	Implementing carbon tax can encourage industries to use cleaner technologies. /Pelaksanaan cukai karbon boleh menggalakkan industry menggunakan teknologi yang lebih bersih.
PE3	Carbon tax will motivate individuals to adopt environmentally friendly practices. /Cukai karbon akan mendorong individu mengamalkan gaya hidup mesra alam.
PE4	Carbon tax revenue can be used to improve environmental projects. /Hasil cukai karbon boleh digunakan untuk meningkatkan projek alam sekitar.
PE5	Carbon tax can contribute to Malaysia's climate change mitigation goals. /Cukai karbon boleh menyumbang kepada matlamat Malaysia dalam menangani perubahan iklim.
PE6	Carbon tax helps to reduce the effect of global warming. /Cukai karbon membantu mengurangkan kesan pemanasan global.
PE7	Carbon tax will help to lower carbon emission from industries in Malaysia. / Cukai karbon akan membantu mengurangkan pelepasan gas karbon daripada industry di Malaysia.
PE8	Carbon Tax influence human behavior in protecting environment. / Cukai Karbon mempengaruhi tingkah laku manusia dalam melindungi alam sekitar.

SECTION / SEKSYEN D**Instruction: Please tick (v) the answer of your choice.****Arahan: Sila tandakan (v) pada jawapan pilihan anda.**

- 10 – Strongly Disagree / Sangat tidak setuju
 11 – Disagree / Tidak setuju
 12 – Neutral
 13 – Agree / Setuju
 10– Strongly Agree / Sangat setuju

Code	Environmental Attitude
Kod	Sikap Terhadap Alam Sekitar
EA1	I try to reduce waste (e.g., recycling, reusing items) in my daily life. / <i>Saya cuba mengurangkan pembaziran (cth: kitar semula, guna semula barang) dalam kehidupan harian..</i>
EA2	Whenever possible, I try to save natural resources. / <i>Jika berpeluang, saya akan cuba untuk menjimatkan sumber semula jadi.</i>
EA3	I support government efforts to protect the environment. / <i>Saya menyokong usaha kerajaan untuk melindungi alam sekitar.</i>
EA4	I believe that environmental problems are serious and need urgent action. / <i>Saya percaya bahawa masalah alam sekitar adalah serius dan memerlukan tindakan segera.</i>
EA5	Paying more for eco-friendly products is worthwhile. / <i>Membayar lebih untuk produk mesra alam adalah berbaloi.</i>

SECTION / SEKSYEN E

Instruction: Please tick (v) the answer of your choice.

Arahan: Sila tandakan (v) pada jawapan pilihan anda.

- 14 – Strongly Disagree / Sangat tidak setuju
 15 – Disagree / Tidak setuju
 16 – Neutral
 17 – Agree / Setuju
 10– Strongly Agree / Sangat setuju

Code	Public Acceptance of Carbon Tax
Kod	Penerimaan Awam Terhadap Cukai Karbon
PAC1	I support the introduction of carbon tax in Malaysia. / <i>Saya menyokong pelaksanaan cukai karbon di Malaysia.</i>
PAC2	I am willing to accept carbon tax if it helps to reduce pollution. / <i>Saya sanggup menerima cukai karbon jika ia membantu mengurangkan pencemaran.</i>
PAC3	I will accept carbon tax if the revenue is used for environmental protection. / <i>Saya akan menerima cukai karbon jika hasilnya digunakan untuk pelindungan alam sekitar.</i>
PAC4	I am willing to pay higher prices if it contributes to a cleaner environment. / <i>Saya sanggup membayar harga lebih tinggi jika ia menyumbang kepada alam sekitar lebih bersih.</i>
PAC5	I believe Malaysians will eventually accept carbon tax if it is properly explained. / <i>Saya percaya rakyat Malaysia akhirnya akan menerima cukai karbon jika ianya dijelaskan dengan baik.</i>
PAC6	I support the government's decision to implement a carbon tax. / <i>Saya menyokong keputusan kerajaan untuk melaksanakan cukai karbon.</i>
PAC7	I support the implementation of the carbon tax policy to a significant extent. / <i>Saya menyokong pelaksanaan dasar cukai karbon pada tahap yang signifikan.</i>
PAC8	I am willing to accept the government's decision to implement a carbon tax. / <i>Saya sanggup menerima keputusan kerajaan untuk melaksanakan cukai karbon.</i>