IS THE CARBON TAX A HARMFUL TAX? EVIDENCE FROM INDONESIA

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Abstract

The uncertainty about the timing of the implementation of carbon tax regulations has drawn significant public attention. Does this attention represent public support? This research attempts to explore the public perspective on the government's delay in implementing carbon tax. This study involves key societal stakeholders relatively closely connected to the carbon tax issue, including tax authorities, tax advisors, academics, as well as certain taxpayers.. Since there is no "one-size-fits-all" carbon tax, developing nations should tailor their designs to the many economic, political, and administrative environments in which they operate. There are concerns about how carbon tax, as a form of green taxation, can affect productivity, equality, and competitiveness. However, this paper argues that these challenges can be resolved. For instance, output-based rebates can offer protection even though ETR (Environmental Tax Reform) may increase the productivity and competitiveness of impacted enterprises. This research found that governments often postpone carbon tax implementation due to low confidence in tax authorities. Even if the government actually does allocate a carbon tax to protect the environment, the public may remain sceptical. Tax authorities are responsible for implementing commitment tools to assure the public that carbon tax revenues will be used as promised. The government needs to reconsider existing carbon taxes to prevent overlap even when their goals align.

Keywords: carbon tax, quasi environmental tax, government readiness

JEL: D62, H23, Q50

1. Introduction

Experts have made it clear that the emergence of infectious zoonotic diseases, including coronaviruses, is closely linked to human land-use change, deforestation, urbanization, ecosystem degradation (Gibb et al., 2020), live animal trade, intensive livestock farming, and biodiversity crisis. Viruses likely emerged from wildlife reservoirs disrupted by environmental disturbances, transmitted to humans through the wildlife trade, and spread by economic globalization (McNeely, 2021). Public health and environmental conservation experts urge governments to respond to this issue by implementing "green" policies in social and economic development. Recovery from the pandemic must be environmentally friendly, taking into account climate change and biodiversity conservation. Environmental degradation is the root cause of the pandemic itself.

The need to respond to the Covid-19 pandemic is at the top of the agenda for economists and global decision makers. According to economists, environment problems can be solved simply by imposing a uniform tax on harmful emissions (Hjøllund & Svendsen, 2001). Green taxes, as one of the means of environmental rescue policies, are levied by the state to achieve economic benefits and environment conservation (Deng & Huang, 2020).

Global tax measures under consideration include carbon taxes, green tax incentives, and carbon border adjustments. At the same time, companies are trying to measure and reduce their carbon footprint, assess climate change risks, and communicate this information to investors, employees, customers, regulators, and beyond.

A large amount of resources has been dedicated to green projects, but much less emphasis has been placed on tax policy opportunities (László, 2021). Carbon taxes can increase the burden on CO_2 producers, but they may be insufficient alone. A green tax reform focused on a Pigouvian approach is needed to correct distortions from climate-damaging activities.

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Green policies and carbon taxes have become fundamental regulations to reduce environment degradation (Chen et al., 2022). Tax policy instruments could drastically change price structures and serious incentives must be provided to shift consumers and producer behavior to green policy goals. Several green tax regulations have been rolled out, but whether carbon tax regulations have a real impact on saving the environment has not been widely discussed in the research agenda. This research fills this gap.

Meanwhile, green tax is quite difficult to implement in some countries (Carattini et al., 2017). The Harmonization of Tax Regulations Act was passed two years ago Indonesia has recently established its legal framework for green taxation as mandated under Law 7/2021 (Harmonization of Tax Regulation) come into force on 1 April 2022 A carbon tax has been acknowledged under Indonesia's constitution during this period. This shows that tax policy in Indonesia has so far focused more on the budgetary function, with very little emphasis on the regulatory function. In fact, many countries have implemented carbon taxes, butimplementation methods and obstacles have not been widely discussed in the research agenda. This research fills this gap.

Several empirical studies have discussed the issues and determinants of green taxation, especially in developed countries. European countries initiated environmental taxes based on consumption and production, environmental performance, and governance quality (Castiglione et al., 2014). Convergence and divergence analysis in the context of environment and taxes is also discussed (Delgado et al., 2022; Villar Rubio et al., 2015; Vysochyna et al., 2020). In addition, environmental taxes are widely related to carbon emissions (Baranzini et al., 2017; Lai, 2021), energy consumption (Deng & Huang, 2020), and GDP perspective (Delgado et al., 2022).

Recent studies have emphasized that environmental taxes not only act as incentives but also expand the tax base, traditionally focused on income and profit taxes (Radu et al., 2015), goods and services tax (Ling et al., 2016), capital tax (Amatong, 1968; Zodrow, 1995), and property to pollutant taxation (Markandya, 2012). The claim is that the shift in the tax base towards pollutant taxation creates benefits to a more efficient tax system and has a direct impact on the environment (Markandya, 2012).

Green tax regulation is indeed very vital; without this tax, the government would struggle to implement environment policies aimed at preventing, controlling, and overcoming pollution and degradation. The main key to overcoming environmental problems is cost, here the *polluter pays principle applies.* The Polluter Pays Principle was first introduced by the Organisation for Economic Co-operation and Development (OECD) in 1972 and it holds polluters responsible for eliminating the pollution they produce (OECD, 1972; Wiesmeth, 2021). Green tax is a pollution control instrument that requires polluters to cover the government's costs of managing and reducing pollution. This means that green taxes internalize environmental costs.

Regulation in the form of green taxes alone is not enough without a real impact on saving the environment. In fact, in the OECD, CO_2 taxes for example, are highly differentiated and very profitable for industry because it is proven that the CO_2 tax rate for industry is on average six times lower than the rate for households (Hjøllund & Svendsen, 2001). Industry has greater lobbying power compared to households. Furthermore, it is proven that green taxes are only used to maximize the budget of environmental bureaucracy (Hjøllund & Svendsen, 2001).

Emerging Countries (ECs), although they are responsible for lower average carbon emissions compared to developing countries, also contribute significantly to increasing carbon emissions, especially through the consumption of wealthy citizens. Thus, the idea of transitioning from a pro-carbon economy to a more sustainable business is becoming a development issue for many countries.

The implementation of green taxes in developing countries such as Indonesia is an interesting phenomenon to study. Unlike developed countries, developing countries face

a more complex economic and political environment (Bird & Zolt, 2008), where culture, history, interests, and business behavior play a central role in shaping tax policy. The relevance of green tax to Sustainable Development Goals (SDGs) needs to be questioned. How is the carbon tax implemented in Indonesia? This question became the focus of this research. Tax law reflects nation's history and ideology, culture, politics, and other interests so differences are not surprising. This diversity creates a variety of tax laws adopted and developed in each country, free from intervention from other countries.

Indonesia's commitment to reducing carbon emissions is important to implement, as Indonesia contributes 2% of the world's greenhouse gas emissions (Aprilia, 2022). The commitment to a green economy is constituted in the 2021 Harmonization of Tax Regulations Act (HPP). The HPP governs that as of April 2022, carbon emissions that have an adverse effect on the environment may be subject to a carbon tax by the government. The HPP further stipulates that carbon tax is payable when purchasing products that contain carbon or while engaging in carbon-generating activities. However, its implementationwas postponed at the time when this research was carried out.
Aiming to provide insights on in environmental tax development in developing countries, this study reviews tax bases, tax rates, and pollutant calculation methods. Implementation constraints are also discussed. Our paper contributes to the very active research literature on how developing countries such as Indonesia implement the complexity of carbon taxes and the monetary incentives inherent in the tax system. This study highlights delays in carbon tax implementation that reflects pressures from various parties, especially economic actors close to the bureaucracy on the one hand and global commitments to environmental issues on the other. This paper attempts to explore this gap. Attractive tax incentives for environmental protection in theory may not work in practice if certain economic actors fail to address negative externalities unless forced by the authorities.

2. Literature Review

Environmental tax is not a new type of tax. It was initiated in Denmark in 1917 (Markandya, 2012). Environmental taxes include taxes on energy, transportation, pollution, and resources. Carbon tax is a specific component of green taxes that focuses on reducing carbon emissions as part of a green economy strategy. Green taxes include fiscal instruments to encourage environmentally friendly practices, while carbon tax is a concrete implementation that targets greenhouse gas emissions.

It encourages more environmentally friendly behavior by taxing environmentally damaging activities, such as greenhouse gas emissions, pollution, and unsustainable resource use. Carbon taxes are an important part of the transition to a green economy, an economy that improves human well-being and social equity while reducing environmental risks and ecological scarcity. A carbon tax is a subset of the green tax family because it is a specific environmental tax targeting carbon dioxide emissions, one of the many forms of environmental harm addressed by green taxes (Ahmad et al., 2024). Carbon tax works by charging emitters a fee for every ton of CO_2 emit, particularly from burning fossil fuels like coal, oil, and natural gas. The aim is to reflect the social cost of carbon, encouraging cleaner energy use and more efficient technologies.

The carbon tax aims to reduce carbon emissions by providing incentives for businesses and communities to switch to clean energy and more environmentally friendly production practices (Nazarkevych & Sych, 2023). Carbon taxes encourage businesses to take responsibility for the carbon emissions they produce, thereby significantly reducing greenhouse gas emissions and supporting national emission reduction (NDC) targets.

The OECD recommended the "polluter pays principle" in 1972 (OECD, 1972) which was then legalized through the Rio Declaration on Environment and Development in 1992 (Tokuç, 2013). This environmental tax scheme has been adapted by several countries such as Denmark, the Netherlands, Sweden, and Norway. The polluter pays principle asserts that polluters bear the costs of environmental

conservation reflected in the output and/or residues of production (Meyer, 2017). Naturally, humans respond more to price stimuli than to compliance pressures. A carbon tax increases the cost of carbon-based products, thereby correcting the quantity of goods and services produced. The carbon tax price mechanism is more effective at changing economic behavior than other punishments. In addition, there is a consensus among economists that green taxes are the most efficient or cost-effective environmental instrument, due to its profound global effects on the decisions of low-cost agents (Baranzini et al., 2017).

The history of environmental tax can be traced from two perspectives, namely the economic perspective and the tax perspective (Sandmo, 2009), both of which propose the Pigouvian taxation scheme as an environment policy tool (Pigou, 1928). Carbon taxes are imposed on business activities that create negative externalities (Saputra, 2021) and are referred to as a manifestation of Pigouvian tax. The costs of negative externalities that were previously not accounted as non-private and free, are now the responsibility of the perpetrators.

In Indonesia, carbon tax is a strategic initial step in implementing green taxes more broadly, which also includes taxes on fossil fuel consumption and goods that have an environmental impact. Furthermore, carbon taxes are incentives that can be collected from negative externality actors (Mankiw, 2012). Pigouvian tax balances economic activities that damage the environment by imposing additional social costs on carbon-intensive actors through carbon tax levies to finance climate neutrality. Furthermore, Musgrave (1959) recommends a Keynesian view of public finance, in which the government can intervene in environmental damage and other public interests through various policies including carbon taxes.

2.1. Green Taxes Studies in Several Countries.

As explained earlier, this research is a preliminary study that seeks to explore the implementation of green taxes in Indonesia. Admittedly, there is a lot of empirical literature that studies this topic in developed countries. However, each country's tax regulations should be unique due to differences in political and economic environment. Although Indonesia has not widely implemented green tax , the review was conducted on regulatory efforts that have been initiated, specifically carbon tax.

The application of carbon taxation to internalize negative externalities on the environment has been carried out for decades in developed countries (Tan et al., 2022). The countries that have implemented carbon taxes include (Lai, 2021) the European Union (27 countries), Canada, Argentina, Denmark, Chile, Japan, China, Colombia, Korea, Kazakhstan, Singapore, Mexico, Sweden, New Zealand, South Africa, Norway, Ukraine, and the United Kingdom. Indonesia, a developing country, implemented a carbon tax in 2022. The carbon pricing initiative was expected to cover 21.5% of global greenhouse gas emissions by 2021 (Lai, 2021).

Several countries in the European Union, increased fuel taxes in 2020 (Enache, 2020). Latvia increased gasoline tariffs by 7% and diesel by 11% , while Lithuania increased transport fuel taxes by 7%, and Finland also increased transport fuel taxes. Aviation taxes were introduced in the Netherlands in 2021 and Germany in 2023.

South Africa, Sweden, the Netherlands, and Ireland have increased carbon and fossil fuel taxes. In addition, several countries such as Ireland and the Netherlands have implemented green taxes by increasing electricity and energy taxes for industry but cutting electricity tariffs for households that consume electricity below 10,000 kWh per year. On the other hand, tax incentives are given to zero-emission vehicles (hybrid and electric) as implemented in Lithuania, Poland, Ireland, and Israel.

Taxes are also applied to activities that cause fluorinated greenhouse emissions such as plastic bag use and waste incineration, as done by Sweden. Denmark and Italy have increased taxes on shopping bags and disposable cutlery, while Poland, imposes specific taxes on silver and copper extraction (Enache, 2020). Although the measurement of the success of carbon tax implementation in reaching zero

carbon emissions is difficult to obtain, many countries have started transitioning to renewable energy- like wind, solar PV, renewable gas-balancing tax benefits with the need to maintain tax revenues (Fernandes & Moreira, 2022).

The United Arab Emirates (UAE) regulates environmental issues through non-tax issues. In 2016, the UAE launched a 12-month green program which included awareness campaigns, community engagement, and green initiatives. In addition, to reduce vehicle emissions, the UAE educates the public to use more sustainable transportation.

Singapore announced the implementation of a carbon tax starting in 2019. It also provides tax incentives for *renewable energy-oriented corporations* and tax reductions for innovation in carbon emission activities. Slightly different from other countries, Malaysia manages green tax under two jurisdictions (Saad & Ariffin, 2019). Malaysia's green tax incentives are managed by the jurisdiction of the Malaysian Investment Development Authority and the Inland Revenue Board of Malaysia (IRBM), while the penalty mechanism for green tax violations is managed by the Department of Environment.

2.2 Carbon Taxes Study in Indonesia.

Indonesia has scheduled a transition step towards a green economy by implementing a carbon tax under the 2021 "Tax Harmonization Law". This strategic step is part of environmental tax reform to realize cleaner production, investment in energy-efficient technology, sustainable development, and greener habits to support intergenerational justice.

The carbon tax agenda is vital, because without a carbon tax, the government will have difficulty implementing environmental policies. Traditional regulations such as permits and minimum usage requirements are very easy to circumvent and prone to non-compliance. On the other hand, the main key to overcoming environmental damage is cost (Makmun, 2009), so it is more appropriate to use the polluter pays principle strategy.

In Indonesia, carbon tax is an important first step in realizing a sustainable green economy and addressing climate change with the principles of justice and affordability for the community and business actors. Thus, carbon tax is a real manifestation and integral part of green tax in the transition to a more sustainable and low-carbon economy.

Until 2022 Indonesia postponed the implementation of carbon tax with various arguments. This paper explores the obstacles and challenges that caused Indonesia to postpone its commitment to implementing green taxation twice in 2022. This delay marks many economic and political pressures on the authorities in implementing carbon tax. Despite this, Indonesia, as G20 President for 2022, has committed to being a strategic policy driverand to making carbon tax a strategic priority on the G20 Presidency agenda. Indonesia is. Attractive and positive tax incentives for environmental protection in theory may not work in practice if economic actors fail to respond to negative externality issues unless forced by the authorities.

3. Method

To understand how carbon tax is implemented, a qualitative exploratory research approach was adopted. Exploratory research is an appropriate way to establish a field at an early stage of an emerging topic, especially in studying the mindset of policy makers. From an ontological and epistemological perspective, we adopted an interpretive research paradigm. (Miles et al., 2014). The core goal of the interpretive research stance is not to "find the truth"(Gephart, 2004) but to understand the meanings and concepts applied by social actors (authorities) in their practice settings as a means to uncover different versions of reality for each social actor. Based on this statement, social actors (tax authorities) are considered subjective (Guba & Lincoln, 1994). Our methodological approach is appropriate because both social actors (researchers and auditors) are under the constant influence of social interactions that imprint existing and changing realities by reflecting their beliefs and values (M. Power, 1999; M. K. Power & Gendron, 2015).

Given the novel nature of this phenomenon (carbon tax), semi-structured interviews were conducted as an instrument to collect data directly from social actors (tax authorities). Semi-structured interviews, being flexible in nature, are considered more appropriate for collecting insights from tax authorities (Horton et al., 2004).

Purposive sampling was appropriate as it enabled the selection of information-rich cases relevant to the study objectives (Nyimbili & Nyimbili, 2024). Further, purposive sampling is appropriate when the research aims to focus on specific characteristics or attributes within a population, rather than generalizing findings to the entire population. It is particularly useful in qualitative research where in-depth data collection is needed on specific groups or individuals.

The informant criteria refer to the opinion of Meuser and Nagel (2009) who consider an expert who is responsible for a concept, has relevant certain knowledge, information, or privileged access to information. Our expert selection process placed less emphasis on the informant's biography (Mergel et al., 2019), as we were more interested in their perspectives and roles as heads of tax authority offices who have access to the decision-making process (Mergel et al., 2019). Heads of regional tax offices were selected as informants for their policy making expertise and technical and interpretive knowledge about carbon tax implementation. We also included academician, as speakers at various tax-related seminars, webinars, and conferences, tax advisors who often accompany taxpayers, and selected taxpayers from oil and gas companies,who have implemented carbon tax. The strength of the expert interview research method depends on the number of interviews conducted and the quality of the experts participating (Mergel et al., 2019). Glaser and Strauss (1967) suggested a minimum of 10 interviews, while Guest et al. (2006) advocated 12 interviews as the threshold at which one can gain insight into the phenomenon being studied. We had 16 informants as interviewees. In-depth interviews lasting from 40 minutes to 1 hour and 50 minutes were carried out during February and March of 2024. Both WA video calls (Goh & Binte Rafie, 2024) and Zoom platforms (Archibald et al., 2019) were used to gather qualitative data.

Table 1 *Summary of the informants*

ID	Role	Date	Minutes	Medium
H1	Head of regional tax office	Feb 8, 2024	53.15	WA call
H2	Head of regional tax office	Jan 5, 2024	59.51	Zoom
H3	Head of regional tax office	Feb 23, 2024	48.12	WA video call
H4	Head of regional tax office	Jan 9, 2024	43.44	WA video call
A5	Academics	March 4, 2024	49.50	WA video call
A6	Academics	March 6, 2024	48.07	WA video call
A7	Academics	March 18, 2024	42.33	Zoom
A8	Academics	March 11, 2024	50.05	WA video call
T9	Tax advisor	Jan 30, 2024	55.32	WA video call
T10	Tax advisor	Jan 23, 2024	50.45	Zoom
T11	Tax advisor	Jan 10, 2024	51.33	WA video call
T12	Tax advisor	March 22, 2024	1.32	Zoom
T13	Tax advisor	Feb 12, 2024	40.56	Zoom
P14	Taxpayer from oil & gas	Feb 18, 2024	40.22	WA video call
P15	Taxpayer	March 21, 2024	1.08	WA video call
P16	Taxpayer	Jan 11, 2024	1.50	Zoom

Source: my own resume

The majority of our questions centered on comprehending the legal and practical framework of the carbon tax. The primary queries were: Does a carbon tax help protect the environment? Do you think a carbon tax should be implemented? Are taxpayers treated fairly by the carbon tax implementation? Is the carbon tax clearly regulated? What do you think should be done about the carbon tax? What do you think is causing the delay in the carbon tax implementation? Every participant gave written consent and were not compensated to participate. To address ethical concerns during the collection, analysis, and distribution of data (Allen, 2017), written

consent was obtained from each participant (Byrne, 2001; Ittenbach et al., 2015). The low and slow interview response was mainly due to advisors' busy work schedule after the pandemic. Determining the minimum number of interviews to be conducted in qualitative research is a never-ending question (O'Reilly & Parker, 2013). The main principle we followed was to achieve theoretical saturation (Guest et al., 2006; O'Reilly & Parker, 2013), when no further insights come from new interviews, theoretical saturation can be claimed.
The interview sessions were recorded and transcribed. The transcripts were then analyzed using thematic analysis, following Braun and Clarke (2006). In addition, relevant documents were reviewed to strengthen the findings. Documents provide data about the context in which social actors operate (Mills et al., 2006). Document analysis helps researchers uncover meaning, develop understanding, and find relevant insights about the phenomenon being studied (Merriam, 1998)and can even contextualize data collected during interviews. We applied document analysis as a complementary research method to triangulate the research findings (Bowen, 2009).

This study employed an interpretive technique to analyze the interview data using content analysis, classifying informants' responses into themes. According to Krippendorff (2019), content analysis is a research method for drawing reliable conclusions from texts (or other relevant material) about the settings in which they are used. We took action to make sure the interview data was reliable.

To ensure high external validity, we emphasized empirical observations rather than the preconceived theories (Miles et al., 2014), with reference to the informants' perceptions and comprehension their own reality. This approach seeks to avoid bias and aims for objective and representative results (Miledi, 2021). Triangulation is employed in research in order to validate findings and enhance the overall validity and dependability of the research; it entails collecting data from many sources and literature.

4. Results and Discussion

4.1 Lack of Serious Tax Policies

The Indonesian government regulated carbon tax by authorizing the Harmonization of (HPP in 2021. The carbon tax regulation in the HPP Law proves the strong commitment of the Indonesian government to realize climate control in accordance with the *polluter pays principle.* The polluter pays mechanism is expected to accelerate climate change mitigation efforts. Carbon tax is expected to be an instrument that changes people's economic behavior to shift to low carbon activities or green economic activities. However, the government's commitment remains at the regulatory stage, not yet the implementation stage. In fact, even the initial and limited implementation of the carbon tax in the electricity sector has also been delayed. The carbon tax has been postponed several times. Law Number 7 of 2021 mandates the implementation of the carbon tax as of April 1, 2022. However, at the time of writing (February 2023), the implementation of the carbon tax has not been realized. Several arguments have been put forward by the government regarding the reasons for the postponement, mainly market readiness and carbon market mechanisms. The government continues to encourage the development of a carbon market and investment that is more environmentally friendly and carbon efficient.
Carbon tax regulation marks a serious commitment and action to climate mitigation. Although no industry has been subject to carbon tax, the authorization of carbon tax regulation is set as a strategic achievement (deliverables) for Indonesia in 2022. In addition to carbon tax goals, the government has initiated climate change mitigation actions by phasing out and retiring several coal-fired power plants (PLTUs). Through the carbon tax scheme, the government intends to impose additional costs on the high-emission electricity sector.

Carbon tax has two mechanism options, namely setting a maximum emission limit for industry and levying carbon tax on industry or activities that emit carbon beyond the maximum emission capacity. This scheme is called *cap and tax.* Unlike many countries that

implement *cap and trade* (Chai et al., 2018; Han et al., 2022), the *cap and tax scheme* (Carl & Fedor, 2016; Putra et al., 2021)was implemented in Indonesia to accommodate differences in industrial ecosystems in each region and community responses to new carbon tax regulations.

The government has already postponed the execution of the laws outlined in the HPP twice. The government delayed implementation due to a lack of readiness, preventing it from being accomplished. Up to this point, the government's commitment remains at the planning stage, with various justifications for the postponement. This means that the government's seriousness in implementing a green economy through a carbon tax is still questionable. Most failures in implementing a green tax are generally caused by the government's lack of seriousness (Feng et al., 2022). The following sub-chapter presents various findings that are the reasons for the delay in the carbon tax in Indonesia.

4.2 Global Economic Uncertainty Post Covid-19 Pandemic

This research found that the uncertainty of carbon tax implementation can be caused by several factors, both domestic and international. Global economic uncertainty after Covid-19 was still the main cause of the delay in carbon tax. There is still a Covid-19 pandemic going on in 2022. The existence of Covid-19 in 2022 in Indonesia led to a concrete increase in the world economic uncertainty (Al-Thaqeb et al., 2022). Economic uncertainty has a negative impact on real and financial markets and its potential for growth. They may also have negative implications on the fiscal policy (Ispriyarso & Wibawa, 2023), including carbon tax. As a response to the economic crisis during the pandemic, the Indonesian government postponed the carbon tax to support the economic well-being. In line with this situation, H2, A6, T11, and P15 give consideration,

"The implementation was postponed due to consideration of the global and domestic economic situation" (H2).

"Economic conditions are not yet possible" (A6).

"Global uncertainty is increasing especially regarding the surge in energy prices (T11).

"Russia is no longer exporting oil and gas to western countries due to economic sanctions due to the Russia vs. Ukraine war" (P15).

Decline in energy demand due to reduced mobility and economic activity led to lower energy demand. Reduced transport demand directly impacted the unprecedented drop in global crude oil prices, making it inappropriate to tax carbon (Zakeri et al., 2022).

Energy transition has been severely hampered by the Covid-19 pandemic (Li et al., 2022). Many people are concerned that the energy transition is being overlooked in favor of a green economic recovery on a global scale. In this regard, different studies have different results. During the Covid-19 crisis, China took the opportunity to advance its low-carbon energy transition (Li et al., 2022). While the pandemic caused disruption in every part of life, it accelerated efforts to reduce carbon emissions in the electricity sector and shift the power mix toward renewable energy sources. Renewables need a sustainable mid and long-term policy strategy since they will be crucial to advancing the low-carbon energy transition and meeting various carbon targets.

On the other hand, the pandemic has created opportunities for the global energy transition (Tian et al., 2022). However, one of the energy transition challenges during the pandemic was the lack of government support.

4.3 Global Energy Price Hike

The next global uncertainty is associated with the increase in global energy prices (Kuzemko et al., 2022), including in China (Mo & Wang, 2022). In Indonesia, several tax authorities (TA1 and TA2) confirmed that the adjustment of carbon policy implementation was due to the increase in global energy prices and was mainly associated with the Ukrainian war. Energy issues are closely related to the current battle that can obscure and/or undermine other energy policy goals, raising several challenging issues for decision-makers aiming to promote long-lasting equitable and sustainable transitions (Kuzemko et al., 2022):

"The government's resistance to enact a carbon tax has been exacerbated by the rise in energy prices worldwide associated with the conflict in Ukraine" (H1).

The majority of Asian nations are net consumers of fossil fuels and Indonesia is no exception. The war in Ukraine intensified a spike in crude oil and LNG prices that was already increasing on a global scale in the last months of 2021 (Meidan et al., 2022). The direct impact of high energy rates is seen in rising costs across numerous sectors even though they have not yet recovered from the Covid-19 pandemic. The Covid-19 outbreak and the Ukraine war make have complicated efforts to achieve green goals, including implementation of carbon tax.

The socioeconomic disparity grew even wider due to the economic crisis brought on by the pandemic and Russia-Ukraine conflict (Zakeri et al., 2022). Developing nations that depend on energy imports have been harmed by the consequential increase in energy prices. Carbon tax typically receives more support when energy prices are low (Heine & Black, 2018). As a result, carbon tax should be started when energy use is at its lowest in nations. More generally, the current high fuel prices due to the Ukraine war make this a particularly unfavorable time to implement carbon tax. Thus, developing countries like Indonesia are no longer able to afford green policies and tax policies. The Indonesian government declared a delay in the implementation of carbon tax, due to the effects of the increase in global energy prices, in late March 2022 (Adityo, 2022). The implementation of carbon tax, which was originally expected to control greenhouse gas emissions that escalate the rate of climate change, has been postponed and will be implemented starting in 2025. In the first quarter of 2022, many countries revised their climate-energy policies due to global events . For example, the United States opted to temporarily permit the sale of E15 during the summer months in order to reduce record-high fuel prices. E15 is a less expensive but dirtier form of fuel that has prompted smog concerns. A carbon tax is not currently deemed suitable due to the current energy crisis.

4.4 Trust in Government

Another argument for society opposing carobon tax is the public's mistrust of both fiscal authorities and government (Hammar & Jagers, 2006). Carbon taxes have historically faced implementation challenges around the world although they received widespread public, political, and industry support (Adityo, 2022). Distrust in government increasingly hinders the effectiveness of carbon tax implementation. People often have a low level of trust in the government, which causes them to oppose to tax policy, especially green tax policy (Garba & Gunawardana, 2017). Resistance to green taxes can be reduced by establishing trust between a government and its residents and by healing social divides transparently and accountably:

"The implementing regulations are not yet ready and the rules are not yet widely known. There is still a lack of cooperation amongst departments and organizations, and the administration is not prepared to impose a carbon price this year" (H4).

"Issuing technical regulations is a challenge in itself because carbon taxation is handled by various ministries" (H3).

"Since the regulation is still pending, plans to join the carbon market are also being postponed" (T13).

The administration has also yet to release the carbon pricing strategy" (A8).

The carbon tax roadmap is currently what is most required. If the roadmap for carbon tax is not completed, we fear there will be similar outcomes as in European countries, given 70% of carbon tax revenue is spent on non-climate change mitigation" (P14).

In Africa, for example, the lack of sufficient infrastructure and negative public views of government institutions all have a negative impact on the implementation and effectiveness of green taxes (Belletti, 2020). Similarly, in Zimbabwe, Sebele-Mpofu (2020) points out that opposition to policy is a result of subpar governance. Since corruption and the lack of trust in government spending reduce tax morale, making accountability and transparency essential (Mpofu, 2022). As suggested by Liu (2013), in countries with widespread tax avoidance, a carbon tax will pay for itself through increasing the effectiveness of the tax system.

In Indonesia, although carbon tax has not yet been enacted, there are in fact a number of taxes that are imposed and referred to as 'pseudo environmental tax' (Irianto et al., 2018). However, the people have not perceived this tax collection as having strong financial legitimacy. Imposing new taxes such as carbon taxes without harmonization and

simplification risks creating multiple overlappingquasi environmental taxes. In turn, the implementation of new taxes will actually reduce tax legitimacy, which will reduce government tax income instead of increasing it. Public doubts also arise from the aspect of whether this carbon tax is really used by the government to address the environment issues or if it is actually used to increase state revenue and other purposes. The key question in this context is whether green levies have any direct impact on reducing emissions (Vollebergh, 2014). Saelen & Kallbekken (2011) discovered in a Norwegian study that earmarking tax revenues for environmental purposes (such as assisting public transportation, building bicycle and footpaths, noise screening, or developing clean technologies) received support from the majority of people for an increase in fuel taxes of up to 15%.

What is different about carbon tax (compared to taxes such as the income tax) is that the aim is really to reduce carbon emissions in line with Indonesia's carbon targets, not simply to increase revenues. A growing carbon price must eventually lead to near-zero carbon tax income if it is to produce close to zero emissions (Wang et al., 2017). Further, the tax authority will eventually be requested to raise the carbon tax rate to a point where the revenue from carbon taxwill decrease. A contemporary economy cannot have a carbon tax as its main source of income.
It is globally accepted that in addition to reducing emissions, there may be additional reasons to charge a carbon tax, such as boosting government revenue, enhancing air quality, and ensuring energy security (Edenhofer et al., 2015). For example, in China, preventing climate damage and the co-benefits of reduced air pollution are the key drivers of carbon pricing, but in the USA and the EU, raising public revenue takes precedence and all three drivers are of moderate importance. In turn, this income may be utilized to reduce the tax burden of more distortionary taxes, creating a "double dividend" (Goulder, 1995).
There are three design features that are considered relevant to a carbon tax: economic growth, the environment, and distributional consequences (Prasad, 2022). The minimum economic cost feature dictates that carbon tax revenues should be used to lower other taxes. For example, since each tax has an economic cost, imposing a carbon tax means increasing economic costs i.e., imposing a carbon tax will increase the general price of products and reduce the ability to save (Aldy et al., 2008). Previous research found that people often doubt what the government motives are (Carattini et al., 2018) and that the goal of enacting a carbon tax is to increase government money rather than reduce climate crisis (Klok et al., 2006). Another study looked at the Dutch national groundwater tax (GWT), a "win-win green tax" that aims to raise revenue for the government while also reducing the relative burden of other taxes on productive behavior (such as income tax) and increasing environmental yields (Schuerhoff et al., 2013). According to this study, GWT generates revenue with no discernible effect on incentives for environmental health of production. On December 31, 2011, the Dutch government ultimately eliminated the "inefficient" GWT.

Similar to this, in Indonesia, the collection of groundwater taxes in municipal tax politics is essentially not used to regulate groundwater use. In contrast, the low groundwater tax rate encourages excessive and unrestrained groundwater use. This indicates that the groundwater tax levy is not devoted specifically to water resource conservation (Mulyanti et al., 2022). The groundwater tax levy is not allocated directly for the conservation of water resources. The relationship between the taxpayer and the expected tax advantages is shown in tax allocation. It is possible to mitigate environmental harm and provide financial benefits to taxpayers by allocating groundwater taxes for the conservation of water resources.

It is obvious that improper revenue utilization (for instances, corrupt practices) would make carbon tax undesirable. According to tax literature, corruption has a negative impact on tax collection (Ajaz & Ahmad, 2010), especially in developing countries (25 developing countries during the period 1990-2005) whereas better performance in tax collection is improved by strong governance.

This is fundamentally a trust issue. Trust difficulties can sometimes relate to the specific environmental tax idea being considered, people's overall perception of tax policy, or even trust in the authority itself (Baranzini & Carattini, 2017). Even if individuals understand the operation of a revenue-neutral carbon tax, they might not think that the government will actually put these tax changes into effect (Klok et al., 2006).

Besley & Persson (2013) offer theoretical justifications for how corruption may prevent developing nations from adopting tax compliance rules, which explains why these nations may have lower tax receipts. Another study shows how small corruption lowers the morale of the tax system using micro-level data from the Afrobarometer (Jahnke & Weisser, 2019). They demonstrate, using mediation analysis, that petty corruption not only negatively affects tax morale in a direct manner but also undermines public confidence in the tax system.

4.5 The Challenge of Implementation

Another issue of carbon tax that is frequently raised is that green taxes are a challenge to implement (Vollebergh, 2014). According to Heine & Black (2018), a carbon tax should be simple to execute and have a clear design for developing countries. The design and implementation of carbon taxes determine their success, and they can be of various kinds and levels of complexity. Some carbon taxes are especially simple to construct, operate, and function well in environments with limited administrative resources. The informants remarked:

"One of the top priorities for the carbon tax implementation is the energy sector, namely the subsector of power generation. Waste, forestry, industrial processes, product consumption, and agriculture are additional industries that the carbon tax is intended to affect." The Ministry of Forestry, the Ministry of Environment, the Ministry of Industry, and the Ministry of Energy and Mineral Resources are among the ministries that oversee each sector" (T12). "Only a small number of industries now have laws in place to support carbon price schemes." Since many ministries and entities oversee the carbon tax, issuing technical regulations is itself a challenge i (T9).

"Furthermore, the carbon tax differs from other tax items in certain ways. Prior to the implementation of a carbon tax, a precise and reliable measuring and reporting mechanism is required to ascertain the value of greenhouse gases" (A5).

The Indonesian tax authorities still need some efforts to implement carbon tax reforms that can boost the efficiency of the tax incentive function, simplify tax administration quality, promote the establishment of an open state control system, and bolster accountability for negligence and corruption in the public segment (Nazarkevych & Sych, 2023). Stiglitz & Rosengard (2015) enlighten simplicity as one type of a desirable tax system.

The tax system should not be difficult to manage. Taxes should encourage voluntary compliance from taxpayers. Carbon tax reforms should be simple to design and implement so as to provide a fiscal foundation for developing countries (Heine & Black, 2018) such as Indonesia to achieve their SDGs. Since April 1 2022, the implementation of the carbon tax still requires refinement in areas such as tax base, object, reporting procedure, and rates.

4.6 Overlapping Rules

The success of a carbon tax depends on its implementation as well as how it will combine with other environmental tax policies and existing instruments already levied. Similarly, Görlach (2014) suggested that green policy implementation should consider the whole set of instruments already in place.

As explained previously, there are in fact various quasi environmental taxes already imposed in Indonesia, such as the underground water tax (UWT), the surface water tax (SWT), the street lighting tax (SLT), and the motor vehicle tax (MVT) (Irianto et al., 2018). These overlapping taxes may affect the efficiency of carbon taxes, impede their implementation, or even increase administrative worries about them (UN Org, 2021). In contrast, there might be tools that work against carbon taxes by bringing down the cost of carbon-containing goods for consumers (such as fuel subsidies). One tax advisor, academician, and taxpayer each expressed (T10, A7, and P16):

"Since motorcyclists are already subject to regional taxes, specifically the Motor Vehicle Tax, which is governed by each region, purchasing a motorbike and being subject to the carbon tax could result in double taxation" (T10).
"Since there is a chance that the carbon tax regulation in the transportation subsector may overlap with the Motor Vehicle Tax, it is necessary to conduct additional research before implementing it in Indonesia" (P16).
"More research is needed to ensure that there is no overlap in the taxing bases for the motor vehicle tax and the carbon tax" (A7).

From an economic standpoint, using overlapping tax policies—such as UWT, SWT, SLT, and MVT—to support carbon tax objectives, namely carbon emission reductions, would be inefficient or, at best, redundant (Akın-Olçum et al., 2021; Johnstone, 2003). Additionally, these conflicting regulations will result in wasteful spending (Akın-Olçum et al., 2021). Along with interfering with the firms' cash flow, various taxes and levies increase the direct financial costs that the taxpayer must bear. One element that raises the cost of compliance is the direct cash. A rationalindividual considers that additional compliance costs will lower the margin or profit that the business or taxpayer will be able to retain. People are less willing to pay these new taxes and will strive to evade taxes as compliance costs rise. The government must make sure that tax expenses are proportionate to the caliber of spending in order to acquire fiscal credibility. Fiscal legitimacy will be low if spending is low quality and tax costs are high (Irianto et al., 2018)

5. Conclusion

The uncertainty of the timing of the implementation of carbon tax regulations has become an issue that has attracted quite a lot of public attention. Does this attention represent public support? This research attempts to explore the public perspective on the government's delay in implementing carbon tax.

This study involved several informants closely related to the carbon tax issue, including tax authorities, academics, tax advisors, and also taxpayers. Purposive sampling was appropriate as it enabled the selection of information-rich cases relevant to the study objectives (Nyimbili & Nyimbili, 2024). Further, purposive sampling is appropriate when the research aims to focus on specific characteristics or attributes within a population, rather than on generalizing findings to the entire population.

Since there is no "one-size-fits-all" carbon tax, developing nations should tailor their designs to the economic, political, and administrative environments in which they operate. There are several concerns about how environment levies can affect productivity, equality, and competitiveness. However, this paper argues that these issues can be resolved. For example, output-based rebates can be used to create protections even though ETR may increase the productivity and competitiveness of impacted enterprises (Heine & Black, 2018).

This research finds that governments often delay enacting carbon taxes due to a lack of public confidence in tax authorities Even when the government actually does allocate a carbon tax to protect the environment, the society might remain sceptical. Thus, tax authorities are responsible for implementing commitment tools to assure the public that carbon tax revenues will be used as promised.

Further, carbon taxes cannot be implemented alone. Other sustainable policy tools, such incentives for businesses or taxpayers who adopt innovations in lowering the use of carbon emissions, must be used to support the carbon tax.

This research has one major limitationin finding the right informants who accurately represent the authority on carbon tax delays. Therefore, the findings of this research cannot be broadly generalized Further research is expected to aim for an access to Indonesian government officials, particularly carbon tax policy makers.

The government needs to reconsider existing environmental taxes so that they do not overlap even though they have the same purpose. Good tax policy should follow the principle of avoiding double taxation, which some carbon taxes in Indonesia have artificially violated.

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