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THE CONTRIBUTION OF CARBON TAXES TO ECONOMIC PROGRESS IN INDONESIA

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Abstract

The issue of carbon greenhouse gas emissions (GHGs) is not a novel challenge for the global community. Carbon taxation is applied to environmentally harmful energy sources and associated products such as coal, oil, and gas, depending on their CO2 emission levels. To mitigate GHGs and CO2 emissions, international bodies like the United Nations (UN), European Union (EU), Intergovernmental Panel on Climate Change (IPCC), and Organization for Economic Co-operation and Development (OECD) have proposed various measures, including policy adjustments, energy transformations, environmental levies, carbon taxation, emission standards, and emissions trading schemes.It is a literature-based study utilizing secondary data from both national and international journals. The research findings emphasize that Indonesia has the opportunity to draw inspiration from nations with established carbon tax systems. By studying their policy frameworks, assessing their methodologies, emission volumes, environmental contexts, urban planning, and revenue generation mechanisms, it is evident that implementing a carbon tax in Indonesia is both viable and practical. The Indonesian Ministry of Finance has already designed carbon tax calculations, identified eligible businesses, and enacted supportive regulations for this purpose.

Keywords: Carbon tax, Economic Progress, Environmental Pollutio

Abstrak

Isu emisi gas rumah kaca karbon (GHG) bukan masalah baru bagi komunitas global. Pajak karbon dikenakan pada sumber energi berdampak lingkungan dan produk terkait seperti batu bara, minyak, dan gas, berdasarkan tingkat emisi CO2 mereka. Untuk mengurangi GHG dan emisi CO2, organisasi internasional seperti Perserikatan Bangsa-Bangsa (PBB), Uni Eropa (UE), Panel Antarpemerintah tentang Perubahan Iklim (IPCC), dan Organisasi Kerja Sama dan Pembangunan Ekonomi (OECD) telah mengusulkan berbagai langkah, termasuk penyesuaian kebijakan, transformasi energi, pajak lingkungan, pajak karbon, standar emisi, dan skema perdagangan emisi. Ini adalah studi berbasis literatur yang menggunakan data sekunder dari jurnal-jurnal nasional dan internasional. Temuan penelitian menekankan bahwa Indonesia memiliki kesempatan untuk mengambil inspirasi dari negara-negara yang memiliki sistem pajak karbon yang mapan. Dengan mempelajari kerangka kebijakan mereka, mengevaluasi metodologi mereka, volume emisi, konteks lingkungan, perencanaan perkotaan, dan mekanisme penghasilan, tampaknya penerapan pajak karbon di Indonesia layak dan praktis. Kementerian Keuangan Indonesia telah merancang perhitungan pajak karbon, mengidentifikasi bisnis yang memenuhi syarat, dan mengesahkan peraturan yang mendukung tujuan ini.

***Kata kunci**: Pajak karbon, Kemajuan Ekonomi, Pencemaran Lingkungan.*

INTRODUCTION

The issue of carbon greenhouse gas emissions (GHGs) is not a new problem facing the global community. According to data from The Emissions Gap Report 2021 by the United Nations Environment Programme (UNEP), global greenhouse gas emissions have been a concern since 1970 and have been continually analyzed by the UNEP to this day. Carbon emissions have doubled since 1970 and reached 58 gigatons of CO2e per year emitted by the global population in 2020.

Based on data from Carbon Brief: Indonesia, in 2015, Indonesia ranked fourth among the world's largest emitters of GHGs. In that year, Indonesia contributed 4.8% of the world's total gas emissions. With the increasing carbon emissions over the past 36 years, this figure has the potential to increase each year. Therefore, both national and international actions are needed to address this emissions problem. (Pamungkas 2022)

International entities such as the United Nations (UN), the European Union (EU), the Intergovernmental Panel on Climate Change (IPCC), and the Organization for Economic Co-operation and Development (OECD) have proposed a range of strategies and administrative changes to combat greenhouse gases and CO2 emissions. These measures encompass policy reforms, energy transitions, environmental levies, carbon taxes, emission standards, and emissions trading systems. Of these strategies, economists and international organizations highly endorse the implementation of a carbon tax as a valuable tool to attain emissions reduction goals.A carbon tax is levied on environmentally damaging energy sources and associated products like coal, oil, and gas, with tax rates increasing in proportion to their CO2 emissions. This approach can effectively curtail the consumption of fossil fuels and reduce CO2 emissions. The relationship between emission taxes and CO2 emissions is reciprocal. They incentivize energy conservation, investments in energy efficiency enhancements, and the transition to less carbon-intensive energy sources. This can lead to shifts in energy consumption and production patterns.

Furthermore, the allocation of tax revenue collected from emissions can influence investment and energy consumption behaviors. However, the evaluation of carbon mitigation measures varies among developed, developing, and less developed countries, and the assessment of their impacts is limited. Governments and policymakers worldwide have submitted their Intended Nationally Determined Contributions (INDC), outlining plans to decrease pollution and greenhouse gas emissions and implement climate change strategies under the Paris Agreement.Presently, only a handful of countries have introduced carbon taxes, primarily due to concerns about local production competitiveness and CO2 externalities. Countries and regions that have embraced carbon taxation include Denmark, Estonia, Finland, France, Ireland, Iceland, Latvia, Norway, Poland, Portugal, the United Kingdom, Slovenia, Sweden, Switzerland, South Africa, Chile, the United Kingdom, Colombia, Canada, Japan, and Mexico. These

operations typically feature exemptions and relief mechanisms related to carbon taxation.

However, the introduction of a carbon tax also faces potential challenges and risks. It is important to carefully design and implement the tax framework to avoid unintended consequences, such as increased costs for vulnerable communities or negative impacts on high energy industries. In addition, the effectiveness and revenue of carbon taxes depend on a variety of factors, including public awareness, stakeholder involvement, and robust monitoring and enforcement mechanisms. To analyze the contribution of carbon tax to economic progress in Indonesia, this study will use a combination of quantitative and qualitative research methods. This research will delve into existing literature, empirical data, and case studies to evaluate the potential economic impact of a carbon tax and evaluate its suitability to the socio-economic context of the country.

The findings of this study will contribute to existing knowledge of the relationship between carbon taxes and economic progress, especially in the context of developing countries such as Indonesia. The purpose of this study is to determine the contribution of carbon tax as a potential source of state revenue for economic progress, in accordance with Law No.16/2016, the Government of Indonesia has committed to reduce GHG emissions by 29% with its own capabilities and 41% with international support. Third, new sources of development financing. The government has set development priorities in the 2020-2024 RPJMN document. In addition, in the midst of the Covid 19 pandemic, the government has also set top priorities on the health sector and economic recovery. Therefore, revenue from carbon taxes can be allocated to low-income communities to reduce the impact of regressiveness (ddtc.co.id, 9 July 2021).

LITERATURE REVIEW

Carbon Tax

Carbon tax is a type of pollution tax imposed on the use of fossil fuels to address market failures resulting from negative externalities such as climate change and air pollution (Ratnawati, 2016). Fossil fuels are non-renewable energy sources containing hydrocarbons, such as petroleum, coal, and natural gas. By targeting fossil fuels, the implementation of a carbon tax automatically raises their prices. According to microeconomics, this price increase will reduce the demand for these carbon fuels and decrease the negative externalities they generate. Economic improvement in sectors that are actually taxed. The Carbon Tax is then mostly used as subsidies, capacity building.

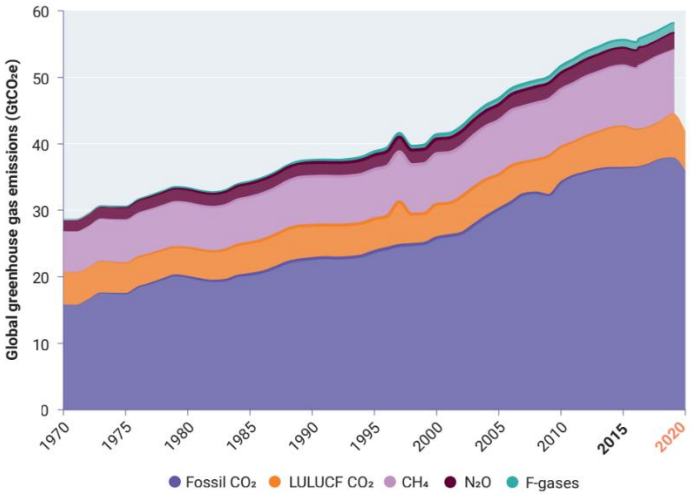


Figure 1. World Carbon Gas Emissions 1970-2020.
Source: United Nations, 2021

UN Handbook on Carbon Taxation for Developing Countries

This handbook explains that environmental taxation instruments provide dual benefits by increasing the necessary revenue for public investments toward an eco-friendly transition while also reducing emissions and pollution through signals to economic actors engaged in carbon emissions. Carbon tax also shows potential to drive various macroeconomic benefits such as job creation, economic diversification, and increasing domestic industry competitiveness. Therefore, a well-designed carbon tax is needed for a country to align fiscal policy with climate-environmental goals while contributing to state revenue (United Nations, 2021).

Environmental taxation has become a prominent agenda in developing countries, both to generate revenue and to meet their NDCs regarding climate change and global temperature reduction. For example, the 2015 Paris Agreement requires all members under the UN Framework Convention on Climate Change to make efforts to reduce GHG emissions. As a contribution to this international effort and as a form of support to developing countries to align their fiscal policies in achieving NDC goals by 2030, the UN has initiated a commitment through a mandate presented at the 15th session of the Paris Agreement Convention. The mandate includes the following:

Identifying and considering the most pressing issues so that the guidance provided by the UN can help developing countries address these issues (countries are requested to report on these issues in the next session).

Giving special attention to carbon taxes, both related to the practices of countries that have already implemented them and in terms of administrative issues.

Providing draft guidance based on the issues received by the UN. (Pamungkas 2022).

Carbon tax calculation with comparison of several countries

In 2017, Indonesia's carbon emissions reached 1,150 million tons of CO2e, as reported by the Central Statistics Agency in 2019.

According to data from the same agency, the energy sector and forestry and other land uses (FOLU) sector were the main contributors to carbon emissions, averaging around 500 million tons of CO2e. On the other hand, the industrial processes and product use (IPPU) sector consistently exhibited the lowest carbon emission rate across all sectors, generating about 40 million CO2e emissions. Generally, carbon emissions within each sector remained relatively stable annually, barring fluctuations caused by forest fires and FOLU activities.

South Africa's economic growth perspective, as highlighted in Irama's 2019 research, positions it as a suitable benchmarking country. Similarly, Indonesia, as a developing nation, possesses the agency to voluntarily curtail carbon emissions. In 2019, South Africa employed a tariff of US$5 for carbon pricing. In a parallel vein, data from the carbon pricing dashboard as of November 2020 reveals that Singapore instituted a carbon tax rate of US$3.66, while Argentina adopted a rate of US$5.96, and Japan implemented a rate of US$2.76. (World Bank, 2020).

Table 1. Carbon tax rates in the United States

	2019	**2020**	**2021**	**2022**	**2023**
Tax ($/ton CO2-e)	US$49	US$52	US$54	US$56	US$58
Convert to Indonesian Rupiah	IDR 686,000	IDR 728,000	IDR 756,000	IDR 784,000	IDR 812,000

*) US$1=Rp14,000
Source: US Department of Treasury (Horowitz et al., 2017.

Table 2. Potential state revenue from carbon tax (excise).

No.	**Carbon Emission Estimation**	**Rate Per Ton CO2e (US$)**	**State Revenue (US$)**	**State Revenue (IDR)**
1	1.041.674.000	3	3.125.022.000	43.750.308.000.000
		6	6.250.044.000	87.500.616.000.000
2	739.588.540 (Decline 29%)	3	2.218.765.620	31.062.718.680.000
		6	4.437.531.240	62.125.437.360.000
3	614.587.660 (Decline41%)	3	1.843.762.980	25.812.681.720.000
		6	3.687.525.960	51.625.363.440.000

Source: Augustine Imam Saputra.,2021

Carbon tax calculation, Method of Imposition and Carbon Tax Rates In Indonesia

The method of imposing carbon taxes in Indonesia is explained in Article 13, paragraph 3 of the UU HPP (Law on Carbon Pricing), where it is applied based on emission limits (cap and tax). Under this scheme, every PLTU (Power Plant) that produces emissions exceeding the set cap will be subject to carbon taxes. The emission cap is determined by the Ministry of Energy and Mineral Resources (Kementerian ESDM) and varies based on the type and capacity of the PLTU. These categories include PLTU with a capacity above 400 MW, PLTU with a capacity below 400 MW, and Mouth of Mine PLTU with a capacity below 400 MW.

There are certain aspects highlighted by UNH that need to be considered when

implementing carbon taxes in developing countries. The first aspect involves the challenge of MRV (Measurement, Reporting, and Verification) in carbon tax implementation. In Indonesia, MRV functions are managed by the Ministry of Environment and Forestry (Kementerian Lingkungan Hidup dan Kehutanan or KLHK) through an application known as the National Registry System for Climate Change Control (Sistem Registri Nasional Pengendalian Perubahan Iklim or SRNPPI). Regarding the tax administration obligations for carbon taxes, it is anticipated that a Notification Letter (Surat Pemberitahuan or SPT) will serve as a reporting tool for PLTU. However, when this research was conducted, regulations related to these matters had not yet been issued.

The second aspect relates to the price signal. When implementing carbon taxes, consideration must be given to which parties may be affected by price increases, especially regarding electricity prices. Price signals are applied to implement carbon taxes. According to one source, the cap-and-tax mechanism takes into account the potential impacts of carbon tax implementation. The increase in prices has been studied, and it is found to be minimal, approximately 0.058%. Therefore, it is expected that the increase in electricity prices will not be significantly burdensome for households and businesses, as the price signal's impact is also relatively minor.

Furthermore, Article 13, paragraph 8 of Law Number 7 of 2021 (UU HPP) specifies that the carbon tax rate should be set equal to or higher than the carbon price in the carbon market. The rationale behind this is to encourage coal-fired power plants (PLTU Batubara), which are major emission sources, to participate in carbon trading first, and only then subject the remaining emissions to carbon taxes. This prioritization is driven by the fact that, from 2011 to 2018, carbon trading contributed between 7.5% and 26.1% of non-tax state revenue (Penerimaan Negara Bukan Pajak or PNBP). This indicates that carbon trading has provided dual benefits to Indonesia, both in terms of budgetary income and environmental empowerment.The specific tariff amount is further detailed in Article 13, paragraph 9 of Law Number 7 of 2021, which sets the lowest tariff at Rp 30 per KgCO2e. According to the source, this tariff has been set as an introductory price, as Indonesia is implementing carbon taxes for the first time, and it provides an initial benchmark for stakeholders.

According to UNH, developing countries can adopt various approaches when implementing carbon tax rates. These approaches include standard and price-based, income-based, and benchmarking approaches. Indonesia does not strictly apply any single approach recommended by UNH but instead uses a combination of these methods, with the government determining the final tariff rates. The insights obtained from other countriesplay a role in shaping the carbon tax policy.

Indonesia doesn't strictly adhere to any single approach recommended by UNH when it comes to carbon tax. First, there's the standard and price approach. As Indonesia has set its sights on achieving Net-Zero Emissions (NZE) by 2060, the government may periodically

review emission reductions occurring in the current year and make adjustments to carbon tax rates. According to one source, this is not impossible because the initial tariff of Rp 30 per KgCO2e is an introductory rate that is expected to be increased over time as stakeholders adapt.

The second approach is income-based. This approach is somewhat controversial since carbon taxes, fundamentally meant for environmental purposes, can transition into a budgetary tool. In Indonesia, it can't be unequivocally stated that carbon taxes are solely aimed at generating revenue; the primary goal is to achieve emission reductions. However, this doesn't rule out the potential for revenue generation, both through the tax itself and non-tax state revenue (Penerimaan Negara Bukan Pajak or PNBP) resulting from carbon tax implementation. Considering that the tariff for carbon tax is set higher or equal to carbon market prices, the motivation for stakeholders to engage in carbon trading is emphasized, which serves as a strategy to generate non-tax state revenue, even though it is not the primary goal of the carbon tax.

The third approach is benchmarking. This approach involves using a benchmark from other countries as a reference for implementing carbon taxes. However, Indonesia doesn't adopt this approach in its purest form. According to information from the source, Indonesia still requires assistance from other countries, especially concerning insights into implementing carbon tax policies. This process involves various Focus Group Discussions (FGD). Nevertheless, the difference lies in the fact that Indonesia does not strictly replicate the benchmarking approach, as the decision to determine tariff rates ultimately rests with the Indonesian government. Information about possible policies obtained from other countries serves as a reference in determining the carbon tax rates.

Case example

Unit Power Plant A

Generation capacity: 800MW

Upper emission limit: 0.918 tCO2/MWh

Gross electricity production: 6,100,000 MWh

Total GHG Emissions: 5,800,000 tCO2

Emission cap for A: 0.918 x 6,100,000 = 5,599,800 tCO2

Unit Power Plant A does not participate in carbon emissions trading or carbon offsetting.

Carbon Tax Calculation:

Tax Base (DPP) = Total GHG Emissions - emission cap

= 5,800,000 tCO2 - 5,599,800 tCO2

= 200,200 tCO2

Tax payable = DPP x tax rate

= 200,200 tCO2 x Rp 30,000/tCO2

= Rp 6,006,000,000

Reduction = Rp 0

Carbon tax payment = Tax payable - reduction

= Rp 6,006,000,000 - Rp 0

= Rp 6,006,000,000

(assuming no reduction in the carbon tax payable).

Source: Webinar on Organizing The Carbon Economy Value nn The Electricity Sub-Sector.

RESEARCH METHODOLOGY

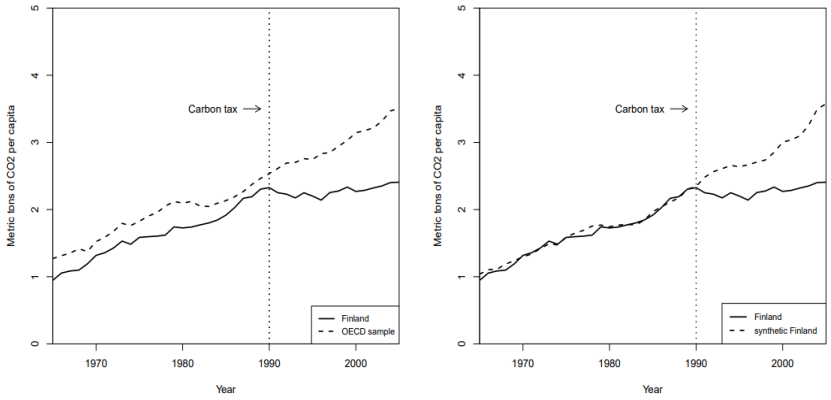
The study on the contribution of carbon tax to economic progress in Indonesia uses a literature study research approach , which is research conducted by researching and analyzing problems using the latest scientific books and articles which are primary data obtained through Google schoolar. . This methodology will involve the following steps:

1. Research Design: This study will use an exploratory research design to investigate the relationship between carbon tax and economic progress in Indonesia. This design allows for a comprehensive understanding of the topic and allows for the exploration of multiple perspectives.
2. Data Collection using quantitative data collected from secondary sources such as government reports, economic databases, and scientific articles. This data will include economic indicators (e.g., GDP growth, unemployment rate, investment data) as well as information relating to carbon emissions and taxes.
3. Discussion and Conclusion: Research findings will be discussed in the context of existing literature and theoretical frameworks. The implications of the findings will be assessed, and policy recommendations for the effective implementation of a carbon tax in Indonesia will be presented.

RESULT AND DISCUSSION

Previous Research In carrying out research, several previous research results that have been carried out by other parties will be used as a basis and reference in conducting analysis. The first study was by Elbaum (2021) from the University of Neuchatel. The findings are most effectively illustrated through visual representation. In Figure 2, Panel (a) illustrates the trajectory of per capita CO2 emissions originating from Finland's transportation sector and the unweighted average of the donor pool. Panel (b) in the same figure depicts a similar trajectory for both Finland and a synthetic Finland. The weights acquired in Section 3.1 are utilized to construct the synthetic Finland. The alignment of the unweighted average is unsatisfactory. During the pre-treatment period, it consistently exceeds Finland's actual results. Although one might speculate about a slight deviation post-1995, it's challenging to determine a causal link attributable to the carbon tax, let alone quantify it. Conversely, synthetic Finland serves as a valuable counterfactual. On a global scale, synthetic Finland closely replicates the real Finland. While there are minor divergences in the late

1970s, the overall match is highly satisfactory. As indicated in Panel (b) of Figure 2, the carbon tax clearly had a substantial impact on the per capita CO2 emissions from the transport sector in Finland.



Notes: Panel (a) shows the path of per capita CO_2 emissions from transport in Finland and the unweighted average of control units. Panel (b) shows the same path for Finland and synthetic Finland.

Figure 2. Path plots of CO2 emissions from transport
Source: Elbaum, J.-D,2021.

Further research by Andersson (2019) aims to see the effect of the application of Carbon Tax and Value Added Tax (VAT) on fossil fuels in Sweden on carbon emissions from the transportation sector, using the Synthetic Control Method. Based on the findings of this research, empirical evidence is presented to support the notion that the implementation of a carbon tax can be highly effective in substantially reducing carbon dioxide (CO2) emissions. Following the introduction of a carbon tax and a value-added tax (VAT) on transportation fuels in Sweden, there was an almost 11 percent reduction in CO2 emissions from the transport sector in an average year, with the carbon tax alone contributing to a 6 percent decline. These results challenge earlier empirical studies that showed minimal to no impact of carbon taxes on emissions.The research methodology involves the meticulous creation of a control group that did not enact a carbon tax or similar policies but had comparable pre-treatment levels and trends in CO2 emissions. This control group, referred to as "synthetic Sweden," effectively reproduces Sweden's performance on various crucial indicators of CO2 emissions from the transportation sector and closely mirrors emissions over the 30 years leading up to the policy implementation.

Additionally, using real-world data for the outcome variable enables the analysis to capture changes in fuel consumption, especially the transition from gasoline to diesel, as well as shifts between transportation modes. This approach enhances the study compared to simulation-based research that relies on changes in gasoline consumption as a proxy for total changes in CO2 emissions from transportation.The research findings also demonstrate robustness through a series of placebo tests. Randomly reallocating the

treatment within the sample reveals that the probability of achieving a post-treatment result as significant as Sweden's is just 0.067.

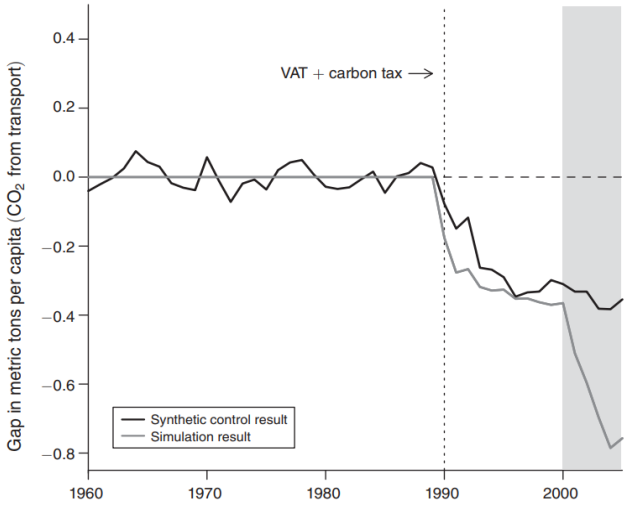


Figure 3. Discrepancy in Per Capita CO2 Emissions from Transportation: Synthetic Control versus Modeling.

Source: Andersson,J. J,2019.

Notes: The shaded region emphasizes the timeframe from 2000 to 2005 when the carbon tax rate experienced a significant increase, with the initial tax hike occurring in 2001.

Subsequent studies have also shown similar results. This research was conducted by Yu et.al (2020) with the aim of seeing how it affects CO_2 emissions from the energy industry sector if this carbon tax is implemented in China. Based on the results of his research, Yu et.al (2020) said Power consumption demand is determined by various factors, including population, GDP growth rate, urbanization rate, and industrial structure. Based on the foundational assumptions regarding China's future economic and social progress, we can project China's electricity demand from 2015 to 2050, as indicated in Table 3. The data illustrates a consistent upward trajectory in China's national electricity demand, reaching a high level. In 2050, the demand is anticipated to be 17,075 billion kW·h, which is 2.81 times the demand in 2015 (6,080 billion kW·h). The annual average growth rate, although notably higher than the GDP growth rate, gradually diminishes over time.This declining growth rate is closely tied to the relationship between national economic advancement and power demand intensity. Urbanization significantly contributes, and the industrial structure and rigid energy requirements sustain substantial power consumption. Consequently, the growth rate for both national and per capita electricity demand is projected to remain above 10% from 2020 to 2040.

This transition results in a deceleration in power demand growth. Simultaneously, as productivity improves and living standards increase, overall electricity demand gradually rises. Nevertheless, the adoption of energy-efficient technologies and increased awareness of energy conservation lead to a gradual

decrease in the growth rate of per capita electricity demand. Therefore, by 2050, China's overall electricity demand and per capita electricity demand are expected to experience significant reductions in growth rates, reaching 6% and 7%, respectively.

Table 3. Characteristics of power demand in China.

Year	National power demand (billion kW·h)	Growth rate of national power demand (%)	Per capita power demand (kW·h)	Growth rate of per capita power demand (%)
2015	6080	--	4342	--
2020	7661	26	5391	24
2025	9576	25	6640	23
2030	11491	20	7897	19
2035	13560	18	9293	18
2040	14916	10	10272	11
2045	16109	8	11249	10
2050	17075	6	12067	7

Source: Yu et.al,2020

This study was conducted by Nong (2020) with the aim to see the potential effects caused by the implementation of carbon tax in South Africa. The research was also conducted using the Computable General Equilibrium (CGE) model. Based on the results of his research, Nong (2020) explained that by applying a carbon tax rate of US $ 9.15 per ton of CO_2 , South Africa will experience a significant reduction in emissions of 12.25% to 15.6%. On the other hand, the implementation of this carbon tax will certainly also have an influence on South Africa's GDP but the effect is not too significant (Nong, 2020). Based on the results of research conducted, Nong (2020) stated that with this policy, South Africa's GDP will be eroded by 1.17% to 1.59% where the most affected sector is the industrial sector which is still based on fossil fuels.

However, many parties state that the carbon tax rate in Indonesia is quite low when compared to other countries. When compared to other countries, such as South Africa as a fellow developing country, the carbon tax rate in Indonesia is also still lower. Bavbek (2016) states that South Africa began implementing a carbon tax effectively since January 2017 at a rate of US $ 8 per ton of CO_2 equivalent or equivalent to Rp112,000 (using an exchange rate of US $ 1 = Rp14,000). However, even though the carbon tax rate in Indonesia is considered low by many parties, the Fiscal Policy Agency (BKF) through an interview conducted with one of its employees explained that for now the carbon tax rate has been considered appropriate for Indonesia.

Table 4. A general overview of carbon taxation in various countries worldwide.

Country	Date Operational	Current Level(USD Per ton of $CO2_e$)	Sectors Covered	Utilization of Revenues	Exemptions from the Tax
Finland	1990	62(heating) - 66(transportation	Economy-Wide	Corporate Tax Cuts Income Tax Cuts	Full Exemptions for Serveral Sectors Partial Exemptions for Energy Intensive Industries
Sweden	1991	137	Economy-Wide	Corporate Tax Cuts Income Tax Cuts Energy price adjustments	Partial Exemptions for Industry and facilities Operating under EU-ETS
British Columbia	2008	23	Economy-Wide	Corporate Tax Cuts Income Tax Cuts Rebates granted to low-income households	Fuels Exported Agriculture Non-fossil fuel emissions from industrial proccesse, landfills and forestry inter-jurisdictional transportation
Japan	2012	3	Economy-Wide	Earmarking for the Promotions of low Carbon Economy	Exemptions for Strategic Sectors
United Kingdom	2013	26	Electricity Generation	Transferred to Governmen t Budget without earmarking	Generators with capacity lower than 2 MW
France	2014	25	Economy-Wide	Earmarking for Promotion of Green Energy	Facilities covered by EU-ETS
South Africa	2017	8	Economy-Wide	Earmarking for Low Carbon Growth+Ta x Shifts and Tax Incentives	Partial Exemptions for Several Sectors Agriculture,Forestry, Land use and Wastle sectors exempt for the first phase
Chile	2018	5	Electricity Generation	Not Specified	Generators with capacity lower than 50 MW

Source: Nong,2020

CONCLUSION AND SUGGESTIONS

Conclusion

From the previous studies conducted through a literature review, it can be concluded that each country has different policies when deciding how to implement a carbon tax. However, Indonesia can learn from and emulate countries that have already implemented carbon taxes for application within Indonesia. By examining the policies they have established, analyzing the calculations applied in those countries, the amount of carbon dioxide they produce, the environment they inhabit, the urban layout, and how they turn carbon taxes into national revenue, carbon taxes can be seen as a solution to prevent worsening global warming.It can be inferred that the implementation of a carbon tax in Indonesia is feasible and can be executed, as the Ministry of Finance in Indonesia has already formulated calculations for carbon taxes, identified the types of companies subject to carbon taxes, and established regulations supporting these carbon taxes.

Furthermore, the imposition of carbon taxes has the potential to expand the state's revenue base, indirectly leading to carbon emission reduction and the reduction of its greenhouse effect impact. Therefore, the carbon tax emerges as a comprehensive solution with dual goals: protecting the Earth and strengthening Indonesia's economy.Moreover, carbon taxes are also believed to reduce traffic congestion and preserve the environment. Anticipating a shift in public sensitivity to environmental concerns due to the implementation of carbon taxes is expected to drive a transition toward more environmentally conscious behavior, contributing to improving overall air quality worldwide.

Suggestions

For future research, it is hoped that an increase in the carbon tax samples from each country can be achieved, encompassing aspects of the economy that implement carbon taxes, the environmental conditions in each country, and the associated costs of implementing these carbon taxes. This broader data collection would enable a more comprehensive analysis of how carbon taxes can be effectively implemented in Indonesia. Indonesia is one of the world's largest suppliers of oxygen, which makes the study even more relevant.

Moreover, the imposition of carbon taxes offers the potential to bolster the country's revenue base while indirectly contributing to carbon emission reduction and mitigating the greenhouse effect's impact. Therefore, carbon taxes emerge as a holistic solution with dual objectives: safeguarding the environment and advancing Indonesia's economy.Furthermore, carbon taxes are also believed to alleviate traffic congestion and preserve the environment.

Anticipating a shift in public awareness regarding environmental concerns due to the introduction of carbon taxes is expected to stimulate a shift toward more environmentally conscious behavior, thereby making a substantial contribution to improving global air quality.

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