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ASSESSMENT OF HUNGARY'S TRANSITION TO ENVIRONMENTAL SUSTAINABILITY: THE INTEGRATION OF GREEN TAXATION IN ALIGNMENT WITH THE EUROPEAN UNION GREEN DEAL

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Abstract
The European Green Deal represents a significant development priority of the European Union to become the world's first climate-neutral continent by 2050, as it is emerging as the most important tool in mitigating climate change. Environmental taxation is one of the most crucial mechanisms for determining the effectiveness of the implementation of the Green Deal policy. Hungary's government has begun to adopt the European Green Deal strategy by increasing its climate ambitions by legislating a carbon neutrality target for 2050. Achieving the 2050 target is possible if Hungary develops well-defined policy roadmaps with key milestones per sector. This study provides a comprehensive assessment of Hungary's commitments to environmental sustainability, with a particular focus on the integration of environmental taxation and carbon pricing measures. Hungary is aiming to align its environmental policies with the European Green Deal. The analysis examines Hungary's ongoing transition towards environmental sustainability. It assesses the effectiveness of the environmental tax initiative, including carbon pricing. The study provides insight into the country's progress and alignment with the objective of the European Green Deal.

1 Introduction

The European Union has set an initiative ambition to become climate-neutral by 2050 (European Commission, 2022). In 2019, the European Commission introduced the European Green Deal, a comprehensive policy framework plan to transform key European Union economic sectors towards a sustainable society and fight against climate change (Hereu-Morales et al., 2024). The European Green Deal aims to transform the European Union into a modern, resource-efficient, and competitive economy with no net emission of Greenhouse gases by 2050 while decoupling economic growth from resource use (European Commission, 2021). Achieving these goals, Green taxation has the crucial potential to help the European Union reduce net greenhouse gas emissions by at least 55% by 2030 compared to the emission levels observed in 1990 levels (Dolge & Blumberga, 2023). The concept of Green taxation is not a novel concept for the European Union, as it has been pursuing the promotion of environmental sustainability as a critical goal of its environmental policy for a long time. This was reflected in the Council Resolution of 16 September 1986, which set new energy

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policy objectives for 1995 and aimed to harmonise Member States' policies (European Union, 2023). The main challenge facing the European Union is to ensure a just transition to a sustainable environment. To align the European Union's Green Deal policy with climate change objectives, the European Commission's 'Fit for 55' legislative package for 2021 initiates a review of policies in all sectors of the economy, particularly in areas such as energy, land use, buildings, and transport. The objective of this initiative is to guarantee a just and equitable transition towards a more environmentally friendly Europe. To achieve this, protective measures will be implemented to support those who are most at risk (European Council, 2023).

In the process of transition to environmental sustainability, Green taxation is increasingly recognised as an essential environmental policy tool to promote environmental sustainability (United Nations, 2021). Green taxes and Carbon pricing are two important instruments in this transition. Green taxes, which impose costs on activities that harm the environment, aim to reduce environmental damage and promote sustainable practices. These taxes provide a financial incentive for individuals and businesses to be more environmentally friendly by making environmentally harmful activities more expensive. Environmental taxes provide incentives for businesses and consumers to reduce pollution and can be levied at the production or consumption stage (Norouzi et al., 2022). By motivating governments, businesses, and citizens to innovate in environmental technologies, an environmental tax helps limit overall energy demand and encourages energy efficiency. The reduced use of energy resources minimises CO_2 emissions. Efforts to reduce CO2 emissions can be achieved by reducing energy use in sustainable development (Hieu, 2022). Revenue from environmental taxes can be used to fund renewable energy projects, support sustainable development initiatives and promote green technologies. This not only helps to reduce environmental degradation but also contributes to the transition to a more sustainable and low-carbon economy (Labandeira et al., 2019).

Hungary has long been committed to sustainable development and has made significant efforts to integrate Green taxation as part of its environmental policy. Recognising the importance of environmental sustainability, the country has implemented various policies and initiatives aimed at reducing its carbon footprint and promoting green growth. In 2012, Hungary introduced The New Széchenyi Plan, which further addresses green economic development and the challenges of the 21st century (International Energy Agency, 2017). Following the development of the commitment to environmental sustainability, Hungary launched the new Directorate for Environmental Sustainability within the Office of the President in 2015. Two years later, in 2017, Hungary established an Inter-ministerial Coordination Mechanism consisting of representatives from each line ministry, the Hungarian Central Statistical Office, civil society, academia, and the private sector (European Environment Agency, 2020). More recently, the Hungarian government made changes to the environmental product charge, also known as the "Green tax", which came into effect in July 2023 (VGD Hungary, 2023a). The Green Tax in Hungary includes the introduction of the Extended Producer Responsibility or EPR System, which has defined the scope of products subject to Green tax (VGD Hungary, 2023b). These efforts are in line with the European Union's Green Deal and demonstrate Hungary's commitment to the transition towards environmental sustainability through the integration of Green taxation. This is in line with the European Green Deal, a key Environmental policy of the European Union(European Commission, 2021). Hungary has prioritised the integration of Green taxation as part of its environmental policy (OECD, 2021). The country is committed to the climate objectives and is trying to align its national policies accordingly. In 2017, Hungary set climate targets for 2030 and 2050, aiming for 90% low-carbon electricity generation by 2030 (International Energy Agency, 2022). Hungary is also proposing a 20% share of energy from renewable sources in gross final energy consumption (European Commission, 2018). In 2020, the country passed a law making the 2050 net zero emission target a legal requirement and the amended National Energy Strategy for 2030 to incorporate a vision for 2040 that focuses on clean, bright, and affordable energy (International Trade Administration, 2022). Regarding environmental tax in Hungary, the Hungarian government is subject to various taxes, including energy tax and value-added tax (VAT) (International Renewable Energy Agency, 2018).

The study aims to provide a comprehensive assessment of Hungary's commitment to environmental sustainability, focusing in particular on the integration of the European Green Deal's environmental taxation mechanisms and carbon pricing measures into national policy and the challenges and

opportunities that arise in this process. It also examines how Hungary's sustainable transition efforts align with the European Union's Green Deal and contribute to the global pursuit of environmental sustainability—analysing data from 2010 to 2023 to evaluate Hungary's ongoing transition towards environmental sustainability. The study provides insights into the effectiveness of environmental tax initiatives and their alignment with the ambitious goal of achieving carbon neutrality by 2050. Through this research, we contribute to understanding Hungary's progress and its role in mitigating climate change within the broader European framework.

2 Theoretical background and literature review

The principal goal of the tax system is to raise revenue for the government to finance public functions that allow the government to harness its fiscal structure to help the government achieve its environmental goals. The concept of the "green tax" has two opposing views - tax increases that disapprove activities or commodities that are environmentally damaging and tax decreases that encourage those that are environmentally beneficial. The tax instrument should be based on traditional tax principles that consider the issues of equality, economic effect and administrative possibility (JANET E., 2007). Taxation can balance the relationship between the ecological environment and the economic environment. It can have a more significant economic impact and contribute to long-term development. The neoclassical regulatory theory justifies government intervention in the economy to compensate for public goods lost due to market failure, mentioning that “when the costs of pollution are not reflected in prices, and the cost of intervention is less than the gains from doing so, market inefficiencies result” (Ciocirlan, 2003). The execution of an environmental tax helps limit overall energy demand and encourages energy efficiency by motivating governments, companies, and citizens to stimulate innovation in environment-related technology (Hieu, 2022). Given the substantial costs associated with climate change, jurisdictions are increasingly adopting ambitious and sophisticated policy instruments to support climate mitigation, especially market-based policies. This includes market-based strategies like carbon pricing and environmental taxes. Various countries worldwide have developed and put into action different green tax initiatives. These green taxes are essentially taxes that have an environmental focus. Consequently, societal entities, such as corporations, are developing strategies to reduce their involvement in activities that harm the environment, such as carbon emissions and pollution (Federal University, Oye-Ekiti, Nigeria and Rotimi, 2021).

As the urgent need to address the climate issues, the European Green Deal is more than just a strategy to make the European Union the first carbon-neutral continent by 2050 (European Commission, 2021); it also aims to decouple economic growth from resource consumption, it supports the transformation of the European Union into a fair and prosperous society with a modern and competitive economy. This plan aims to support the transformation of the European Union into a fair, successful, and modern society with a competitive economy. The European Commission has proposed a package of measures to ensure that the European Union's climate, energy, transport, and taxation policies are aligned to reduce net greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels. All 27 European Union Member States have committed to turning the European Union into the first climate-neutral continent by 2050 (European Commission, 2021). In 2021, the European Commission adopted the ‘Fit for 55’ packages, which provide coherence.

On October 27, 2003, the Council Directive 2003/96/EC was presented by the European Commission and adopted by the European Council, and it became effective on December 1, 2003. The Directive establishes the framework for the taxation of energy products and electricity. It lays down the rules on taxation across the European Union, which entered into force on 1 January 2004 under a new directive that most energy products are subject to taxation (Cattoir, 2004). In Hungary, medium- and long-term energy and climate policies are guided by the National Energy and Climate Plans (NECPs) (Hungary, 2020b) and the National Energy Strategy (NES) 2030 with an outlook to 2040. The NECP and the NES 2030 guide Hungary’s policy actions to 2030 with targets to reduce emissions by 40% in 2030 compared to 1990 levels, cap total final consumption at 785 PJ (2005 levels) by 2030, and produce 90% of domestic electricity from carbon-neutral sources, phasing out coal, install 6.5 GW of solar PV capacity by 2030 and 12 GW by 2040, install at least 200 000 household roof-top solar panels (average output of 4 kilowatts [kW]) and renewables to account for

at least 21% of gross final energy consumption, source final energy consumption above 2005 levels from carbon-neutral sources in 2030 (International Energy Agency, 2022). Hungary applies VAT on the final consumption of various forms of energy, including electricity, natural gas, heat, and others. Hungary uses VAT on the final consumption of multiple forms of energy, including electricity, natural gas, heat, and others. The current VAT rate is set at 27%, among the highest among International Energy Agency countries—however, district heating benefits from a considerably lower VAT rate of 5% (International Energy Agency, 2022).

As the European Union commits to combating climate change, carbon pricing is seen as an essential decarbonisation tool, The Carbon Border Adjustment Mechanism, more colloquially known as a Carbon Border Tax (Barnes, 2021). Hungary has made slow progress in reducing emissions outside of the European Union Emissions Trading System in the transport and heating sectors, which rely increasingly on fossil fuels (International Energy Agency, 2022)

3 Research questions

The research centres around the main critical key research questions:

- To what extent do Hungary’s environmental tax initiatives contribute to reduced emissions?
- How does the integration of environmental taxation in Hungary align with the European Green Deal

4 Methodology

The research aims to analyse Hungary's transition to environmental sustainability by integrating environmental taxation and Carbon pricing measures to transition to the Environmental sustainability of Hungary. The study employs a mixed method analysis to investigate the past and ongoing environmental tax initiative and the integration of the strategy from the European Union to Hungary as a member country, aligned with the European Green Deal, and to assess the effectiveness of policy development. The time frame for the analysis is 2010–2023, chosen due to the accessibility and availability of data, and the unit of observation is Hungary.

To achieve the objectives of this study, the analysis will be conducted in two stages, as follows:

The first stage of the analysis essentially involved the author reviewing and analysing the relevant scientific literature to answer the research question. For this purpose, the author collected and integrated data from academic databases such as Scopus, Web of Science and Google Scholar from 2010 to 2023. A total of 30 papers were observed and examined to provide a critical insight into Hungary's environmental policies, tax initiatives and their impact on the emission deduction.

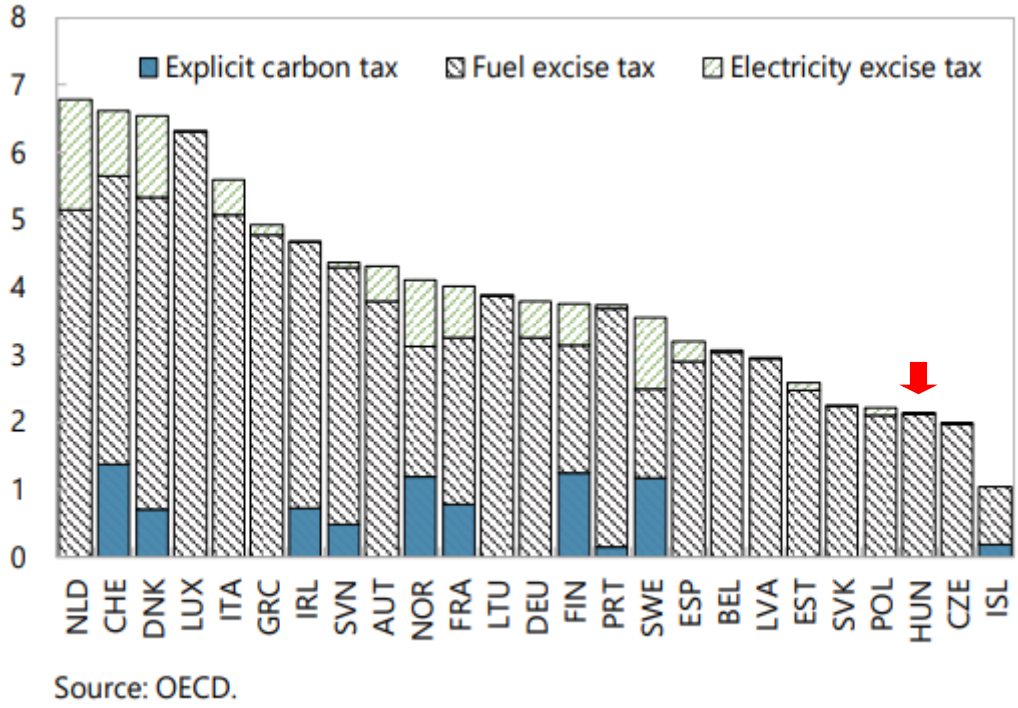
The second stage of the research follows by building on the linking of the analysis literature and policy related to assessing the effort in integrating the green tax with initiatives in Hungary for the evaluation of environmental sustainability efforts to contribute to the European Union as well as the global pursuit of environmental sustainability by delving into policy related. While also scrutinising statistical information obtained from statistics data from Eurostat, The International Energy Agency, Hungary Country Review, and the European Union's official website. Both have been analysed and combined to draw the following conclusions.

5 Result and Finding

Hungary has been an initiative in environmental taxation, with a long history of obliging various taxes aimed at protecting the environment through fiscal policies. A significant milestone in this direction is the country’s legal commitment to a net-zero emissions target, established through the Climate Protection Law of 2020 and the National Clean Development Strategy 2021 [21]. Hungary's government recently raised the tax on emissions and published government decree No. 320/2023. (VII.17.) has introduced the obligation for operators of facilities that benefit from a significant amount of free emissions (Winskell, 2023), which indicates an ongoing effort by the Hungarian government to strengthen environmental policies. The Hungarian government has further strengthened this assurance by adopting seven strategies to guide the nation's medium and long-term energy and climate policy. These include the National Energy and Climate Plan 2020 and the National Clean Development Strategy 2021 (International Energy Agency, 2022). These plans serve as guiding

pillars for the nation's medium and long-term environmental policies, and they highlight the country's comprehensive strategy that addresses the intricate challenges posed by climate change issues. The European Union has a standard minimum VAT rate of 15% that applies to most goods and services. However, each EU member country is responsible for setting its own rates, which may vary depending on the product or service. Therefore, member countries have the competence to determine which goods and services fall under the reduced rate, which cannot be less than 5% (European Union, 2022). Hungary currently imposes a high energy price tax or energy VAT of 27% on the final consumption of electricity, natural gas, heat, and other forms of energy, which is one of the highest rates among the International Energy Agency (IEA) countries. Hungary remains committed to achieving tangible environmental outcomes despite the significant financial measures implemented. The reduction of emissions by 32% in 2019, compared to the levels documented in 1990 under the Effort Sharing Regulation Decision (ESRD), demonstrates the effectiveness of Hungary's environmental policies (IMF, 2021). The Drive for reduced emissions and Energy Independence is likely.

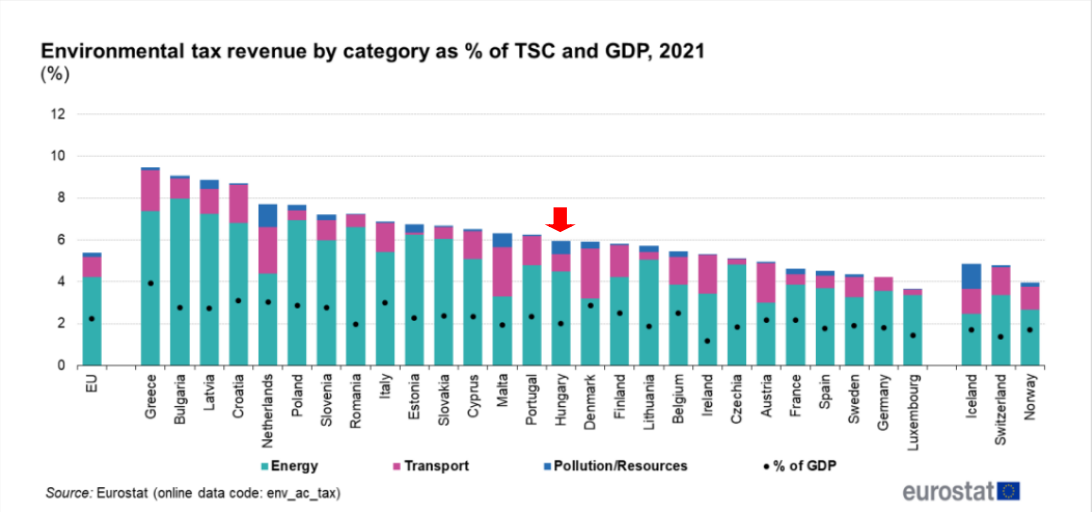
Figure 1: The average Effective Energy Tax rate, 2019 (in Percentage) (International Trade Administration, 2022)



Source: OECD.

Hungary is one of the few European Union member states to have introduced or increased taxes on pollution and resources in recent years. Environmental taxes will account for 6.8 % of the overall GDP in 2022 (Eurostat, n.d.). While laudable efforts have been made to address this, there is still scope for improvement in certain areas. Specifically, the fuel tax currently remains comparatively low, and emissions taxation across the residential and commercial sectors is limited in its coverage. These factors present opportunities for policy refinement. The reinforcement of tax rates within these realms has the potential to cultivate decisive incentives for advanced energy efficiency and the uptake of more sustainable fuels.

Figure 2: Environment Tax revenue by category as % of TSC and GDP 2021(Eurostat, n.d.)



Hungary's comparison with the other Member States of the European Union (EU) regarding environmental taxation is worth underlining. Environmental or Green tax revenue to GDP within the European Union varies from 1.2 in Ireland to 3.9 in Greece. Hungary, along with other European Union countries, contributes to this trend. In the European Union, energy taxes account for more than half of the revenue from environmental taxes, which is in line with Hungary's fiscal policy. The transport sector represents the second largest contributor to tax revenue in European Union member countries, with the exception of Estonia. Pollution and resource taxes generally make up a small proportion of environmental tax revenue across the European Union. However, Hungary stands out for its higher percentage of pollution and resource taxes, particularly compared to other European states. Hungary's strong position in this area is worth noting, as it closely rivals the Netherlands. This study highlights Hungary's standing within the European Union's environmental taxation landscape, demonstrating both similarities and unique features in contrast to other member states.

6 Conclusion and Recommendation

Hungary's policy on transitioning toward sustainability is a comprehensive and forward-thinking framework that tackles the challenges of climate change while utilising the economic and social advantages of renewable energy. The current strategies and objectives require evaluation within the context of the European Green Deal. The Climate Law of the European Union, along with the measures put forth in the Fit for 55 packages, is expected to require increased efforts from European Union member states, including Hungary, to expedite the reduction of CO2 emissions. Achieving this will necessitate the implementation of more energy-efficient and renewable energy initiatives. The National Clean Development Strategy's early and late action scenarios are coherent with the European Union's emissions reduction goal of -55% by 2030, which is obligatory according to the Climate Law. The government should undertake a review of both its National energy and climate plans (NECPs) and its related energy strategy to ensure alignment with the recently stated climate goals. (International Energy Agency, 2022). To succeed in the energy transition, it is crucial for Hungary to prioritise clean technologies and advance towards a cleaner and more secure energy system. This will enhance energy security in the region. Hungarian sustainability efforts should incorporate an integrated tax and carbon pricing plan under the European Union Green Deal strategy. The European Union's Green Deal establishes ambitious objectives for member nations to attain environmental sustainability and carbon neutrality. Carbon pricing constitutes a critical mechanism for valuing carbon emissions and directing economic actions towards lower-carbon alternatives. Hungary serves as a pioneer in environmental taxation, illustrating a historical devotion to environmental conservation through financial policies. The recent legislative achievements, combined with continuing efforts and strategic frameworks, highlight Hungary's commitment to tackling climate change challenges. The implementation of high-energy taxes and substantial

emissions reductions demonstrate Hungary's diverse and effective strategy towards attaining a sustainable and eco-friendly future.

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