
Environmental Taxes in Poland and South Korea – Sharing Experiences

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Abstract: The article aimed to identify, to assess the environmental taxes in Poland and South Korea, and to indicate a potential area of cooperation – an exchange of experience on environmental taxes. The analysis covered data from the period 2000-2020. However, in some parts, due to the availability of data, the investigation was completed in 2014 or 2019. The research methods employed were a critical analysis of domestic and foreign literature, an analysis of Polish and Korean legal acts underpinning environmental taxes in a comparative approach, and an analysis of OECD data using simple statistical methods and benchmarking elements. Four environmental taxes were identified in Poland: an excise tax on types of products deemed harmful to the environment, a Vehicle Tax, a Forest Tax and an Agricultural Tax. In South Korea, three taxes were included: Individual Consumption Tax, Automobile Tax and Transportation, Energy, Environmental Tax. Environmental taxes in Poland and South Korea were evaluated positively, taking the fiscal and informative functions as criteria. However, it was shown that an exchange of experience would be desirable, particularly in the area of improving the implementation of the stimulating function of taxes that related to air pollution.

Keywords: environmental taxes, Polish-Korean cooperation, sustainable finance

1. Introduction

Undoubtedly, in recent years, South Korea's position on the international arena has strengthened significantly mainly due to its impressive economic growth and soft power. Although Polish-Korean economic cooperation is relatively new (less than 34 years), many researchers see it as an opportunity for Poland, especially since a strategic partnership has been in place for almost 10 years. Hence, the main focus of the literature is on analysing the "miracle on the River Han" and identifying potentially favourable directions for trade and investment between the countries. This is all the more justified since Poland and South Korea have successfully implemented major projects of a political and economic

nature despite cultural and language barriers. This gives hope that the transfer of cooperation to other areas can also bring positive results.

Environmental protection and sustainable development are becoming increasingly important in the 21st century. The fact that the fight for environmental protection is a key component of global policy is evidenced by the first international Climate Conference held in 1979 (Ptak, 2019, p. 51). Environmental policy management was included by Bąk and Cheba (2020, p. 92) in the environmental factors of significant importance for developing European Union countries. In response to current challenges, countries are introducing environmental policies. South Korea's environmental progress is recognized internationally¹; Poland has also made changes in recent years. However, this does not change the fact that both countries continue to face serious challenges, including that of air quality. One of the most important instruments applied involves environmental taxes. Given the global dimension of the issue, cooperation and exchange of experience in this area could be beneficial, and not only for these two countries.

The article aimed to identify and assess the environmental taxes in Poland and South Korea, and to indicate a potential area of cooperation – an exchange of experience on environmental taxes and its basis. The research methods employed were a critical analysis of domestic and foreign literature, an analysis of Polish and Korean legal acts laying down environmental taxes in a comparative approach, and an analysis of OECD data using simple statistical methods and elements of comparative analysis.

To achieve the goal, the first part of the article identified the importance of environmental taxes. Then the author indicated which Polish and Korean categories should be considered as environmental taxes, and their assessment was made on the basis of the realisation of their functions. In the next step, the basis conducive to the exchange of experience between Poland and Korea in the environmental aspect was discussed and compared to similar environmental tax solutions.

2. The Nature and Importance of Environmental Taxes

Environmental taxes are understood as “a tax whose tax base is a physical unit (or a proxy of a physical unit) of something that has a proven, specific negative impact on the environment, and which is identified in ESA 95 as a tax”² (Regulation (EU) No 691/2011...) and included in the group of environmental policy instruments (Delgado, Freire-González, and Presno, 2022, p. 670), is considered the most meaningful income tool in this area (Famulska and Szymczak, 2022, pp. 1-2). Some countries introduced environmental taxes as early as the 1920s (Schaffer, 2021, p. 208). Currently, according to Eurostat data, environmental taxes are levied on energy, means of transport, pollution, and natural resources (Śleszyński, 2014, p. 56).

The literature often emphasises that the major goal of environmental taxes is not to fulfill their fiscal function but rather to shape more pro-ecological behaviour of taxpayers (Misztal, 2020, p. 34). Despite this, it is indicated that thanks to the fiscal attribute (which enables financing state activities for the environment) and the stimulus function (implemented, among others, through incentives), it is possible for environmental taxes to be implemented as a part of the sustainable development goals (Dogan, Hodźić, and Fatur Šikić, 2022, p. 5880)³. Environmental taxes also perform an informative function, understood as communicating to taxpayers about the desired behaviour. This may include aspects of the educational function (Graczyk, 2013, p. 98). Although the implementation of all functions by ecological taxes should contribute to improving the environment or reducing man-made pollution,

¹ The topic is discussed in detail in (OECD, 2021).

² It should be noted that there is no uniform approach to understanding environmental taxes. Walczak (2010, pp. 424-425) discusses the issue in more detail.

³ Małecki presented the problem differently (2012, p. 39), pointing out that the proceeds obtained from environmental fees are usually utilised to finance environmental protection activities and funds from environmental taxes for other purposes are transferred to the implementation of pro-environmental objectives only in some countries.

they have some disadvantages. A summary of the advantages and disadvantages of environmental taxes is presented in Table 1.

Table 1. Advantages and disadvantages of ecological taxes

Advantages	Disadvantages
Taxpayers' view	
<ul style="list-style-type: none"> – taxes can be a more suitable form for companies than incurring the pollution abatement costs – taxes can be a constant incentive to introduce new, more ecological technologies (innovations) and/or reduce pollution, as this will mean lower tax costs for the company or to try to use their technology more efficiently – taxes are conducive to optimal pollution levels in companies while incurring the lowest possible costs – the potential of creating a market for eco-products resulting from the use of more ecological technology 	<ul style="list-style-type: none"> – if taxes concern energy or transport, imposing them on these products may constitute a significant depletion of poorer households' budgets for whom they constitute major expenditure – the transition costs of changing to a more ecological technology may be higher than the tax in large companies, which may result in the lack of actions aimed at changes or reorganization – taxed companies may be in a worse competitive position in domestic or foreign markets – the potential fall in production, collapse of some companies/industries that emit pollution – product price increases – companies that are characterised by high energy intensity (facing cost increases) may be in a worse market position
Public authority's view	
<ul style="list-style-type: none"> – the tax's general nature does not allow companies to negotiate individual, special privileges – bring the tax policy closer to sustainable development – in taxes, it is possible to differentiate the rates depending on the environmental conditions or the pollution level – the possibility of introducing different taxes to achieve sustainable development of regions – lower increase in costs of regulatory authorities (compared to direct regulation) 	<ul style="list-style-type: none"> – achieving a taxpayers' divergent attitude from the intended one (paying tax as an entitlement to pollution, illegal disposal of waste, bribery not to pay tax) – the threat of pressure from pollution emitters on politicians to introduce instruments other than taxation, – the threat of applying less effective uniform tax rates – high administrative costs – there may be a problem of inexperience in environmental taxation in some countries (outside OECD and the European Union) – the discrepancy in conducting the fiscal and stimulus function – with regional differences in the level of environmental taxes, companies can search for regions with more suitable solutions – the potential setting of tax rates by local governments could lead to a significant rate discrepancy on a national scale, which is not reflected in environmental issues
Common good view	
<ul style="list-style-type: none"> – achieving positive effects on nature, such as emission reductions, pollution elimination, and environmental degradation – increase in society's ecological awareness – taxes can stimulate both businesses and consumers to take less polluting activities – increase in the supply price of non-ecological products 	<ul style="list-style-type: none"> – lack of certainty as to the effectiveness of environmental performance, e.g. it is impossible to precisely indicate the pollution cost

Source: own work based on (Bartniczak and Ptak, 2011, pp. 90-98; Nagy, 2013, pp. 517-520; Pourkarimi and Hojjat, 2019, pp. 33-34; Tyuleneva and Moldazhanov, 2020, p. 5).

EU documents acknowledge that environmental taxes are “fragmented and variable” (Remeur, 2020, p. 6), and many factors must be considered before their introduction. Despite this, at international level, it is pointed out that “the experience of recent decades shows that environmental taxes can be effective and efficient instruments of environmental policy” (OECD, 2006, p. 10).

3. Selection of Polish and Korean Taxes for Analysis

First, it is vital to identify the environmental taxes applicable in Poland and South Korea. In the case of Poland, one should start by indicating what information on taxes is submitted to Eurostat. According to the data reported by the Central Statistical Office for 2019, the following categories are presented:

- taxes on energy include excise duty on fuels intended for heating purposes, excise duty on fuels intended for propulsion purposes, excise duty on LPG gas, excise duty on electricity, excise duty on lubricating oils, excise duty on gaseous products excluding gas to drive internal combustion engines, excise duty on coal products, fuel levy, levy on concessions issued by the Energy Regulatory Office for the generation and distribution of energy, levy on greenhouse gas emission allowances, transition levy, cogeneration levy, emission levy;
- taxes on transport include excise duty on passenger cars, vehicle taxes, registration fees, registration fees for vehicles, and obligatory payments from shipowners to the Inland Waterway Fund;
- pollution taxes include product-type fees (for batteries and accumulators, tires, packaging, lubricating oils, waste electrical and electronic equipment), levy on using the environment, Fund for Environmental Protection and Water Management – other statutory levies, and a recycling levy on plastic bags;
- taxes on the use of natural resources include levies for removing trees and shrubs (GUS, 2022).

Not all of the reported categories are taxes under Polish regulations. As a rule, two basic taxes can be distinguished as a component of the Central Statistical Office information – excise taxes on product types that have been considered harmful to the environment and vehicle tax. Małecki (2012, p. 171) also recognised the forest and agricultural taxes as environmental taxes. This is justified when one considers other taxes as environmental taxes whose regulations stipulate the “use of natural environment resources” (Małecki, 2012). Although pro-environmental solutions can be found in other taxes, e.g. some municipalities introduce fiscal rebates on property tax for residential buildings where thermal modernization has been carried out, they are not acknowledged as environmental taxes.

In the case of South Korea, Kim and Yoon (2019, p. 22), who assessed energy and environmental taxes in their work, recognised six taxes with pro-environmental elements: Transportation, Energy, Environmental Tax, Individual Consumption Tax, Education Tax, Automobile Tax, import and sales charges, and power industry based funds and charges. However, maintaining the earlier assumptions, taking into account only contributions which are taxes, and that environmental taxes tax products that are harmful to the environment or the exploitation of natural resources, only three of those could be considered environmental taxes – individual consumption tax as well as Transportation, Energy, Environment Tax (Traffic, Energy and Environment Tax in the online catalogue of legal acts) on a similar basis such as the Polish excise tax, automobile tax analogous to the vehicle tax. In the case of Transportation, Energy, Environment Tax, already in Article 1 (in its concept before the repeal of it), the group of objectives of the Act includes securing financial resources necessary for activities related to energy and resources as well as activities for the protection and enhancement of the environment. However, in the case of education tax, it cannot be directly called an ecological tax because its main objective is to finance education (Kim and Yoon, 2019, p. 21).

4. Evaluation of Environmental Taxes Based on Their Functions

To verify the relevance of environmental taxes, their functions (stimulating, fiscal, informative) were adopted as the assessment criterion. The main research period was 2000-2020. OECD data were used, and thus the classification of environmental taxes followed the OECD approach. Due to limited availability, some data cover a narrower range. This was a significant limitation of the study.

First, the fiscal function was analyzed (Figures 1-3). Although this is not the main function of environmental taxes, it should be assumed that they provide relatively significant public revenues. Otherwise, especially if the administrative costs associated with tax collection and control were higher than the revenues, another instrument would have to be considered. Both in Poland (over the entire period under review) and in South Korea (2000-2014), environmental tax revenues as a share of GDP exceeded 2% and were higher than the OECD average (Figure 1). The largest percentage share in Korea was 2.73% in 2012, while in Poland – 2.69% in 2004. Another examined indicator was the environmental tax revenues per capita (for the OECD study, the US dollar “calculated according to purchasing power parities from 2010” was adopted) (Figure 2). In the first years of the analysis, both in Poland and Korea, environmental tax revenues per capita were lower than the OECD average. Nevertheless, in the following years, in both countries, this indicator exceeded this average – in South Korea, it happened already in 2005, and until 2014 it had higher values. In Poland, environmental tax revenues per capita reached a value higher than the average in 2015 and remained higher than it was until 2020. Although the value above the average occurred later in Poland, significant progress should be noted throughout the period under review.

The last important indicator for the analysis determined the share of environmental tax revenues in total tax revenues (Figure 3). In both Poland and South Korea, environmental taxes are a relatively stable and important source of government revenue. In South Korea they accounted for more than 10% of tax revenues in almost the entire period analysed (min. – 9.91% in 2009, max. – 12.6% in 2001). The rate for Poland’s environment-related tax revenues was lower than South Korea’s in the years studied, but nevertheless remained at a fairly similar level (min. – 6.56% in 2001, max. – 8.38% in 2004). In both countries the share of environment-related taxes was above the average for OECD countries.

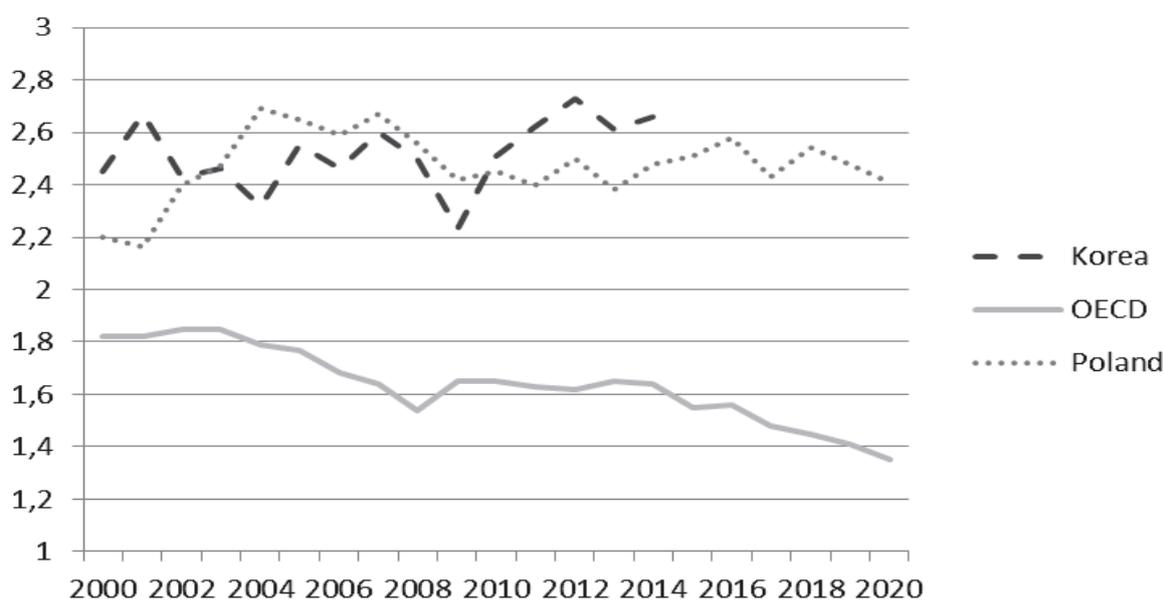


Fig. 1. Environmentally related tax revenue as a share of each country's gross domestic product [%]

Source: own work based on (OECD, n.d. (a)).

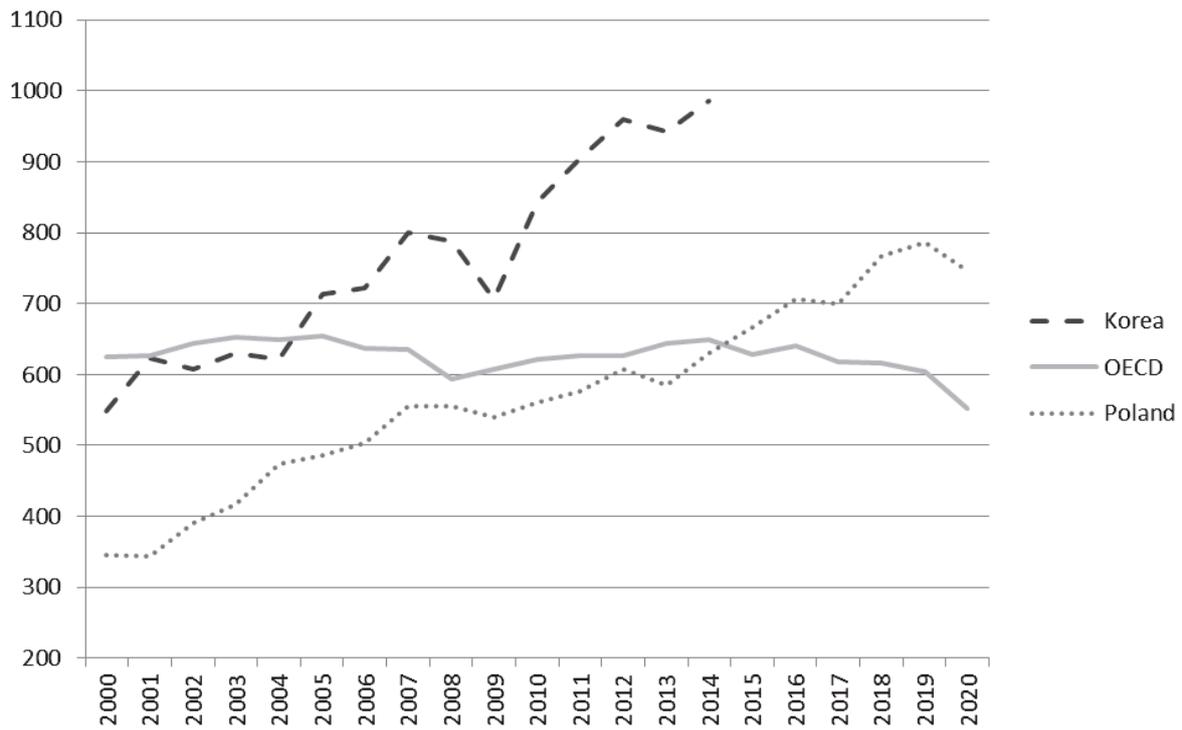


Fig. 2. Environmentally related tax revenue per inhabitant [USD]

Source: own work based on (OECD, n.d. (a)).

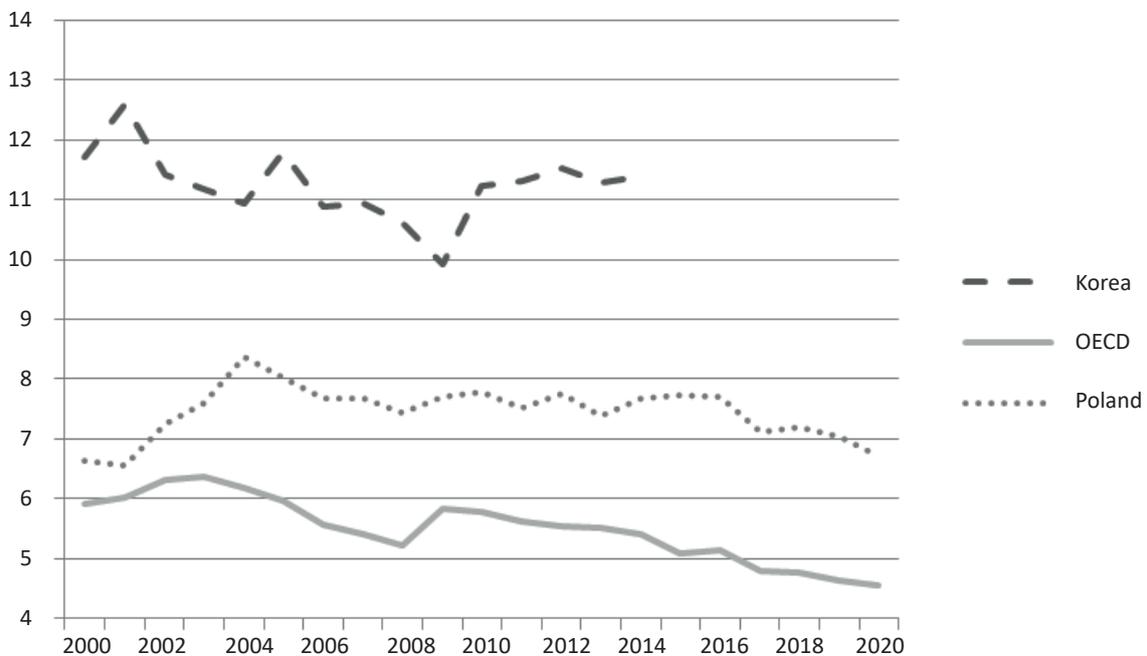


Fig. 3. Environmentally related tax revenue as a share of each country's total tax revenue [%]

Source: own work based on (OECD, n.d. (b)).

In the case of the informative function, it is necessary to point out that not only taxes can play such a role. Social campaigns, initiatives undertaken by non-governmental organizations, or even pop culture itself can communicate pro-ecological attitudes. Nevertheless, the importance of the state in this respect is recognised, e.g. in research conducted by the Ministry of Climate and Environment, Polish respondents indicated that it is the “central authorities, the government” who should “take care of shaping ecological attitudes and behaviour of society” – in 2020 as many as 44% of indications, whereas in previous years this was 21% in 2012, 28% in 2013, 22% in 2014, 28% in 2018, respectively (Ministerstwo Klimatu i Środowiska, 2020, p. 47). Therefore, the increase in the ecological awareness of the inhabitants was adopted as the assessment criterion in this aspect. Morawetz (2015, p. 46) studied the environmental awareness of Koreans in five areas:

- natural resource processing,
- pollution prevention,
- sorting waste and civic initiatives,
- business sector approach,
- biodiversity conservation situation.

Out of nine theses, six were positively verified in their entirety, and one partially (Morawetz, 2015), hence the author positively assessed the change in the ecological awareness of the inhabitants of South Korea. The review of research conducted by Kłos (2015, pp. 42-43) also indicated that the ecological awareness of Poles has increased over the last decades (namely, since the late 1980s).

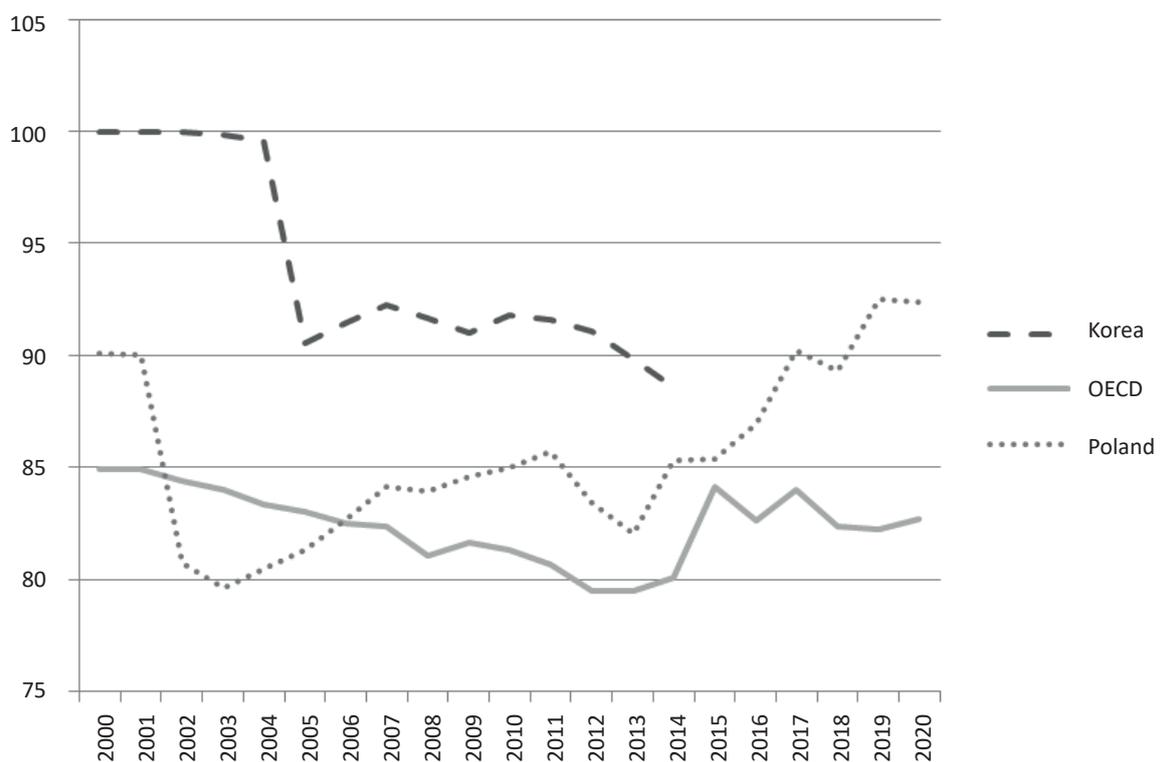


Fig. 4. Air pollution-related tax revenue as a share of total environmentally related tax revenue [%]
Source: own work based on (OECD, n.d. (b)).

In the area of the incentive function of environmental taxes, it was decided to examine the effect of air pollution taxes, as their share in total tax revenues related to environmental protection is the most

significant in both countries (Figure 4)⁴. It was also necessary to select an appropriate indicator. The average exposure of the population to PM_{2.5} was chosen because fine particulate matter (PM_{2.5}) is considered to be “the air pollutant causing the greatest health problems and premature mortality” (EEA, 2019). Although PM_{2.5} may be affected by “adverse climatic/meteorological conditions” (GIOŚ, 2022, p. 15), the main internal causes were related to human activity in both countries under study.

Research by Kumar, Johnson, Yarwood, Woo, Kim, Park, Jeong, Kang, Chun, and Knip-ping (2022) showed that in 2015-2016 the biggest problem was pollution from neighboring countries, whereas internal problems include sources related to transport and industry. In Poland, the source of the most pollution in the majority of the cases studied in 2022 turned out to be “the impact of emissions related to individual heating of buildings.” The second, most frequent reason related to the impact of emissions related to vehicle traffic (GIOŚ, 2022, pp. 119-120). Therefore, the desired effect of environmental taxes as part of the incentive function should be considered a decrease in the average exposure of the population to PM_{2.5}. Unfortunately, note that both Poland and South Korea face enormous difficulties in this regard (Figure 5).

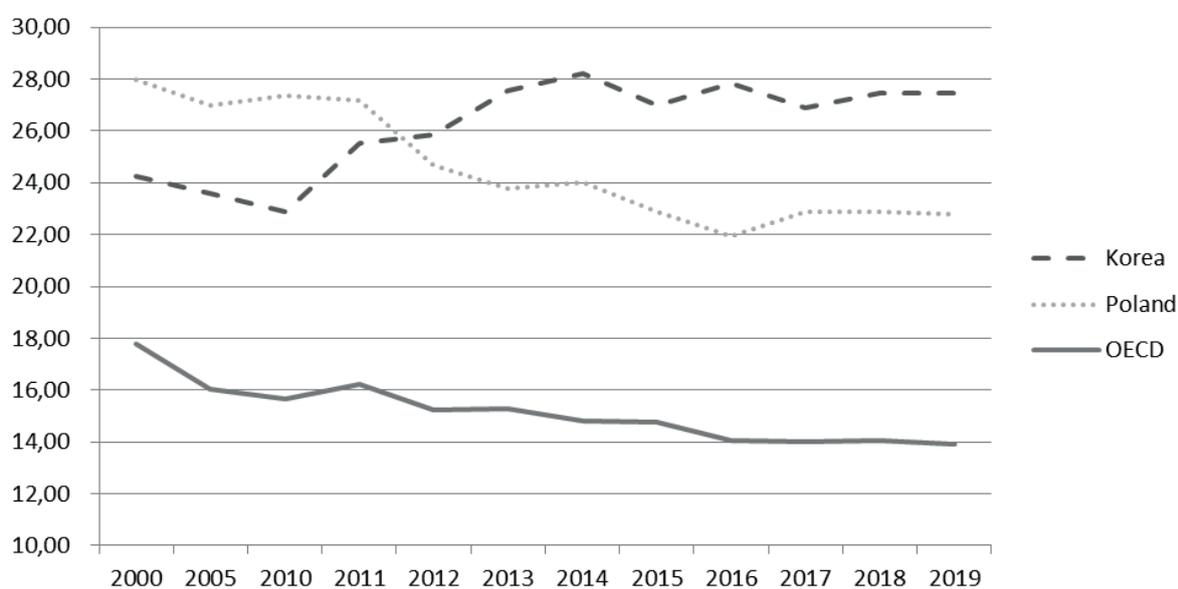


Fig. 5. Mean population exposure to PM_{2.5} [micrograms per cubic metre]

Source: own work based on (OECD, n.d. (b)).

From 2000 to 2019, the values of average exposure to PM_{2.5} exceeded the average for OECD countries. In the case of Poland, one can talk about a downward trend in the period 2000-2016. On the other hand, in South Korea, the average exposure increased significantly from 2010-2014, while the latter indicator's value remained relatively similar. It is also worth mentioning that although it might seem that the problem is relatively minor in Poland, the mortality rate due to exposure to the surrounding PM_{2.5} is worrying (Figure 6).

⁴ The category of air pollution taxes appears in the OECD classification. It should be noted that Eurostat classifies environmental taxes differently and, for example, according to Eurostat, the most important group of taxes in Poland are energy taxes, approximately 88% in 2020 (Eurostat, 2022).

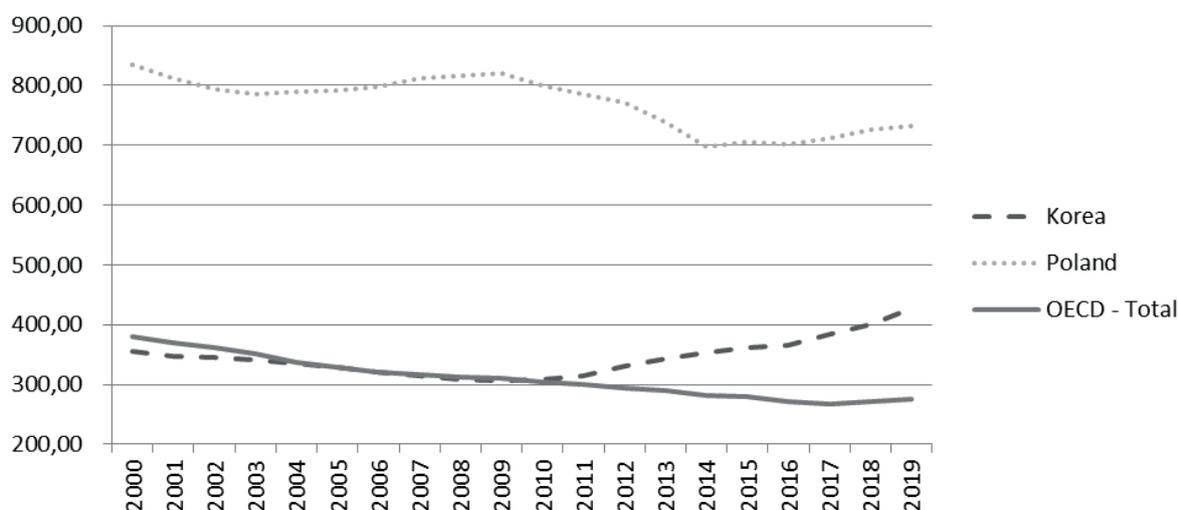


Fig. 6. Mortality from exposure to ambient PM2.5 [per 1 000 000 inhabitants]

Source: own work based on (OECD, n.d. (b)).

In Poland the mortality due to this is much higher than in South Korea and significantly exceeds the average for OECD countries, whilst in South Korea mortality was below average in the early 2000s, but since 2010 there has been an upward trend. Therefore, firstly the postulated area for exchange of experience should be the implementation of the stimulus function implementation in both countries.

5. Determinants of Sharing Experiences in the Environmental Area

Poland and South Korea concluded the first diplomatic agreement in November 1989 (Fryśka-Son, 2019, p. 21). Less than a quarter of a century later, in October 2013, the countries established a strategic partnership (Pietrewicz, 2020, p. 47). The most important economic activities in recent years include:

- defence cooperation – in 2014, 2018, 2022,
- establishing cooperation between the Polish Investment and Trade Agency and the South Korean Investment Agency (KOTRA) – 2017,
- signing an agreement on the Central Communication Port – 2021,
- signing the Agreement on energy cooperation and establishing the Energy Cooperation Committee – 2022 (CPK, 2021; Ministerstwo Finansów, 2022a; PAIH, 2017; Pietrewicz, 2019; Wojsko Polskie, 2022).

A disproportion in investment relations can be noticed, as the number of Polish investors in South Korea is significantly smaller (Jeziorek, 2021, p. 152), yet it was ranked first among Asian investors in Poland both in 2019 and 2020 (Ministerstwo Finansów, 2022b). Nevertheless, experts emphasise that the cooperation of both countries may be particularly beneficial for Poland in the experience in the innovation policy area (Mackiewicz, 2021, p. 269). Kim (2015, p. 167) also pointed to historical, geographical, and geostrategic analogies that may prove to be the bonds of cooperation. The indicated actions confirm that collaboration between the countries is possible and potentially brings many benefits. Thus, it can be assumed that they should exchange good practices in the field of environmental taxes, e.g. the Knowledge Sharing Programme could be a good start.

In both countries the understanding and importance of environmental protection are similar: Poland and South Korea have regulations on environmental protection in their constitutions which emphasise that, apart from the public authority, citizens should also strive to preserve the natural environment in their activities (Konstytucja Rzeczypospolitej Polskiej, 1997, article 5, 74, 86; Constitution of the

Republic of Korea, 1987, article 35, 120). The Polish Constitution (Article 74) also indicates the long-term objective of environmental protection (for present and future generations). An analogous approach in Korean legislation is contained in the Framework Act On Environmental Policy (Article 2). The Polish solutions highlight the aspect of sustainable development (Konstytucja Rzeczypospolitej Polskiej, 1997, article 5), while the Korean stress the need to maintain “harmony and balance between human beings and the environment” (Framework Act..., article 2). A similar approach to the concept of environmental protection (despite their functioning in different geographical areas) and the constitutional regulation of this matter may be conducive to the fact that cooperation between Poland and South Korea will be so much simpler now that there is a common basis for action, and sharing experiences will be beneficial not only for both parties, but will be a point of reference for other countries that strive to improve efficiency in the environmental protection area.

The next step should establish whether the existing tax regulations in the two countries are similar. The analysis began with taxes related to means of transportation (Table 2). Interestingly, in both countries, the tax on means of transportation is a local tax; the subject of taxation is similar. However, only buses and trucks overlap in the subject of taxation. The approach to the tax rate is also different. In the case of Korean regulations, engine displacement is important. In contrast, in Polish regulations, the rates announced by municipalities are essential. The different concepts of tax imposition could be an area of cooperation to identify which system is more fiscally efficient and perceived by taxpayers to be fairer.

In addition to the means of transportation taxes, automobiles are taxed at a percentage rate in both countries (Table 3). Polish regulations provide preferential rates for hybrid cars and an exemption for those with an engine capacity of 2,000 cc or less (Ustawa z dnia 6 grudnia 2008..., article 163a). Nevertheless, the rate for higher-capacity hybrid cars of 9.3% is still higher than the standard Korean rate of 5%.

Table 2. Tax elements of taxes on means of transport

Tax (country)/ Tax elements	Automobile tax (South Korea)*	Vehicle tax (Poland)
1	2	3
Taxpayer	Person who possesses an automobile registered or reported in the jurisdiction of a local government	Person who is the owner of means of transport, organisational units without legal personality for which the means of transport is registered, holders of means of transport registered in the territory of the Republic of Poland as entrusted by a foreign natural or legal person to a Polish entity
Taxation Subject & Tax Rates	The amount of tax calculated by multiplying engine displacement by the amount of tax per cubic centimetre (cc) according to the table in the Local Tax Act. Automobiles 18 won ~ 24 won per cc for Business use vehicle 80 won ~ 200 won per cc for non-business use vehicle Buses 25,000 won ~ 100,000 won per cc for business use vehicle 65,000 won ~ 115,000 won per cc for non-business use vehicle Trucks 6,600 won ~ 45,000 won per cc for business use vehicle	The amount of tax set by the municipal council depends on, among other things, the specifics of the vehicle. However, the amounts cannot be higher than those published in the Announcement of the Minister of Finance The maximum rates in 2023 are: Trucks: 3897,01 zł Truck tractors and ballast tractors: 3897,01 zł Trailers and semi-trailers: 3048,71 zł Buses: 3048,71 zł

1	2	3
	28,500 won ~ 157,500 won per cc for non-business use vehicle Special Cars 13,500 won ~ 36,000 won per cc for business use vehicle 58,500 won ~ 157,500 won per cc for non-business use vehicle	

* Legal status as of 2021.

Source: own work based on (Local Tax Act, 2019, chapter X; Ministerstwo Finansów, 2023; Ministry of Economy and Finance, 2021, p. 58; Obwieszczenie Ministra Finansów..., 2022; Ustawa z dnia 12 stycznia 1991..., article 9-10).

Table 3. Similarities in tax elements of taxes levied on selected goods

Tax (country)/ Tax elements	Traffic, energy and environment tax (South Korea)*	Individual consumption tax (South Korea)*	Excise tax (Poland)**
1	2	3	4
Taxpayer	Person who produces gasoline and similar alternative oil, and diesel oil & similar alternative oil or person who imports gasoline and similar alternative oil, diesel oil and similar alternative oil	Person who manufactures or imports taxable goods (e.g. (...) oil products)	As a rule, person and an organizational unit without legal personality that performs activities subject to excise duty or in respect of which a factual situation subject to excise duty has occurred
Taxation Subject & Tax Rates	Flexible rates are specified in the Presidential Decree – for gasoline (and substitute fuels): 529 won/l – diesel oil (and substitute fuels): 375 won/l	<ul style="list-style-type: none"> – Kerosene: 90 won/l (63 won/l effective from July 1, 2014) – Heavy fuel oil: 17 won/l – Propane gas: 20 won/kg (propane gas for domestic and commercial use, 14 won/kg effective from July 1, 2014) – Butane gas: 252 won/kg (flexible rates of 275 won/kg) – Natural gas (including a liquefied form): 12 won/kg, provided that for a natural gas other than that for power generation purposes, 60 won/kg is applied (flexible rates of 42 won/kg), (for integrated energy suppliers, new and renewable energy suppliers, persons setting up electric installations for private use, 8.4 won/kg) – Bituminous coal for the purpose of generating electric power (effective from Feb. 2018): 49 won/kg applicable to net calorific value of 5,500 kcal/kg or more 46 won/kg applicable to net calorific value of not less than 5,000 kcal/kg and less than 5,500 kcal/kg, 43 won/kg applicable to net calorific value of less than 5,000 kcal/kg (With regard to gasoline and diesel oil, not Individual Consumption Tax) 	<ul style="list-style-type: none"> – Coal and coke: 1.38 zł/GJ – Motor gasolines: 1529 zł/1000 l – Aviation gasolines: 1822 zł/1000 l – Jet gasoline-type fuels: 1822 zł/1000 l – Kerosene: 1822 zł/ 1000 l – Jet fuels: 1446 zł/1000 l – Diesel fuels: 1160 zł/1000 l – Biocomponents constituting self-contained fuels: 1160 zł/1,000 l – Diesel oils intended for heating purposes: 232 zł/1000l – Light heating oils: 232 zł/1000 l – Heavy heating oils: 69 zł/1000 kg – Lubricating oils and lubricating preparations: 1180 zł/1000 l – Gaseous fuels for internal combustion engines – liquefied: 696 zł/1000 kg – Gaseous fuels intended for propulsion of internal combustion engines – in gaseous state: 10.32 zł/GJ – Other gaseous fuels intended for propulsion of internal combustion engines: 14.00 zł/GJ – other engine fuels: 1786 zł/1000 l – Gaseous fuels intended for heating purposes: 1.38 zł/GJ

1	2	3	4
		but Traffic, Energy and Environment Tax will be levied until the end of 2021) – Automobiles with engine displacement in excess of 2,000 cc and cars for camping: 5% – Automobiles with engine displacement of 2,000 cc or less (excluding those with engine displacement of 1,000 cc or less), and two-wheeled motorcycles with engine displacement in excess of 125 cc: 5%	– Other heating fuels with a density < 890 kg/m ³ : 232 zł/1000 l – Other heating fuels with a density ≥ 890 kg/m ³ : 69 zł/1000 kg – Passenger cars with engine capacity > 2000 cm ³ : 18.60% – Plug-in hybrid passenger cars with engine capacity > 2000 ≤ 3500 cm ³ : 9.30% – Hybrid passenger cars with engine capacity > 2000 ≤ 3500 cm ³ : 9.30% – Hybrid passenger cars with engine capacity ≤ 2000 cm ³ : 1.55% – Other passenger cars: 3.10%

*Legal status as of 2021; ** excise tax rates (as of 1 January 2023).

Source: own work based on (Enforcement Decree..., 2021, article 3-2; Individual Consumption Tax Act, 2016, article 3; Ministerstwo Finansów, 2022c; Ministry of Economy and Finance, 2021, pp. 38-40,45; Ustawa z dnia 6 grudnia 2008... , article 13).

In South Korea, most fuels and gases are subject to individual consumption tax. In contrast, regulations for gasoline and diesel oil (and their substitute fuels) are found in the Traffic, Energy and Environment Tax. These are juxtaposed with the corresponding regulations found in the Polish Excise Tax Law. The understanding of the subject of taxation is similar to each other, the excise tax rates are also expressed in a similar way – the amount per unit of the product. At the same time, in South Korea, won per kilogram or litre is used, whilst in Poland rates are given in zlotys per 1,000 litres, 1,000 kilograms or GJ. An area for exchange of experience could be a review of the selected catalogue of taxable goods that are fiscally efficient and which of them, in light of environmental protection, are the most harmful. This is a particularly desirable direction, given this air-related problem for both countries.

6. Conclusion

Cooperation between the Polish and South Korean governments has been developing for years and covers new areas. Therefore, it was analysed whether there are grounds for a new direction of joint activities: sharing experiences in environmental taxes. It was shown that the legal acts constituting environmental taxes contain similar elements, which may indicate that both countries share similar assumptions at the level of general intentions. What is more, the assessment of environmental taxes, the analysis criterion of which were the functions of environmental taxes, made it possible to identify a potential area of experience exchange – taxes related to air pollution. On the one hand, they constituted the most important group of environmental taxes according to the OECD classification, and on the other, both countries face problems in tackling pollution and achieving clean air goals.

The author also examined whether countries have similar regulations on environmental taxes. This allowed a comparison of the Polish Vehicle Tax with the Korean Automobile Tax, as well as elements of the Polish Excise Tax Act with corresponding regulations from Korea's Traffic, Energy and Environment Tax, and individual consumption tax. Different approaches as to the catalogue of taxed items or the selection of rates may prove beneficial to verify the system used so far and to select the most favorable variant, which could contribute to counteracting the negative effects of human activity on the environment and would be also the most desirable from the point of view of realising the fiscal function.

In the future, further research is proposed based on data after 2020 by checking whether the pandemic period impacted, for example, on pollution reduction and thus decreased public revenues from

environmental taxes. Further analyses could also provide information on implementing the stimulus function for other environmental taxes.

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Podatki środowiskowe w Polsce i Korei Południowej – wymiana doświadczeń

Streszczenie: Cele artykułu stanowią identyfikacja, ocena podatków środowiskowych Polski i Korei Południowej oraz wskazanie potencjalnego obszaru współpracy – wymiany doświadczeń w zakresie podatków środowiskowych. Analizą objęto dane z okresu 2000-2020. W niektórych fragmentach, ze względu na dostępność danych, analizę zakończono na 2014 lub 2019 r. Jako metody badawcze wykorzystano krytyczną analizę literatury krajowej i zagranicznej, analizę aktów prawnych polskich i koreańskich stanowiących podatki środowiskowe w ujęciu porównawczym, analizę danych OECD z wykorzystaniem prostych metod statystycznych oraz elementów analizy porównawczej. W Polsce zidentyfikowano cztery podatki środowiskowe: akcyzę na rodzaje produktów, które zostały uznane za szkodliwe dla środowiska, podatek od środków transportowych, podatek leśny i podatek rolny. W Korei Południowej do tej grupy zaliczono trzy podatki: od konsumpcji indywidualnej, samochodowy i od transportu, energii, środowiska. Pozytywnie oceniono podatki środowiskowe w Polsce i Korei Południowej, za kryterium przyjmując funkcje fiskalną oraz informacyjną. Wykazano, że wymiana doświadczeń byłaby pożądana, w szczególności w obszarze poprawy realizacji funkcji bodźcowej podatków obciążających zanieczyszczenie powietrza.

Słowa kluczowe: podatki środowiskowe, współpraca polsko-koreańska, zrównoważone finanse
