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THE EFFECT OF FOREIGN ENVIRONMENTAL INITIATIVES ON THE EXPORT PERFORMANCE OF RUSSIAN REGIONS

Abstract:

Today countries are even in charge of CO₂ emitted during the export production process. Global environmental initiative is a challenge for exporters and Russian exporters are not an exception. The effect of foreign environmental policies on export volumes of Russian regions is analyzed with the Gravity model of international trade.

Keywords:

Environmental Initiative; Environmental Policy; Export Volumes; Russia.

Based on Figure 1, Russia is the fourth largest economy in the world in terms of annual CO₂ emissions from fuel combustion and production. In terms of environmental damage, the country is overtaken by China, the United States and India. In the period of 1990-2020 annual CO₂ volumes were 1.6 - 1.7 billion tons. The first jump in volumes was observed after 1931 when the figure exceeded 0.1 billion tons. In 1963, CO₂ emissions reached the level of 1.0 billion tons, and in 1978 2.0 billion tons. So, in the period of 1978-1990 volumes peaked [1].

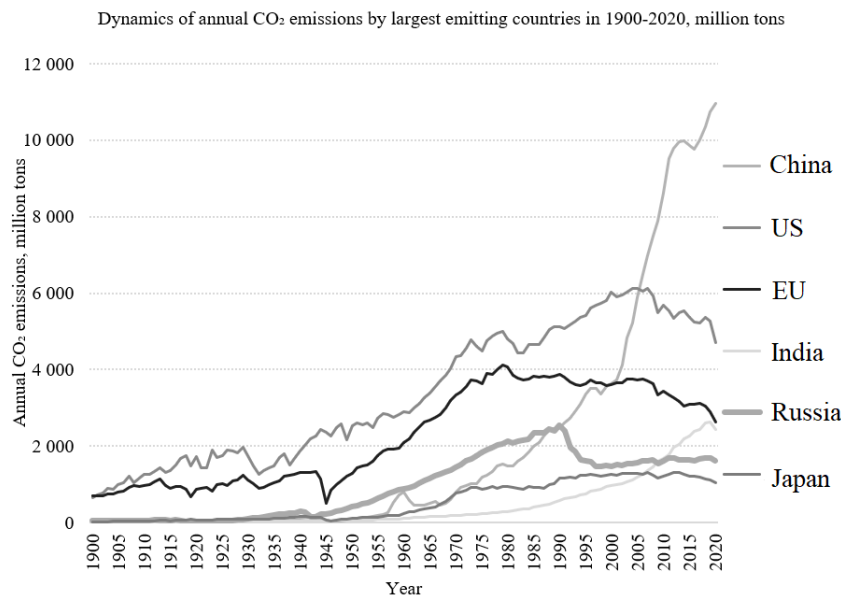


Figure 1 – Dynamics of annual CO₂ emissions by largest emitting countries in 1900-2020, million tons [1].

What is more important – Russia is the largest exporter of CO₂ emissions (Figure 2). During the period of 1995-2020 around 20% of annual emissions produced within the Russian Federation were exported [2]. Our country is a net-exporter of CO₂ emissions: annual CO₂ emissions embodied in exports are 5 times higher than CO₂ emissions included in imports. The carbon intensity of Russian export is devoted to the commodity structure of country's international trade and extreme technological backwardness [3].

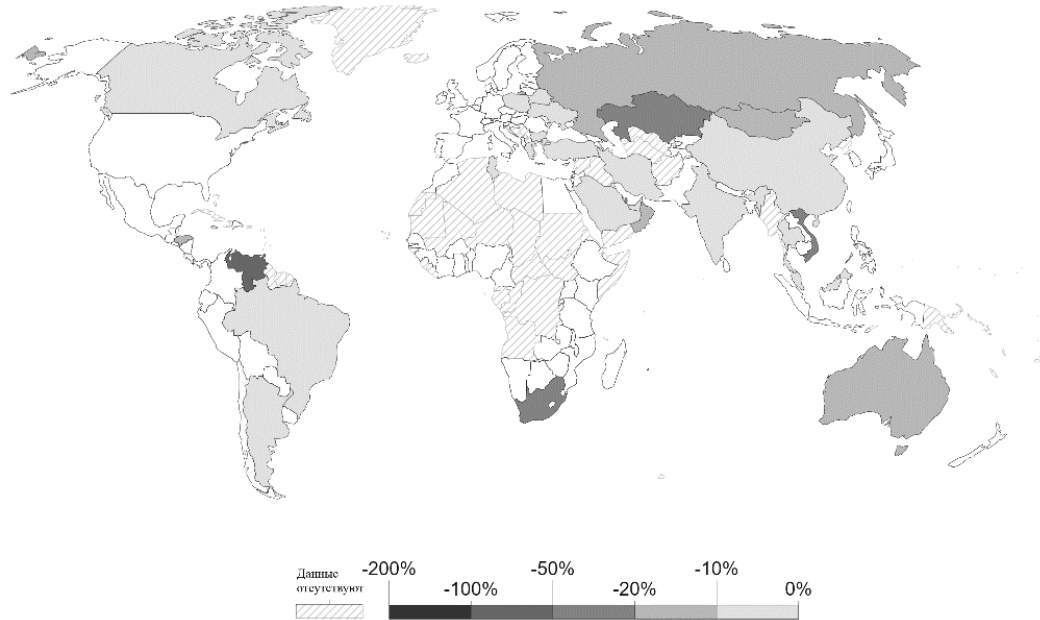


Figure 2 – Share of annual export-related CO₂ emissions in the country's total annual CO₂ emissions in 2020, % [2].

From Figure 3, Russia exports its CO₂ emissions to the most developed countries of the world: G-20, OECD, EU countries are dominant in the structure of CO₂ export. These countries are characterized by the strict environmental regulation [4].

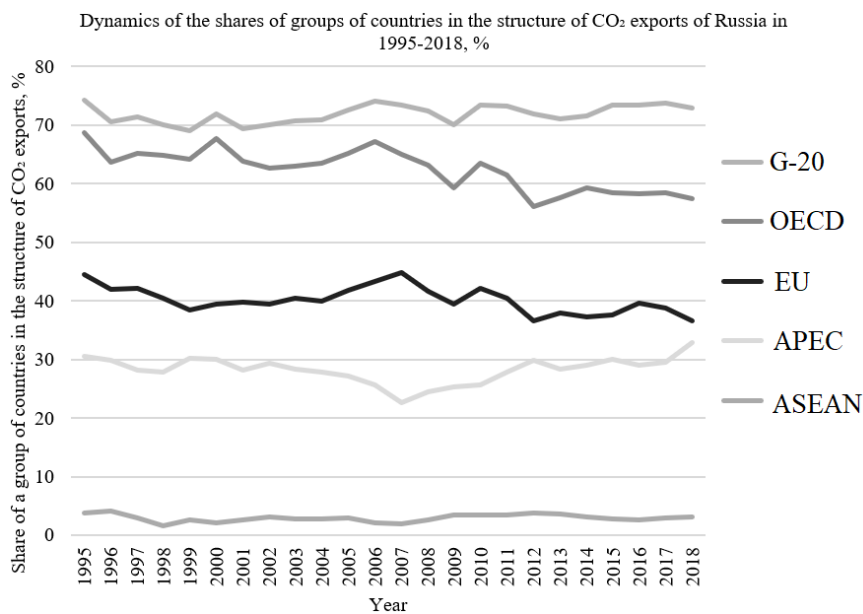


Figure 3 – Dynamics of the shares of groups of countries in the structure of CO₂ exports of Russia in 1995-2018, % [4].

The commodity and geographical structure of Russian trade can be a serious problem. At the present stage of development of the international environmental agenda, all countries of the world can be divided into two conflicting groups: economies that are more actively involved in solving environmental problems, and countries that take only a small share of responsibility for the quality of the environment. The main objections of the "active" group against the representatives of the "passive" group, especially those specializing in the production and export of environmentally unsafe products, are as follows: from the point of view of the North-South model, the introduction of environmental regulation by one side is not enough to prevent an environmental catastrophe; only environmental policy dictated by the prosperity growth is unlikely to lead to a reduction in pollution, additional measures are needed, for example, in the form of trade restrictions (Figure 4); obtaining a competitive advantage in the international market due to lax environmental standards or their complete absence are considered unfair [5,6,7,8].

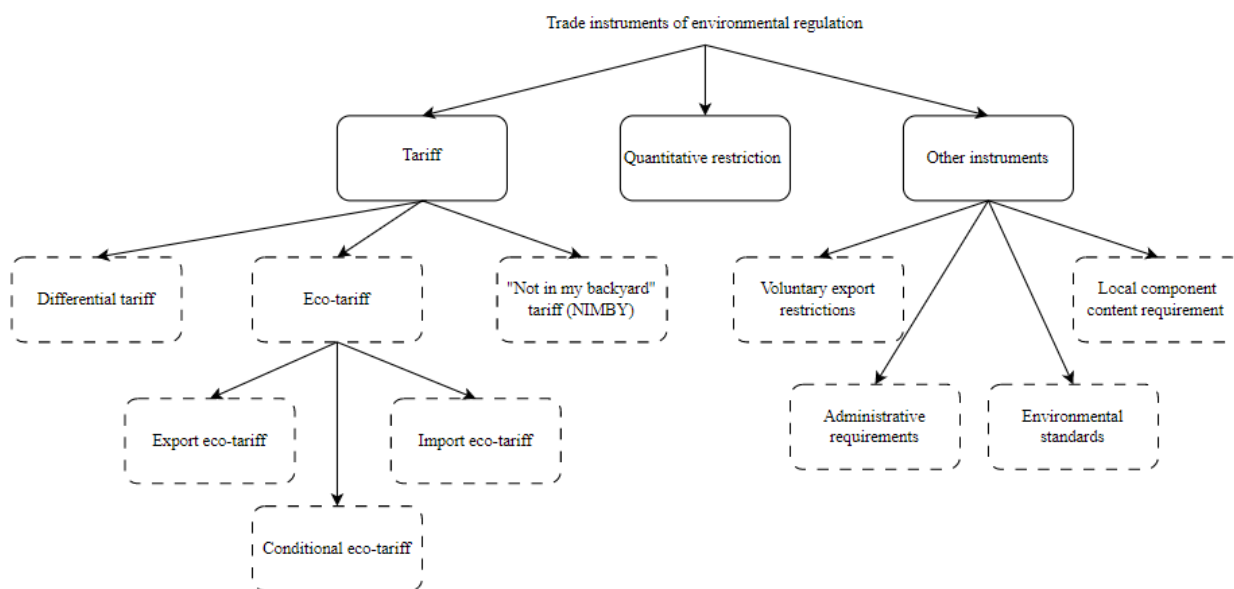


Figure 4 – Trade instruments of environmental regulations [5,6,7].

To this extent, we analyze how environmental policies of trading partners affect the export performance of Russian regions. For this purpose, we apply the Gravity model of international trade and construct the gravity equation with traditional gravity variables (GDP, population, distance, tariffs, common boarder, membership in economic union) and two specific environmental variables to reflect the stringency of environmental policies of foreign trading partners. We access the gravity equation with the help of FE PPML technique as it enables us to address heteroskedasticity and zero observations problems [9,10].

The results of the estimations are presented in the Table 1. Traditional gravity variables are significant and environmental variables are significant too. Thus, we can make a conclusion that environmental agenda acts as a trade determinant for Russia. We observe the diverse effect of environmental initiatives of trading partners on the volumes of export of Russian regions. The positive effect is observed only in the case of those Russian regions specializing in the export of environmentally sensitive goods, for the rest of the regions the effects is insignificant or negative.

Overall conclusion: environmental regulation measures of trading partner countries can have a promoting effect, but not for all Russian regions. The source of this effect may be the higher innovative potential of these regions or the role of the global energy transition, which implies the active use of mineral products, which in turn, stimulates the export of countries specializing in the production of "dirty" products.

Table 1

Results of the FE PPML estimations of the gravity equation

Variables	General sample (all Russian regions)	Sample where regions have share of environmentally sensitive goods in the export structure of a region higher than 70%	Sample where regions have share of environmentally sensitive goods in the export structure of a region lower than 40%
GRPit	1.348*** (0.036)	1.023*** (0.055)	0.879*** (0.079)
GDPji	0.736*** (0.021)	0.752*** (0.026)	0.705*** (0.036)
POPit	0.200** (0.101)	0.138 (0.148)	0.069 (0.109)
POPjt	0.013 (0.040)	0.005 (0.049)	0.122 (0.076)
LANDi	-0.006 (0.016)	-0.042** (0.020)	0.623*** (0.057)
LANDj	0.045 (0.037)	0.025 (0.047)	0.032 (0.069)
DIST	-1.225*** (0.050)	-1.205*** (0.064)	-1.761*** (0.087)
BRD	0.651*** (0.095)	0.233* (0.129)	0.532*** (0.147)
EEU	0.464** (0.193)	0.466** (0.270)	0.675** (0.287)
CIS	0.668*** (0.189)	0.623** (0.265)	1.034*** (0.143)
INNit	0.033 (0.028)	0.088** (0.038)	0.130** (0.055)
ENV_Tjt	-0.413*** (0.070)	0.521*** (0.094)	-0.045 (0.081)
ENV_Ijt	-0.346*** (0.084)	0.294** (0.104)	-0.816*** (0.142)
Const	-13.46*** (0.714)	-9.87*** (0.986)	-7.25*** (1.119)

In order to mitigate the negative effect, an international and federal initiative in the form of a carbon tax or a cap-and-trade system are needed. Also, it is very important to pay due attention to the level of regional development and the level of innovativeness of regions. Finally, regional initiative should also be accompanied by a company-level initiative: companies should have their own environmental strategies and goals.

The second set of recommendations may be aimed at strengthening the positive effect of environmental regulation measures on the export volumes of Russian regions. During the econometric analysis, it was revealed that one of the sources of a positive effect could be the important role of Russia in the process of global energy transition as a supplier of mineral products used in the production of green technologies and green energy. That is why some of the recommendations may be aimed at the functioning of the metallurgical sector of Russia and exporting companies of metallurgical products in the context of environmental regulation. Due to the specifics of production, metallurgical companies are most actively involved in environmental policy and are forced to spend a large amount of resources, which affects their economic efficiency. That is why the state needs to: support the introduction of energy efficient technologies through subsidies and cover part of the costs;

reduce the fiscal burden; stimulate domestic demand through various projects; promote the development of economic relations with new regions.

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ВЛИЯНИЕ ЗАРУБЕЖНЫХ ЭКОЛОГИЧЕСКИХ ИНИЦИАТИВ НА ЭКСПОРТНЫЕ РЕЗУЛЬТАТЫ РЕГИОНОВ РОССИИ

Аннотация:

Сегодня страны даже несут ответственность за выбросы CO₂ в процессе экспортного производства. Глобальная экологическая инициатива — это вызов для экспортеров, и российские экспортеры — не исключение. Влияние внешней экологической политики на объемы экспорта российских регионов подробно изучается с помощью гравитационной модели международной торговли.

Ключевые слова:

Экологическая инициатива; Экологическая политика; Объемы экспорта; Россия.