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ECONOMIC POLICY

Import Dependence and Import Substitution in Russia: Assessment Based on Resource and Use Tables

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Abstract—The article discusses issues related to the assessment of import dependence and the results of the import substitution policy in the period 2016–2020. An overview of options for assessing import dependence indicators is provided, and the possibility of using resource and use tables published by Rosstat is substantiated. The main analysis tool is calculated tables of import dependence indicators. In addition, econometric modeling is used to test the significance of individual factors. It has been established that for the vast majority of industries and products in the period 2016–2020, there was no monotonic reduction in import dependence. For approximately half of the types of products, markets and industries under consideration, fluctuations in the share of imports in 2016–2020 were insignificant or not sufficiently stable. At the same time, there is evidence of significant and significant import substitution in certain segments, including those reflecting the efforts of the state. Taking into account the current state of the Russian economy and external conditions of socio-economic development, the currently declared emphasis on ensuring technological sovereignty can be considered justified, but the practical implementation of the import substitution policy in comparison with the period 2016–2020 should be more effective, both in terms of volume and effectiveness of the tools used.

Keywords: import dependence, import substitution, manufacturing industry, industrial policy

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Introduction. Import substitution has become the subject of particularly close attention of the state and researchers since 2014 after the introduction of the first sanctions against the Russian Federation. As a result, the government of the country adopted a policy of replacing imports with domestic goods, primarily in the areas of food and medicine.[1] For the manufacturing industry in 2015, as part of the declared policy, a general import substitution plan was first adopted,[2] and then a set of industry plans, the total number of which reached twenty by 2016.[3]

Import dependence and import substitution are not the same thing. Import dependence is a characteristic of an object that reflects the use of imports in the relevant area (in the market, in production activities, in consumption). Hereinafter, we mean import dependence on imports in general, and not dependence or interdependence between countries in the course of world trade (such dependences, in particular, are discussed in [1]). Import substitution is a process associated with reducing import dependence by replacing imports with domestic goods. Therefore, the same indicators are often used for these concepts, but in one case we are talking about the share of imported goods, and in the second, about reducing this share by a certain amount or to certain values.

Options for assessing indicators. Possibilities of input–output balance tables from the perspective of analyzing import dependence and import substitution. Official goal setting in the form of indicators for sectoral import substitution plans was initially not entirely clear. The need to reduce the share of imports in the domestic market was stated without specifying what indicators and parameters the domestic market should be defined in relation to: production or consumption. Researchers have proposed alternative options: the ratio of imports and exports [2], the dynamics of the share of imports of certain types of products in the total volume [3, 4], the ratio of imports of investment goods and the volume of investments in cars [5], the increase in the share of the Russian market and the level of replacement of growing demand with Russian goods with active import substitution [6, 7]. Later, the official calculation methodology was generally systematized: as a rule, it was about the ratio of imports and output of domestic products. This made it possible to measure import dependence down to specific

[1] Message from the President of the Russian Federation V.V. Putin to the Federal Assembly of the Russian Federation December 4, 2014.

[2] Order of the Government of the Russian Federation of September 30, 2014 No. 1936-r.

[3] http://government.ru/info/22804/.

commodity items that coincide for OKPD2 and the Commodity Nomenclature of Foreign Economic Activity (see, for example, [8]). In some cases, when it was possible to track consumption, it was said about the share of imported products consumed [9] or the share of imports in the cost of created products. At the same time, if, due to signed agreements, the state had access to detailed information about the structure of added value, then we could talk about the ratio of the volume of added value and its total volume (the level of localization, the experience of assessing which has been available since the 2000s [10]). Thus, both approaches—"self-sufficiency" and "localization" [11]—have found their application. The issues of import dependence of the Russian economy, the need and prospects for import substitution have been considered by researchers from all possible points of view. The detailed nature of production and foreign trade statistics made it possible to assess dependence on imports, both for final products and for production components. The corresponding indicators were used, in particular, by the Institute of Economic Forecasting of the Russian Academy of Sciences [12], with a gradual expansion of the tools to a set of indicators that make it possible to consider import substitution from the perspective of price and technological competitiveness, as, for example, in [13].

The potential for using the input–output balance and input–output tables to analyze import dependence was noted almost immediately. In [14], a system of possible indicators of an economy's import dependence was described: summary direct characteristics, industry indicators and an assessment of the share of total import costs in the cost of final products. Subsequently, the logic of these assessments was expanded in [11], which proposed a detailed description of indicators called "self-sufficiency coefficients" (the share of domestic or imported products in the domestic market). The same study noted a drawback in correlating imports with commodity resources, such as "double counting" in production chains with a single count of imports at the customs border, which understates import dependence. The author of the work finds a way out in analysis at the macro level (the ratio of imports to GDP), followed by the decomposition of the shares of imports in the elements of final use of GDP and the assessment of "import intensity" by industry markets. Previously, a similar approach, analysis of the dynamics of import dependence based on the ratio of the index of the physical volume of imported goods and the index of the physical volume of GDP, was used in [15]. Practitioners of import substitution also came to similar conclusions about the mechanisms for assessing import dependence: in the Consolidated Strategy for the Development of the Manufacturing Industry, developed in 2020,[4] the indicator "Ratio of product imports and gross added value of manufacturing industries, percent" appeared.

The analytical report of the National Research University Higher School of Economics [16] outlines three options for approaching the assessment of import substitution: based on traditional foreign trade statistics, microdata (supply chains in the production of specific goods), and macrodata from input–output tables. The latter option, based on value-added trade data, is largely described in the report in terms of benefits; its disadvantages include only a large data lag and methodological difficulties (including determining the boundary between production resources and final goods). The report uses the contribution of imports to final consumption, calculated on the basis of the OECD TiVA database, as an assessment of the import dependence of individual industries.

We previously [17] also proposed an assessment of technological import dependence based on input–output tables using an indicator of the share of imports in intermediate consumption, including for individual countries, based on the balances of the WIOD (World Input–Output Database) database. Using the same database, calculations were carried out in [18] for two scenario options for import substitution (replacement of imports from the EU with Chinese ones and substitution from domestic sources). The WIOD project is currently closed after an update in 2016,[5] which does not allow using its data to analyze import dependence in recent years. At the same time, estimates of the share of imports in intermediate consumption have become widespread, for example, in [19] data from the Institute of Research and Expertise of the VEB of the Russian Federation for manufacturing industries as of 2022 are provided.

Rosstat publishes input–output tables at 5-year intervals. The most current version of the base tables for the Russian economy is 2016; tables for 2021 have not yet been published.

Determination of import dependence indicators can be performed using data from tables of resources and use published by Rosstat annually as part of the materials of the system of national accounts. In January 2023, tables for 2020 were posted on the official website of Rosstat.[6] Placing tables of resources and use of data for earlier periods in the same place allows you to track changes by year, at least in the range of 2016–2020. Comparison with earlier years is limited by a certain discrepancy between the classifiers OKVED and OKVED2, OKPD and OKPD2, due to which the resource and use tables before 2015 have a slightly different structure that does not allow direct comparisons, at least in some rows and columns.

[4] Approved By Order of the Government of the Russian Federation dated 06.06.2020 No. 1512-r.

[5] Project details currently available: https://www.rug.nl/ggdc/valuechain/wiod/.

[6] https://rosstat.gov.ru/statistics/accounts.

The resource tables contain the "import" column (code P7), the sum of output in basic prices (code P1) and imports is the volume of resources in basic prices, broken down by type of product (in the structure of OKPD2). Use tables of domestic products in basic prices include the line "Imported products (also code P7), reflecting the use of imports in columns broken down by type of activity (in the OKVED2 structure), as well as for the purposes of final consumption (code P3), accumulation (code P5) and export (code P6). The published tables also include a table for the use of imported products, which is a decomposition of the "import" line of the table for the use of domestic products into a table (matrix) by type of OKPD2 product. The amount of imports according to the row of the table of use of domestic products in basic prices (total use) and the amount of imports according to the column of the resource table differ by the amount of the cif/fob adjustment (code P7a in the resource table), i.e., differences in prices "cost, insurance, freight" and "free on board."

Resource tables allow you to compare the volume of imports and the volume of resources in the domestic market. Use tables make it possible to assess the role of imports in production (technological import dependence), final consumption (direct consumption of imported goods) and accumulation.

The disadvantage of determining import dependence and analyzing import substitution based on the resource table is the lack of accounting for exports. In the domestic market, domestic goods are available to consumers only in the amount that represents the difference between output and export supplies. Comparison of the total volume of resources and imports (as in [20]) leads to an underestimation of import dependence. This comparison is based on the assumption that export products can always be directed to domestic consumption. For simple, standardized products this is true. For complex products, the very existence of counter flows of exports and imports within one category of goods indicates specific qualities and characteristics that do not allow the replacement of imports with domestic analogs (despite the fact that the latter are quite in demand in foreign markets). Therefore, instead of an indicator of import dependence of the "industry" market, the form:

$$Im/(Im + X), \quad (1)$$

where Im is imports at basic prices; X is the output of domestic products at basic prices, you can go to the indicator:

$$Im/(Im + X - Ex), \quad (2)$$

where Ex is the volume of exports of the relevant products.

In this case (with the caveat of using the import and output indicators at basic prices from the supply table, and the export indicator from the table of the use of domestic products at basic prices), we obtain a higher estimate of import dependence.

Differences in indicators in traditional form (share in resources) and minus exports are in themselves of interest for research, so cases of differing dynamics of these indices are highlighted below.

Use tables of domestic goods allow us to analyze the import dependence of activities on the intermediate consumption of imported goods, as well as assess the role of imports in final consumption (household expenditures, government and nonprofit organizations) and accumulation (gross fixed capital formation and changes in working capital). Here we are talking about import dependence not by product categories, but by type of activity (industries). The import line (P7) can be correlated with the "Total intermediate consumption/final use" line. In this case we return to the relation:

$$Im/(Im + Y), \quad (3)$$

where Im is consumed imports at basic prices; Y is the consumption of domestic products at basic prices.

The table for the use of imported products (decomposition of row P7 into a matrix by rows-types of products) allows us to consider the use of imports in intermediate consumption, final consumption and accumulation. In this case, it is possible to consider a relationship similar to (3), but using for Im values from the table of use of imported products, and Y from the table of use of domestic products. In the resulting table, the cell values will illustrate the import dependence of intermediate consumption of each type of activity, as well as final consumption and accumulation for specific types of goods and services.

Methodology of analysis. The time period for analysis is limited to available resource and use tables for 2012–2020. Taking into account the change in classification since 2016, the object of analysis will be data for 2016–2020 in the context of OKVED2 and OKPD2. The detailing of products and industries corresponds to that used in Rosstat tables. In this case, the 61st line of the resource table does not use the following codes: G 47 (retail trade services, except motor transport), O 84 (government services), Q 87–88 (care services with accommodation and social services), S 94 (services of public organizations), S 96 (other personal services) and T (goods and services for household own consumption). There are no imports in these lines. Thus, 55 types of products are considered, mainly at the level of classes (two signs) of OKPD2. The use table does not consider column T (household activity as employers; undifferentiated private household production activity for own consumption).

The set of values for the import dependence indicator is a balanced data panel (grouped by product type and time period), in which individual zero values are

Table 1. General characteristics of import dependence, %

Index	2016	2017	2018	2019	2020
Resources					
Imports relative to the sum of imports and output excluding exports	11.9	11.8	12.3	12.1	11.5
Imports relative to the sum of imports and output	10.3	10.3	10.4	10.4	10.0
Usage					
Imports in intermediate consumption	11.0	10.7	11.1	11.2	11.8
Imports in final consumption	9.6	9.7	10.3	10.1	7.7
Import in accumulation	18.2	18.6	18.6	17.3	17.6
Total import in use	10.0	9.9	10.0	10.0	9.7

true (there were no imports in the corresponding time period for the corresponding category).

During the analysis, the following assumptions (hypotheses) were considered.

1. Over the time interval under consideration, import dependence, especially for industrial goods, should not increase. Import substitution ideally involves a monotonic reduction in import dependence. The reasons for the reduction (changes in supply, fluctuations in demand) are not important.

2. In industries and segments for which the import substitution policy was declared, the reduction in import dependence should be greater than in the economy as a whole and in industries for which import substitution was not announced as a priority. The implementation of public policy assumes the achievement of a nonzero effect.

3. The presence of government support measures should be a significant factor in import substitution.

The first assumption (and to some extent the second) is tested based on a simple construction of a table of indicators of import dependence, analysis of changes by year, and identification of types of products where the greatest growth or decline was recorded.

To test the second and third assumptions, a combination of descriptive analysis and econometric modeling is used based on the possible determinants of import dependence, with the caveats and assumptions outlined below in the description of the model.

Reduced import dependence, monotony of changes. During the period 2016–2020, for the absolute majority of industries and products, there was no monotonic reduction in import dependence (Table 1).

The role of imports in economic resources in 2016–2019 was almost unchanged, decreasing only in 2020, apparently due to the COVID-2019 pandemic. Only for three types of products was import substitution monotonic: E 36—water supply, where imports are almost statistically insignificant, H 51—air and space transport services, and M 71—services in the field of architecture and engineering design, technical testing, research and analysis. In the latter case, monotonicity is found only after deducting the export of relevant services, i.e., export orientation played an important role in providing services to the domestic market.

In terms of use (imports in general), the share of imports in the economy has also remained almost unchanged, although in 2020 (again due to COVID-2019), the role of imports in final consumption decreased slightly. The only sector of the economy where the use of imported goods and services has been declining over the years has been financial and insurance activities. The role of imports there decreased by half, from 12.4% in 2016 to 6.3% in 2020.

A detailed examination of changes in import dependence according to the tables of the use of domestic and imported goods indicates that in intermediate consumption a monotonic decrease in the share of imports occurred only in the part of imported services, where import dependence was already insignificant. Figure 1 shows the types of activities (OKVED codes) in columns, as well as total intermediate consumption (IC), final consumption (FC), gross fixed capital formation (GF) and changes in working capital (WC), and in rows—groups of goods. Segments with a monotonic decrease in import dependence are highlighted in dark color.

The monotonic decline in import dependence, measured by use, is observed mainly in the service sector and imported services, as well as in the final consumption of services, i.e., where the share of foreign products is initially small. In the production segment, primarily for industrial goods (segment C-C), import substitution did not occur.

In gross fixed capital formation, a monotonous reduction in import dependence was observed in only one segment—"Motor vehicles, trailers and semitrailers" (C29). It is this narrow segment that can be considered a success of the Russian import substitution policy. If we count monotony not from 2016, but from 2017, then mechanical engineering products are also added to it—"Machinery and equipment not included in other groups" (C28). The share of imported engi-

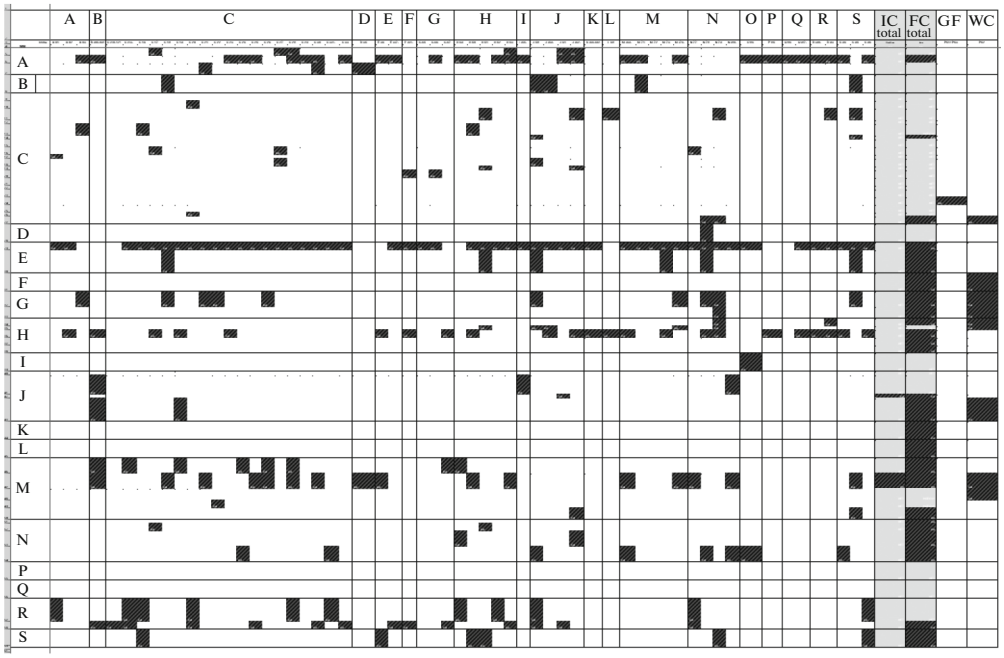

Fig. 1. Segments of use with a monotonic decrease in the share of imported goods and services.

neering equipment in gross fixed capital formation in 2017 was 97.7%, i.e., in the economy as a whole, almost all equipment used for investment was imported. By 2020, this figure dropped to 74% (Table 2), and if this ratio remains in the future, it should be considered the main practical achievement of the Russian import substitution policy in the manufacturing industry in 2016–2020.

The lack of monotonicity significantly limits the possibilities of a simple analysis of import substitution based on comparison of a certain pair of years. For example, the ratios of the dynamics of import dependence on resources for 2020 to 2016 and for 2019 to 2016 are the same only for 28 types of goods and services where import substitution took place, and 7 (for the assessment taking into account exports; without it accounting, for 8) industries where the role of imports has increased. In other words, for approximately half of the types of products under consideration and, accordingly, markets and industries, fluctuations in the share of imports in 2016–2020 were insignificant or not sufficiently stable.

Intensity of import substitution and priority sectors. In terms of the intensity of the reduction in the share of imports in 2020 or 2019 compared to 2016, the types of goods and services differ significantly, primarily due to the "starting conditions," the presence of import dependence as such. In this sense, it makes no sense to consider water supply, printing services, wholesale and retail trade in motor vehicles, real estate services, and educational services, where imports were about 1% or less, despite the formally record reduction values import. Other industries with a significant reduction in import dependence are presented below (Table 3).

Table 2. Import dependence in gross fixed capital formation and its reduction in mechanical engineering and automotive products

Characteristics, indicator		2016	2017	2018	2019	2020
Machinery and equipment not included in other groups						
Use in basic prices, billion rubles.	Domestic products	114.9	32.5	86.9	221.7	439.9
	Imported products	1172.9	1360.3	1281.5	1388.4	1235.2
Import dependence, %		91.1	97.7	93.6	86.2	73.7
Motor vehicles, trailers and semitrailers						
Use in basic prices, billion rubles.	Domestic products	468.2	634.3	762.5	912.9	751.8
	Imported products	264.2	344.9	393.0	350.8	239.2
Import dependence, %		36.1	35.2	34.0	27.8	24.1

Table 3. Products with the most intensive import substitution*, %

OKPD2	Product**	Import dependence (less exports)			Level change by 2016	
		2016	2019	2020	2019	2020
H 51	Air and space transport services	31.7	22.6	14.3	–28.6	–55.0
J 61	Telecommunication services	7.4	3.7	3.4	–50.4	–54.2
M 71	Services in the field of architecture and engineering design, testing, etc.	22.7	17.7	9.8	–21.9	–57.0

* Among industries with import dependence in 2016, more than 1.5%.
** Here and further in the table, 4 and 5 names are given in a conditional, abbreviated form.

All three types of products with a relative reduction in import dependence are remarkable in their own way. In the case of air and space transport services, the reasons seem to be political decisions in the field of space management and the exclusion of foreign players from the air transport market. The continued decline in imports in the field of telecommunications services is in good agreement with the government's actions on import substitution in the IT complex. But the reduction by almost half of the role of imports in the provision of services in the field of architecture and design indicates the development of the Russian sphere of technical engineering. Output (in actual basic prices) almost doubled in 2020, from RUB 1.3 trillion to RUB 2.3 trillion, with a reduction in imports from 313.8 to 233.7 billion rubles.

In terms of reducing import dependence in percentage terms, in addition to the services already mentioned above, several manufacturing industries also stand out, as well as IT, consulting and services in the field of security and building maintenance. In all these industries, the level of import dependence in 2016 was significant—more than 15% (Table 4).

Table 4. Areas of greatest reduction in import dependence

OKPD2	Product	Import dependence (less exports), %			Change in level by 2016, pp.	
		2016	2019	2020	2019	2020
From 21	Medicines and medical materials	61.1	61.6	52.6	0.47	–8.49
From 29	Motor transport	44.5	41.6	39.3	–2.95	–5.24
From 30	Other means of transport	39.6	29.8	34.0	–9.78	–5.58
H 51	Air and space transport services	31.7	22.6	14.3	–9.07	–17.44
J (62–63)	Software products and software development services. IT services	23.4	15.7	16.3	–7.67	–7.07
M (69–70)	Legal and accounting services, consulting	15.2	10.9	9.4	–4.31	–5.80
M 71	Services in the field of architecture and engineering design, testing, etc.	22.7	17.7	9.8	–4.98	–12.92
N (80–82)	Security services, building maintenance, etc.	21.2	17.1	11.6	–4.13	–9.68

Table 5. Areas of greatest reduction in import dependence in the agro-industrial complex

OKPD2	Product	Import dependence (less exports), %			Change in level by 2016, pp.	
		2016	2019	2020	2019	2020
A 01	Agriculture and hunting products and services	12.7	12.2	13.1	–0.47	0.39
A 02	Forestry products	1.4	1.0	0.8	–0.44	–0.67
A 03	Fish and fish products	8.3	14.2	12.9	5.87	4.50
C (10–12)	Food products, drinks, tobacco	14.0	14.1	14.7	0.11	0.69

Table 6. Signs and significance of variables in the import dependence model. Model consistency

Model Specification	EXCHANGE	VAI	INCOME	PRIORITY	Hausman test (*p*-value)
Main (IZEX)	−0.012	−0.054*	0.287*	0.243***	0.203
Basic (IZ)	−0.012	−0.044*	0.219*	0.217***	0.173
Logarithmic (IZEX)	0.107	−0.350	5.529*	2.498***	0.866
Logarithmic (IZ)	0.090	−0.340	5.466*	2.426***	0.910

*, ***—significance at the level of 10% and 1%, respectively.

Import substitution of pharmaceutical and medical products occurred simultaneously in 2020; this is the effect of the COVID-2019 pandemic and the fight against it. The reduction in import dependence in the automotive industry, on the contrary, occurred quite consistently as a result of government policy. As for the service sector, import substitution in the field of IT, consulting, as well as security and investigation services, maintenance of buildings and territories, administrative and business services, etc. occurred approximately equally. The volume of output of these services increased significantly with a reduction in imports. If for IT and engineering, as well as to some extent the security sector, one could talk about the results of state policy, then consulting services were not the object of government attention, i.e., the sources and reasons for import substitution here are not entirely clear.

Formally, the priority area from the point of view of import substitution—the agro-industrial complex—is not among the leaders of import substitution. The level of import dependence in the relevant industries in 2016 was already low, which is why the share of imports in agricultural, as well as fishery and food products in 2020 was even higher than in 2016 (Table 5).

Agricultural products and services turned out to be the area where exports significantly influence estimates of import dependence: when measuring only the ratio of imports to available resources (output plus imports), no increase in import dependence is observed in 2020 relative to 2016.

Government support and other factors determining import dependence and import substitution. As shown above, there was no sustainable, monotonic and intensive import substitution in the economy as a whole.

Forming a sufficient set of factors that would determine the dynamics of the use of imported products in the national economy turns out to be a nontrivial task. Due to the chosen structure of import dependence indicators, in addition to the actual growth of output and a reduction in imports or exports, they could be influenced by:

— The exchange rate of the national currency as determining the price competitiveness of national products.

— Growth of gross value added in the industry as one of the factors for increasing output.

— An increase in the share of gross value added in output (accelerating growth of gross value added) as a characteristic of productivity growth.

— Index of real disposable income of the population as a reflection of possible changes in demand (for example, if, with an increase in income, buyers begin to prefer imported products).

— Government policy that supports import substitution and is based on regulatory or financial measures.

Clear indicators on the volume of funds allocated for import substitution are not provided in Russian statistics and reporting materials of government authorities. Numerous mentions in the media about the volumes allocated for one or another of its areas differ in the nature of the figures (planned, actual, in general for a certain period, etc.). In addition, import substitution was supported not only by special industry measures and projects, but also by introducing conditions and restrictions into systemic support measures (lending for complex investment projects in industry, subsidizing R&D costs, etc.).

During econometric modeling, a model with random effects was taken as a working model, since the use of a model with fixed effects for analysis did not allow us to take into account constant characteristics, for example, the state policy of import substitution. To exclude heteroscedasticity, the model was considered with robust standard errors.

The model specification for panel data looks like:

$$IZEX_{i,t} = \alpha_i + \beta_1 EXCHANGE_t + \beta_2 VAI_{i,t} + \beta_3 INCOME_{i,t} + \beta_4 PRIORITY_i + \varepsilon_{it}, \quad (4)$$

where $IZEX$ is the level of import dependence taking into account exports; $EXCHANGE$ is the exchange rate; VAI, the value added index; $INCOME$, the real disposable income of the population; $PRIORITY$, a dummy product priority variable (1 for industries for which there were import substitution plans, or the need to reduce dependence was stated, 0 for other industries), α_i is an unobserved (random) effect, β_1, β_2, β_3, β_4, β_5 are estimated regression parameters, and ε_{it}, a random error.

Variable values $EXCHANGE$, VAI, $INCOME$ were brought to the level of 2016 (its values were taken as 1, the values of other years were correlated with it). The analyzed model contained 55 objects (types of

products) and five time periods. The analysis was performed using the Gretl software tool.

During the analysis, the following modifications were also made to the model:

— Replacement of the import dependence variable *IZEX* per variable *IZ*, i.e., on import dependence without taking into account exports.

— Addition of a dummy variable *COVID* to accommodate differences caused by the pandemic in 2020.

— Variable replacement *VAI* per variable *Vaddto Y*, i.e., gross value added on the ratio of the growth rate of GVA and the rate of increase in output.

— Modeling of import substitution only for goods (sections A–C).

— Replacement of the import dependence variable with variables *IZP*, *IZC*, *IZI*; a separate consideration of the import dependence of intermediate consumption, final consumption, and gross fixed capital formation.

Given the rather limited size of the panel, it was not possible to obtain consistent conclusions: even for variants with significant explanatory variables, the Hausman test for the consistency of estimates gave an unsatisfactory result. Therefore, the modeling results presented below should be considered only as an approximate illustration (Table 6).

For the selected set of factors, the stable positive significance of the dummy variable *PRIORITY* attracts attention. This can be interpreted as follows: the state has correctly identified industries whose high and (or) increasing dependence on imports is a problem, but for the economy as a whole this is not enough for successful import substitution. Signs for variables *VAI* and *INCOME* meet expectations: with the growth of the national economy, the need for imports decreases; as household incomes rise, demand for imports increases. Note that the absence of a connection between import dependence and the exchange rate may indicate technological reasons underlying the use of imported products, at least for intermediate consumption and gross capital formation. Here, the conclusions obtained echo those made back in 2015 in [20]: the weakening of the national currency does not entail the replacement of imports of investment goods with domestic products of investment demand; substitution of consumer imports was observed after 2014, but this process occurred slowly.

In models where the variable *VAI* was replaced by *Vaddto Y*, the results were generally similar. Using a variable *COVID* did not lead to improved model results.

When choosing import dependence on intermediate consumption as the explained variable, the situation did not change: the significance of the variable *PRIORITY*, was weak (at 10%) significance of the variable *INCOME*, and the Hausman test estimates were inconsistent. Separately, it was not possible to obtain satisfactory results for final consumption and gross capital formation, with the exception of the newly significant variable *PRIORITY*.

Assumptions about the effectiveness of the declared import substitution policy are therefore not justified. Let us again stipulate that this happens only at the level of resources and use for the economy as a whole.

Conclusions. Despite the deterioration of relations between the Russian Federation and Western countries in 2014, the emergence of sanctions and countersanctions, the Russian import substitution policy in 2014–2020 was largely ideological and declarative in nature. The dependence of the Russian economy on imports did not show a steady decline, although in certain (sometimes quite narrow) segments the reduction in the role of imports was indeed significant. At the same time, import substitution occurred more in the final consumption sector than in the production sector.

Quantitative assessments of import dependence and, accordingly, the success of import substitution may differ depending on the indicators used and assessment methods.

Using these supply and use tables allows us to see both the criticality of the situation with import dependence and the practical results of import substitution where it received really great attention from the state. Thus, a more than 90% level of import presence by type of goods "Machinery and equipment not included in other groups" in gross fixed capital formation meant the absolute, overwhelming predominance of imported means of production in ongoing investment projects. The fact that this value was reduced (possibly temporarily) to 74% is an absolute achievement. At the same time, quantitative import substitution of finished products, as the experience of the automotive industry shows, does not mean a reduction in import dependence as such: maintaining a technological relationship with foreign companies makes import substitution an unstable process.

The technological nature of the Russian economy's dependence on imports is also evidenced by the absence of a visible connection between the exchange rate and import dependence, especially in terms of industrial goods. A change in the dollar exchange rate is not significant for reducing imports, since the corresponding Russian products do not exist, and there is no way to produce them quickly enough.

Taking into account the serious change in the foreign policy and economic situation in 2022, the forced maintenance by Russian authorities of a favorable regime for "parallel imports", the continuation or, more precisely, the active implementation of the import substitution policy should indeed be built around the concept of "technological sovereignty." Here, as in the case of the choice of objects of import substitution policy in 2014, the areas and objects of effort are chosen correctly. At the same time, ensuring import substitution policy should be more effective,

both in terms of volume and effectiveness of the instruments used.

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CONFLICT OF INTEREST

The author of this work declares that he has no conflicts of interest.

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