

ЭКОНОМИКА ECONOMY



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Determinants of Export Sophistication for Kazakhstan: A Destination-Based Approach

Abstract. In this paper, we analyze the determinants of export sophistication for Kazakhstan based on variables of the countries that are destinations for exports of Kazakhstan. Based on common practice in related literature we have chosen parameters like distance, GDP, income per capita, population, GDP growth, urbanization, trade openness, free trade agreement, fuel exports and high technology exports as independent variables. The estimated coefficients for distance and percentage share of high technology exports appear to be negative whereas the relationship between export sophistication and trade openness is positive. The rest of the explanatory variables happen to be statistically insignificant at $\alpha=0.10$.

Keywords. Export Sophistication, Diversification, Determinants, Distance, High Technology Exports, Trade Openness.

Introduction. The issue of export diversification relative to Kazakhstan has gained importance in the academic literature and in the framework of economic policy of the country. Although the term of export “diversification” is commonly mentioned in related literature, in the context of Kazakhstan it often implies or stands for the term export “sophistication”. The degree of interrelatedness of the two notions emanates from the changes in the structure of exports, through which the country passed over the course of the last two decades. Kazakhstan’s model of economic growth was subject to the oil boom that the country experienced since early 2000s, which not only provided necessary conditions for high rates of economic growth, but also made the economy more prone to conditions on the primary commodity markets [1]. For instance, the share of crude oil and related products with low value added in the total exports grew from 20% in mid 1990s to over 70% by 2007. The share of all mineral products combined reached to around four fifths of the total exports. These structural changes also decreased the share of industries with more value added. The vicious effect of such changes was first seen during the crisis of 2008-09 when the export revenues of the country dropped together with the oil prices. Subsequent downturns of primary commodity prices after 2014 produced the same effect. Although the terms “diversification” and “sophistication” are often used in the same context, an important distinction should be made between them. Export diversification is can be understood as not specializing exports in a small range of export commodities and increasing the variety of exported goods [2]. Export sophistication means to produce more sophisticated export commodities with higher value added, more research intense and higher per unit market price. Due to the fact that an increase in export diversification often is accompanied with increase in export sophistication and vice versa, the two concepts are often studied together. Thus, there are series of studies that reveal the linkage between export diversification and per capita income in divers manners [3], [4], [5], [6], [7], [8], [9] indicate that the relationship between GDP growth and export sophistication is significant and positive. Studies of [10] showed that not only export are important for economic growth, but also the composition of exports. This finding supported the statement made much earlier by [11] who claimed that over a long time period, the price of non-processed goods with low value added would decrease relative to the price

of manufactured goods with high value added, thus impoverishing the exporting country. According to [12] export sophistication, if measured using the sophistication of high income countries as indicator, is a significant factor in determining the growth of lower middle-income countries. However, the one of the milestone studies addressing the issue of export sophistication that many scholars make reference to is that of [13] who claimed that upgrades in countries exports lead to higher economic growth in the future.

The purpose of this study is to identify the determinants of export sophistication of Kazakhstan. Unlike most of the studies done on this matter, however, we attempt to determine the factors that affect the export sophistication based on certain features of the countries Kazakhstan has trade relations with. In this sense, this study is a rather rare case. Thus, the value of this study for policy making is that it attempts to identify which countries Kazakhstan should trade with in order to increase the level of its exports' sophistication. The study is based on a cross-sectional analysis made for 2015.

Literature. Studying export sophistication is very related to basic trade theories. Thus, the Heckscher–Ohlin theory states that a country's factor endowments determine the relative costs of production. Therefore, country's exports compositions are shaped in accordance with their factor endowments. According to this theory, countries with abundant in labor tend to export labor intensive goods while countries with high technology intensity tend to produce technology and research intensive goods [14]. The New Trade Theory supports this idea by suggesting that countries are induced to engage in intra-product trade by firms' specialization in different horizontal specialization varieties and consumers' preferences. Therefore, the number of product varieties a country is likely to produce and export is a function of its resource endowments [15].

The literature on exports of Kazakhstan in the context of technological sophistication is very scarce. Relative to Kazakhstan the given issue is tackled from the point of view of export diversification. [16] states that secure economic development of Kazakhstan could be achieved only through diversification of the country's economy pointing to the fact that mineral products with low technological intensity account for more than 65.8% of the country's exports.

Another study on export diversification was done by [1] in which they state that the economic growth of Kazakhstan after 2000 was based on exports of mineral resources. The necessity of changing the structure of exports surged after the crisis of 2008 and stimulated the government to reforms and other actions take subsequently. According to [1], the measures of industrialization implemented after 2010 did not lead to significant changes in the structure of reform. However, they laid a solid foundation necessary for further progress in industrialization of the economy.

[13] is one of the most prominent studies that most scholars make reference to. Their robust findings data for 1962–2003 exports sophistication is one of the most important determinants of economic growth. An interesting finding that [13] suggests is that there is a negative relationship between countries' land area and their exports sophistication level.

The studies done on Kazakhstan usually tackle the topic of diversification rather than sophistication of exports. Therefore, the literature on Kazakhstan is very scarce. However, there are a plenty of studies that consider export sophistication including many countries from different perspectives. One of such studies belong to [17] and [18]. The results of this study done on cross-country panel dataset throughout 1992–2006 suggest that variables like capital deepening, engagement in knowledge creation, transfers via investment in education and R&D and foreign direct investments have significant effect on export sophistication. The effect of natural resources on the sophistication of exports happens to be complex and mixed depending upon the type of resources involved. Moreover, the effects of these determinants vary between low, middle, and high income countries.

[19] confirm the findings of [13] and suggest that GDP per capita and the size of the economy have significant and positive effects on export sophistication. In countries with low quality of institutions, improvements in quality leads to significant upward shift in the exports sophistication. In addition, high technological export sophistication has positive effect on productivity and sustainable economic growth and promotes resistance during periods with small or negative economic growth.

A valuable and rather comprehensive study on export diversification as well as on sophistication was done by [6] on Sub-Saharan African states including 48 countries. Their findings suggest a strong influence of quality of governance and human capital on the degree of export sophistication. Similar results were obtained by [20] in their study on North African countries.

Different determinants of export sophistication for developed and developing countries were identified in [21]. Developed countries rely more heavily on their indigenous capabilities in their traits to gain high-tech exports whereas developing countries rely more on determinants related to their trade liberalization and openness, FDIs and the imports of parts and components. The difference between developed and developing countries concentrating the export sophistication was emphasized by [14] who suggested that due to the globalization of production, export-oriented FDI located in developing countries may lead to large imports of intermediate goods with high technological and research intensity. This led to a significant shift of the developing countries in terms of their export sophistication.

The findings of [13] were confirmed by [22] on the example of Chinese provinces. Particularly, provinces that specialized on exports of more sophisticated goods presented higher growth rates subsequently. However, this happened to be relevant for domestic Chinese firms rather than foreign firms.

There are also studies that reveal the relationship between exports sophistication and natural resource abundance like those of [23]. In practically all cases the effect of natural resource abundance proves to be detrimental.

Methodology and Data. We measure the level of sophistication of export commodities using the method proposed by [24]. Particularly, based on data from Comtrade, we calculate a sophistication score for each SITC 3-digit industry based on average income of exporting countries and the amount of exports. The choice of measurement of the export sophistication is subject of discussion in related academic literature. There are several widely used techniques for measuring the level of commodity sophistication each one with supporters and opponents among scholars with strong arguments on both sides. For instance, there is PRODY indicator proposed by [25] and [13] which is a weighted average of per capita incomes for all the exporting countries. Each country's comparative advantage is taken as the weight. The productivity level associated with a country's exports (EXPY) is then defined as a weighted average of all exported products' PRODY for that country. The share of each product in a country's exports is taken as the weight. Interestingly, this index also has its shortcomings. Particularly, it does not take into account the quality differences within a product category. This may result in an wrong estimations of the EXPY for high or low income countries [26].

Nevertheless, the logic behind those techniques is more or less the same. Particularly, a certain commodity is considered to be sophisticated if it is exported by rich countries. If it is exported predominantly by poor countries, the commodity is considered to have low sophistication. Scholars are usually free to choose the indicator of richness of the country. This general approach is, however, receives much criticism in related literature. For instance, [18] argues that due to the fragmentation and globalization of production chain and increasing global outsourcing, some developing countries started to export technology-intensive products via involvement in processing and manufacturing activities of tradable commodities. Such exporting does not show that these countries have the capability to produce "sophisticated" products: they in fact export these goods simply as a result of processing and assembling high-technology intermediate imports. Moreover, this kind of techniques can mislead due to the fact that more and more developed rich countries switch from commodity exports to services.

For case of Kazakhstan, we calculated sophistication score for 260 industries presented in Table 2. In order to identify the determinants of export sophistication of Kazakhstan we estimate the following OLS model:

The variables in the model have the following interpretations:

DIST - distance between the countries measured between their capital cities.

GDP – GDP size of the country.

GNIpercap – is the proxy for per capita income.

POP – is the population of the country.

GDPgrow – average annual GDP growth rate of the country during the last ten years.

URB – percentage share of the urban population from the total population.

TradeOpen – Trade Openness of the country (Trade as % of GDP).

FreeTrade – is dummy for free trade agreement, which is =1 if the country has a free trade agreement with Kazakhstan and =0 if not.

FuelExp – is the percentage share of fuel exports in total exports of the country.

HighTechExp – is the percentage share of high technology exports in the total exports of the country.

By setting these variables as explanatory for our model, we suppose that they have sufficient explanatory effect to determine the level of sophistication of the exports of Kazakhstan. Our choice of explanatory variables is based on several reasons like common practice among other scholars, intuitive reasoning, theoretical explanations and data availability.

From the available literature on this subject we can observe that choice of variables varies a lot from study to study. The model tested by [13] included GDP per capita, human capital, the rule of law index, population, and land area. [17] includes variable like capital-labor ratio, land area per capita, gross tertiary enrollment, proportion of R&D expenditure in GDP, foreign direct investment, economy size and country institutional quality (rule of law index).

We took data for exports from the UN Comtrade Database. The data has a SITC 3rd revision 3-digit level disaggregation format taken for 2015. In our analysis we consider only exports higher than \$1 million. The data for explanatory variables are taken from the World Bank Data. The study covers 73 destinations of Kazakhstan’s exports above \$1 million. The sum of exports included into the study cover 99.8% of the total exports of Kazakhstan for 2015. The results of the regression are presented in Table 1 below.

Analysis and Findings

Table 1 – OLS estimation results

	Coefficients	Standard deviation	t-statistics	p-value
Constant	69.5045	36.0144	1.930	0.0583*
Log-Distance	-8.2140	3.2671	-2.514	0.0146**
Log-GDP	19.2932	25.0443	0.770	0.4441
Log-GNI per capita	-18.8742	25.1498	-0.751	0.4559
Log-Population	-18.7663	25.2621	-0.743	0.4605
GDP growth in %	1.3309	0.8206	1.622	0.1101
Urbanization in %	0.1829	0.1440	1.271	0.2088
Trade openness in %	0.0549	0.0327	1.681	0.0979*
Free trade agreement dummy	2.5114	7.1770	0.350	0.7276
Fuel exports in %	0.1457	0.0923	1.579	0.1196
High technology exports in %	-0.3443	0.1995	-1.726	0.0894*
R-squared				0.3267
Adj. R-squared				0.2146
Observations				73

* Significant at $\alpha=0.10$

** Significant at $\alpha=0.05$

Source: prepared by authors

Out of ten explanatory variables included into our model only Log-Distance appears to be significant at . The relationship between export sophistication of Kazakhstan and distance to its export partners is negative with $=-8.2140$. Hence, one percent increment in distance leads to -8.2140% downshift in export sophistication.

Trade openness shows statistical significance at . The relationship between trade openness and export sophistication is positive with $=0.0549$. Higher trade openness of export partners leads to greater degrees of export sophistication. One percent increment in the degree of trade openness causes nearly a 0.05% increment in the export sophistication score.

Interestingly, there is a negative relationship between export sophistication and the percentage of high technology exports with statistical significance at $=-0.3443$ implying that one percent increase in the share of high technology exports of trade partner leads to 0.34% decrease in the score of export sophistication of Kazakhstan.

The rest of the explanatory variables happen to be insignificant in explaining the variations in the export sophistication of Kazakhstan. The model itself has rather low explanatory variable with R^2 and F . In order to have a more comprehensive picture of our regression outcomes we show the plots of each explanatory variable against the export sophistication score of Kazakhstan in Figure 1 below.

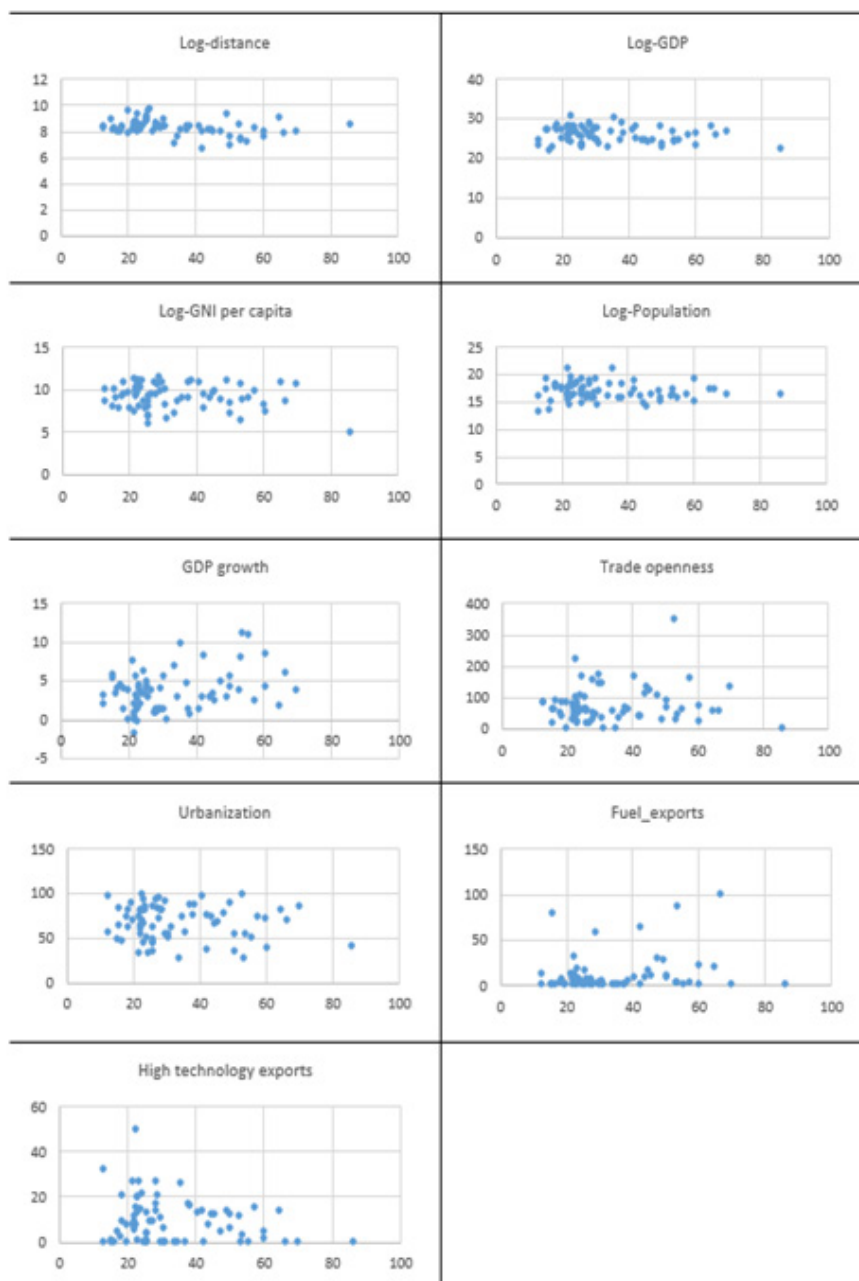


Figure 1. Export sophistication score vs explanatory variables (Source: prepared by Authors based on data from Comtrade and World Bank Data)

The graphical representation confirms the statistical estimation results. There is in general very little interdependence between export sophistication score and explanatory variables we have chosen for our model. In particular, variables like Log-Distance, Log-GDP, Log-GNI per capita, Log-Population and Urbanization level do not show any visual interdependence with export sophistication whereas variables like GDP growth, Trade openness and Fuel exports seem to have a slight positive relationship.

The estimated model appears to be weak in terms of explanatory power and only three out of ten commonly used explanatory variables chosen for this model show statistical significance at or higher levels. The general implication we can draw from it is that features of export partners have little significance in explaining the level of export sophistication of Kazakhstan. Nevertheless, certain features appear to be important in explaining the export sophistication of Kazakhstan. The policy implication we can draw based on our model is that in order to increase the exports sophistication level, Kazakhstan should intensify its trade with nearby countries. Thus, more sophisticated exports tend to go to nearby countries. The model also suggests Kazakhstan to export more to countries with high proportion of trade relative to their GDP. Another implication is that Kazakhstan should export more to countries with lower export sophistication rather than to those with high proportions of sophisticated exports.

Conclusion. We analyze the determinants of export sophistication for Kazakhstan on the basis of variables of the countries that are destinations of exports of Kazakhstan. Based on common practice we have chosen parameters like distance, GDP, income per capita, population, GDP growth, urbanization, trade openness, free trade agreement, fuel exports and high technology exports as independent variable. The model appears to have little explicative power with . Out of abovementioned variables only distance, trade openness and high-technology exports present statistical significance in explaining exports' sophistication of Kazakhstan. The coefficients of distance and high technology exports are negative implying negative relationship with exports sophistication of Kazakhstan. The relationship between export sophistication and trade openness is positive. Hence, our estimation results suggest that exports that go to nearby countries tend to be more sophisticated than those destined for far-away countries. Exports of Kazakhstan that go to countries that export greater amounts of high-technology exports tend to be less sophisticated. Exports of Kazakhstan that are destined for countries with high trade openness tend to be sophisticated. The policy implications to be drawn from the analysis are that more trade with nearby countries and countries with higher trade openness has beneficial effect on export sophistication of Kazakhstan. Also more trade with countries that tend to export less sophisticated goods helps to upgrade the exports of Kazakhstan. Thus, according to our analysis, an ideal exports destination for goods from Kazakhstan would be a nearby country with high degree of trade openness and lower exports sophistication.

Majority of the studies done on this issue try establish a linkage between countries' exports sophistication and their internal factors. In this study, however, we try to present Kazakhstan's exports sophistication as a function of certain parameters of its exports destination countries. By doing this study we intend to contribute to the literature that would help policy makers to design and apply appropriate trade policy that would diversify and upgrade Kazakhstan's exports. Government policies that encourage exports of high-technology products can also promote an upward shift in the export composition of a country [27]. Any form of addressing the issue of identifying the determinants of export sophistication is highly valuable for Kazakhstan from the point of view of policy making.

References

- 1 Konkakov A., Kubayeva G. Progress in diversification of the economy in Kazakhstan. [Электрон.ресурс]. – 2016. - URL: <https://www.msm.nl/resources/uploads/2016/09/MSM-WP2016-8-1.pdf> (Accessed 3 April, 2017).
- 2 Love J. Concentration, diversification and earnings instability: Some evidence on developing countries' exports of manufactures and primary products // World Development – 1983. - Vol. 11, No. 9. - P. 787-793.
- 3 Cadot O., Carrère C., Strauss-Kahn V. Export Diversification: What's Behind The Hump? // Review of Economics and Statistics – 2011. - Vol. 93. No. 2. - P. 590-605.
- 4 Besedes T., Prusa T. J. The Role of Extensive and Intensive Margins and Export Growth // Journal of Development Economics – 2011. - Vol. 96. No. 2. - P. 371-379.
- 5 Feenstra R. C., Kee H. L. Export variety and country productivity // Cambridge, MA, National Bureau for Economic Research NBER Working Paper 10830 [Электрон.ресурс]. – 2004. URL: http://eml.berkeley.edu/~obstfeld/281_sp06/Feenstra_1.pdf, (Accessed 27 March 2017)
- 6 Herédia Caldeira Cabral, M., Veiga, P., Determinants of Export Diversification and Sophistication in Sub-Saharan Africa – 2010. [Электрон.ресурс].- URL: <http://fesrvsd.fe.unl.pt/WPFEUNL/WP2010/Wp550.pdf> (Accessed 5 April, 2017)
- 7 Anand R., Mishra S., Spatafora, N. Structural Transformation and the Sophistication of Production // IMF Working Paper – 2012. [Электрон.ресурс]. URL: <https://www.imf.org/external/pubs/ft/wp/2012/wp1259.pdf> (Accessed 4 April, 2017)

- 8 Acemoglu D., Johnson S., Robinson J. A. The Colonial Origins Of Comparative Development: An Empirical Investigation // *American Economic Review* – 2001. - Vol. 91. - P. 1369-1401.
- 9 Romer R. Endogenous Technological Change // *Journal of Political Economy* – 1990. - Vol. 98. No. 5. - P. 71-102.
- 10 Greenaway D., Morgan W., Wright P. Exports, export composition and growth // *Journal of International Trade and Development* – 1999. - Vol. 8. No. 1. - P. 41-51.
- 11 Prebisch R. The economic development of Latin America and its principal problems // *Economic Bulletin for Latin America* -1950. - Vol. 7. No. 1. - P. 1-22.
- 12 Dewitte R. Middle Income Trap and Export Sophistication, Unpublished M.A. Thesis, Ghent, Ghent University, Faculty of Economics and Business Administration, 2014.
- 13 Hausmann R., Hwang J., Rodrik D. What you export matters // *Journal of Economic Growth* – 2007. - Vol. 12. No. 1. - P. 1.
- 14 Schott P. K. The relative sophistication of Chinese exports // *Economic Policy, CEPR, CES, MSH* – 2008. - Vol. 23. No. 53. - P. 5-49.
- 15 Krugman P. Scale economies, product differentiation, and the pattern of trade // *American Economic Review* – 1980. - Vol. 70. - P. 950–959.
- 16 Petrenko E., Zhartay Zh., Shevyakova A., Olefirenko O. M. Towards Economic Security through Diversification: Case of Kazakhstan // *Journal of Security and Sustainability Issues* -2016. - Vol. 5. No. 4. - P. 509-518.
- 17 Zhu S., Fu M., Lai M. Ju X. What drives the export sophistication of countries? // *World Economy* -2010. - Vol. 4. - P. 28–43.
- 18 Fu X. Processing Trade, FDI and the Exports of Indigenous Firms: Firm-Level Evidence From Technology-Intensive Industries in China // *Oxford Bulletin of Economics & Statistics* – 2011. - Vol. 73. No. 6. - P. 792–817.
- 19 Poghosyan K., Kočenda E. Determinants of export sophistication: Evidence from Monte Carlo simulations // *IOS Working Papers* - 2016. No. 360. - P. 11-18.
- 20 Jouini N., Oulmane N., Peridy N., “North African countries (NACs) production and export structure: Towards diversification and export sophistication strategy”. 2015. - URL: https://mpira.uni-muenchen.de/62476/1/MPRA_paper_62476.pdf (accessed 7 April 2017).
- 21 Ferreira da Silva Alves, G. Determinants of High-Tech Exports, Unpublished M.A. Thesis, Aveiro, University of Aveiro, Department of Economics, Management and Industrial Engineering, 2010.
- 22 Jarreau J., Poncet, S. Export sophistication and economic growth: Evidence from China // *Journal of Development Economics* – 2012. - Vol. 97. No. 2. - P. 281-292.
- 23 Sachs J. D., Warner A. M. Natural Resources and Economic Development: The Curse of Natural Resources // *European Economic Review* – 2001. - Vol. 45. - P. 827-838.
- 24 Lall S., Weiss J., Zhang J. The ‘Sophistication’ Of Exports: A New Measure of Product Characteristics // *QEH Working Paper Series* – 2005. - Vol. 1. No. 123. - P. 1.
- 25 Rodrik D. What’s So Special about China’s Exports // *China & World Economy* – 2006. Vol. 14. No. 5. - P. 1-19.
- 26 Minond A. Exports’ quality-adjusted productivity and economic growth // *Journal of International Trade and Economic Development* – 2010. – Vol. 19. No. 2. - P. 257–287.
- 27 Lo D. Chan T. M. H. Machinery and China’s nexus of foreign trade and economic growth // *Journal of International Development* – 1998. - Vol. 10. No. 6. - P. 733–749.

Appendix

Table 2 – Export sophistication scores of SITC 3-digit level industries based on method proposed by Lall *et al.* (2005).

Rank	SITC code	Industry	Sophistication score
1	874	Measuring, checking, and controlling instruments.	100,00
2	731	Trunks, suitcases, vanity cases, executive cases, briefcases etc.	94,04
3	351	Electric current.	92,80
4	575	Other plastics, in primary forms.	92,42
5	746	Ball- or roller bearings.	92,08
6	748	Transmission shafts and cranks.	91,73
7	574	Polyacetals, other polyethers and epoxide resins.	91,30
8	735	Parts and accessories for machines.	90,99
9	232	Synthetic rubber; reclaimed rubber; waste rubber.	90,94

10	714	Engines and motors, non-electric.	90,75
11	733	Machine tools for working metal.	89,90
12	712	Steam turbines and other vapor turbines and parts.	88,89
13	573	Polymers of vinyl chloride or of other halogenated olefins.	88,63
14	723	Civil engineering and contractors' plant and equipment.	88,54
15	597	Prepared additives for mineral oils and the like.	88,42
16	629	Articles of rubber, n.e.s.	88,34
17	774	Electrodiagnostic apparatus for medical apparatus.	88,30
18	811	Prefabricated buildings.	88,19
19	593	Explosives and pyrotechnic products.	88,17
20	728	Other machinery specialized for particular industries.	88,15
21	792	Aircraft and associated equipment	87,97
22	581	Tubes, pipes and hoses, and fittings therefor, of plastics	87,43
23	891	Arms and ammunition	87,08
24	726	Printing and bookbinding machinery, and parts thereof	86,94
25	525	Radioactive and associated material	86,81
26	882	Photographic and cinematographic supplies	86,75
27	871	Optical instruments and apparatus, n.e.s.	86,62
28	737	Metalworking machinery (other than machine tools).	86,52
29	718	Power-generating machinery, and parts thereof, n.e.s.	84,73
30	524	Other inorganic chemicals	84,30
31	515	Organo-inorganic compounds	84,17
32	725	Paper mill and pulp mill machinery	84,16
33	722	Tractors	83,88
34	598	Miscellaneous chemical products.	82,98
35	541	Medicinal and pharmaceutical products.	82,98
36	744	Mechanical handling equipment.	82,79
37	872	Instruments and appliances for medical purposes.	82,42
38	742	Pumps for liquids.	82,35
39	713	Internal combustion piston engines.	81,98
40	784	Parts and accessories of the motor vehicles.	81,68
41	551	Essential oils, perfume and flavour materials.	81,58
42	721	Agricultural machinery.	81,57
43	514	Nitrogen-function compounds.	81,55
44	267	Other man-made fibres suitable for spinning.	81,11
45	743	Pumps (other than pumps for liquids).	81,08
46	885	Watches and clocks.	80,96
47	745	Non-electrical machinery, tools and mechanical apparatus.	79,71
48	898	Musical instruments.	79,63
49	676	Iron and steel bars, rods, angles, shapes and sections.	79,60
50	122	Tobacco, manufactured.	79,52
51	663	Mineral manufactures.	79,23
52	011	Meat of bovine animals.	79,15
53	533	Pigments, paints, varnishes and related materials.	78,86
54	781	Motor cars and other motor vehicles.	78,69
55	641	Paper and paperboard.	78,67
56	411	Animal oils and fats.	78,34

57	749	Non-electric parts and accessories of machinery.	77,69
58	282	Ferrous waste and scrap.	77,63
59	553	Perfumery, cosmetic or toilet preparations (excluding soaps).	77,61
60	873	Meters and counters.	77,49
61	783	Road motor vehicles.	77,23
62	724	Textile and leather machinery.	76,64
63	791	Railway vehicles.	76,43
64	695	Tools for use in the hand or in machines.	76,39
65	073	Chocolate and other food preparations containing cocoa.	76,27
66	727	Food-processing machines.	76,15
67	884	Optical goods.	75,91
68	024	Cheese and curd.	75,76
69	012	Other meat and edible meat offal.	75,69
70	582	Plates, sheets, film, foil and strip, of plastics.	75,60
71	881	Photographic apparatus and equipment.	75,41
72	782	Motor vehicles for the transport of goods.	74,79
73	664	Non-metallic mineral manufactures.	74,78
74	778	Electrical machinery and apparatus.	74,53
75	592	Starches, inulin and wheat gluten.	74,36
76	621	Materials of rubber.	74,22
77	751	Office machines.	74,06
78	694	Nails, screws, nuts, bolts and rivets.	73,81
79	516	Other organic chemicals.	73,67
80	741	Heating and cooling equipment.	73,66
81	023	Butter and other fats and oils derived from milk.	73,51
82	583	Monofilament.	73,03
83	772	Electrical apparatus for switching electrical circuits.	72,98
84	269	Worn clothing and other worn textile articles.	72,91
85	674	Flat-rolled products of iron.	72,71
86	247	Wood in the rough or roughly squared.	72,58
87	591	Insecticides, rodenticides and plant-growth regulators.	72,33
88	288	Non-ferrous base metal waste and scrap.	72,19
89	098	Edible products and preparations.	72,13
90	017	Meat and edible meat offal.	72,12
91	895	Office and stationery supplies.	72,05
92	531	Synthetic organic colouring matter and colour lakes.	71,11
93	883	Cinematographic film.	70,97
94	248	Wood, simply worked, and railway sleepers of wood.	70,95
95	642	Paper, paperboard, and articles of paper or paperboard.	70,93
96	513	Carboxylic acids and their anhydrides.	70,78
97	048	Cereal preparations and preparations of flour or starch.	70,77
98	764	Telecommunications equipment.	70,69
99	711	Steam or other vapour-generating boilers.	70,45
100	699	Manufactures of base metal.	70,32
101	251	Pulp and waste paper.	70,26
102	523	Metal salts and peroxy salts.	69,73
103	111	Non-alcoholic beverages.	69,64

104	678	Wire of iron or steel.	69,57
105	511	Hydrocarbons.	69,45
106	335	Residual petroleum products.	69,09
107	776	Thermionic, cold cathode or photo-cathode valves and tubes.	68,53
108	554	Soap, cleansing and polishing preparations.	68,43
109	112	Alcoholic beverages.	68,40
110	893	Articles of plastics.	68,27
111	716	Rotating electric plant.	68,06
112	265	Vegetable textile fibres.	67,50
113	793	Ships, boats and floating structures.	67,20
114	785	Motor cycles.	67,14
115	689	Miscellaneous non-ferrous base metals.	67,14
116	625	Rubber tyres.	66,68
117	692	Metal containers for storage or transport.	65,63
118	752	Automatic data-processing machines.	65,61
119	562	Fertilizers.	65,57
120	677	Rails or railway track construction material, of iron or steel.	65,55
121	899	Miscellaneous manufactured articles.	65,24
122	691	Structures and parts of structures of iron, steel or aluminum.	64,27
123	512	Alcohols, phenols, phenol-alcohols, and their derivatives.	64,22
124	657	Special yarns, special textile fabrics and related products.	63,81
125	673	Flat-rolled products of iron or non-alloy steel.	63,67
126	763	Sound recorders or reproducers.	63,00
127	665	Glassware.	62,32
128	759	Parts and accessories.	62,25
129	046	Meal and flour of wheat.	62,18
130	047	Other cereal meals and flours.	61,28
131	771	Electric power machinery.	60,77
132	062	Sugar confectionery.	60,44
133	693	Wire products.	60,17
134	522	Inorganic chemical elements.	60,14
135	672	Ingots and other primary forms, of iron or steel.	58,95
136	667	Pearls and precious or semiprecious stones.	58,42
137	659	Floor coverings.	58,03
138	656	Tulles, lace, embroidery, ribbons and other smallwares.	57,93
139	059	Fruit juices and vegetable juices.	57,73
140	812	Sanitary, plumbing and heating fixtures and fittings.	57,49
141	821	Furniture and parts thereof.	57,14
142	635	Wood manufactures.	56,99
143	266	Synthetic fibres suitable for spinning.	56,94
144	773	Machine tools for working metal.	56,92
145	572	Polymers of styrene, in primary forms.	56,31
146	679	Tubes, pipes and hollow profiles.	55,15
147	532	Dyeing and tanning extracts.	54,30
148	334	Petroleum oils and oils obtained from bituminous minerals.	54,04
149	775	Household-type electrical and non-electrical equipment.	53,95
150	654	Other textile fabrics.	53,38

151	786	Trailers and semi-trailers.	53,36
152	897	Jewellery, goldsmiths' and silversmiths' wares.	53,09
153	696	Cutlery.	53,05
154	662	Clay construction materials.	52,91
155	057	Fruit and nuts.	50,99
156	634	Veneers, plywood, particle board and other wood.	50,77
157	431	Animal or vegetable fats and oils, processed.	50,51
158	894	Baby carriages, toys, games and sporting goods.	50,39
159	655	Knitted or crocheted fabrics.	50,28
160	286	Uranium or thorium ores and concentrates.	48,55
161	613	Furskins, tanned or dressed.	48,22
162	056	Vegetables, roots and tubers, prepared or preserved.	48,11
163	072	Cocoa.	47,82
164	289	Ores and concentrates of precious metals.	47,33
165	761	Television receivers.	46,91
166	058	Fruit, preserved, and fruit preparations.	46,75
167	653	Fabrics, woven, of man-made textile materials.	46,75
168	652	Cotton fabrics.	45,50
169	651	Textile yarn.	45,26
170	697	Household equipment of base metal.	44,37
171	611	Leather.	42,44
172	661	Lime, cement, and fabricated construction materials.	40,52
173	061	Sugars, molasses and honey	39,40
174	612	Manufactures of leather.	38,34
175	845	Articles of apparel.	37,19
176	846	Clothing accessories.	37,10
177	666	Pottery.	36,96
178	633	Cork manufactures	36,81
179	054	Vegetables, fresh, chilled, frozen or simply preserved.	36,76
180	037	Fish, crustaceans, molluscs and other aquatic invertebrates.	35,52
181	034	Fish, fresh.	35,30
182	762	Radio-broadcast receivers.	34,93
183	287	Ores and concentrates of base metals.	34,87
184	961	Coin.	34,76
185	268	Wool and other animal hair.	33,91
186	284	Nickel ores and concentrates.	33,60
187	042	Rice.	32,11
188	281	Iron ore and concentrates.	32,11
189	843	Men's or boys' clothes.	31,96
190	671	Pig-iron, spiegeleisen, sponge iron and iron or steel.	31,32
191	844	Women's or girls' clothes.	31,02
192	036	Crustaceans, molluscs and aquatic invertebrates.	29,26
193	842	Women's or girls' clothes not knitted or crocheted.	29,18
194	851	Footwear.	29,15
195	323	Briquettes, lignite and peat.	28,68
196	001	Live animals.	28,60
197	831	Trunks, suitcases, vanity cases, executive cases, briefcases etc.	28,14

198	071	Coffee and coffee substitutes.	27,59
199	658	Made-up articles.	26,28
200	274	Sulphur and unroasted iron pyrites.	25,89
201	579	Waste, parings and scrap, of plastics.	25,71
202	285	Aluminium ores and concentrates.	25,17
203	321	Coal, whether or not pulverized.	23,06
204	683	Nickel.	22,36
205	333	Petroleum oils and oils obtained from bituminous minerals.	22,22
206	685	Lead.	22,04
207	223	Oil-seeds and oleaginous fruits.	21,74
208	971	Gold, non-monetary.	20,57
209	344	Petroleum gases and other gaseous hydrocarbons.	19,73
210	342	Liquefied propane and butane.	19,71
211	896	Works of art, collectors' pieces and antiques.	19,19
212	322	Briquettes, lignite and peat.	18,88
213	686	Zinc.	18,73
214	813	Lighting fixtures and fittings.	18,17
215	041	Wheat.	18,08
216	035	Fish, dried, salted or in brine.	17,20
217	421	Fixed vegetable fats and oils.	16,60
218	684	Aluminium.	16,19
219	211	Hides and skins.	15,29
220	246	Wood in chips or particles and wood waste.	15,29
221	892	Printed matter.	15,07
222	343	Natural gas.	14,73
223	841	Men's or boys' cloathes not knitted or crocheted.	14,71
224	043	Barley, unmilled.	14,66
225	747	Taps, cocks, valves and similar appliances for pipes.	13,41
226	571	Polymers of ethylene.	13,33
227	283	Copper ores and concentrates.	12,90
228	542	Medicaments.	12,85
229	278	Fertilizers, crude.	12,73
230	273	Stone, sand and gravel.	11,94
231	681	Silver, platinum and other metals of the platinum group.	11,58
232	261	Silk.	11,07
233	277	Natural abrasives.	11,03
234	682	Copper.	10,79
235	022	Milk and cream and milk products other than butter or cheese.	10,25
236	291	Crude animal materials.	10,02
237	045	Cereals, unmilled.	9,89
238	675	Flat-rolled products of alloy steel.	9,59
239	212	Furskins, raw.	9,39
240	245	Fuel wood and wood charcoal.	9,31
241	074	Tea and maté.	8,96
242	222	Oil-seeds and oleaginous fruits.	8,61
243	025	Eggs, birds', and egg yolks, fresh or dried.	8,47
244	292	Crude vegetable materials.	8,20

245	272	Fertilizers, crude.	8,20
246	422	Fixed vegetable fats and oils, crude, refined or fractionated.	8,09
247	263	Cotton.	8,03
248	687	Tin.	8,02
249	345	Coal gas, water gas, producer gas and similar gases.	8,01
250	081	Feeding stuff for animals.	7,96
251	091	Margarine and shortening.	7,23
252	931	Special transactions and commodities.	7,23
253	121	Tobacco, unmanufactured.	7,08
254	431	Animal or vegetable fats and oils.	7,08
255	016	Meat and edible meat offal, salted, in brine, dried or smoked.	6,29
256	075	Spices.	6,23
257	325	Coke and semi-coke.	5,80
258	231	Natural rubber, guayule, chicle and similar natural gums.	5,60
259	044	Maize.	5,48
260	264	Jute and other textile bast fibres.	0,00

Source: prepared by authors based on data from Comtrade and World Bank Data

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Қазақстанның экспортын қабылдаушы мемлекеттердің негізінде еліміздің экспорттық күрделілік деңгейінің өлшенуі

Аннотация. Бұл мақалада қазақстандық экспортты сатып қабылдаушы елдердің айнымалыларына негізделген Қазақстан экспорттық даму деңгейінің анықтаушы айнымалыларды талдайды. Сәйкес тақырыпқа жазылған әдебиеттердің теориялық негіздеріне отырып, қашықтық, ЖІӨ, халықтың жан басына шаққандағы табысы, ЖІӨ-нің өсу деңгейі, урбанизация деңгейі, сауда ашықтығы, еркін сауда туралы келісімнің болуы, отын экспортының үлесі және жоғары технологиялық экспорттың үлесін тәуелсіз айнымалы ретінде таңдадық. Жоғары технологиялық экспорты үлесінің және қашықтықтың есептелген коэффициенттері теріс, ал экспорттың даму деңгейі мен сауда ашықтығы арасындағы байланыс оң болғаны анықталды. Қалған тәуелсіз айнымалылар статистикалық тұрғыдан оразан зор үлес қоспайтындығы болжанған.

Түйін сөздер. Экспорттық даму, әртараптандыру, анықтаушылар, қашықтық, жоғары технологиялар экспорты, сауда ашықтығы.

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Определители уровня сложности экспорта Казахстана: на основе переменных стран-получательниц экспорта

Аннотация. В этой статье мы анализируем факторы, определяющие уровень развитости экспорта Казахстана, на основе переменных стран, которые являются странами-получателями экспорта Казахстана. Основываясь на общепринятой практике в соответствующей литературе, мы выбрали такие параметры, как расстояние, ВВП, доход на душу населения, численность населения, рост ВВП, уровень урбанизации, открытость торговли, наличие соглашений о свободной торговле, доля топлива в экспорте и доля высоких технологий в экспорте в качестве независимых переменных. Расчетные коэффициенты для расстояния и процентная доля экспорта высоких технологий оказались отрицательными, тогда как взаимосвязь между уровнем развитости экспорта и открытости торговли является положительной. Остальные объясняющие переменные статистически незначительны.

Ключевые слова. Развитость экспорта, диверсификация, определители, расстояния, экспорт высоких технологий, открытость торговли.

References

- 1Konkakov A., Kubayeva G. Progress in diversification of the economy in Kazakhstan. Available at: <https://www.msm.nl/resources/uploads/2016/09/MSM-WP2016-8-1.pdf> (Accessed 3 April, 2017).
- 2 Love J. Concentration, diversification and earnings instability: Some evidence on developing countries' exports of manufactures and primary products. *World Development*, **11**(9), 787-793(1983).
- 3 Cadot O., Carrère C., Strauss-Kahn V. Export Diversification: What's Behind The Hump? *Review of Economics and Statistics*, **93**(2) 590-605, (2011)
- 4 Besedes T., Prusa T. J. The Role of Extensive and Intensive Margins and Export Growth. *Journal of Development Economics*, **96**(2), 371-379(2011).
- 5 Feenstra R. C., Kee H. L. Export variety and country productivity. Cambridge, MA, National Bureau for Economic Research NBER Working Paper 10830 Available at: http://eml.berkeley.edu/~obstfeld/281_sp06/Feenstra_1.pdf, (Accessed 27 March 2017).
- 6 Herédia Caldeira Cabral M., Veiga P., Determinants of Export Diversification and Sophistication in Sub-Saharan Africa. Available at: <http://fesrvsd.fe.unl.pt/WPFEUNL/WP2010/Wp550.pdf> (Accessed 5 April, 2017).
- 7 Anand R., Mishra S., Spatafora N. Structural Transformation and the Sophistication of Production, IMF Working Paper. Available at: <https://www.imf.org/external/pubs/ft/wp/2012/wp1259.pdf> (Accessed 4 April, 2017).
- 8 Acemoglu D., Johnson S., Robinson J. A. The Colonial Origins Of Comparative Development: An Empirical Investigation. *American Economic Review*, **91**(5), 1369-1401, (2001).
- 9 Romer R. Endogenous Technological Change. *Journal of Political Economy*, **98**(5), 71-102, (1990).
- 10 Greenaway D., Morgan W., Wright P. Exports, export composition and growth. *Journal of International Trade and Development*, **8** (1), 41-51 (1999).
- 11 Prebisch R. The economic development of Latin America and its principal problems. *Economic Bulletin for Latin America*, **7**(1), 1-22 (1950).
- 12 Dewitte R. Middle Income Trap and Export Sophistication, Unpublished M.A. Thesis, Ghent, Ghent University, Faculty of Economics and Business Administration,

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Взаимодействие науки, производства и образования в частных университетах Казахстана

Аннотация. Основная задача университетов – дать такой уровень образования своим выпускникам, чтобы они смогли занять в обществе или индустрии рабочие места по своей специальности. Эту задачу в последнее время эффективно могут выполнять только те университеты, которые встроятся в производственную цепочку существующей системы в наиболее удобной для них нише – производстве знания и его распространения в общество и индустрию. В настоящей работе рассматривается и анализируется опыт частных университетов Казахстана. Исследование выполнено взбометрическим методом. Исследование показало, что системы безопасности, финансовые структуры, вышестоящие подразделения менее склонны к доверительным отношениям, скорее к командной системе. Часто подразделения, отвечающие за развитие инновационной деятельности, объединяют в себе все эти элементы, выступая перед ними как вышестоящая организация.