

Intra-Industry Trade in the EAEU: Case of Machine Building

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Abstract—The paper investigates the specifics of intra-industry trade in machine building in the EAEU in 2011-2018. Major quantitative tool applied is Grubel-Lloyd index computed for 10 pairs of the EAEU states. It has been revealed that mutual trade in machine building between Belarus and Russia is predominantly of the intra-trade status. Out of the *troika* states relative potential of intra-trade growth has been identified in Kazakhstan-Armenia, Kyrgyzstan-Belarus and Kyrgyzstan-Kazakhstan pairs. However, lack of consistent intra-industry exchange in machine building between the EAEU members as well as absence of related supranational regulation do challenge the development of industrial cooperation in the EAEU. The paper concludes that common industrial policy with its digital and inclusive agenda might foster the industrial cooperation in the EAEU and, thus, deepen integration in the EAEU.

Keywords—EAEU; Eurasian integration; intra-industry trade; machine building; industrial cooperation

I. INTRODUCTION

In 2019 the Eurasian Economic Union (EAEU) has marked its 5th anniversary. As Vinokurov [1] puts it, as of today, the EAEU is an established and relatively successful regional entity of post-Soviet states aimed at raising their global competitiveness but facing objective integration-induced challenges. Union's formation has witnessed a plummet in world oil prices (a commodity that plays a substantial role in the EAEU economy) and confrontation (in a form of economic sanctions and countersanctions) between Russia and the West. Despite these exogenous shocks economic integration in the EAEU has still reached a number of quantitative and qualitative economic results, i.e. increase in mutual trade volumes and development of non-energy mutual trade.

At the same time integration in the EAEU is also not deprived of problems. From the economic side the EAEU states still display little involvement into mutual trade, which is mainly of inter-trade character. This, in turn, limits the potential of industrial cooperation in non-energy sectors. From the institutional perspective, there is a lack of supranational regulation in major areas of economy. For instance, there is no common industrial policy in the EAEU.

Thus, the paper identifies industrial cooperation as one of the most promising directions of deepening integration in the EAEU. The main aim of the paper is to empirically revisit current tendencies and prospects in the EAEU intra-industry trade in machine building. The research hypothesis is that raising the intra-industry status of mutual trade in machine building might sustain the overall non-energy shift in the EAEU economy and, consequently, contribute to the overall economic efficiency in the EAEU.

II. METHODOLOGY

Methodology of research embraces both qualitative and quantitative methods. The qualitative part implies critical analysis of the existing literature on the economic specifics of integration in the EAEU with a neat focus on its trade component. In quantitative terms by applying the Grubel-Lloyd index the paper undertakes an attempt to empirically test the intra-trade character of mutual trade in machine building in selected pairs of the EAEU members in 2011-2018. Under the intra-industry trade the paper understands the exchange between the EAEU members in products of similar categories within machine building. Machine building in the research framework includes product lines under the product groups of 84-90 of Harmonized System (HS) Codes.

In this essence, Grubel-Lloyd index for a pair of selected EAEU members is calculated as:

$$GL = 1 - |X - M| / (X + M) \quad (1)$$

where X – stands for exports of machine building and M – stands for related imports

To put it differently, Grubel-Lloyd index captures the degree, to which exports of machine building industry is covered by related imports in a pair of selected EAEU states. The Index varies from 0 to 1, where the closer it is to 1, the more intra-industry the trade between the selected states is.

However, the research has a number of limitations. First, there is an objective inconsistency of Grubel-Lloyd computation for the selected pairs of the EAEU states. For instance, related indexes are calculated for Belarus-Kazakhstan, Belarus-Russia and Kazakhstan-Russia pairs starting from 2011, whereas the indexes with Armenia and Kyrgyzstan are available only starting from 2015 when they joined the EAEU. Second, and more fundamentally Grubel-Lloyd indexes for several pairs of the EAEU members are relatively volatile. Reasons for the revealed volatility are twofold. On the one hand, it is a direct consequence of the devaluation-induced contraction of mutual trade volumes (incl. that of machine building) in 2014-2016. On the other hand, annual exports and imports of machine building between the EAEU states are not executed on a regular basis (in some cases are even single-time).

III. LITERATURE REVIEW

Economic nature of the Eurasian integration has been constantly debated both in Western and Russian research [2]. Being in the critical realm, the paper points at the top-down

integration approach in case of the EAEU and, consequently, admits the leading role of state structures in integration building.

Industrial cooperation in the EAEU is viewed through the prism of the overall economic efficiency of the Eurasian integrative mechanisms. For instance, Kirkham [3] and Popescu [4] claim the overall fallacy of the Eurasian project, as it supports inefficient Soviet economic rudiments, including that in manufacturing. In his turn, Rotaru [5] questions economic rationales of integration in the EAEU broken down into trade, investment, industrial and other segments, but assumes that common economic agenda might be of greater use for Armenia, Belarus, Kazakhstan and Kyrgyzstan but not for Russia. Knobel, Lipin, Malokostov, Tarr and Turdyeva [6] call for greater trade liberalization in the EAEU and point at Russia's granting economic benefits to its EAEU partners (i.e. business) by selling gas at favourable prices.

Industrial cooperation turns out to be one of the most promising but at the same time one of the most stumbling directions of economic integration in the EAEU [7]. Given the specifics and major trends of industrial cooperation in machine building in the EAEU lack of supranational regulation and insufficient investments (incl. state, private and public-private) have been identified as main challenges in fostering industrial cooperation in the EAEU [8]. Overall, technological modernization coupled with regional infrastructure building on inclusive transcontinental basis of Greater Eurasia have been referred to as one of the springboards for successful industrial cooperation within the EAEU [9]. Notable success in developing industrial cooperation in the EAEU has been achieved in transport machine building, i.e. in its automotive segment between Belarus, Russia and Kazakhstan. As of today, there are 18 joint Kazakh-Russian and 11 joint Kazakh-Belarusian assembling facilities functioning in the EAEU, whereas in Russia alone there are 77 assembling facilities run by Belarusian manufacturers [10].

Comparing EAEU states' strategies for industrial development Andronova [11] stresses that almost 70% of industrial areas set as promising do match each other. Such consistency might be a decisive start for passing to common industrial policy to be executed at the platform of the Eurasian Economic Commission (EEC). Overall, the existing research has studied current trends, problems and prospects of industrial cooperation in the EAEU. In its turn, the paper aims to enrich it with empirical evidence on the potential of intra-industry trade in machine building in the EAEU.

IV. ANALYSIS OF THE EAEU MUTUAL TRADE IN MACHINE BUILDING: INTRA-INDUSTRY FOCUS

Eurasian integration has generally contributed to the development of machine building segment of mutual trade in 2010-2018. EAEU mutual trade in machine building has been volatile due to economic turbulence of 2014-2016 that led to the devaluation of national currencies (vivid cases of Russia and Kazakhstan). Nonetheless, its physical volumes remained stable and in certain product lines (e.g. transport machine building) displayed growth.

Machine building secures around 18.0% of the overall industrial output of the EAEU [12]. To be more specific, this share is predominantly sustained by Russia (60.7%) and Belarus (35.1%).

In 2018, EAEU mutual trade in machine building (groups 84-90 according to the HS codes) leveled at \$11.49 bn. showing a 13.0% increase compared to 2017. However, this figure is still lower than that of 2011 (\$12.61 bn.). When broken down to states, Belarus, Kazakhstan and Russia (the *troika* states) account for almost 99.0% of the overall EAEU mutual trade in machine building. In 2017-2018 all EAEU states increased their mutual exports of machine building with Armenia and Kazakhstan being at the edge. Armenia increased the exports of machine building to its EAEU partners by 37.5%, Belarus by 2.3%, Kazakhstan by 38.6%, Kyrgyzstan by 26.0% and Russia by 19.2% [13].

As of today, commodities, i.e. energy products and metals, still account for a substantial part of the EAEU mutual trade (28.5% and 13.2% respectively), whereas machine building secured a share of 19.1% (Fig. 1).

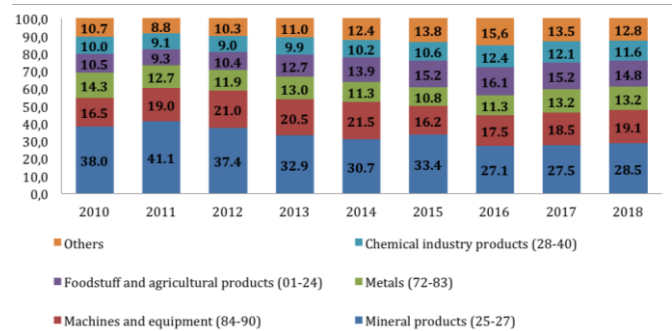


Fig. 1. Structure of the EAEU mutual trade in 2011-2018 according to the HS codes, % (compiled by the author, based on [14]).

As it could be seen from Fig.1, there is a relative non-energy shift in the structure of the EAEU mutual trade. Cumulative share of mineral products and metals has diminished from 53.8% in 2011 to 41.7% in 2018. As for the machine building, its share showed a steady growth in 2016-2018 but is still less than its peak (21.5%) in 2014.

EAEU mutual trade is characterized by relatively high share of intra-industry trade but with dominance of intermediate goods (i.e. commodities as well as components with low value added) in it. As of 2018, intermediate goods accounted for around 65.0% of the overall EAEU mutual trade [13]. At the same time, almost 40.0% of the EAEU mutual trade is of intra-industry status, which is less than in the OECD countries (60.0%) and MERCOSUR (45.0%) [15].

Thus, the paper argues that there is a potential of developing intra-industry trade in machine building within the EAEU. Grubel-lloyd indexes computed for 10 selected pairs of the EAEU states have revealed that in 2011-2018 trade in machine building between Belarus and Russia is predominantly of the intra-trade character. As for the pairs of the EAEU states with participation of Armenia and Kyrgyzstan, in 2015-2018 they have generally displayed greater intra-industry status than that limited to the *troika* states (Table 1).

TABLE I. GRUBEL-LLOYD INDEX FOR PAIRS OF THE EAEU STATES IN MUTUAL TRADE IN MACHINE BUILDING IN 2011-2018 (CALCULATED AND COMPILED BY THE AUTHOR, BASED ON [14])

	2011	2012	2013	2014	2015	2016	2017	2018
Belarus-Kazakhstan	0.05	0.08	0.09	0.12	0.11	0.12	0.07	0.04
Belarus-Russia	0.57	0.56	0.69	0.95	0.99	0.86	0.78	0.90
Kazakhstan-Russia	0.28	0.27	0.25	0.35	0.09	0.14	0.13	0.17
Armenia-Belarus	N/A	N/A	N/A	N/A	0.07	0.04	0.03	0.06
Armenia-Kazakhstan	N/A	N/A	N/A	N/A	0.45	0.58	0.52	0.79
Armenia-Russia	N/A	N/A	N/A	N/A	0.25	0.14	0.24	0.22
Armenia-Kyrgyzstan	N/A	N/A	N/A	N/A	0.28	0.01	0.64	0.16
Kyrgyzstan-Belarus	N/A	N/A	N/A	N/A	0.58	0.22	0.37	0.78
Kyrgyzstan-Kazakhstan	N/A	N/A	N/A	N/A	0.75	0.22	0.33	0.48
Kyrgyzstan-Russia	N/A	N/A	N/A	N/A	0.36	0.58	0.40	0.34

As it could be seen from Table 1, out of the *troika* states Belarus and Kazakhstan are still barely involved into intra-industry trade in machine building. Grubel-Lloyd index for the pair in question leveled at 0.04 in 2018 showing a decline started in 2016. At the same time, intra-industry trade between Kazakhstan and Russia showed a big drop in 2015 but then was on a constant rise. Thus, a Grubel-Lloyd index for a pair of Kazakhstan-Russia rose from 0.09 in 2015 to 0.17 in 2018. In average annual terms in 2011-2018 Grubel-Lloyd values for Belarus and Russia rose by 6.74%, whereas related values for Belarus-Kazakhstan and Kazakhstan-Russia pairs on the contrary declined by 3.14% and 6.88% respectively.

In 2018 relatively high intra-industry trade status of mutual trade in machine building has been captured in Armenia-Kazakhstan and Kyrgyzstan-Belarus pairs: 0.79 and 0.78 respectively. It is worth mentioning that Grubel-Lloyd index for the pairs in question has been on the overall rise since 2015. In its turn, minimum value of Grubel-Lloyd index is observed in case of Armenia and Belarus (0.06).

An interesting perspective on intra-industry trade in machine building in the EAEU comes from the specifics of mutual trade between Kazakhstan and Kyrgyzstan. First, out of the EAEU states only Kazakhstan has a direct border with Kyrgyzstan. This fact makes mutual trade between the two less costly, e.g. in terms of transportation and other logistics costs. Second, Kazakhstan accounts for a 42.2% share in the overall exports of Kyrgyzstan to the EAEU-states a bit less than Russia (55.9%). Such distribution is second to none, as Russia remains the major destination of the EAEU states' mutual exports (ranging from 87.3% in Kazakhstan to 96.7% for Armenia) [14]. Thus, Grubel-Lloyd index for Kazakhstan-Kyrgyzstan mutual trade in machine building is relatively high (0.48) and has been constantly rising since 2016.

In average annual terms in 2015-2018 highest increase rates in Grubel-Lloyd values have been captured in Armenia-Kazakhstan and Kyrgyzstan-Belarus pairs: 20.63% and 10.58% respectively. In its turn, highest average annual contraction rates in Grubel-Lloyd values have been seen in Kyrgyzstan-Kazakhstan and Armenia-Kyrgyzstan pairs: 13.82% and 17.02% respectively.

Thus, the empirical part of the paper has proved that the Eurasian integrative mechanisms have generally contributed to the development of intra-industry trade in machine building in

the EAEU in 2011–2018. However, revealed volatility of Grubel-Lloyd indexes in selected pairs might be a consequence either of dominance of the inter-trade exchange in machine building or inconsistency in mutual exports and imports within the related trade categories.

V. CONCLUSION

Development of mutual trade in machine building has relatively sustained the non-energy shift in the EAEU mutual trade evident in 2011-2018. From the qualitative side, raising the intra-industry status of mutual trade in machine building might contribute the development of industrial cooperation. Thus, industrial cooperation in the EAEU has been identified as one of the promising directions of deepening integration in the EAEU.

Grubel-Lloyd index computed for 10 pairs of the EAEU states has empirically illustrated the intra-trade specifics and potential of mutual trade in machine building in 2011–2018. Out of the EAEU members trade in machine building between Belarus and Russia in 2011-2018 is predominantly of intra-trade character. Significant values of Grubel-Lloyd indexes in 2015–2018 have been present in Armenia-Kazakhstan, Kyrgyzstan-Belarus and Kyrgyzstan-Kazakhstan pairs.

However, the paper has captured relative volatility in Grubel-Lloyd indexes in 2011–2018. Partially it might be a consequence of exogenous (incl. economic) shocks that have been hitting the economy of the EAEU. From the endogenous perspective this inconsistency unveils generally low level of industrial cooperation between in EAEU and what is more fundamental – insufficient stimulus for that.

In this essence, the research comes up with a number of initiatives to be realized at the platform of EEC that might raise the intra-trade status of mutual trade in machine building and, consequently, lead to greater efficiency within the EAEU.

First, and more fundamentally, the EAEU states should introduce common industrial policy. Its supranational status will enable them to accumulate substantial financial, technological and organizational resources and channel them into the most promising areas of the EAEU industry.

Second, the EAEU states should better utilize the investment mechanisms of the Eurasian Development Bank (EDB) to pour financing into joint aimed at developing

cooperative ties projects (with at least two EAEU states) within the machine building industry.

Third, the EAEU members should foster the full-fledged launch of the Eurasian Network of Industrial Cooperation, Subcontracting and Technology Transfer. Its digital, transparent and inclusive potential executed at the platform of the EEC might become a gateway for the EAEU states to modernize the existing industrial value chains and create the ones.

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