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Opportunities for integration of aircraft and spacecraft industry into global value chain

The authors conducted an assessment of the integration of Ukrainian aircraft and spacecraft industry into global value chains. The adoption of effective tools and instruments for encouraging the entry of Ukraine's aircraft and spacecraft industry into global value chains provides for the creation of effective policies and institutions, aimed at eliminating restrictions in the Ukrainian producers integration into international production networks.

In the conditions of look-ahead development of leading countries and the strengthening of international competition, Ukraine is promising to integrate into large-scale network structures of international electoral and scientific-technical co-operation. Technologically connected productions cover large amount of links in geographical different countries and are united to global value added chains (GVC). Participation enables in them to expand production, to solve the problem of creation of new jobs, to overcome technological breakages, what finally will result in growth of the country GDP.

In spite of technical backwardness and insufficient competitiveness of domestic aircraft industry, exactly integration to existing world industrial networks by the way of delivery of goods of intermediate group for further processing in other countries is a promising direction of regeneration of the Ukrainian industry and accumulation of necessary capital investments for innovative updating.

Ukrainian aerospace industry is a consolidated sector, that has a full production of air equipment cycle. It produces air and space-system engineering, as well as part and furnishing to them with significant competitive advantages.

It is caused by the historical aspects of multi-annual experience in the air industry development, the availability of engineering specialists, the availability of a network of educational institutions that provide training for specialists of the relevant qualifications and material-technical.

Ukraine is one of the participants in world-class aircraft manufacturing, located 65th among other countries involved in the global aircraft manufacturing network (Table 1).

The generally accepted indicator of participation in GVC is the trade volume indices in intermediate goods, which occupies a significant weight in the structure of foreign trade for the aircraft industry. Exactly here it is possibility to realize the positive opportunities for integration in the GVC in the production of the following commodity groups: parts of aircraft and spacecraft, propellers and rotors and parts, under-carriages and parts, other parts of airplanes or helicopters and others. At the same time, the most promising commodity groups, such as under-carriages and parts of

it, and other parts of airplanes or helicopters, whose aggregate share of exports is 93% in the structure of exports throughout the group (Table 2).

Table 1.

Ukraine's place in the world export of the aviation and space fields in 2017

Commodity code and title by Ukrainian Classification of Commodities in Foreign Trade	Ranking in world exports	Share in world exports, %
88 Aircraft, spacecraft, and parts thereof	65	0
8801 Balloons and dirigibles; gliders, hang gliders and other non-powered aircraft	18	1,1
8802 Powered aircraft "e.g. helicopters and aeroplanes"; spacecraft, incl. satellites, and suborbital	52	0
8803 Parts of aircraft and spacecraft of heading 8801 or 8802, n.e.s.	58	0
8804 Parachutes, incl. dirigible parachutes and paragliders, and rotochutes; parts thereof and accessories	26	0,2
8805 Aircraft launching gear (excluding motor winches for launching gliders); deck-arrestor or similar	37	0

Source: compiled for [1].

International economic cooperation in the field of aircraft construction are on the whole developing vigorously. The cessation of foreign trade relations with the Russian Federation, which for a long time was the dominant trading partner of Ukraine, posed to the aviation industry the requirement to find new partners for the processing and marketing the products. Thus, for 2013-2017, there was a decrease in international trade figures: exports of parts of aircraft and spacecraft dropped almost sevenfold (from 98.86 US Dollar million in 2013 to 14.14 US Dollar million in 2017), while import supplies doubled (from 36.24 US Dollar million in 2014 to 17.53 US Dollar million in 2017) (Figure 1).

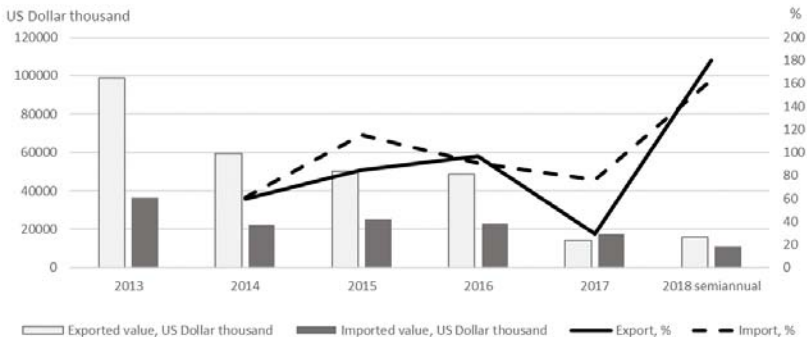


Fig. 1. The dynamics of Ukraine's foreign trade in parts of aircraft and spacecraft in 2013–2018

Source: compiled for [1, 2].

Instead, in 2018, positive changes are taking place (growth of exports and imports of parts of aircraft and spacecraft by 179.9% and 162.8% respectively). It caused by the intensification of international cooperation in the field of air repair. As well the adoption of stimulating regulatory acts has played the important role. That include the Strategy for the revival of domestic aircraft building for the period up to 2022 [3] and changes in tax and customs legislation [4, 5]. Aircraft companies will be able to purchase the necessary parts and components from abroad without paying customs duties and value added tax by 2025. This will allow companies to save money and redirect them to other urgent needs, such as R&D, procurement of equipment, participation in exhibitions, etc.

Table 2.

Ukraine's foreign trade in parts of aircraft and spacecraft in 2014-2018,
US Dollar thousand

	2014	2015	2016	2017	2018 semi- annual
Exported value					
880300 Parts of aircraft and spacecraft of heading 8801 or 8802, n.e.s.	59216,8	50281,9	48531,1	18205,8	15649,6
880310 Propellers and rotors and parts thereof	2484,7	1270,0	1693,0	354,5	779,0
880320 Under-carriages and parts thereof	5332,6	3561,1	2626,7	4698,9	1234,8
880330 Other parts of aeroplanes or helicopters	38156,5	20636,4	23429,9	12178,9	13318,0
880390 Other	13243,1	24814,4	20781,5	973,5	317,7
Imported value					
880300 Parts of aircraft and spacecraft of heading 8801 or 8802, n.e.s.	22021,4	25428,1	23059,4	17467,0	11119,7
880310 Propellers and rotors and parts thereof	1948,1	8241,2	7480,5	4755,4	4391,3
880320 Under-carriages and parts thereof	7965,4	10817,5	10447,1	6274,1	3622,7
880330 Other parts of aeroplanes or helicopters	12077,1	6337,1	5034,3	5627,8	2985,1
880390 Other	30,8	32,3	97,4	809,6	120,6

Source: compiled for [2].

Today we can see many successful cases of trade and economic cooperation within the framework of the global value added chains development of the Ukrainian aircraft industry. So, during the production of a new transport aircraft - AN-132, partially the spare parts of their domestic production were used. Other components were provided by well-known international companies. In particular, the aircraft is equipped with turboprop engines from the Canadian manufacturer "Pratt & Whitney",

air screws by British company “Dowty Propellers”, avionics and a power supply system from the American “Honeywell”, and the air preparation system - from the German “Liebherr”. The transport aircraft was manufactured in cooperation with “Taqnia Aeronautics” from Saudi Arabia.

This means that in the short to medium term, Ukraine will be able to generate more revenue through increased production in a relatively narrow range of spare parts and components of aircraft and spacecraft that are exported.

Conclusions

Taking into account the change in the geographical and commodity vectors of domestic exports, further prospects of Ukraine's participation in the global trading space will depend on whether the growth of the competitiveness of the internal part of the value chain will be achieved. The introduction of effective tools to stimulate the entry of Ukraine's processing industry into global value added chains involves the creation of effective policies and institutions aimed at eliminating constraints when integrating Ukrainian producers into international production networks.

Given the changes in government support and the abandonment of direct subsidization for industries, which makes it impossible to using direct state support methods (export subsidies), the priority task is to create an effective competitive environment and a positive business climate, which will include directions that stimulate aircraft and spacecraft production and trade.

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