

THE EU POLICIES AS THE PUBLIC ADMINISTRATION TOOL TO INCREASE THE AGRICULTURAL PRODUCTS EXPORTS

Oksana Kiforenko¹

Abstract: Agriculture is an important source of food for people, forage for animals and raw materials for processing industries. Effective public administration of such an important economy sector as agriculture and all the sectors connected with it is an absolute must for a sustainable development of every single village as well as the whole country/continent/world. The research was conducted with the help of the univariate, empirical and comparative analyses. For better visual representation of the analysis results, such visualization tools as tabular method, bar charts, graphs with markers were used in the research. The trend lines for both products types, being upward either during the researched timeframe or the next two years taken for the projection making, were built with the help of the exponential function, having been chosen from the exponential, linear, logarithmic, polynomial and power ones. The criterion for the choice of the appropriate function was the values of the R^2 coefficient. The research results testify to the effectiveness of the EU public administration for agriculture and agricultural products exports as well as the correctly created/chosen/implemented strategies/policies/initiatives. The research and its results are of great help for public administrators, companies engaged in the international trade for agricultural products of either the EU or any other country outside of the union as well as NGOs, beginners and experienced statisticians and data analysts.

Key words: agricultural products exports, public administration, CAP, Green Deal, Farm to Fork Strategy

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Introduction

The importance of agriculture as a source of food for people, forage for animals and raw materials for processing industries has long been discussed and proven in a great number of scientific pieces of work. But the real importance of agriculture goes far beyond the factors mentioned above as it has direct or indirect impact on such issues as the rural development of settlements, local/national demographic situation, changes of local/global climatic conditions, local/global biodiversity, etc. That, in turn, drives to the well-known viewpoint that an effective public administration of such an important economy sector as agriculture and all the sectors connected with it is an absolute must for a sustainable development of every single village as well as the whole country/continent/world.

Many countries and countries' unions, including such powerful players as the USA and the EU, have a lot of agricultural policies aiming at stabilizing agricultural production and supporting farm income as well as assuring adequate nutrition, securing food safety, facilitating rural development, and encouraging environmental protection (Normile, Effland & Young, n.d.). It's obvious, that the success of a country or countries union does not depend solely on the finely written policy/strategy/initiative. A lot of other factors like geographical location and therefore climatic and weather conditions, soil fertility, availability of skilled and relatively cheap work force, the fluctuations on the financial markets, etc. seem to have the primary importance in the provision of the successful functioning for the agricultural economy sector as a whole and all and every single industry connected with it in particular. But agriculture is not only about growing, breeding, etc. In order that the very production of agricultural products can happen, a great amount of people, machinery, tools and factors are to be used. And here not only the so-called hard tools are meant, but the soft ones like policies/strategies/initiatives, skills, knowledge, etc. are to be paid a special attention. Of course, nobody underestimates the ability, skills and hard work implemented to grow crops or breed animals, but it is not less important to decide what crop to plant in order to be able to sell it with the biggest profit possible, what logistic route/means/destination to choose to transport the agro produce with the lowest transportation cost possible, where to sell, that is in the local market or better to transport the agro products to another country, and so on and so forth. As agriculture is vitally important for not only the successful functioning of every country, but for the very existence of its population, the public administration officials should do more than their best to help the agriculture

and all the industries connected with it develop freely, without any obstacles with the biggest support possible to give in the framework of the existing normative – legal acts. As the European Union (EU) has developed from a net importer to a net exporter of agricultural products only over some of the last decades, the said countries union is considered to be a perfect research subject for the influence of its public administration tools on the development of the agricultural economy sector in general and the agricultural products exports, in particular. Therefore, the scientific questions to be answered in the article are whether the EU's policies/strategies/initiatives influence the dynamics of its agricultural products exports, what product group in particular and in what way. The scientific hypothesis to be confirmed/rejected in this paper is that the EU policies/strategies/initiatives, which are being constantly changed and improved trying to adapt to the changing challenges, influence the amount of EU agricultural products exports in a positive way. Consequently, the purpose of the article is to answer the scientific question mentioned above, making research to confirm/reject the said scientific hypothesis by overviewing the EU policies/strategies/initiatives concerning its agriculture and by making comparative analysis of the agricultural products exports of the EU by products groups.

1. Methodology

As agricultural products exports are an important source of economic profit for many countries, the profound analysis, in order to make the most accurate predictions possible of a country's agricultural exports, is the key to the understanding of a country's domestic use demand and exports figures in order to facilitate the exports, imports, and domestic amounts planning, that, in turn, will result in the necessary adjustments of a country's production and marketing policies (Xu & Hsu, 2022). The data being researched are the amounts of agricultural products exports intra-EU27 agricultural products exports by products types SITC - Product 0 and Product 1. The Standard international trade classification, abbreviated as SITC, is a product classification of the United Nations (UN) used for external trade statistics (export and import values and volumes of goods), allowing for international comparisons of commodities and manufactured goods (Eurostat, 2022). Product 0 by SITC comprises food and live animals, while Product 1 – beverages and tobacco (UNCTADSTAT, 2022). Intra-EU exports mean the exports inside the European Union, that is between the member-states. EU27

means the European Union consisting of 27 member-states. The timeframe under analysis is ten years – from 2012 to 2021 included. The research was conducted with the help of the univariate, empirical and comparative analyses. For better visual representation of the analysis results, such visualization tools as tabular method, bar charts, graphs with markers were used in the research. The general trend lines for the data sets under research were built with the help of the exponential function, the formula of which is as follows:

$$f(x) = a^x \quad (1),$$

where $a > 0$, while 'a' is not equal to 1 and 'x' is any real number.

The mentioned function was chosen from the exponential, linear, logarithmic, polynomial and power functions. The criterion for the choice of the appropriate function to build the trend line for the analysed data was the values of the R^2 coefficient.

2. Results and Discussion

Globalisation of world trade, consumer-led quality requirements and the European Union enlargement are the new realities and challenges, that the European agriculture is facing nowadays (Vasilescu, 2008). Policies designed to protect and subsidize agriculture have been a key part of the European Union (Swinnen, 2014), therefore, the Common Agricultural Policy (CAP) offers various tools and instruments ensuring that agriculture meets the European citizens' demands to the best extend (European Commission, 2020). The implementation of the Common Agricultural Policy is the ingredient part for the mission of the Directorate-General for Agriculture and Rural Development (DG AGRI) together with the promotion of the sustainable development for Europe's agriculture as well as the insurance for the well-being of its rural areas (European Commission, 2020). As for the financial part of the policy under research, it should be noted that the CAP is financed through two funds: the European Agricultural Guarantee Fund (EAGF) and the European Agricultural Fund for Rural Development (EAFRD) (European Commission, 2020).

Additional pressures have been exerted on the European Union policymakers as to reform domestic agricultural policy due to the EU's enlargement from 6 European countries with 167 million people in 1957 to 28 – with 508 million people by 2013, including agriculturally intensive but economically poorer countries of Eastern Europe (Schnepf, 2021). As the

European Union is leading the transition to a healthy planet and a new digital world in a moment of growing economic and social uncertainties (European Commission, 2020), the agreement on the new modernised Common Agricultural Policy for the timeframe 2023 – 2027 was adopted on the 2nd of December, 2021. The new CAP aims at ensuring a sustainable future for European farmers, providing more targeted support to smaller farms, allowing greater flexibility for the EU countries to adapt the stated measures to their local conditions (European Commission, n.d.(e)). The new CAP is the main tool directing to the transformation towards a sustainable and knowledge-based agricultural economy sector, supporting its resilience and diversity, at the same time, promoting development and employment in rural areas (European Commission, 2020). Here, it should be added that as the mentioned legislation act is to be implemented in 2023, a transitional regulation is in place for the years 2021 and 2022, aiming at bridging the gap between current and new legislation on the matter (European Commission, n.d.(e)).

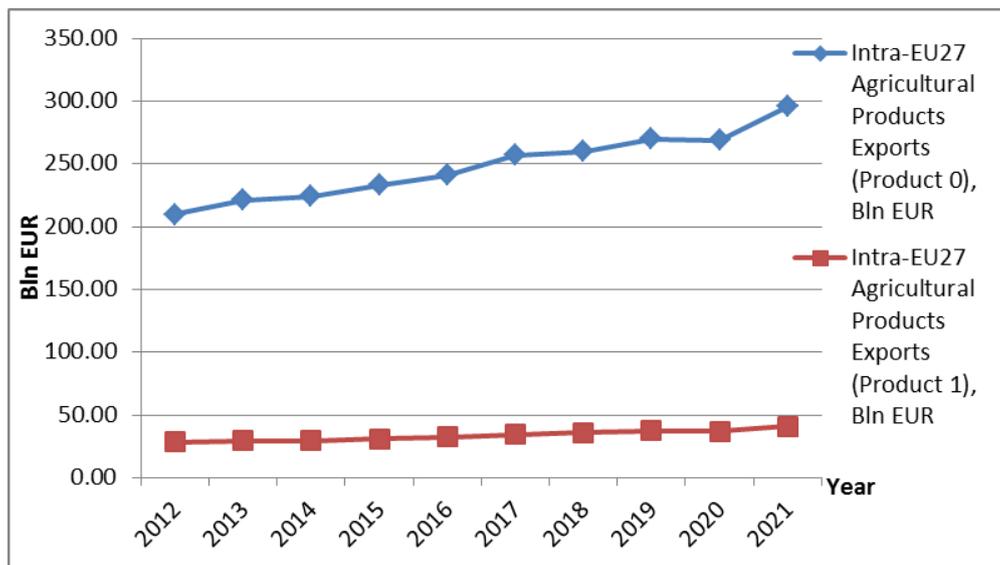
As follows, the new CAP aims at supporting agriculture in order to help it make a stronger contribution to the European Green Deal goals, embracing in itself higher green ambitions, contribution to the Green Deal targets, enhanced conditionality, eco-schemes, rural development, operational programmes, climate and biodiversity (European Commission, n.d.(a)). As a reminder, it should be noted that the European Green Deal is a set of proposals aiming at making all the sectors of the EU's economy fit to meet the challenges of nowadays, directing the EU to reach its climate targets by 2030 in a fair, cost effective and competitive way (European Commission, n.d.(b)). Though, all the EU member-states agreed to work in the direction of reducing the harmful emissions by approximately 55% by the year 2030, if compared to the levels of the said emission noted in 1990, in reality it is not that easy to be accomplished due to peculiarities for the economy sectors development, especially those connected with the way agriculture functions in every single member-state. While in some countries/regions/locals the said targets are not that difficult to be achieved, many farmers, especially the ones owning small and medium sized farms, are not very happy with changing the whole farming structure and procedures they worked through for years in order to comply with the new targets mentioned above.

In 2020, as the part of the European Green Deal mentioned previously, the European Commission presented two strategies, which are directly connected with agriculture. These are the "Farm to Fork" Strategy, aiming at a 50% reduction of pesticides use and a 20% reduction of synthetic fertilizers

use in agriculture, added by a 50% reduction of antibiotics use in livestock breeding, and the Biodiversity Strategy, aiming at the withdrawal of 10% of agricultural land from production to be ecologically protected (Bourget, 2022). Among the others, the Farm to Fork Strategy contains the following actions aiming at improving animal welfare in the context of directing the development of agriculture in a more sustainable way. The actions mentioned above contain the revision of the legislation on animal welfare by 2023, including the ones on transport of animals and their slaughter as well as the necessity to consider options for animal welfare labelling in order to transmit value through the food chain in a better way (Juliussen, 2020). Another strategy, included into the European Green Deal, mentioned above, is the Biodiversity Strategy, by implementing of which the European Commission aims to ensure the EU's agriculture strong contribution to the agricultural biodiversity of the European Union as the mentioned strategy sets out, among the others, such targets, related to agriculture, as to place at least 10% of agricultural area under high-diversity landscape features and 25% of agricultural land under organic farming as well as to reduce nutrient loss from fertilisers by at least 50%, while reducing the risk and use of chemical pesticides by 50% (European Commission, n.d.(c)). But, once again, the biodiversity strategy has very noble targets, though one should take into account the following issues – farmers will need a transition period from the traditional farming way to that outlined in the strategies mentioned previously. In addition, the transition to the more bio farming way will be connected with higher costs, that, in turn, will lead to increase in food prices and a bigger burden on the shoulders of customers. The last nuance can become a strong argument that can slow down the said strategy implementation along with the rising energy prices and inflation.

Another EU policy, that aims to promote a more sustainable agriculture production of better quality agriproducts either for the intra-EU consumption or intra- and extra-EU exports, increasing alongside the EU competitiveness on the global agro-market, is the EU agricultural promotion policy. The said policy is meant to make it easier for the EU farmers to find and enter new markets, thus helping develop the European agriculture in general and every single industry branch connected with it in particular. The policy mentioned above incorporates two types of promotion actions. These are the ones run directly by the EU officials and those co-financed by the EU. The promotion actions run by the EU directly comprise diplomatic offensives by the Commissioner in non-EU countries to develop agri-food trade, or participation in fairs and communication campaigns (European Commission, n.d.(d)).

To assess the effectiveness of the policies mentioned above, the analysis of the intra-EU27 agricultural products exports in terms of product types 0 and 1 is being made further in the research. Though the policies being analysed above determine the terms and conditions for the EU agriculture functioning as a whole, the amount of exports of the agricultural products depend directly on the amount and quality of the said products being produced. That's why, the research first step is the dynamics of the intra-EU27 agricultural products exports (product 0 vs product 1) that can be followed in Figure 1.



Source: author's elaboration on the basis of the data from (Eurostat, 2022(a)).

Figure 1. Dynamics of Intra-EU27 Agricultural Products Exports (Product 0 vs. Product 1), Bln EUR

Having cast a look at the dynamics of the Products 0 and 1 in terms of their exports inside the European Union during the timeframe of ten years, depicted in Figure 1, it can be seen that both their overall dynamics and amount differ a lot. The dynamics of the Product 1 is much flatter, than that of Product 0. In addition, the dynamics of Product 0 is more changeable if compared to that of Product 1. The common thing between the two dynamics presented in the figure given above is their upward tendency, though the slope of Product 1 is not that steep as that of Product 0. Another common thing, that is visible even after having cast a quick look at the data visualization in Figure 1, is the increase of both products types exports amounts in the last year under research, that is in 2021, though the said increase is much steeper of Product 0 than that of Product 1. The upward tendency of the dynamics being analyzed is also proven

by the data from the Eurostat publication, stating that during the period from the year 2002 to 2021, the EU trade in agricultural products more than doubled, with the average annual growth of almost 4.8%, with the exports (5.4%) having grown faster than imports (4.2%) (European Commission, 2022). To further develop the research as well as to deepen it in the direction of its statistical analysis, the basic statistical measures of the intra-EU27 agricultural products exports by product types (Products 0 and 1) were calculated and presented in Table 1.

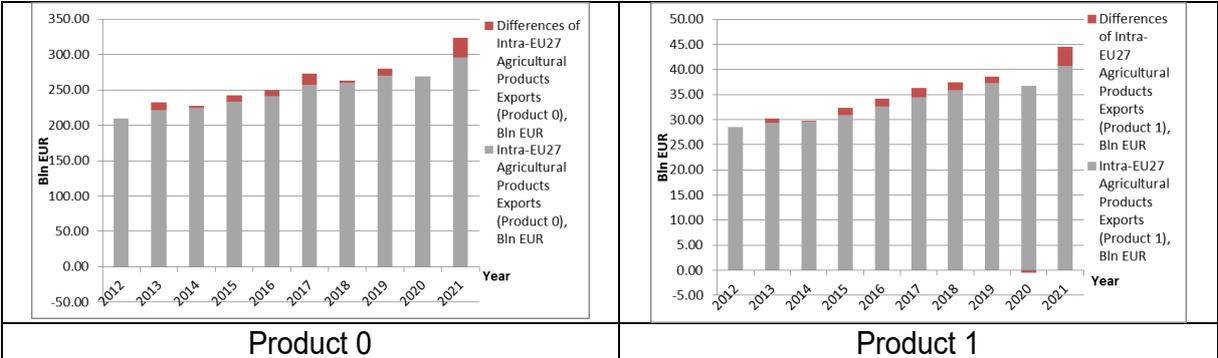
*Table 1.
Basic Statistical Measures of Intra-EU27 Agricultural Products Exports
(Product 0 vs. Product 1)*

Basic Statistical Measures of Location		Basic Statistical Measures of Variability		Basic Statistical Measures of Location		Basic Statistical Measures of Variability	
Mean	248.105	Standard Deviation	26.74433	Mean	33.599	Standard Deviation	4.05013
Median	249.19	Variance	715.24576	Median	33.51	Variance	16.40352
Mode	-	Range	85.9499	Mode	-	Range	12.15572
		Interquartile Range	45.6975			Interquartile Range	7.3775
Product 0				Product 1			

Source: author's calculations with the help of (Social Science Statistics, n.d.) on the basis of the data from (Eurostat, 2022(a)).

Having conducted the comparative analysis of the basic statistical measures for the products groups under research, it can be stated that such statistical measures of location as mean and median are approximately 7.4 times bigger for Product 0 if compared to those of Product 1. You may wonder why there is no value denoting mode in the table given above. The explanation is rather simple – the mode is the value that appears most frequently in a data set (Hayes, 2022), but the data set under research is too small in number according to the statistical criteria, so all the values are different, that's why there is no mode in the given data set. If we compare the measures of variability, the first one for the comparison will be standard deviation, it can be seen that the one of Product 0 is approximately 6.6 times bigger than that of Product 1. The difference between the values of another statistical measure of variability – variance is much higher compared to the previously mentioned numbers, that is the one of Product 0 is 43.6 times

bigger than that of Product 1. The difference between a more statistical measure of variability, that is range, is nearly 7 in favour of Product 0 compared to that of Product 1. The interquartile range of Product 0 data set is 6.2 times bigger than that of Product 1. As we can see, the average ratio of the statistical measures of location for Product 0 to those for Product 1 is approximately 7.4 in favour of the first one stated above, while the average ratio of the statistical measures of variability for Product 0 to Product 1 is almost 16 in favour of Product 0. Therefore, not only the data of Product 0 are bigger in amount, but they are also much more dispersed. Such a big difference between the exports amounts of Products 0 and 1 in favour of the first one is not surprising, as, when talking about food as a component part of Product 0 by SITC, the following product subtypes are meant – various types of processed goods deriving from vegetable and animal products such as sugar, beverages, tobacco and prepared animal fodder (European Commission, 2022), which are in a greater need than beverages and tobacco, all in all. To have a broader overview of the yearly changes of the product groups under research, the differences of intra-EU27 agricultural products exports of Product 0 and Product 1 were calculated and presented in Figure 2.



Source: author’s elaboration on the basis of the data from (Eurostat, 2022(a)).

Figure 2. Differences of Intra-EU27 Agricultural Products Exports (Product 0 vs. Product 1), Bln EUR

As far as it can be seen from the data visualised with the help of bar charts in the figure given above, the overall “picture” of the yearly differences for the product groups under research is very similar in both cases. That means that although the exports changes differ in their amount, their positivity or negativity is similar in the cases of both analysed product groups. Having cast a closer look at the data depicted in Figure 2, we observe positive

changes in the exports amounts of both Product 0 and 1 during all the years of the timeframe under research except one, that is except the year 2020, in which a negative change in the exports amount of both product groups can be observed. The explanation of the said products exports decline can be the impact of the Covid-19 pandemic. The biggest positive difference for the exports amount of Product 0, which not only increased the exports amount after its decrease in the previous year, but surpassed the mentioned exports pre-pandemic level, is to be noted in the year 2021. That testifies to the tight policy/strategy choice made by the EU officials as well as to the unity of the country-members in their efforts to overcome the pandemic consequences, bringing the countries back to the successful functioning. The biggest increase for Product 1 exports can be also seen in the same year, that is in 2021, proving the explanation of Product 0 biggest increase in this very year, given previously. The smallest positive difference of Product 0 exports under research is to be observed in 2018. That comes along with the small trade deficit in the extra-EU agricultural products trade as the mentioned exports accounted for 137 bn EUR while imports – 138 bn EUR in the said year (Eurostat, 2019). The situation mentioned previously didn't find its confirmation in the case with Product 1 smallest exports increase, as it cannot be observed in 2018, but in 2014, and that, in turn, is one of the few differences in the product groups under analysis exports dynamics. To further develop the analysis, five extreme highest values of intra-EU27 agricultural products exports of Product 0 and 1 are presented in Table 2.

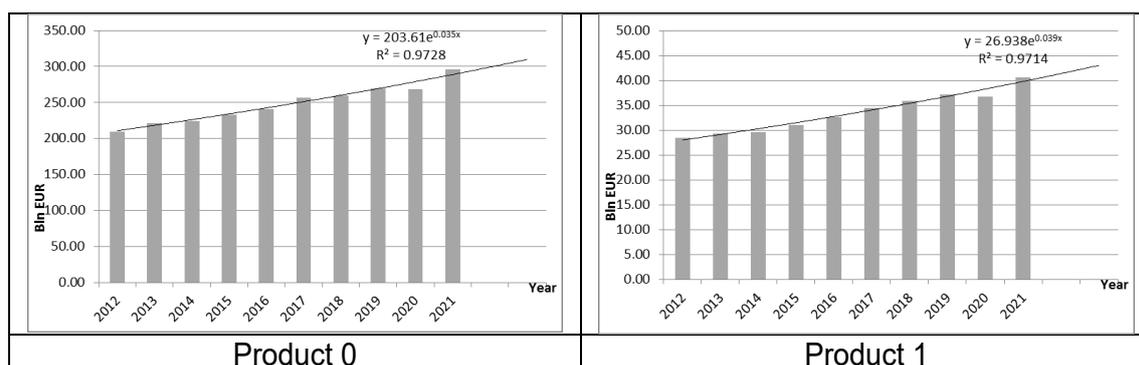
*Table 2.
Five Extreme Highest Values of Intra-EU27 Agricultural Products Exports (Product 0 vs. Product 1)*

Observation Number	Year	Data Value	Observation Number	Year	Data Value
6	2017	257.186	6	2017	34.4345
7	2018	259.869	7	2018	35.9397
9	2020	268.787	9	2020	36.7752
8	2019	269.840	8	2019	37.2299
10	2021	295.882	10	2021	40.6463
Product 0			Product 1		

Source: author's calculations on the basis of the data from (Eurostat, 2022(a)).

Even a quick look at the data presented in the table given above allows us to see that the list of the years arranged according to the ascending observations for the product groups exports amounts are similar in the cases of both Product 0 and Product 1. Another interesting observation of the data

presented in Table 2 is that in 2020 the gradual increase for the products groups exports under research was interrupted. The explanation of such an interruption can be the impact of the Covid-19 pandemic, that had its consequences in all the spheres of the human activity. In order to deepen the analysis being presented, the general trend lines for the data researched either through the analyzed timeframe or two more periods, in this case – years, taken for the projection making, were built and depicted in



Source: author's elaboration on the basis of the data from (Eurostat, 2022(a)).

Figure 3. Intra-EU27 Agricultural Products Exports (Product 0 vs Product 1), Bln EUR

To build the general trend line for the analyzed data is very important, either for analysts or for decision makers, as understanding the trend according to which the data tend to develop themselves gives the opportunity to have a broader overview of the whole “picture”, without mentioning the attempt to make projections. Of course, no model can give 100% exact projection of the future data development, but, even the projection that is not perfectly exact, having definite confidence limits, gives a decision-maker one more option of the possible future data development, while the more options of the decision making we have, the better decision we can make to find the best solution of the given situation possible. Getting back to the subject of the presented research, we observe a similarity either of the bar charts or the general trend lines built for them, depicted in the figure given above. Both trend lines were built with the help of the same function type, that is the exponential one, which was chosen among the exponential, linear, logarithmic, polynomial and power functions. The criterion for the choice of the appropriate function to build the trend line for the analyzed data was the values of the R^2 coefficient. Both trend lines, depicted in the figure given above are upward, either during the researched timeframe or the next two

years taken for the projection making. Though the trend lines are upward, as it was stated previously, observing the projected exports values, it can be seen that the projected value in 2022 is approximately similar to that of 2021, while in 2023 the exports amounts will increase if compared to those of 2021.

Conclusion

The European Union is considered to be one of the strongest economies in the world, being therefore a powerful player on the global market and political scene. Having been a net importer not long ago, the EU has changed its policies having become a net exporter with all the consequences such as an increase of the currency inflow, better employment level, more stable economic and political status implying a better resistance to the emerging challenges of nowadays. The EU policies concerning the development of agriculture as a whole, as well as all the industries connected with it in particular, proved to be successful either due to the research results or due to the strategies/policies/initiatives goals and implementation results, as the main cornerstones of the EU overall strategy are to promote the new CAP, the European Green Deal, democracy and demography making Europe stronger on the global level (European Commission, 2020). The positive results mentioned above are the consequences of the effective public administration of the said economy sector, which is not that easy to be managed as the competences in the field of agriculture are shared between the Union and the Member States (European Commission, 2020). What should be noted in this context is that the public administration of agriculture, and the industries connected with it, does not aim only to increase income, but to make agriculture more sustainable and bio-friendly and the confirmation of the mentioned viewpoint is that the promotion of the European Green Deal implementation aims at maximising the contribution of the agricultural sector to a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and the economic growth is decoupled from the natural resource use (European Commission, 2020). The assessment of the practical results of the agriculture public administration in terms of the agricultural products exports analysis by its products groups, being made in the presented research, testify to the overall upward trend of the said exports intra-EU27 with Product 0 dynamics being more changeable than that of Product 1. In addition, the average ratio of the statistical measures of location for Product 0 to those for Product 1 is

approximately 7.4 in favour of the first one stated above, while the average ratio of the statistical measures of variability for Product 0 to Product 1 is almost 16 in favour of Product 0, pointing at the data of Product 0 being bigger in amount and much more dispersed. The yearly differences for the product groups under research are very similar in both cases with the exception of the smallest exports amount increase, being noticed in 2018 in the case of Product 0, while in 2014 – of Product 1. Furthermore, the list of the years arranged according to the ascending observations for the amounts of product groups exports are similar in the cases of both Product 0 and Product 1. The trend lines for both products 0 and 1, being upward either during the researched timeframe or the next two years taken for the projection making, were built with the help of the same function type, that is the exponential one, which was chosen among the exponential, linear, logarithmic, polynomial and power functions. The criterion for the choice of the appropriate function to build the trend line for the analysed data was the values of the R^2 coefficient. Everything stated above testifies to the effectiveness of the EU public administration for agriculture and agricultural products exports as well as the correctly created/chosen/implemented strategies/policies/initiatives. The research and its results may be of great help for public administrators, companies engaged in the international trade for agricultural products of either the EU or any other country outside of the union as well as NGOs, beginners and experienced statisticians and data analysts.

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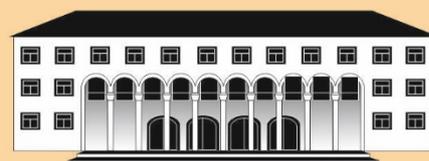
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