

MARKET OF ORGANIC PRODUCTS IN THE EU: AN ASSESSMENT OF CONSUMERS

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Abstract: The production and consumption of organic products in the EU is growing steadily due to the policy of ensuring the sustainability of the agricultural sector within the EU. The governmental support provides stimulation of organic markets development. The aim of this article was to evaluate the segment of producers and buyers of organic products in the EU for 2012-2019. The results show a positive dynamics to the growth of the number of organic producers in the EU (by 15.2% for 2012-2019). It was found that the most developed countries have the highest number of producers and the total volume of the distribution market. The number of producers does not determine the volume of organic production in the EU countries.

Keywords: Producers of Organic Products, Consumers of Organic Products, Organic Market of the EU.

1 Introduction

The organic sector has the potential to ensure the sustainability of the EU food system through detailed planning and the resolution of inequalities between the home socio-economic organization of agricultural production and the ability of the EU to implement the principles of organic farming (ecology, health, care, and justice) (Brzezina, Kopainsky & Mathijs, 2016). The potential of organic producers are growing: the number of organic producers in Europe grew by 57.6% in 2009-2019 to 418 thousand according to Eurostat (2021a), representing 14% of the total number of organic producers in the world (FIBL&IFOAM. Organic International, 2021). The growth of producers is stimulated by the EU policy for the development of organic production and the policy of sustainable development, the need for sustainable development of rural areas (Escribano, 2016). Among the main problems – the efficiency of production activities, which is different in different countries through different methods of production, and the insufficient level of production of products to satisfy the consumer demand. This requires studying the specialization of EU countries on organic products.

The aim of this article is to evaluate the segment of producers and buyers of organic products in the EU according to 2012-2019 years.

The main objectives of the study are:

- Assess the dynamics of the number of organic producers in 2012-2019 in the EU.
- Identify the relationship between the volume of production of organic products and the number of producers.
- To classify countries by specialization of organic production in the field of crop production, 2019.
- Identify the features of consumption of organic products in EU countries.

2 Literature review

In the scientific literature the dynamics of the organic market in the world and the EU is investigated in the context of the growth of the area of organic land, organic producers, consumer spending on organics within the EU countries, and the leaders of organic production in the world (Willer & Schaack, 2015; Willer, Schaack & Lernoud, 2019; Paull & Hennig, 2016). The literature also identifies the peculiarities of the development of organic markets in different EU countries: the growing demand

for Italian organic products; the tendency of consumers to focus on health, which is the reason for the purchase of organic products; the dependence between the marketing orientation of organic producers and their profitability; the trend towards the development of institutions regulating organic production and certification in developing countries; peculiarities of certification of organic products in the EU (Vehapi & Milanović, 2017; Vietoris, et al. 2016; Mercati, 2016; Marmul & Krukovskaya, 2018; Vieira & Hoppe, 2016). Vincent-Caboud et al. (2017) investigated the main problems of implementation of innovative alternative production practices in organic agriculture in the EU. The main target of organic agriculture development is a steel development and reduction of the level of impact of the agricultural sector on ecology (Brzezina, et al. 2017; Liulov et al., 2020). Increasing awareness of the importance of organic products in the diet leads to an increase in their consumption, especially in developed countries. Kranjac, Vapa-Tankosic & Knežević (2017) developed a portrait of food consumers: mostly young, educated people in cities aged 31-40, who are concerned about their health and diet. Vukasović (2016) also reveals a predilection for organic products among young, educated people. "Desire for natural and healthy food the most important driver" for the purchase of organic food by consumers, "Interest in 'environmental protection' second most important driver" (Janssen, 2018). Vukasović (2016) also argues that to promote organics, manufacturers need to differentiate their products and increase the level of information about their benefits.

The organic production of goods combines innovative and traditional methods of production based on new principles of marketing. Organic food production ensures sustainability in production and consumption, so the governments encourage producers to develop enterprises, and consumers – to choose environmentally friendly food products. The main incentive tool is subsidies for organic farmers, which influence the price of products and the decision of consumers to purchase them, increasing the supply of products on the market and reducing the relative price of organic products. Developed EU countries have also implemented environmental labelling and various schemes to support consumers in product selection (Thøgersen, 2016; Akimova, Akimov & Liakhovich, 2017; Yakymchuk, Valyukh & Akimova, 2017). These measures have ensured the success in promotion of organic products and growth of their sales in the EU countries (Thøgersen, 2016).

The literature review indicates the lack of studies of the main trends in the segment of producers and buyers of organic products in the EU. The literature also lacks an analysis of specialization of EU countries in the production of certain types of organic products and peculiarities of organic production.

3 Materials and research methods

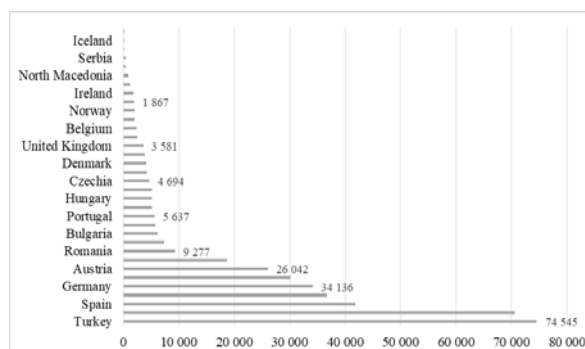
This article contains a statistical analysis of the indicators of development of the organic market in the EU countries according to Eurostat data on organic farming in 2012-2019. Statistical analysis was carried out in terms of the main organic sectors in the sphere of plant growing. The authors calculate the indicator of the ratio of the volume of production of organic products (plant products) to the number of operators of the agricultural market for 2019 (tons/1 operator). The study provides a classification of countries by specialization of organic production in the sphere of agriculture based on data on the production of various types of organic products in the EU countries in 2019. The following indicators were used to assess the segment of producers and buyers of organic products in the EU:

1. The number of agricultural operators-producers of organic products in the markets of EU countries and the volume of land under organic farming (ha / 1 producer) in 2019
2. The ratio of production of organic products (crop products) to the number of operators of the agar market, 2019

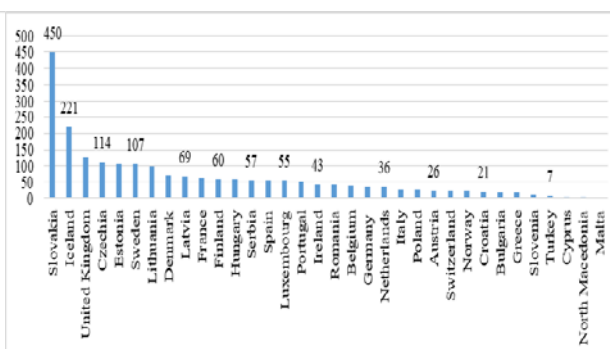
3. Percentage of total utilized agricultural area under production of cereals for the production of grain (including seed).
4. Share of production of Cereals for the production of grain (including seed) in EU-27, 2019
5. Retail sales of organic products in some EU countries and market share of products, %, 2019.

To assess the level of support for organic producers and consumers of products used indicators according to the OECD methodology:

- Producer Support Estimate (PSE), USD million
- The ratio of production prices and subsidies on production volumes to marginal prices (Producer NPC).
- The ratio of the value of products at domestic prices, including all government payments, to its value according to marginal prices (Producer NAC)
- Consumer Support Estimate (CSE), USD million
- The ratio of actual average consumer prices to border prices for agricultural products (Consumer NPC).
- Nominal indicator of consumer assistance – the ratio of the cost of consumed products to its value in border prices (Consumer NAC).
- Total Support Estimate (TSE), USD million
- Share of PSE in TSE, %.
- Share of CSE in TSE, %.
- General Services Support Estimate (GSSE).
- Share of GSSE and TSE, %.



A) Number of manufacturers, units



4 Results

In 2012-2019 the number of agrarian producers of organic products in the EU grew by 15.2%, in particular, their number increased most in Italy (26730), France (12266), Spain (11376), Germany (11104), Turkey (9503), Greece (6676), Austria (4199), Croatia (3740), Hungary (3576), Bulgaria (3459), and Portugal (2804). Utilized agricultural area excluding kitchen gardens total fully converted and under conversion to organic farming increased in the EU-27 from 5.88% in 2012 to 8.49% in 2019.

The most developed countries have the largest number of operators in the agricultural market, with the exception of Turkey (74545 operators) (see Figure 1).

There are on average 64 hectares of utilized agricultural area excluding kitchen gardens (total fully converted and under conversion to organic farming) per producer of organic products. The number of producers of organic products determines the size of the land bank.

B) Utilized agricultural area excluding kitchen gardens (Total fully converted and under conversion to organic farming), Hectare per organic producer.

Figure 1 – The number of agricultural operators-producers of organic products in the markets of EU countries and the volume of land under organic farming (ha/1 producer) in 2019, units

Source: Eurostat (2021a; 2021c).

At the same time, the countries with the highest number of market operators engaged in the production of organic products have a lower volume of production per producer (see Fig. 2). This may be due to the lack of efficiency of the used methods of work (e.g. soil treatment) or management practices of producers, as well as the quality of soils or specialization.

For example, 919.14 tons of organic production per company in Serbia, 769.92 tons in Slovakia, 476.23 tons in the Netherlands, 422.92 tons in Sweden. Serbia's specialization is the production of grain crops for growing grain (the share of production was 68% in 2019) and industrial crops (10% in 2019). The specialization of Slovakia – grain crops for production (32%), wheat and spelt (8%), plants harvested green from arable land (51%). The specialization of the Netherlands – root crops (8%), plants harvested green from arable land (53%), fresh vegetables (including melons) (32%). Most EU producers specialize in the production of cereals, wheat and oats and mixtures of spring cereals, green plants and fresh vegetables (Table 1).

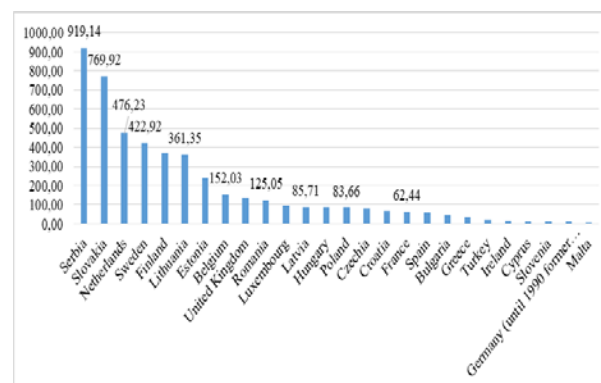


Figure 2 – The ratio of organic production (crop products) to the number of agr market operators, 2019 (tons/1 operator)

Source: Eurostat (2021a; 2021b).

Table 1: The classification of countries by organic production specialization in the field of crop production, 2019

Group of countries	Specialization (by the share of organic production in 2019 in tons, exceeding 10% of the total production of organic crops)				
	Cereals for the production of grain	Wheat and spelt	Oats and spring cereal mixtures	Plants harvested green from arable land	Fresh vegetables
Belgium, Bulgaria, Czech Republic, Estonia, Ireland, Greece, Spain, France, Croatia, Latvia, Lithuania, Luxembourg, Hungary, Poland, Romania, Slovenia, Slovakia, Sweden, Serbia, Turkey	The average share value of 22%	-	-	-	-
France, Lithuania, Luxembourg, Hungary, Romania	-	Average value 13%	-	-	-
Estonia, Ireland, Latvia	-	-	Average value 13%	-	-
Belgium, Czech Republic, Estonia, Ireland, Greece, Croatia, Cyprus, Hungary, Netherlands, Poland, Slovenia, Slovakia, Finland, Sweden	-	-	-	Average value 36%	-
Belgium, Germany, Ireland, Spain, Cyprus, Malta, Netherlands,	-	-	-	-	The average value of 30%

Source: compiled by the author

There is an individual specialization in such countries: in Germany 99% of organic products fall on crops harvested green from arable land; Bulgaria, Croatia, Ukraine, Serbia and Romania specialize in industrial crops (12%, 7%, 4%, 9%, 10% respectively); grain maize and corn-cob-mix are mostly produced in Greece (9%), France (8%), Croatia (7%), Hungary (5%), Rumania (10%), Serbia (15%); Bulgaria, Latvia and Lithuania specialize in organic dry pulses and protein crops for the production of grain (13%, 4% and 4% respectively); Root crops are grown mainly in Belgium (11%), Latvia (6%), Lithuania (7%), Malta and the Netherlands (7% and 8% respectively). Organic Fruits from temperate climate zones grow in Bulgaria (7%), Ukraine (6%), Poland (5%), Serbia (4%) and Turkey (14%). Grapes are grown in Bulgaria (5%), Spain (18%), Cyprus (10%), Malta (28%), Slovenia (5%), and Turkey (9%). Greece, Spain, Cyprus and Turkey specialize in the cultivation of olives (part of the production (16%, 12%, 46% and 10% respectively).

The specialization of the country does not depend on the share of agricultural land, which is allocated in each country for organic production, which can be seen in the application of organic production of grain crops (Figure 3). The coefficient of determination indicates that the model of dependence between the share of organic land and the share of grain crops production only by 1.03% explains the link between these variables.

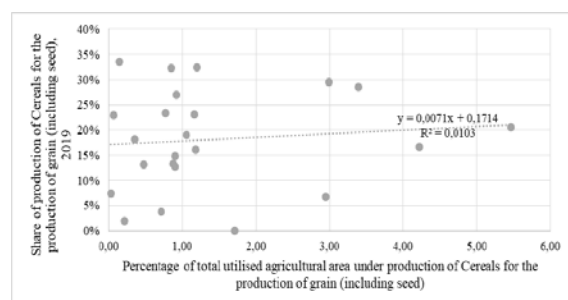


Figure 3 – Dependence between percentage of total utilized agricultural area under production of cereals for grain production (including seed) and share of production of Cereals for grain production (including seed) in EU-27, 2019
Source: Eurostat (2021b; 2021 c).

Organic products are most consumed in Denmark, Switzerland, Luxembourg, Austria and Sweden (for example, 334 euros spent per person on organic products in Denmark and 338 euros per person in Switzerland, 265 euros in Luxembourg, 216 euros in

Austria, 215 euros in Sweden, 174 euros in France, 144 euros in Germany) (FIBL&IFOAM. Organic International, 2021). In Europe as a whole, 55.8 euros per person were spent on organic products in 2019, and total sales were 4,549 million euros in 2019. The largest consumer market in Europe is Germany with the volume of retail trade in organics products at 11.97 billion euros in 2019 (Table 2), followed by France at 11.295 billion euros and Italy at 3.6 billion euros.

Table 2: Volumes of retail sales of organic products in some EU countries and market share of products, %, 2019

	Retail sales, million euros	Organic share,%
Belgium	779	3.1
Bulgaria	30	0
Czech Republic	164	1.6
Denmark	1979	12.1
Germany	11970	5.7
Estonia	62	3.7
Ireland	206	2.5
Greece	66	0.3
France	11295	6.1
Italy	3625	3.7
Cyprus	2	0.1
Latvia	51	1.5
Lithuania	51	1
Luxembourg	160	8.6
Hungary	30	0.3
Netherlands	1211	4.9
Austria	1920	9.3
Poland	314	0.6
Portugal	21	0.2
Romania	41	0.2
Slovenia	49	1.8
Slovakia	4	0.2
Sweden	2144	9
Norway	442	-
Switzerland	2912	10.4
Turkey	46	-

Source: FIBL & IFOAM. Organic International (2021).

The most important indicator that characterizes the support of the agricultural sector in the monitoring system of the OECD is the volume of support provided to agricultural producers and consumers (Table 3), which affects the establishment of the organic market of products in the EU. These indicators were named Producer Support Estimate (PSE) and Consumer Support

Estimate (CSE). The indicators include two components: direct forms of support (budget payments) and indirect forms of support (Market price support, MPS).

These components are the cost of cumulative transfers of taxpayers and consumers to producers in the agricultural sector. Such support (PSE) is ensured mostly at the expense of price transfers (at the expense of consumers), the share of which in the total amount of support to producers varies between 50-70%. The market price support (price transfers) are transfers of agricultural products consumers, budget payments – payments of taxpayers. The methodology of assessment of agricultural support based on the PSE indicator allows for a more comprehensive and objective assessment of the scale of such

support in comparison with the assessment of support only for budgetary payments to producers. With this approach to the amount of direct budgetary support is added to the amount of market price support received by producers due to the formation of domestic prices at a higher level in comparison with global commodity prices. This support is ensured through special measures of state fiscal, foreign economic, social policy. Among them, protectionist measures in foreign trade activities (trade quotas, import quotas, etc.) occupy a special place. Therefore, in 2012 the indicator PSE amounted to 108.61 billion dollars, in 2020 – \$104.54 billion, CSE – \$19.4 billion and \$14.7 billion respectively. In fact, support of producers remains a priority in the policy of the EU countries for the development of the organic market (Table 3).

Table 3: Dynamics of volumes and coefficients of support of producers and consumers of the agar sector in the EU in 2012-2020

	2012	2019	2020
Producer Support Estimate (PSE *), USD million	108606.97	104698.44	104537.71
Ratio of production prices and production subsidies to marginal prices (Producer NPC)	1.05	1.05	1.04
The ratio of the value of products at domestic prices, including all government payments, to its value according to marginal prices (Producer NAC)	1.23	1.24	1.24
Consumer Support Estimate (CSE), mln. dollars	-19365.97	-18410.60	-14668.38
Ratio of actual average consumer prices to marginal prices for agricultural products (Consumer NPC)	1.04	1.05	1.04
Nominal indicator of consumer assistance – the ratio of the cost of consumed products to its value in border prices (Consumer NAC)	1.04	1.04	1.03
Total Support Estimate (TSE), USD mln.	125766.27	117101.05	117449.92
Share of PSE in TSE,%	86,36%	89,41%	89,01%
Share of CSE in TSE,%	-15,40%	-15,72%	-12,49%
General Services Support Estimate (GSSE)	17,207.91	12,002.37	12,416.25
Share of GSSE and TSE,%	13.68%	10.25%	10.57%

Source: OECD (2021).

The price of production is higher than the domestic prices for agricultural products in the EU, which means that producers sell their products at higher prices compared to foreign producers, the price protection of EU producers by the state. However, in 2020 the coefficient went down to 1.04. In general, the low value of NPC indicates the competitiveness of the EU agricultural market with the domestic market, the high export capacity of agricultural products in the EU countries.

In the EU countries, NPCc and NACc indices approach 1 (NPCc – 1.04 and NACc – 1.03), which indicates a narrowing of the gap between actual average prices of consumers and border prices for agricultural products.

GSSE describes transfers for research for agricultural production, education and training of personnel, control over the quality and safety of food, agricultural resources and the environment, improvement of infrastructure, marketing support, inspection services, maintenance of agricultural production warehouses and other general services. A reduction in the volume of the indicator in the EU from \$17.21 billion to \$12.42 billion in 2020 indicates a decrease in state support for the agricultural sector.

5 Discussion

The trend towards ecological consumption in the EU countries ensures the development of the market of organic products and the paradigm of "green marketing". Strategies of old growth in different countries are differentiated depending on the specialization of organic producers, who are more and more increasing ecological potential, developing local networks of production and consumption, organic farming. This article demonstrates the dynamic growth of the organics market value in the EU countries. Similar to other studies, the assessment of the segment of producers indicates a significant environmental trend. For example, Bryła (2015) states about the growth of the European organic food market by twofold during the period 2004-2012. The potential of the market depends on the structure of product distribution channels and their prices, trends in the

growth of national income in the long term and the growth of environmental awareness of society (Bryła, 2015).

Willer & Schaack (2015) studied the dynamics of the European organic market of the EU (15 countries) and revealed a continuous growth of organic agricultural land and domestic markets for 2003-2013. The authors identify the diversification of production and satisfaction of domestic consumption by domestic production, the importance of imports for many EU countries in various segments of organic production. Our research also revealed the diversification of organics production and specialization of countries. Most of the countries specialize in the production of grain crops, greens and vegetables, wheat and spelt, although in some countries there is a high degree of specialization due to the historical and natural conditions for the production of certain types of crops.

The market of organic plants is well developed and offers a wide assortment of products within the EU (Willer, Lernoud & Kemper, 2018). On a global scale, the EU countries remain leaders in both production and consumption (as evidenced by the growth of per capita expenditure on products and the share of the organic market as a part of the total agricultural economy). The level of consumption of organic products per capita is significantly higher in the countries compared to other countries in the world due to the high level of awareness of the role of organic products for health. Willer & Schaack (2015) explain the constant growth dynamics of the market by the strong interest of consumers in the products, strong investments in the development of the organic segment, government support and measures of the government to popularize and support organics. The authors of this research revealed a slight decrease in indicators of financial support for producers and consumers of the agricultural sector in the EU.

The support of programs for the development of the organic sector in the countries that have joined the EU has ensured a significant growth of the market.

However, the consumer market, volume of organics production, market share and consumption per capita remain low in some

countries. Lack of development of processing enterprises in some countries leads to the lack of satisfaction of domestic demand for processed products and the need for imports in these countries (Willer & Schaack, 2015). For example, this study revealed a low rate of reduced consumption in Slovakia, Bulgaria, Greece, Latvia, Lithuania, Hungary, Portugal, Rumania and Poland. Nevertheless, in these countries the organic market is growing rapidly, despite the growth of domestic and export markets and processing. Developed countries have a high share of organic land in the agricultural sector, a large organic sector, a food sector with a high share of distributed consumption, and substantial government support (Willer & Schaack, 2015).

The highest per capita consumption of organic food in 2013 was in Switzerland (210 euros), Denmark (164 euros), Luxembourg (157 euros), Austria (127 euros in 2011), Sweden (107 euros), Germany (93 euros) (Willer & Schaack, 2015). In 2019, the amount of spending on organic products was also the highest in the most developed countries: Denmark has 334 euros in costs per person for organic products, 338 euros per person in Switzerland, 265 euros in Luxembourg, 216 euros in Austria, 215 euros in Sweden, 174 euros in France, 144 euros in Germany. Organic fruit production remains the leading specialization of EU countries (average production share 36%). While in 2013, the share of production was one p.p. (20%) (Willer & Schaack, 2015), in 2019, it will be two p.p. (36%). Overall, the production of fresh products in Europe is overvalued (Willer & Schaack, 2015).

Willer, Schaack & Lernoud (2019) identified two trends in organic market development in Europe in 2017: 1) double-digit growth rates (10.5% in Europe; 10.9% in the European Union); and 2) growth of organic farmland was greater than growth of the organic market (7.9% growth in Europe and 6.4% in the European Union). The tendency for the market to grow at a faster pace than the land area has been observed for several years (2010-2017), which means the excess of consumer demand over production. In comparing the growth of the organic zone with the growth of commodity sales, Willer, Schaack & Lernoud (2019) highlighted the importance of land cultivation, tillage methods, and cropping schemes to the value of production. In this context, it is also important to note that the growth rate of more intensive production, such as fruits and vegetables, increased significantly in 2012-2019.

Organic sales in Europe were estimated at 37.3 billion euros in 2017 (Willer, Schaack & Lernoud, 2019), while in 2019 they were 39.574 billion euros (34.3 billion euros in the European Union in 2017). The European Union represents the second largest organic market in the world after the United States. In 2017, Germany was the largest consumer market in Europe with 10 billion euros of sales, the second largest consumer market in the world. In 2019, the German market amounted to 11.9 billion euros, while France ranked second in terms of volume sales (11.3 billion euros). While in 2017 European consumers spent an average of 47 euros on organic products (67 euros in the EU), in 2019 they spent 55.8 euros (Willer, Schaack & Lernoud, 2019). Thus, the results of the research have shown a continuation of trends towards an increase in the production and consumption of organic products in the EU countries.

6 Conclusion

The research showed a positive dynamics of the number of organic producers for 2012-2019 in the EU: a growth of the number of producers by 15.2% for 2012-2019. At the same time, the most developed countries have the highest number of producers and the volume of the distributed sales market. The number of producers does not determine the volume of organic production in the EU countries.

The countries with the largest number of market operators engaged in the production of organic products have a lower volume of production per producer. This can be due to the lack of efficiency of the used methods of work (soil treatment, for example) or management practices of producers, as well as the

quality of soils or specialization. For example, 919.14 tons of organic production per company in Serbia, 769.92 tons in Slovakia, 476.23 tons in the Netherlands, 422.92 tons in Sweden. Most of EU producers specialize in the production of cereals, wheat and spelt, oats and a mixture of spring grains, greens and fresh vegetables. The specialization of the country does not depend on the share of agricultural land, which is allocated in each country for organic cultivation. The level of state support for producers and consumers, provision of services to agricultural producers and the level of price support for producers and consumers has decreased.

The further research should be focused on identifying the most effective strategies of organic products producers in Europe and the importance of state support for producers to implement the strategies (price leadership, differentiation).

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Secondary Paper Section: AE