International Journal of Food and Agricultural Economics
ISSN 2147-8988, E-ISSN: 2149-3766
Vol. 7, No. 4, 2019, pp. 303-311

EFFECTIVENESS OF AGRICULTURAL SUPPORTS ACROSS OECD AND SELECTED COUNTRIES UNDER THE WTO SPELL

Emine Meltem Baştan
Central Bank of the Republic of Turkey, Structural Economic Research Department
Turkey, Email: meltem.bastan @tcmb.gov.tr

Hüseyin Songül
Central Bank of the Republic of Turkey, Structural Economic Research Department
Turkey

Abstract

Agricultural supports are among the most favored policies of governments to affect domestic welfare and maintain food security. Supports provided take many forms ranging from those distorting prices and production to de-coupled ones with no link to production. In addition to budgetary or climatic restrictions, countries also face challenges due to the terms of the WTO about types of supports. In line with the WTO mandates, this study analyses the impact of supports by excluding market price supports, that are the biggest parts of distorting supports. Using the OECD and FAO databases, it is shown that there is a discrepancy between crops and animal products with respect to the impact of supports with no significant impact noted for animal products. It is also considered that analyses conducted with different types of supports and products could create a solid basis for suggesting counter arguments against the WTO mandates.

Keywords: *Agricultural Support, Producer Single Commodity Transfer, Most Distorting Supports, Arellano-Bond GMM Estimation.*
JEL Codes: *Q11, Q18, Q10, H71, F53*

1. Introduction

The world experiences a food crisis in every decade or two. These crises are mostly related to sudden price changes, which are mostly in the form of huge price increases as in 1973 and 2008, or sudden price falls as the one observed in 1986 (Anderson, 2009). If there was anything positive arising from such crises, it was the fact that they strengthened the awareness about food security. In parallel with the shift of the global development agenda towards more concrete measures, concerns about food security started to be included into a set of global goals such as the Millennium Development Goals (MDG) in 2000 and Sustainable Development Goals (SDG) in 2015[1]. As they are legitimized on a more explicit level, understanding the reasons behind such concerns has become more and more important to attain the published goals. Today, there is a wide agreement on the reasons behind food crises, emphasizing major policy shifts of governments rather than short-term weather conditions as the main reason. (Anderson, 2009)[2]. Moreover, in this age of globalization and liberal trade among open economies, the impact of those policy shifts cannot be isolated from other countries (Erokhin et al., 2014). In line with this fact, trade negotiations that were upheld by the World Trade Organization (WTO) both in Uruguay and Doha Rounds (starting in 1994 and 2001, respectively) also involved topics around the agricultural policies of countries. There

have been hot debates among countries as each of them tries to protect their domestic producers and consumers by restricting free trade through measures such as export tariffs, import duties or non-tariff measures such as agricultural supports provided to farmers. Either for protecting consumers or producers, such policies of a country instantly have impacts on the quantity traded and international prices. Therefore, any policy causing divergence from the potential level of international trade volume comes under the focus of international organizations, mostly that of the WTO (Çetin, 2010).

The discussions in the WTO mainly revolve around the level of price distortions that might stem from different types of government intervention[3]. Price distortions are not desired by the WTO due to its negative impact on the volume and prices observed in international trade transactions. The distortions caused by policies are also ranked according to their distorting capacity and the ones causing the highest distortion are called *most distorting supports*[4]. Market price supports are regarded as the most price distorting supports by the WTO. In line with its regulations, the WTO specifically examine the shares of such supports in total supports[5].

The huge emphasis put by the WTO on such policies inevitably raises questions about the effectiveness of such policies. In other words, to what extent the agricultural output of countries would alter in the absence of price supports becomes a legitimate question. Building up scenarios without price supports and measuring the related impact (on output) could help policy makers evaluate the validity of the WTO's arguments. If the impact in such a scenario is not significantly different from the one observed in a setting with price supports, then arguments of the WTO would be strengthened and a new pathway could be created to eliminate price supports on a grand scale. The opposite, however, would bring further challenges to the WTO.

Along with the argument of the WTO, there is a developing literature on the effectiveness of agricultural supports with the first studies belonging to 1970s. The effectiveness of agricultural supports has been examined both on a country and product basis though there is much scope to be investigated. As mentioned above, international policymaking and any objections against related policies require solid findings. Therefore, policy makers could benefit from this developing literature in designing new policy suggestions to be discussed on international grounds.

In this study, the effectiveness of agricultural supports provided for 7 products are analyzed for the period between 2007 and 2017 using agricultural support data provided by the Organization for Economic Co-operation and Development (OECD) and related agricultural variables provided by the Food and Agriculture Organization of the United Nations (FAO). The aim of the study is to obtain findings about the effectiveness of non-price measures in order to later compare them with the effectiveness of measures including price supports. Keeping the comparison out of the focus of this paper, the analyses merely deals with non-price supports.

The findings of the paper show that there is a clear distinction between animal products and crops with respect to the effectiveness of agricultural supports. It is seen that supports affect the value of agricultural production in small, but significant amounts. On the other hand, there is no impact noted for animal products using the same set of dependent and independent variables.

The paper consists of four more sections. In the next section, literature about agricultural supports is presented. Data and methodology are covered in the third section. Empirical results are evaluated in the fourth section and fifth section concludes.

2. Literature

In the literature there are many studies on agricultural supports, including reports, policy guides or manuals prepared by international organizations[6]. However, it is seen that regular publications mostly concentrate on policy analyses of recent terms and track countries' performance with no reference to a particular type of modelling.

The quantitative studies mostly concentrate on one country and try to measure the implications of a policy recently introduced. There are also qualitative studies that focus on describing different policies in different countries. Erjavec (2017) examine the agricultural policies of eight countries that were members of the former Soviet Union, which are all exposed to issues of food security and competitiveness. A wide range of policies is detected from strong interventionism to almost complete liberalization along with lower budgetary support compared to EU and OECD averages. They state that transfers to producers constitute the biggest part of supports whereas supports to rural development and general services are found weak.

One of the most remarkable quantitative studies is that of Yu and Jensen (2011) on the effectiveness of agricultural supports in China in the light of the changes made in support system in 2004. Using the GTAP data across 43 sectors including 19 agricultural products, they depict two scenarios and try to compare the impact under two scenarios. After the accession of China to the WTO in 2001, regular WTO mandates about agricultural supports were also inflicted on China. Similar to most countries, China refrained from obeying all of the rules. The two scenarios refer to situations in which all types of supports are allowed and only de-coupled payments from production and prices are allowed, respectively. Following a developmental agenda, Yu and Jensen search for the implications of different policies on three variables: Grain production, rural employment and farmers' income. The simulations are made using the well-known GTAP model of Hertel (1997) under a general equilibrium model. The simulations show that the first scenario leads to increases in all three indicators whereas in the second scenario there is no impact on the level of production or rural employment along with a higher income increase for farmers. Yu and Jensen conclude that there is not a clear-cut answer to the question of which type of support is more beneficial to the society. Yet, they still underline that the welfare implications of the second scenario will be lower due to its less distortionary structure.

The studies show that the impact of agricultural supports could be measured with different explanatory variables. Huang et al. (2011) focus on the impact of subsidies provided to farmers following a reversal of the agricultural policy in China in 2004. Before 2004, China used to tax farmers. In 2004, Chinese government decided to give subsidies to farmers. By using first difference method, Huang et al. investigate the impact of subsidies provided to producers of rice, wheat, maize and soybean using the responses given to the 2008 China National Rural Survey. In the main model, grain area is the dependent variable whereas grain subsidy, producer prices and two control variables are the explanatory variables. The first of the control variables is the change in the amount of cultivated land that a certain household contracted from the village's leadership between 2007 and 2008. The second control variable stands for the change in the amount of cultivated land that a certain household rented in (rented out) from (to) other households between 2007 and 2008. The results show that China's subsidy program is not affecting the sown grain area. The initial results are obtained for all households. Results pertaining to "only" grain producing households are similar in showing that China's policy is not distorting the decisions of farmers.

Yu, Liu and You (2011) investigate the impact of the change in the policy of China including some other variables such as investment in agriculture and biophysical conditions. They extend set of explanatory variables, stating that the findings for models with producer prices can stem from other factors such as limited resources, obsolete technology, inadequate

infrastructure investments (roads, markets, irrigation and agricultural extension)[7]. Difference GMM technique of Arellano and Bond (1991) is used due to the specific lagged structure of agricultural production. In addition to the lagged production, variables related to competing products are also taken into consideration.

Demirdöğen et al. (2016) investigate the effectiveness of agricultural supports in Turkey using survey data from Adana district of Turkey. The dependent variable is the land allocation. Distinguishing between input and output supports, they investigate whether there is a shift from cotton to corn (and other foods) or vice versa with the introduction of certain support mechanisms. It is found that input supports have higher impact on land allocation than output supports. They also detect a substitution effect between cotton and corn. In particular, they show that as supports to cotton increase, farmers shift from corn production to cotton. They regress land allocation onto both output and input support variables, along with input and output prices. Their study is remarkable with the use of expected profit maximization problem for farmers.

3. Data & Methodology

The series used in the study are gathered from the database of OECD on agricultural supports and the database of FAO (FAOSTAT). While the support indicators are gathered from the database of the OECD, producer prices, temperature and production series are gathered from the FAOSTAT. Use of data from international organizations instead of national statistical offices is of particular importance since measurement and existence of policies differ considerably across countries, making the extraction of a broad suggestion harder. As mentioned before, the attitude of the WTO against market price supports is the main source of inspiration for this study, raising questions about the extent at which supports would affect agricultural production if the supports are diverted away from such types of supports, as recommended by the WTO. The analysis focuses on the period between 2006 and 2017[8]. All series are on annual basis and used in the analyses in percentages. Data of all of the countries with available data on the related databases are included to the study whether they are current OECD members, or not. OECD also provides data of certain non-member countries such as Russia, Brazil and China. In order to improve the scope and the empirical robustness of the study, all available data related to a certain product has been used. However, data of European Union (EU) has been excluded from the study. In EU, almost all agricultural support is provided in the form direct payments, de-coupled from the level of production. EU countries which provide 45% of total supports as de-coupled payments are excluded from the study[9].

Data related to six products are used in the study. Agricultural supports provided to wheat, maize, cotton, rice, beef and veal, milk and poultry producers have been analyzed along with related producer prices. All production, support and price series are in US dollars.

Agricultural production can be measured using different variables. While Huang et al. (2011) use grain area as the dependent variable, Yu, Liu and You (2011) suggest area or yield response could both be used to measure production. Whichever variable is used, it is important to see that there is an inherent lagged structure due to resource constraints observed between the two production cycles. This observation mandates that agricultural supply be modelled in a dynamic manner. Also, simultaneity bias could be observed among agricultural output and producer prices, which would require the related endogeneity be dealt with. The difference GMM technique suggested by Arellano and Bond (1991) uses lagged dependent variable as an explanatory variable while dealing with the endogeneity problem using instrumental variables. Following Yu, Liu and You (2011), Arellano and Bond's difference GMM technique is used in this study.

This study focusses on investigating the impact of agricultural supports on the value of agricultural production. There are various support indicators on the website of OECD database,

among which price supports, budgetary supports, supports linked (not linked) to production, transfers to (from) producers from (to) consumers can be listed. Definitions related to all indicators are provided in the OECD manual. According to that manual, market price supports (*mps*), which constitute the bulk of the price supports, are based on the producer price and the reference (market price) such that the difference between them is provided to the farmer as a subsidy. This study analyses the impact of the supports on product basis, measured by the "producer single commodity transfer" (*psct*). PSCT indicators include various types of supports along with market price supports[10]. Following literature, producer prices are also used as explanatory variables. Since *mps* measures rely on the difference between the reference price and the producer price, preserving *mps* as a part of *psct* could cause a bias stemming from the double-counting problem. In order to avoid that, *mps* is discounted from *psct* and a support variable created to be exempt from price supports, *newsup*, is used in the analyses[11].

In addition to *psct* and producer prices (*pprice*), temperature values of the countries are used as explanatory variables. As mentioned in the literature, various explanatory variables might be used in the models. Models including variables such as fertilizer use, machinery, credit to agriculture and employment in agriculture have also been constructed in this study. However, almost all of those have been found insignificant and thereby excluded from the analyses. It is also seen that even though temperature is found to be insignificant in all analyses, its exclusion significantly deteriorates the model diagnostics. Therefore, temperature (*temp*) is kept in the analyses.

In the literature, there are studies that use land allocation as the dependent variable. In this study, value of production is used instead of land allocation since there might be differences across countries with respect to their land allocation mechanisms. It is obvious that in countries such as Russia, Kazakhstan and Ukraine, land allocation mechanisms might still be under the heavy influence of the Soviet era, preventing the economic factors from being prevailing factors. In countries where land allocation is directed by the government, using it as the dependent variable might overestimate the impact of supports due to the neglect of the farmer's decision[12]. By using the value of production as the dependent variable, this study aims at incorporating the farmers' decisions and the ultimate value of their decisions to the analysis. Level of production could also be considered a dependent variable, which would perfectly reflect the decision about how much to sow in each year. However, using that variable would not help us attaining a result pertaining to the developmental agenda as much as the value of production would. In other words, to what extent farmers' decisions would "develop" their living standards would much better be captured by a monetary variable, which is the value of production.

4. Empirical Findings

The findings of the eight models are presented in Table 1. All models exhibit first order autocorrelation with no evidence of second order autocorrelation. Tests of over-identifying restrictions indicate that instruments in all models are valid. Null hypothesis of the Sargan test is not rejected for any model. The ultimate selection among the models (that satisfy autocorrelation criteria) is made in favor of the model with the highest p-value after the Sargan test. Since the series used are already in percentages, the coefficients need to be interpreted in percentage points[13]. All the results are presented in Table 1 in the appendix.

Starting with wheat, it is seen that doubling of the supports (i.e a %100 increase in the support level) is going to cause a 5% increase in the value of production. For maize, the impact is noted as 3%, whereas for rice, supports have a positive effect on the value of production, but this effect is observed at the third lag. As a result, doubling of the support level in a year is going to end up with a 2 % increase in the value of production in two years. For cotton, it is observed that doubling of the supports in a year is going to end up with a 9% increase in the

value of production in the same year. The highest impact of the support is seen on cotton among crops. The impact of the supports is not observed at a constant lag across different products, but the effective lag does not go beyond 2.

The analysis of the impact on animal products depicts a completely different picture. The models constructed for milk and poultry indicate that there is no impact of agricultural supports on these products. Their remarkable difference from crops can be attributed to the fact that they are produced with different production mechanisms. Milk production depends on healthy breeding of the animal, which depends on many factors ranging beyond support variables or market variables such as prices. The animal stock of the countries is of particular importance in determining the supply of such products. A decrease in the stock of cattle due to eruption of an epidemic disease or sudden deterioration of forages due to unexpected weather conditions would affect the decision of breeders about the ratio of the stock to be slaughtered or be used in milk production. The purpose of breeding might also change, if milk prices are lower than meat prices. Since animal breeding takes time, an injection to the supports might not result in significant amounts of production rapidly. Namely, shocks hitting the animal stock are not easily recoverable and rely on complex mechanisms that are not controllable, such as weather conditions. The explanation about the findings for poultry is similar. Poultry production is made in integrated plants and establishing those plants require huge levels of investment. There are many types of inputs used in the production process, such as feeds, antibiotics or broods. Poultry production is exposed to sudden and deep shocks as exemplified by the bird influenza epidemics in recent years. Detection of bird influenza in a country might stop imports of poultry from that country for many months, the implications of which might not be reversed with support injection. Dependence on factors that are out of control renders poultry production similar to production of milk.

The impact of previous production needs to be evaluated in the light of the cobweb theorem[14]. The idea that high agricultural production in a year will be succeeded in a low production in the next year forms the basic idea of the theorem. According to that, it is expected that the coefficient of the production variables be negative. It is seen that lagged values of the production are significant and in expected sign for crops whereas it is not significant for animal products. If wheat production is doubled in one year, it is almost halved in the following year. Rice follows wheat with respect to the impact of the lagged production. A doubling of production in one year decreases production by almost 40% in the following year. Cotton and maize follow these products with declines of 30% and 20% respectively against doubling of production in a year. The models for milk and poultry indicate that lagged change in production has no impact on today's production.

There are also findings with respect to the impact of producer prices on the value of production. It is evident that the theoretical bi-directional causality between prices and value of production might cause some endogeneity bias, which could be eliminated by the use of the Arellano-Bond model. The findings show that producer prices are significant for all the products analyzed, though the effect is much higher for crops than animal products. For crops, it is seen that the impact of producer prices does not go beyond the first lag and it vacillates between 0.95 and 2.26. These coefficients indicate that the doubling of producer prices in the last two years causes at least 95% and 226% increase in the value of production. A closer look at the coefficients also indicates that the pattern of wheat prices exhibits a slight difference than other crops with respect to the impact of lags. What is striking about the impact of producer prices is to see that they are significant for milk and poultry. For both of these products, as the current price of the product increases, the value of production also increases. Among all explanatory variables, the highest impact is noted for producer prices. Considering that the value of production, which is a nominal variable, is used as the dependent variable, this result is not surprising.

5. Conclusion

The WTO imposes certain rules on member countries following its main agenda of maximizing the volume of international trade. The ideology of free trade that has diffused into every policy of the WTO causes that any policy that would hamper the volume of international trade would be ruled out by the WTO. In this vein, agricultural supports stand as a constant point of contention between the WTO and member countries. Agricultural support policies are favored by governments as welfare implications could be multi-dimensional. That is, farmers' income could be increased while domestic food inflation could be sustained in the desired band. The WTO's strong attitude and the debates taking in the international arena in an explicit way requires that counter arguments against the WTO should rely on solid comparative analyses of different scenarios for agricultural support. This study stands as the first part of such a comparative analysis across many countries. Though country characteristics are expected to be prominent in scenario comparisons, a cross-country study is indispensable both as a prologue and a benchmark according to which the comparison could be made on an international level.

To be in line with the stance of the WTO, the most distorting part of the support programs, market price supports are excluded from the analyses and impact of the supports on the value of agricultural production is investigated for some crops and animal products. It is seen that there is a divergence among two groups of products with respect to the effectiveness of policies. While supports are found to be effective for crops, no significant impact is noted for animal products. It would not be surprising to see different results if the analyses were conducted for samples of countries with similar characteristics.

As a further research, the approach in this study could be replicated by including only the distorting types of supports or de-coupled payments. That replication would be the second part of the comparison mentioned above. Also, the set of products analyzed could further be extended while set of countries could also be done so. For this, different datasets are required. The latest data from "the database of distortions to agriculture" prepared by the World Bank belongs to 2011. Update of that dataset would undeniably enrich and strengthen all analyses since it covers almost all countries in the world across a much wider range of products.

References

Anderson, K., & Valenzuela, E. (2007). Do Global Trade Distortions Still Harm Developing Country Farmers? *Review of World Economics*, *143*(1), 108–139. doi: 10.1007/s10290-007-0100-5.

Anderson, K. (2009). Political Economy of Distortions to Agricultural Incentives. A*gricultural Distortions Working Paper*. doi: 10.1596/28164.

Demirdöğen, A., Olhan, E., & Chavas, J.-P. (2016). Food vs. fiber: An analysis of agricultural support policy in Turkey. *Food Policy, 61*, 1–8. doi: 10.1016/j.foodpol.2015.12.013.

Erjavec, E., Volk, T., Rac, I., Kožar, M., Pintar, M., & Rednak, M. (2017). Agricultural support in selected Eastern European and Eurasian countries. *Post-Communist Economies, 29*(2), 216–231. doi: 10.1080/14631377.2016.1267968

Erokhin, V., Ivolga, A., & Heijman, W. (2014). Trade liberalization and state support of agriculture: effects for developing countries. *Agricultural Economics (Zemědělská Ekonomika), 60*(No. 11), 524–537. doi: 10.17221/137/2013-agricecon

Anderson, K., Nelgen, S., & Valenzuela, E. (2013, November 21). https://datacatalog.worldbank.org/dataset/estimates-distortions-agricultural-incentives.

Hertel, T. W. (1997): Global Trade Analysis: Modeling and Applications. Cambridge: Cambridge University Press.

Huang, J., Wang, X., Zhi, H., Huang, Z., & Rozelle, S. (2011). Subsidies and distortions in China's agriculture: evidence from producer-level data*. *Australian Journal of Agricultural and Resource Economics*, *55*(1), 53–71. doi: 10.1111/j.1467-8489.2010.00527.

Musselli, I. (2016). *Rules, Farm Support and Trade Agenda, Towards a New Paradigm Under the 2030 Agenda*. *Rules, Farm Support and Trade Agenda, Towards a New Paradigm Under the 2030 Agenda*. UNCTAD. Retrieved from http://unctad.org/en/PublicationsLibrary/itcdtab76_en.pdf.

Selcan Çetin. (2010). Direct Income Payments: Turkish Experience. Middle East Technical University.http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=6082CA216FC6B45C563561D24D518C72?doi=10.1.1.633.8610&rep=rep1&type=pdf

Yu, W., & Jensen, H. G. (2010). China's Agricultural Policy Transition: Impacts of Recent Reforms and Future Scenarios. *Journal of Agricultural Economics*, *61*(2), 343–368. doi: 10.1111/j.1477-9552.2010.00242.

Yu, B., Liu, F., & You, L. (2011). Dynamic Agricultural Supply Response Under Economic Transformation: A Case Study of Henan, China. *American Journal of Agricultural Economics*, *94*(2), 370–376. doi: 10.1093/ajae/aar114.

World Trade Organization. (n.d.). Retrieved from https://www.wto.org/english/tratop_e/agric_e/agboxes_e.htm.

Appendix

		pfarmprod	pnewsup	pprice	temp
Wheat	Level	-0.43***	0.05***	0.58***	3.97
	First Lag	-0.15**		0.37***	
	Second Lag				
Maize	Level	-0.19*	0.03***	1.07***	0.01
	First Lag			0.5***	
	Second Lag				
Rice	Level	-0.38**	0.006	0.89***	0.99
	First Lag		-0.004	0.57***	
	Second Lag		0.02**		
Cotton	Level	-0.31**	0.09***	1.37***	14***
	First Lag	0.16		0.89***	
	Second Lag				
Milk	Level	-0.14	0	0.21***	-0.07
	First Lag			-0.18***	
	Second Lag			-0.032	
Poultry	Level	0.03	0	1.26***	0.08
	First Lag			0.04	
	Second Lag				

Notes: *, **, *** indicate significance levels of 1%, 5% and 10% respectively.

[1]While there was one goal that was about decreasing hunger in MDGs along with poverty, they were divided into two separate goals in SDGs, mostly due to the severe impact of the food crisis in 2008.

[2]In 1973, the Soviet Union's departure from its policy of self-reliance and entrance into the international grain market caused a price hike while in 1986, the food export subsidy war between Western Europe and North America drove real international food prices to their lowest level that had been observed since 1930. In 2008, the United States and the European Union's (EU) decision to subsidize biofuel production functioned as a triggering factor for the rise in food prices (Anderson, 2009).

[3]In order to measure the total distortion caused by these policies, various types of measures have been introduced by international organizations such as Organization for Economic Co-Operation and Development (OECD) and World Bank (WB).

[4]For a substantive analysis of the relation between agricultural supports and trade rules, see http://unctad.org/en/PublicationsLibrary/itcdtab76_en.pdf

[5]WTO lists the domestic supports in agriculture according to their distorting capacity and publishes them at different rates for punishment for the countries. https://www.wto.org/english/tratop_e/agric_e/agboxes_e.htm

[6]Two of the most important publications on agricultural supports are the annual Agricultural Policy Monitoring and Evaluation report of the OECD and the biannual outlook of FAO.

[7]Variables such as irrigation, fixed assets and primar school enrollement are also added.

[8]Time span of the data could be selected to be shorter to be more in line with the requirements of empirical model selected. However, choosing a starting year such as 2012 or 2013 could eradicate the ramifications of the food crisis that had started in 2008. It has been considered that selecting 2006 as the starting year would allow to include the repercussions of the crisis in the analyses. It is known that dynamic panel data models perform better as time length gets shorter and cross section dimension gets more larger.

[9]As in older reports, the latest report of the OECD presents country highlights. Information about the EU policies can be found in those reports. For details, see https://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policy-monitoring-and-evaluation_22217371

[10]Definitions and calculations of all indicators are presented in the PSE Manual of the OECD in March 2016. For related calculations, see the table on page 111 in the report. For the whole report, see http://www.oecd.org/agriculture/topics/agricultural-policy-monitoring-and-evaluation/documents/producer-support-estimates-manual.pdf

[11]It should definitely be noted that deduction of mps from psct has improved the results considerably.

[12]In such an environment government can command sowing certain products to farmers in order to maximize of the effectiveness of agricultural supports. Cases of banning of sowing other products, for instance, would not reflect the dynamics of a market economy properly.

[13]All unit root tests are available upon request.

[14]For details, see https://www.economicshelp.org/blog/glossary/cobweb-theory/