**CAP PERFORMANCES OF THE VISEGRAD COUNTRIES AFTER ANCENSION TO EUROPEAN UNION**

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**Abstract**

The ascension of Visegrad Countries (V4) to the European Union (EU) in the year 2004 has imparted several changes in all economic sectors, especially the agricultural sector, of these countries through the introduction and adoption of several policies including the Common Agricultural Policy (CAP). However, there is limited evidence about the quantitative measure of performance of CAP in these countries after their ascension to EU. Therefore, this study examines the Common Agricultural Policy (CAP) performance on agricultural sector of V4 countries after EU ascension, especially considering the revealed comparative advantages. The data for this study was analysed using descriptive statistics and correlation coefficient. Results revealed that has been a positive correlation in the performance of agricultural sector and trade improvements of V4 countries after ascension of EU since 2004, through varying performance observed across the countries.

**Key words:** CAP, EU accession, Agricultural sector, Visegrad countries.

**1.0 Introduction**

In 2004, the Visegrad Countries (the Czech Republic, Hungary, Poland and Slovakia) joined the European Union, along with six other countries, which caused several structural changes in EU economic especially in the field of agriculture. Transformation of national agri-food trade, competitiveness, marketing possibilities restructuring of streams of incomes, policy reforms and among others were the major changes indicated by several authors (Fertő, 2008; Baráth et al., 2010; Jambor, 2010). This is evident in the findings of KSH, 2007 where it was recognized that the Hungarian agro-food foreign trade has undergone remarkable changes following the accession to the European Union (EU): “With Hungary’s accession to the EU, the system of conditions of the agro-food foreign trade has considerably altered. The changes concerned both directions of turnover, but their effects could be sensed far more strongly in the imports than in the exports.” More importantly is the adoption of Common Agricultural Policy (CAP) by the member states into their existing national agricultural policies.

Common agricultural policy (CAP) is the most integrated and one of the most important EU policies based on EU agricultural subsidies and programs. It was created more than 50 years ago after Second World War as a respond on the fears of food shortages experienced during the war times. It was established to subsidize farmers and encourage them to produce more to ensure stable food supplies. In the past CAP represented more than 50 percent of EU budget. But it led to supporting unsustainable agricultural sectors so after three reforms in 1992, 1999 and 2003 it was reduced to recent 45 percent (55 billion euro a year) with the prospect of further reductions in frame of new long term EU budget 2014 – 2020. CAP has two pillars. The current Single Farm Payment comes under Pillar 1 and measures of Pillar 2 aim to support rural communities’ development and diversification. There has been a spillover of benefit of the adoption of CAP by member states but at varying levels. It is therefore pertinent to examine the performance of CAP in V4 countries after their accession to EU since it implies a number of dynamic measures to integrate national policies with CAP.

No doubt that the Visegrad countries (the Czech Republic, Hungary, Poland and Slovakia), the so-called V4 had great expectations towards the EU accession in 2004. There were assumptions that the agricultural sector of these countries would be mostly impacted. The agricultural sector despite the significant structural changes play more significant role in their economies than in the other older EU members. While in the EU 15 agriculture produces less than 2 percent of the GDP, in case of the new member states the contribution of agriculture to GDP is 3.8 percent (Kiss, 2005). Furthermore, the share of agriculture in employment in the new member states is still significant: it was 12.5 percent in 2004 compared to 3.8 percent in the old member states. In the same vein, among the most sensitive issues of the accession negotiations was agriculture and this could be attributed to the increase in the agricultural land area coverage by 25 percent (38 million hectares); agricultural production by 10 percent and the number of agricultural producers by 50 percent after the joining of the 8 CEECs (Central and Eastern European Countries) (Kiss, 2005).

One of the aspects of V4 accession is the impact of EU membership on agricultural production, consumer prices and the income of agricultural producers. The other aspect concerns trade in agricultural products. Though already more than three years have passed since the accession, it is a very short period of time for drawing longer term conclusions. In addition, data are not available for the whole period, and the change of the statistical system also makes analysis and comparison somewhat difficult.

The enlargement of the European Union in 2004 has resulted in the significant change of the foreign trade of agricultural products among V4 countries. Besides the impact of the common internal market, the measures applied earlier basically in relation to each other to protect and support the markets were eliminated in the newly accessed member states. Together with this, the previously used national based supports which could have ensured relative competitive advantages in relation to some markets were cancelled due to the membership. Thus, integration has greatly affected the trading of goods between member states, which has been basically restructured. Substantial value and volume growth could be observed during this process.

The Visegrad Cooperation (Visegrad countries or V4) is the regional organization of the Czech Republic, Poland, Hungary and Slovakia. The objective of cooperation is the joint representation of economic, diplomatic and political interests of these Central-European countries and the harmonization of possible actions to defend their common interests. The cooperation looking back to significant historical traditions which has been focusing on the challenges in respect to the EU, especially in the areas of CAP, structural funds, and common foreign and security policies as well as the Schengen system. The almost identical historical and economic conditions as well as the fact that these countries have been interrelated very closely in economic and social terms, definitely encourage us to compare and analyse the events which have been going on in these countries. The importance of evaluating the different impacts of the EU ascension has not decreased in the last decade. Some of the problems, such as the problems of competiveness and effectiveness of agricultural sector, or the delay of the transformation of the payment scheme are still unsolved. The continuous learning process has not ended by the ascension; not only the institutions but also the individuals shall observe and learn the changes of the agricultural policy, which of course, means a heavy task for the farmers besides the management of their farming. It is on this note that this study aimed at assessing CAP performance in V4 countries after their accession to EU.

**1.1 Review of Empirical Literature**

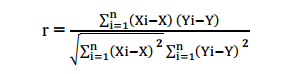
Several researches have assessed the impact of EU accession on various factors and sub-sector of agriculture such as trade, productivity, marketing etc. Bojnec and Ferto (2008) analyzed agri-food trade competitiveness with the EU-15 of the newly accessed Member States and concluded that trade has increased as a result of enlargement, though there have been ‘catching-up’ difficulties for some countries in terms of price and quality competition, more so in higher value-added processed products. Bojnec and Ferto (2012) investigated the complementarities of trade advantage and trade competitiveness measures for agro-food trade of five Central European Countries with the European Union and confirmed that the revealed trade advantage is consistent with the one way export and the successful price and quality competition categories in two way trade. Artan and Lubos (2011) analysed the agrarian trade transformation in the Visegrad Countries and found that the value and volume of V4 export and import operations increased significantly. Fertő and Soós (2009) presented the duration of trade of former communist countries in the EU market and found that for the majority of countries, the length of trade is greater in EU10 markets than in EU15 markets. Ambroziak (2012) investigated the relationship between Foreign Direct Investment (FDI) and intra-industry trade (IIT) in the Visegrad countries and found that FDI stimulated not only vertical IIT in the region but also horizontal IIT. He found that differences in country size and income were positively related to IIT as is FDI, while distance and IIT showed a negative relationship. Policy-oriented analysis of the impacts of accession can be found in Möllers et al. (2011), analysing the changes in agricultural structures and rural livelihoods in the NMS and reaching several agricultural policy conclusions, especially regarding the ongoing debate of the Common Agricultural Policy. Gorton et al. (2009) analysed why the CAP does not fully fit the region and identified several reasons valid for the NMS. Csáki and Jámbor (2009) analysed the impacts of the first five years of EU accession on NMS agriculture and concluded that EU accession has had an overall positive impact, although member states capitalised their possibilities in a different manner. Kiss (2011) echoed this conclusion and added that accession has created an incentive for NMS agriculture but also had negative effects due to tough competition in the enlarged market.

Kartali (ed.) (2008) and co-authors, on the other hand, examined the issue of the growth of the Hungarian food economy’s exports. They assessed the top 30 target markets between 2000 and 2006. Their main conclusions included: the top ten target markets including Austria, Italy, Russia, Romania, the Netherlands and Poland absorbed 63 percent, and the top 30 target markets 94 percent, of Hungary’s agro-food exports. The average market expansion growth rates presented remarkable differences where the largest markets were the most stable ones. The range of operation of the Hungarian food economy’s exports was relatively small, with a radius of 2500 km, in general covering geographically Europe (simultaneously implying competitive advantages and disadvantages). The “driving markets” of the Middle and Far East were distant from Hungary where the poor transport infrastructure constituted the main barriers within the logistics of the sector. Despite the apparent importance of the topic, there are a limited number of research papers dealing with impacts of EU accession on the V4 agriculture. Therefore, the aim of this paper is to evaluate the status of the sector in the light of the latest available data as well as to identify the factors lying behind different country performances in the four Member States concerned and compare them before and after the accession.

**2.0 Materials and Methods**

The data employed in this study was obtained from the Farm Accounting Data Network (FADN) complimented by data from Food and Agriculture Organization statistical database (FAOSAT) and the European Statistical Office (EUROSTAT). Time series data from 2004 to 2012 were collected on agricultural output, farm productivity, farm inputs and outputs per hectare, farm net income, farm structure, economic size, utilized agricultural area, index of real income in agriculture per annual work unit (AWU), import value, export value and total subsidy received, decoupled payment in order to achieve the set objective of the research study.

Descriptive statistics was used to analyse and describe the trend of variables for the countries understudy. We employed graphs to describe the changes of these variables over time after the accession into the EU from 2004 to 2012. Further to attaining the objective of the study which was to examine the correlation between performance of CAP (using total subsidy obtained, real income and decoupled payment received by farmers as proxy for CAP performance), trade factors (import and export) and farm productivity. This would give us an insight on linear relationship that exists between the variables. In order to analyse this, we employed correlation coefficient denoted by the formula below:



….….……………(*1)*

Where X and Y are values of total subsidy obtained, decoupled payment received by farmers (proxy for CAP performance), trade factors and farm productivity obtained from the period of 2004 - 2012.

It is noteworthy to state that the data analysed using the correlation analysis were aggregated for the V4 countries for the year understudy

**3.0 Results and Discussions**

This section entails analysis of the data, interpretation and discussion of the results obtained. The first section is the description of all the variables in the study while the second section is the presentation and interpretation of inferential statistics which was used to analyse the relationship that exist among the variables.

***3.1 Farm structure, Economic size and Total Utilized Agricultural Area (UAA) of the V4 Farms***

The transformation of the agricultural sector in the NMS including the V4 was always prominent because one of the major challenges and EU regulation which was entailed as privatization of the land. In general the V4 countries have chosen to restitute the land to former owners thus allocating physical plots to individuals (Csaki et al., 2000; Norton, 2004). The share system was intended to bring equitable land rights to the population, but it often brought about large-scale integrated farm structures and cooperatives formed in the past. After the joining of EU and the privatization of the land, it was not so much driven by economic concerns, although theoretical links of land and labour productivity may have been considered, but was prompted rather by a general sense of societal justice in terms of land use changes and farm structures (Sikor, 2009).

Figure 1a. Trend of Farm structure of V4 after EU accession

*Source: Author’ own editing, FADN, 2015*

The agricultural sector in the Visegrad Countries is still a mixture of small- and large-scale farming, with three land and animal tenure patterns standing out: (i) large-scale farming-dominated structures (e.g. the Czech Republic), in which large-scale farms cultivate most agricultural land and/or hold the majority of livestock units, (ii) mixed farming structures (e.g. Hungary), and (iii) predominantly small-scale farming, which is for instance the case in the Polish dairy sector (Möllers et al., 2011).

Figure 1b. Trend of Economic Size of V4 after EU accession

*Source: Author’ own editing, FADN, 2015*

Figure 1c. Trend of Total Utilized Agricultural Area of V4 after EU accession

*Source: Author’ own editing, FADN, 2015*

The size of agricultural land in the study period decreased each year because of the development of Central Eastern European society, its economic direction and continuous growth, rapidly growing of commercial and residential areas in the peripheral urban areas, but also due to the agricultural policy of the Visegrad Countries. Changes in the structure of farms represented, their economic size and total UAA had started already in the period of economic and agricultural transformation after 1989 and the changes of the political systems in CEE, which changes are progressive and continuous to the present. The current trend of decreasing agricultural land area or UAA and the economic size of the farms will continue, as a result of the progressive development of society its economic activities and the entire globalization.

For example in Slovakia the largest share of agricultural, which in the years 2004–2010 decreased by 13.961 ha and thus its share in 2010 reached 58.7 percent (in 1990, the share of arable land was 61.5 percent) (Nemethova J. et al., 2014). There is similar scenario in the rest of the V4 country where can be seen from Fig.1 the decreasing of UAA is progressive trend due to the policy and some private instead of state interests in case of capital and FDI investments where arable land is used or sold out for different purposes instead of agricultural activities. Trend which is common not only for the Visegrad Countries, but also Central Eastern Europe with main emphasis on the NMS and Member Candidates. Despite the UAA structural changes in agriculture, a gradual increase in average farm size can be observed. This is particularly true for full-time farm enterprises in the NMS and Visegrad Countries. Furthermore, although the number of the larger farms in terms of ESU is relatively small in the NMS, they significantly contribute to overall standard Output (SO) according to the findings for the Economic size of the farms in Visegrad Countries where most of them (except Hungary) are showing positive progressive Economic size after the accession in 2004.

***3.2 Total Input and Output among the V4 farms***

In the fast-reforming countries such Visegrad Countries where after accession of EU, reforms and synchronization of the agricultural policies were prioritized, a declining of the agricultural output were followed by reduction in agricultural employment, lagging in the modernization and gap in competitiveness on the market during the 1990s (e.g. Hungary and the Czech Republic from 1990 to 1996). Such declines were less influential in countries relying on traditionally small-scale farm structure in Poland and Slovakia. Although the reduced production intensity reflected changed farm input and price structures following reductions in subsidies, it was a major factor contributing to the general fall in agricultural output, investment, real agricultural incomes and profitability in the Visegrad Countries. A positive aspect of this process was the reduced pressure on the environment before the joining of EU.

To close the output/input gap and match the EU performance, Visegrad Countries` farmers need to invest in land improvement and adopt modern agricultural practices. The timing for doing so is right, now when the Visegrad Countries are member states can also benefit from the EU’s Common Agricultural Policy (CAP). After the collapse of communism system and introducing the EU aspirations and membership, use of inputs in agriculture among Visegrad Countries drastically reduced. In contrast to the east’s slow, post-1990 recovery, farmers in Western Europe have continually increased their annual productivity so that there is nowadays a significant gap in output between EU15 and NMS such Visegrad Countries. The potential that exist is that on at least half the land in Visegrad Countries, this gap can be closed relatively easily using the benefits of CAP. This portion of land is in the hands of farms with a size of 100 hectares or more especially in ownership of cooperatives or private companies mainly in Hungary and Poland. Farm sizes like this provide a strong enough bases for justifying investments for modernising farms and quick wins can be realised by copying best practices from Western Europe, thus increasing the coefficient of output/input balance and become more competitive sector.

Figure 2. Trends and comparison of the Total Agricultural Output among V4 after EU accession

*Source: Author’ own editing, FADN, 2015*

The figure above (Figure. 2) depicts a dwindling movement of total agricultural output of V4 countries since the ascension to EU. However, Slovakia retains the highest growth in agricultural output which could be attributed to a combination of factors such as efficient farm structure and more importantly the percentage of population in the agriculture which has a tendency of improving the effort directed in agricultural and invariable leading to increase production, better efficiency and improvement in agricultural outputs. Main declining comes in 2009 and 2010 where V4 were affected by the globe crisis and the agricultural sector faced many difficulties by that period. However, from figure above we can conclude that most efficient are Czech and Slovakian farms among the Visegrad Countries. Although, Hungary and Poland did introduce a number of laws and regulations within the CAP with regard to the use of pesticides and the problem of residues in food, output/input has yet to be placed in an integrated policy framework and treated as a major development indicator in the manner of sustainable agriculture, especially for Poland which is characterized by many small-scale family farms operated more for home instead for market consumption. With a few exceptions, such as those of Slovakia and the Czech Republic, the approach that puts output growth first, still prevailing in Central and Eastern Europe, does not yet adequately address sustainability concerns among the Visegrad Countries. However, such neglect of sustainability aspects could be expected to change slowly with the progressive alignment of policy-thinking in Central Eastern Europe with that of the EU.

***3.3 Farm productivity and income among V4 countries***

After the joining of EU among the Visegrad Countries was addressed the needs for investments if they want to realise the productivity increase and become more competitive within the Common Market Organization. And in the past before joining EU farmers have to fund these investments themselves. Nowadays, after joining they gained benefit from the internal European market, with higher and more stable prices. As a result, their access to credits and EU funds improves. They receive direct income support from the European Commission, while European and national support funds per each country also make a contribution.

Figure 3. Trends and comparison of Farm Productivity among V4 after EU accession

*Source: Author’ own editing, FADN, 2015*

The farm productivity which is the measure of farms are able to efficiently convert all valuable inputs to output through efficient resource use which is explained as the ratio of output to input use by farmers. Figure 3 shows the trends and comparison of productivity ratio among the V4 countries. The productivity ratio in Poland remains the highest among the countries followed by Hungary, then Czech while Slovakia has the lowest productivity ratio. Also way of production such as family farming or industrial agriculture play key role in Visegrad Countries. For example, in Slovakia there are many private companies and cooperatives running agricultural holdings instead of Poland where mainly the agricultural sector is running by small-scale family farmers thus utilizing the local resources and getting better productivity. But this theory cannot be taken strictly because also other factors influencing this performance determined by the farming structure, farming system, farming techniques and type of machinery used among other.

Nowadays Visegrad Countries are rapidly changing the agricultural sector using the benefits of CAP and EU funds land can be bought and improved, while modern agronomic practices can be adopted and productivity rate and competitiveness increased. That way, they provide an example to neighbouring farmers of how to improve farm productivity, while increasing the value of their assets at the same time and deal as a market oriented farms. In the long term run, quick wins in Visegrad Countries can be copied to countries such as Russia, Ukraine or Kazakhstan. For example, the crops sector in these countries is three times the size of that in Visegrad Countries, which is way for potential additional crop production to be a multiplied of the increase.

***3.5 Farm Income among V4 after the accession***

In CEE countries, the financing of agriculture has improved considerably since the 1990s. EU accession has also had a significant impact on agricultural prices and incomes among the Visegrad Countries. Agricultural raw material prices have shown a remarkable increase for a few years where the initial decline was followed by another price hike in 2011 in world agricultural product markets, also in the Visegrad Countries (Csáki and Jámbor, 2009).

Figure 4. Trends and Comparison of Farm Net Income among V4 after EU accession

*Source: Author’ own editing, FADN, 2015*

Figure 4 contains the graph of the farm net income among the Visegrad Countries. The farm net income is the income received by farmers after the cost of their variable input are already been removed from sales of output. Immediately after ascension the farm net income of farmer in Poland was the higher but at the end of the year 2012, the farm net income of farmers in Hungary became the highest among the member countries, followed by Czech and Slovakia while Poland was the least. In this case, farm net income can be attributed to variances in the cost of input in Hungary compared to other states. We can infer that increased in farm net income is contingent on the cost of income. Therefore, if farmer in V4 countries is to increase farm net income there is need to adopt the economies of scale which can lead to cost reduction and value addition.

Figure 5. Trends of Index of Real Income in Agriculture per AWU among V4 Countries

*Source: Author’ own editing, EUROSTAT, 2015*

Increasing producer prices have also resulted in an increase in producer and per annual work unit AWU incomes in the Visegrad Countries after the EU accession. Real farm income and AWU has grown in each and every country in the region from 2004 to 2014, though to a different extent (Figure 5). The biggest increase can be recognized in Hungary (almost two and a half times), while the smallest in Slovakia (almost two times). EU27 average farm incomes have hardly changed in the period analysed and thereby agricultural income adjustment has begun between old and new Member States. In the end we can conclude a significant increase has occurred among Visegrad Countries in terms of the real farm income per AWU comparing with EU27 in general. There has been a significant increase of farming incomes in the Visegrad Countries, mainly due to agricultural subsidies, while initial differences have remained where Czech and Hungary have more stable and progressive income tendency instead of Slovakia where high fluctuation within the surveyed period appear. In case of Poland, still remain as a last among the Visegrad Countries and least progressive income tendencies, mainly because of the farm structure and subsistence family farming strategy.

***3.6 Import and export values in V4 after the accession***

Czech, Hungarian, Polish and Slovak imports represent similar patterns as their global exports. Similarly, the upward trend is visible almost the entire period studied after the accession, with the exception of 2009 where import was weaker than in the case of exports: in Czech Republic, Poland and Slovakia the level of imports in 2008 was higher than in 2011. It is interesting that from 2004 the Polish imports, indicating a gradual increasing (except 2009).

Figure 6. Import Value among V4 (2004-2014)

*Source: Author’ own editing, EUROSTAT, 2015*

In the case of Hungary, as well as their total imports, in 2014 the rate has even returned to the pre-crisis levels. Throughout the study period imports grew the most in Slovakia and Poland (about three-fold) and weakest increase took place in the case of Hungary (half-fold). Diversification of imports among the studied countries is relatively high, as evidenced by relatively low levels of the import index. The highest concentration was observed in 2013 and 2014, weakened in the backward years.

Figure 7. Export Value among V4 (2004-2014)

*Source: Author’ own editing, EUROSTAT, 2015*

Tendencies in Czech, Hungarian, Polish and Slovak exports are very similar and show an upward trend, with the exception of 2009 when the crisis fully emerged on the global stage and highly reflected in the reduced value of the export on globe level. In the latest few years, recovery took place (for example, in Poland, in 2013 export value was already twice higher than in 2009) and the continuation of the upward trend occurred after the crisis in 2009. Throughout the whole period Slovak exports increased more than five-fold, Polish more than three-fold, the Czech Republic almost four-fold and the Hungarian exports raised two fold after the accession in 2004.

***3.6 Subsidies and decoupled payment in V4 after accession***

The bellow Figure 8 shows the distribution of trends of total subsidy received by farmers since the accession of the V4 countries to EU. As far as the total subsidy is concerned, the total subsidy received is highest in the case of Slovakia since accession till date and this has been on increase, however, there is a close gap in the subsidy received by farmer in other Visegrad Countries.

Figure 8. Trends and comparison of Total Subsidy Value among V4 after EU accession

*Source: Author’ own editing, FADN, 2015*

This variation can be adduced to the need of the farmers, the scale of production and compliance with standards provided by EU. Subsidies as measures for boosting of the agricultural competitiveness have definitely proven to occur as a benefit for the Visegrad Countries. On the one hand, those countries where agricultural subsidies to farmers remained at a low level (except Slovakia) have gained with the accession which has provided visible incentives for production and led to the increase of agri-food trade balance. Their farmers were more specialized and entrepreneurship oriented on the new CMO. On the other hand, in the same time Slovakia was providing initially high and uneven price and market support thus leading to lose with accession as it has brought hardly any input increase. In general speaking, the agricultural policy of the Visegrad Countries was not in favor of measures aiming to enhance competitiveness, thus leading to failure and resulting in a situation where majority of farmers were not prepared for the EU accession.

Figure 9. Trends and comparison of Decoupled Payment among V4 after EU accession

*Source: Author’ own editing, FADN, 2015*

The decoupling of direct payments from production represents a substantial reform of the Common Agricultural Policy (CAP). Farmers are no longer required to produce commodities to be entitled to support but only to keep land in Good Environmental and Agricultural Condition. In Figure 7 is presented trends of decoupled payment among the V4 after the EU accession where Slovakia is biggest beneficiary among the group, followed by Czech. In case of Hungary and Poland there is no significant progress in the decoupled payments after the accession. Reason for this gap between the states may underlie in the decoupled compensation payments national policies aiming to facilitate reform of their agricultural policies. Also one of the crucial factors is the landscape management and farm structure in the region. It’s understandable for Hungarian and Polish farmer to pretend single payments and intensive farming instead of the Czech or Slovak farmers, where geographical position, landscape structure and farm size are limited factors leading them to payment which can bring them more competitiveness on the market an put more focus on the Axis 1 under the CAP.

***4.0 Correlation coefficient analysis results***

Table 1 below shows that that there is linear relationship between the CAP performance variables (which are the total decoupled payment and subsidy received by the farmers) and farm productivity, export value, import value, real income of factors in agriculture per annual work unit by the Visegrad Countries. Note that the data was aggregated for the all the Visegrad Countries before the data was analysed.

The results below depicted that there is a strong, positive and significant relationship between the total decoupled payment, subsidy received, farm productivity, export and Real income of factors in agriculture per annual work unit since all the V4 countries accession to EU. This implies that as the total decoupled payment received by farmers, the farm productivity has also been increasing since accession. This signifies that farmers tend to judiciously expend the money received for expansion of their farms, purchase of farm inputs for improvement of output and doing sustainable agriculture. This has the tendency of contributing to the farms’ efficiency. In addition, real income of factors in agriculture was found to be positive and strongly correlated with the both CAP performance variables examined in this study that is total decoupled payment and subsidy. This result implies that access to decoupled payment and subsidy by farmers increase the turnover in terms of real income in factors in agriculture per annual work unit which confirms progression in the efficiency of production of Visegrad Countries after their accession to EU since 2004. This has improved the competiveness of V4 countries.

Further to this, total decoupled payment and subsidy received are strongly and positively correlated with export value from all the V4 countries. This is in line with the above results, payments received by farmers translated to expansion of output over the years and this has contributed to self-sufficiency of V4 countries and increased their propensity to export after their accession to EU.

Table 1. Correlation Matrix of CAP Performance variables with Farm Productivity, Real Income index in agriculture and Trade variables (Import and Export)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CAP Performance Variables** | Farm Productivity | Real income of factors in agriculture per annual work unit | Import | Export |
| Total Decoupled Payment | 0.664\*  (0.00) | 0.814\*\*  (0.02) | - 0.215  (0.124) | 0.541\*\*  (0.04) |
| Subsidy Received | 0.724\*  (0.01) | 0.511\*\*\*  (0.00) | -0.356  (0.06) | 0.724\*  (0.00) |

*Values in parenthesis are the probability value of Z (P=Z)*

*\* Significant at 1%; \*\* Significant at 5%*

*Source: Author’ own editing, 2015*

**Conclusion**

The paper analysed the performance of CAP after Visegrad Countries accession to the EU on their agricultural sectors. We found that the Visegrad Countries had increased agricultural output, farm productivity, farm net income and total output per hectare while this increase vary across the countries. Also there are differences lying in the farm structure, economic size and UAA. Except for Poland where small-scale farming is dominant and traditional, rest of the Visegrad Countries faced these changes due to the transitional political process and ownership switching from state to private. Even after the accession in Visegrad Countries the small farms are in general still too small and farmers do not have enough knowledge and or enough resources, while large farms are getting larger and more focus on collective farming system with some hidden losses. Moreover, one of the key characteristics of the region is the high but decreasing number of small farms (Möllers et al. 2011). Also among the countries, their diversified national agricultural policy and institutional framework are drivers of the individual country agricultural performances.

There was a diverse effect of the enlargement on the Visegrad Countries` agricultural sector after implementation of CAP. It is noteworthy to state that Hungary and Poland had higher total output produced per hectare and also higher farm productivity compared to other V4 countries. On the other hand, the Czech Republic and Slovakia received higher payment in term of subsidy and decoupled payment since the accession into EU. In general for the Visegrad Countries, CAP performance variables which are total decoupled payment and subsidy received had a positive relationship with farm productivity and export value while it is negatively related with import value. This implied that the accession of V4 countries has positively impacted the agricultural sectors of these countries through structural changes which translated to increased productivity and higher net trade balance. Measures related to agricultural competitiveness are boosting this sector and have proven to be beneficial. For example country like Poland where agricultural subsidies to farmers remained at a low level get more benefits within the EU accession which has provided visible incentives for production and led to the increase of agri-food trade balance, farm income per AWU and farm productivity. Rest of the Visegrad Countries providing initially high subsidies such as Slovakia is considered to lose with accession as it has low farm income per AWU, productivity or competitiveness on the CMO.

Furthermore, the inferential statistics for the aggregated data for the V4 countries revealed that CAP performance variables which are decoupled payment and subsidy received by the farmers have a linear relationship with the growth agricultural sector and the entire economies of these countries in terms of farm productivity, real income of factors in agriculture, import value and export value. This can be adduced to the financial support from the CAP has allowed the inputs used in agriculture (fixed consumption, compensations of employees) to increase, while outputs have also increased, but to a lower extent more or less in all Visegrad Countries. But investing alone is not enough because farming is an art too. Farmers in Visegrad Countries need to learn how to improve practices which requires a knowledge transfer about the use of modern seeds, agrochemicals, fertilisers and machinery. Increasingly, this knowledge should be supplied by input suppliers who provide total farm solutions rather than standalone inputs.

Finally, above findings and results are suggesting that EU accession of the Visegrad Countries has had mixture of positive and negative impacts on their agricultural sector. As to positive impacts, the enlarged EU market opportunities, increased farmers’ incomes as the positive correlation among the factors analysed above should be mentioned. However, besides these benefits, several difficulties have also emerged after accession, out of which the limited potential to withhold competitive pressures, the lack of harmonised support levels, the increased gap between the farm size and small-scale farmers and inequality of national subsidy should be emphasised as a reasons for unequal and unique performances of the Visegrad Countries after their EU accession.

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