The Cost of Agricultural Protection in Turkey: A Gravity Model Approach.

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Master of Economics: Dissertation

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Abstract.

The agricultural sector is supported by some distinctive economic policies in every country due to its strategic importance from past to present. These policies are protectionist policies which are significant in terms of domestic producers and production. Turkey has applied these policies and tried to control the liberalization process itself during its history. This study has, however, shown that the protectionist policies prevent to benefit from agricultural foreign trade for Turkey. It causes a serious cost to the agriculture sector. Because of this, Turkey should reduce its protection level on agricultural goods if it requires being more successful and competing with developed countries in the international trade arena.

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1. INTRODUCTION

Agriculture has an important place in mankind's adventure on earth. Surviving with hunting and collecting, humankind began working on soil for agricultural purposes, through agriculture humanity found the opportunity to obtain food which is not available in nature and big quantities. With the permanent lifestyle, whether the survival of mankind or being the major activity to become richer, agriculture had been in the centre of communities till the mercantilist age. With the following industrial revolution, agriculture lost its leading place in the economical improvement and the rate in national product. It was such bad that, the less ratio of agriculture in GNP and the low rate of agricultural employment in overall was the sign of developmental level.

With all these changes, agriculture has never lost its importance and given special care nearly all over the world. Having a strategic function in feeding a country's population, agriculture has an exception because whether its contribution to national wealth, employment, export and by the mean of in-out connections to several industrial branches, or social reasons. It has some continual, vigorous standard problems which are always on the agenda, like having supporters and opponents in management and economy. For example, interventionist government-minimal government, strong currency-weak currency, balanced budget-deficit budget, export-oriented industrialization-import substitution for industrialization, and market- regulation (Acar 2005, pp 1). One of the most essential problems is free trade- protectionism which has continued for years.

The protectionist policies which are supported by developed countries limit the development of world trade without a shadow of a doubt. According to the calculation of World Bank, eliminating agricultural subsidies by OECD countries causes an increase in the total exports of the developing countries by 24% and it provides 60 billion dollars additional foreign income to these countries in a year. When the world agricultural trade is protected, it causes an adverse effect on the potentials of developing countries' economic growth and increase of the probable welfare (Sahinoz pp 2). Furthermore, these policies lead to enormous distortions in production, consumption, and trade in the agricultural sector. Therefore, detrimental effects are remarkable. In this paper, firstly the protectionist policies on agricultural trade will be explained, secondly, the effect of protection on agricultural trade flow in Turkey will be investigated using gravity model as comparing with European Union countries.

The remainder of the paper is organized as follows: Section 2 provides background information on the Turkish economy, agricultural sector and its policies in Turkey; section 3 reviews existing literature on protectionism, its development and effects on agriculture and protectionist agricultural policies all over the world. Section 4 sets up the empirical model and discusses the results. Finally, in section 5 conclusions are made.

2. BACKGROUND

2.1. Turkish Economy

The Turkish Republic had initially aimed to pursue relatively liberal economic policies after establishing in 1923. However, it had to tend to etatism, interfering and protective policies to survive and provide economic expansion like other countries in the world, especially after the beginning of the Great Depression in 1929. The entry of the economic life and public entrepreneurship for Turkish government started with the first five-year economic plan which was applied between 1934 and 1938. In this period, the economy grew rapidly although it was at a decreasing rate and experienced sharp reductions in growth rates in all sectors during the Second World War. Some amendments commenced in Turkey in conjunction with the finish of war and liberal policies became active all over the world. These changes were to keep the government interfering in a specific boundary and a rise of the enterprises for liberal applications. Therefore, the new government followed liberal policies and succeeded in increasing the growth rate during the multi-party system between 1945 and 1950 (Taymaz 1999, pp. 3). Also, Turkey affiliated with IMF and WTO in 1947 and strategies applied were consistent with the conceptions of these organisations.

Significant progress in both agriculture and industry sectors was obtained between 1950 and 1953. The reasons for the growing productivity in agriculture were agricultural mechanization, loan opportunities, high price policies and congenial climate conditions in this period. At the same time, a rapid improvement in the industry was observed through facilitator applications for import of the foreign capital, rising money supply, restrictions in import and subsidies. Major public investments were focused in these years. This period finished in 1960 with a military intervention partly as a response to deteriorating economic conditions. After this armed interference, studies on a long term economic plan commenced again. First, the one-year plan was attempted in 1962 and it found successful. Second, five-year economic plans were undertaken from 1963 to 1977 and import substitution policies were pursued (Burrell & Kurzweil, 2008). The development continued as long as import substitution policies were non-durable consumer goods oriented such as processed nutrition goods and textile, but when the policies aimed durable consumer goods (vehicles and white goods) and intermediate goods (steel, refined goods and petrochemical products) as from the middle of the 1960s, the outcomes were far away from being satisfactory. Some economic imbalances were constituted during this period. These are quadruple rising oil prices between 1973 and 1974, the gap between national savings and investments expanded at the end of the 1970s, and import increased dramatically in respect of constant export. Therefore, the government encountered high inflation and deficit in the budget. As a result of these economic imbalances, the authority announced a standard stabilization program on January 24, 1980, which was a converted program to export-led growth with the help and support of IMF and the World Bank. An enlargement in export and hard-currency income, to bring inflation under control and reach a dynamic structure in an economy which is appropriate to the international competitive environment was intended with this stabilization program.

The period of post-crisis reparation started at the beginning of the 1980s under a three-year military government. The export-led growth strategy was moderately successful. The average yearly growth rate of the real GDP was a remarkable 5.8% between 1981 and 1988 and the economy did not encounter any depression and was transformed into an exemplary one with a powerful macroeconomic stance (Ertugrul & Selcuk 2001, pp 8). In this period, there were significant changes in the import regime.

I and II Liberalization Lists were abrogated and a new system was entirely inaugurated. In this new system, commodities that could be imported under certain conditions took place in “positive lists” while commodities that require prior import permission in January 1984 took place in “negative lists”. Furthermore, the Fund List was indicated and goods, which were covered by the list, could be freely imported when a special levy was paid. They were especially luxury goods. The Prohibited List and the Approval List were other classifications for imports (Baysan & Blitzer, 1990). Consequently, the rigid import controls were progressively relaxed during this period, including the controls on agricultural products. The standard stabilization program covering the whole economy applied successfully and affirmative improvements were recorded in 1980-1987.

After a long period of significant growth, the economy experienced first stagnation in 1988. Unemployment maintained its high level, the budget deficit increased and price increases were accelerated except substantial progress in the balance of payments in 1988 and the following year. However, this slowdown in the economy gave way to a prompt revival in 1990. As a result of some economizing measures, increase the velocity of real GNP was 9,4% in this year. On the other hand, the Gulf War in 1991 drew the economy into another recession as leading to a sudden capital outflow. The economy benefited from high growth rates until 1994 through the resumption of capital inflows, but it could not protect itself from a currency crisis in 1994 (Akay & Yilmazkuday, pp 4). The devaluation of the Turkish Lira reached more than 50% against the US dollar by the end of the first quarter and the government declared a new stabilization program on April 5. However, the stabilization of the Turkish Lira could be attained only in May. After the program executed, a stand-by arrangement was sanctioned by the International Monetary Fund (IMF) Board, but the agreement was terminated in 1995 due to the government could not sufficiently obey the program. There was no considerable endeavour to become steady the economy and decrease inflation, throughout the next two years. Although the economy succeeded in staying away from the first shocks of the Asian crisis in 1997, it was affected by the Russian Crisis in 1998.

As from 1999, several financial crises initiated another program of structural adjustment for the entire economy, and changes made to improve agricultural policy had an important role. At the beginning of 2001, the stabilization program which built on the exchange rate for three years supported by the International Monetary Fund (IMF). However, it failed at the end of fourteen months and the crawling peg was discontinued. Consequently, the Turkish Lira was floated. In 2002, the deepest recession was experienced since World War II (Burrell & Kurzweil, 2008). International creditworthiness of Turkish economy increased with stand-by agreements and economic reforms which were performed before and after the crisis, and also Turkey became the most rapidly growing country in 2004 in the world as the Turkish economy which showed significant expansion in 2003 and 2004 possessed 9,9% growth rate. Boratav said that 48% of the cumulative increase in 2002-2004 caused by only inventory growth apropos of the last growth figures (Boratav 2005, pp 58-9). Regarding the end of 2005, two of the European Union criteria (Maastricht criteria) were achieved in the public finance area. Also, the privatization performances exceeding 20 billion dollars materialized in 2005. Therefore, it can be said that an impressive growth rate recorded between 2002 and 2006. While the financial crisis which started in the middle of 2007 in the USA spread through all over the world, the effects of this crisis in Turkey began to crystallize in the non-financial sector especially late in the year. The Turkish economy which slowed down due to the global crisis grew 0,5% in the third quarter of 2008 and 3% in the nine-month period and 1.5% reduction is expected for 2009 according to IMF.

2.2. Turkish Agriculture in the National Economy

2.2.1. Share of Agriculture in Gross National Product (GNP)

One of the essential parts of a developing economy is agriculture. It is possible to obtain an opinion of the advanced level of the economy by looking at the share of agriculture in GNP (Altınalev 2004, pp 51). For example, the agriculture industry in Turkey, which has great potential, contributes to national development in many ways. It is very important in terms of providing an essential food supply for the national population, providing raw materials for the industry, creating demand for industrial products, and its contributions in national income and export sales (DPT 2000, pp 4).

When we glance at the place of agriculture in the general economy of Turkey, it is seen that a long-stagnant period followed by a rapid regression. While the agriculture had a share of 45% in GNP from the early 1920s to late 1960s, its share in GNP receded to 26% in 1980. It was only 14,5% in 1997 (Atik 1999, pp 5). This inclination of regression continued along the process. Finally, a 12.8% share of the agriculture sector to the economy in 2001 declined to 11,9% in 2005. Even if there are increases in absolute value in agricultural production due to the negative effect of trade limits on agricultural products, lack of demand elasticity in agricultural products and rapid improvement in other industries, the share of agriculture in national income decreases. On the contrary, it can be seen that the agriculture is still very substantial in Turkish economy when we compare the agricultural share of 14,4% in GNP with the EU agricultural share of approximately 1.5% (Erdal 2001, pp 84). While the agricultural share in national income reduces, still a majority of the population earns their living from agriculture (DPT 2006, pp 11). This constitutes a serious problem for the future of the industry.

The average annual GNP growth rate had been 3,9%, along with an industrial growth rate of 5,5% and services growth rate of 4,6% between 1980 and 2000. However, in the 1980-2000 period, which showed 2% of population growth, the annual average growth rate for agriculture had been only 1,3%. In the year 2000, while GNP per capita in Turkey was 3,060 dollar, for the agriculture industry it was only 1,400 dollar (Erdal 2001, pp 85). Furthermore, the agriculture industry shrank by 6% in 2001, but it has shown an affinity to improve even if it was not much compared to other industries, and in 2005 agricultural growth rate reached 5,7%.

2.2.2. Human Resources in Agriculture

According to the last population census, approximately 40% of the population lives in the rural area and 32% of the civilian employees work in the agriculture industry

(Günaydın 2006, pp 2). However, in developed countries, the rate of agricultural workers to total employment is only 2,4% in the USA and 4,2% in EU (TUSIAD 2003, pp 7).

The high number of the rural population and the significant share of agriculture in total employment cause heavy and intense population stress and hidden unemployment. Efficiency stays on low levels due to the crowded population and high hidden unemployment workforce. Therefore, the agricultural population must be decreased to 20% at first and 10% in long term. Also, the excessive part of it must be transferred to manufacturing, tourism and service sectors using supporting policies, structural adjustment providing policies like regional development projects, rural development projects, soil and agriculture reform consolidation policies, along with economical and social policies (DPT 2000, pp 7).

2.2.3. Agricultural Business Structure

According to the 2001 Annual General Agriculture Census Agricultural Businesses Survey results, there are 3,9 million agricultural enterprises and 17,6 million hectare land in Turkey. Generally, there are mixed type enterprises most of which are family-type enterprises and they produce vegetable and animal production together because specialization is not common in enterprises (Bayraç & Yenilmez 2006, pp 5). Land sizes are 0 to 2 hectares in 36,7% of the enterprises, 2,1 to 5 hectares in 31% of the enterprises, 5,1 to 10 hectares in 17,5% of the enterprises, 10,1 to 20 hectares in 9,4% of the enterprises, 20,1 to 50 hectares in 4,4% of the enterprises and finally larger than 50 hectares in 0,9% of the enterprises. Therefore, the efficiency is low on these enterprises which are generally small and consisting of many parts (TUSIAD 2003, pp 6).

Another feature of the Turkish agriculture enterprises along with being a small enterprise is that they are multi parted. A rapid increase in the population of the country, speculative land areas, valid heritage laws encouraging land dividing and the "Making Farmers Landowners Law" which forces the state to give out land in small pieces are the main reasons for this divided lands and small enterprises (Karakayalı 2003, pp 221). This situation causes the enterprises to become smaller and smaller in time and making them lose the optimal size for a business. The common features of them are low production, high hidden unemployment and low competition capability. At this point, public support sources and managing agricultural policies accurately becomes important (Kesbiç et al. 2005, pp 5).

Small enterprises affect labour, capital, technology and ability to use income in Turkish agriculture negatively. They also decrease the output and obstruct modern agriculture applications. Enterprises that are inadequate in applying scientific and technological advancements to production come up with crisis about production, output and ability to compete. In addition, the low share of foreign capital in agriculture affects negatively both technology and knowledge transfer. This structure of agricultural enterprises has negative effects on many agricultural activities like agricultural income, agricultural organization, publication and education activities and marketing agricultural products along with agricultural efficiency (Erdal 2001, pp 94). Moreover, agricultural segment experiences very big capital problems, which constrains production and cause social problems due to the lack of income to be able to afford both a living and production (Ergin & Eyicil 2006, pp 2).

2.3. Agricultural Policies in Turkey

2.3.1. Enforced Policies up to 1980

Like all around the world, protectionist policies became important in Turkey due to the 1929-1930 economical depression and the effect of this depression that led to a big decline in agricultural product prices. Instruments that had been used before 1980 were generally base price, supporting purchases, income subsidies and low rate credit supports. In this period, numerous products have gained “market price backing” and it was always in the centre of discussions about policies. Also, it was more efficient in support compared to the other instruments (Inan et al. 2003, pp 10).

After entering a planned development phase in the 1960s, supportive activities were made according to the development plan. Objectives and strategies for agriculture industry started to be determined according to the development plans and annual programs (Özkaya et al. 2001, pp 5). Market price backing practices continued in these planning phases in company with intense subsidies on chemical fertilizer. Also, credits with low rates were used to support the farmers to overcome financial problems.

2.3.2. Enforced Policies between 1980 and 2000

In 1980 changing over to the open market economy became a breakthrough for agricultural policies like other general economic policies. In this period, it was predetermined to lower the extent of supportive and protective state actions for the agricultural market. The opinion about agricultural product prices, subsidies given to agricultural income and the effect of low rate credits on monetary expansion causing the inflation before 1980, changed the government’s point of view on agriculture. Conclusively agriculture is started to be evaluated as one of the main reason for inflation (Türkekul 2006, pp 91). In this context, many products started losing their market price backing, subsidies were cancelled and rates of agricultural credits became closer to market levels. In this period, Turkish agriculture was tried to manage by short term political conjuncture related price based supportive policy instruments instead of structural precautions (Kıymaz 2000, pp 58).

In 1994 according to the April 5 Decisions and the national promises made to IMF, the supporting model rationalised by adjustments. As a result of the decisions, direct or indirect use of Central Bank of the Republic of Turkey (CBRT) sources by the establishments that are in charge of support ended, instead, the policies which provide more rational and global market compatible prices by enhancing the contribution of the private sector and the producer unions to the market were adopted (Türkekul 2006, pp 91). However, these policies could not be put into practice successfully. The main reason for this is many technical, economical and social problems that still exist.

Finally, product prices being determined uncoordinated with the world market brought precautions that protect national enterprises against foreign enterprises before 1999. High prices affected both the budget opportunities and source distribution along with customer prosperity and indirectly social prosperity negatively. Since it is not possible to export products with high prices to the world market, it became imperative to give subsidies for exports. The extent of the support and price ranges were not associated with the changes in national and foreign demand levels enough and this extent was determined mostly according to political concerns as opposed to economical concerns. Production of some products was encouraged without regarding the market demand (Abay et al. 2005, pp 2).

2.3.3. Policies administered on and after the year 2000

In the 2000s, while there is the destruction of the excessive stocks of some products like tobacco and tea that can't be used stresses the sector, the existence of the supply gap in animal products and oilseeds, shows us the imbalance and the lack of planning in the sector. Agricultural supportive policies, which object to manage the agricultural production and protect the economical balance, lost potency because of the lack of success in delivering support to the target group and the financial burden. Thus, it started to be seen as the elements that stand in front of the objectives of development. A need for reform in agricultural policies have started to be discussed in the late 1990s in Turkey due to not only the effect of the inside developments and inside dynamics but also the effect of the policies of organisations that Turkey has been liable to and is a member of like World Bank (WB), International Monetary Fund (IMF), World Trade Organization (WTO) and the European Union (EU) (Abay et al. 2005, pp 3). IMF Letter of Intent and Restructuring Program on December 9th, 1999 has been a breakthrough for a new era in terms of agricultural policies.

In recent years, as the changing national and international conditions create new opportunities, it brings out the necessity of new approaches and reforms in agriculture and food industries. With the recent policies losing efficiency, agriculture has been determined as an industry that has to be improved before all else in integration with the EU. Also, it has difficulties with the WTO rules and integration has been more difficult. It has been decided that countries must support the production of goods that has comparative advantage and policies that increase sensitivity to the market prices while changing the recent policies encouraging self-sufficiency in addition to the countries' self-sufficiency policies for important products according to the outline of the agriculture reform (DPT 2000, pp 2). It has been objected to stop the past supporting actions and to adapt to the Direct Income Support System (DISS) with the reform.

2.4. National Agricultural Strategy and EU orientated Regulations

Today's agricultural policy can be summarised as this: In the context of the efficient usage of the principle of the source, the main objective has been determined to ensure an organised, highly competitive, and sustainable agriculture industry by reviewing economical, social, environmental and international aspects of the matter (DPT 2004b, pp 1).

Also, the main principles are determined as being predicated on Adaptation European Union Common Agriculture and Fishery Policies and World Trade Organisation Agriculture Arrangement, executing supportive instruments oriented on agricultural production in market conditions and supporting complementary approach in agriculture and rural development. This strategy has been accepted as capable of constituting a base for the Agricultural Outline Law in 2005 Progress Report, one of the reports that the European Union Commission declares every year. However, some regressions have been noted on some significant subjects like creating a sustainable and competitive agricultural food industry, improving the food security standards, encouraging diversification and supporting agricultural environment plans. For example, in the strategy paper, it has been planned to decrease the share of the direct payment system in the total agricultural budget from 76% to 45% and to focus on specific products. However, according to the Progress Report, it has been decided to increase the premium based production and increasing the production-based direct income payments to encourage the production of the goods that Turkey is not self-sufficient in.

3. LITERATURE REVIEW

3.1. Protectionism and Its Development

In the second paragraph of the introduction of the part of the agricultural agreement which has 20 pages in the WTO agreements text which is 550 pages, protectionism is defined as constituting a fair agricultural trade system based on the market system and managing it according to the rules and disciplines of the General Agreement on Tariffs and Trade (GATT) which is enforced and activated via discussions about supporting and protecting the reform process.

Another definition is the general name given to the policies that support the national economy, sectors, and firms by giving them an advantage against foreign competition or eliminating foreign competition. Since the start of industrialization, protectionism has been used by the majority of the countries from time to time. While England, the first industrialised country, stands for free trade, many countries starting from countries like Germany, USA, Japan to less developed countries have executed protectionist policies (Eraktan et al. 2004, pp 12-4)

Protectionism is a policy used by countries which start industrialization later and think that they won't be able to compete with the countries that started industrialization before. However, the countries that execute protectionist policies in the early stages of industrialization soften or leave those policies after achieving certain progress and invite other countries to quit protectionist policies. Protectionism may be used for the sole purpose of overcoming foreign trade deficits without planning to protect specific industries. Acar (2004) argues that protectionism may have its political reasons and claims that it might be seen necessary to support and perpetuate industries related to national security under every condition, and there had been times that protectionism has been appraised as a part of the constitution of a nation-state. Furthermore, protectionism can be applied as a freedom policy to prevent foreign enterprises to take a hold of the national market. Protectionist policies are generally used along with import substitution policies and the safest way to protect national production against the foreign competition is import prohibitions. Import of products which are evaluated as rivals of the national production is banned in this method. A more common method is to increase the customs tariffs, and so to provide price advantage for the national products. At the same time, national production is encouraged because of the customs duties' price increasing effect on the products. This is called the protection effect. Another common method is limiting the imports of several products by rationing. The rationing is a more certain way of limiting imports than customs tariffs, but it does not increase public income. Protectionism can also be applied by currency control. Countries without a free currency market that all currency transactions are made under the control of the state may determine the total import capacity by exchange allowance.

Protectionist policies provide important advantages for national enterprises. These enterprises become monopolist and earn the opportunity to carry on their high price low-quality strategies. This situation makes some of the interest groups to bring the suggestion of expanding the extent of protectionism to other industries and companies. Protectionism starts to exceed the previous objectives and become an expanding policy which is elongated in terms of time. It is also a policy which is reflected in other countries. While one country strengthens protectionism, the trading countries start executing similar policies too. Even if the struggle against protectionism is intensified after World War II, no success can be achieved for a long time. In the 1980s, the period of leaving the protectionist policies started with globalisation. It is attempted to leave protectionist policies simultaneously all over the world in 1994 with the foundation of Uruguay Round and World Trade Organisation because the protectionist policies that are still in force in the developed countries affect the developing countries very severely. These policies and the aggressive competition that are created by them may render the recent economical stress permanent. The protectionist policies of the developed countries will increase the already existing imbalance even more (Tuzmen, 2008). The policies in agriculture especially constitute the reasons why the agricultural protectionist policies should be more liberal (Blandord 2001, pp 15). They are;

- Protectionism increases ineffectiveness.
- Protectionism causes net prosperity loss.
- Protectionism causes instabilities in income and price.
- More direct and effective nontrade instruments are used to achieve objectives. As price based policies overcome the instability in the country, they cause fluctuation in global prices by loss of economical activity. However executing income-based policies that do not harm the trade instead of price-based policies, make a national market more vulnerable against global instabilities which are caused by other countries' policies.

In the book called "New Protectionism: Protecting the Future against Free Trade" by Lang and Hines, protectionism is thought as the cause of problems like the global instability, economic regression, local downturn, unemployment and poverty in third world countries or the Eastern Europe depressions. It is claimed that protectionism must be balanced by the concept of free trade because of this. Writers stand for the idea that suggests the global problems will be solved more easily by the prosperity level that will be reached as the international activity increases with higher use of free trade principles.

The negative effect of the intensive subsidies and protectionist policies used by the developed countries mainly EU on the trade of agricultural products clinches this argument at the present day. Developed countries use multi-function feature of agriculture as a cover for protectionism and explain the increases in the blue and green boxes by that. Even if its reason is defined as not including the international agricultural trade that took place until the Uruguay Round in GATT, the real reason is the low influence of WTO and the flexibility of the policies that are executed. As the amount of the resources reserved by developing countries for domestic supports that are banned by the agricultural agreement, more resources have been reserved for the domestic supports in the green and blue boxes and because of the destructive effects of these support precautions on production and trade, the objectives determined by the agreement could not be achieved.

3.2. Development and Effects of Protectionism in Agriculture

Despite the movement of liberalisation which continues in world trade of goods for years, reflections of this aspect of agriculture have been limited. While agricultural market-oriented market breaking support policies following the efforts of developed countries prevent agricultural product market from working efficiently to protect domestic agriculture and maintain food security, these policies also have impoverishment effects on developing and less developed countries.

Agricultural products and agricultural market have always had an important place in world trade. It is seen that the political approach of developed countries, who manage trade in the development of the agricultural product trade, show changes from time to time and protectionism has been dominant in agriculture throughout the 20th century. Countries generally use instruments that break the effective activity of the agricultural market like domestic support, export aid, customs tariffs or import quotas to improve self-sufficiency or taking more interest from the agricultural trade. It had been attempted to leave these exercises and adopt more efficient policies in GATT rounds, and first steps along these objectives were taken in Uruguay Round Agriculture Agreement in 1994.

3.3. Agricultural Trade Structure before Uruguay Round

In world agricultural trade, the USA and EU were the pioneers of protectionist policies. USA's Agricultural Adjustment Act in 1993, and Public Law – 480 are laws that are passed to protect the domestic market and to gain a competitive advantage in foreign markets even by using the food aid as an instrument. It can be said that the USA's all agriculture laws that have been rearranged every seven years never lost these two objectives since that date. On the other hand, France as an important element of the EU for agricultural laws has shown the same behaviour since their pre-membership. Also, the European Economic Community (EEC), which was not self-sufficient in most of the agricultural products in the first foundation years, has spent almost half of the budget for agriculture during nearly 40 years especially after the EU Common Agricultural Policy in 1962, solved the infrastructure problems and became self-sufficient with the success achieved in efficiency and production. After the self-sufficiency, it came up with the problem of the surplus product as a result of this process. Briefly, the excessive production capacity makes export essential for both the USA and EU. This put the USA and EU in a fight over foreign markets. Due to this competition, the USA started giving subsidies to the North African countries which is the conventional market of the EU while the EU did the same for Latin America. For example, USA sold flour to Egypt for 25 $/ton while the world market has a price like 150 $/ton and EU made subsidized sells of butter and grain to the Soviet Union and Latin world. This period caused a major decrease in agricultural product raw material prices in the world market and had devastating effects on the agricultural production structures of the less developed countries. Less developed countries with much bigger production costs than the global market prices started to prefer cheap imports over domestic production leading to complete loss of their agricultural production. This period created destructing results in the long term for countries that can reserve financial resources even if it is a little for agricultural imports like Morocco, Tunisia, Algeria, Argentina, Mexico and Brazil.

Before Uruguay round, the mentioned structure of the world trade and especially the negative effects of the subsidy war on the budgets of the developed countries brought a need for ending this period with the consensus of all countries. In this atmosphere, the meetings that started in 1986 in the city of Punta del Este of Uruguay could be ended in 1993 because of the negotiations which took much longer than expected and Uruguay Round Final Act was signed with the participation of 117 countries in December 1993. Despite being an international agreement which brought in the liberation in agriculture sector all around the world and has been signed by member countries of WTO, Uruguay Round Agriculture Agreement, which became effective on 1st January 1994, generally contains regulations suitable for the needs of USA and EU. Main headlines of the agreement are;

- decreasing the domestic support for the agricultural industry,
- decreasing the number of subsidized exports,

- reducing domestic market protecting precautions as being collectivized,
- reducing domestic market protecting precautions as being collectivized,

The regulations made under these headlines created dependant structures in less developed and developing countries along with increasing the efficiency of the countries who dominate the world market in exports.

3.4. Advanced Agriculture Negotiations

After the Uruguay Round, liberal affinities that can be summarised as “Less State, More Market” have been efficient in the world agriculture policies. By signing the Agriculture Agreement with this purpose, even if not completely abrogated the protectionist precautions applied in areas like market entry, export subsidies and domestic support to take more interest from the international agricultural market, they were limited and steps were taken on the way of creating an agriculture trade based on comparative advantage by the liberalization of agricultural products trade.

Advanced Agriculture Negotiations were started in Seattle between November 19th and December 3rd 1999 on the third biannual Ministers Conference, but negotiations cannot be finished due to the disagreements especially in agriculture field beside other ones. For example, Japan, which treats like babies to the farmers, keeps the subsidies for them while the USA does not give up on the subsidies provided to the cotton planters, which had very negative effects on the planters in poor countries. The most tangible result that came out in the context of advanced agriculture negotiations was the outline agreement signed in Geneva on 31st July 2004. According to the declaration, the frame decree aims to constitute a base structure for more liberated international trade.

3.5. Protection Program in Agriculture

A country which uses protectionist precautions may cause the other countries to lose a chance of competition by supplying the world market with cheap products. On the contrary, competition policy aims not only to make a group prosper but also the community itself. Therefore, there is a conflict between agricultural policies and competition policies. The dominant method in competition policy approach is to improve the public prosperity and the prosperity of the target group rather than improving the prosperity of a specific group at the cost of the loss of public prosperity (OECD, 1998)

Conflict can be experienced between the optimal use of objectives of the agricultural policy and market power. If a country majorly owns the market power in any product, the expected policy to be administered is to put taxes on exports instead of the export support. However, the farmers who are the target group of support will have problems when taxes are put on exports. Practice shows that improving the income level of the farmers is the dominant choice in policies (OECD, 1998). In the context of Protection Program, the farmers reserve their lands which are not suitable for farming for natural life by not cultivating. USA ministry of agriculture pays an amount of rent to the farmers according to the land spared for this practice. At first, the objective of this program was determined as improving output by preventing erosion and bringing stability to the agricultural product prices by blocking excessive production. The farmers who want to register for this program are subject to reserve the land for 10 years without cultivation and to help the ministry of agriculture to put the land into a natural state. Farmers will work cooperatively with the representatives from the ministry of agriculture to build up the original natural vegetation. The advantages will continue if the farmer wants to stay in the program at the end of the 10 years. Benefits earned this way are mentioned below:

- Wildlife benefits from the natural habitat that is created to a maximum extent.
- Water quality is improved by reasons like preventing permanent currents and decrease in erosion.

- The efficiency of the farm improves with decreasing water and wind erosion.
- Air pollution decreases and environmental quality increases.
- Relative cost drops because the lands which are not suitable for agricultural production are chosen.

After the program had been executed, it achieved great success and a majority of the American farmers participated in the program. Another effect of the program was seen beside its success. Conservation Reserve Program (CRP) provided many advantages along with new habitats for the wildlife which had been deteriorating and losing many habitats due to the increase in agricultural production. Amount of water blending in with the earth decreased substantially and dehydration systems became healthier after the popularity of the protectionist agricultural methods increased.

3.6. Protectionist Agricultural Policies in the USA

Agricultural support activities are performed by Commodity Credit Corporation (CCC) which is a federal establishment found in 1933 and has worked under the ministry of agriculture since 1948. CCC fulfils duties like supporting agricultural product prices, providing opportunities in production and marketing, putting agricultural products into use in domestic and foreign markets, providing food aids when needed and finding new foreign markets for surplus agricultural products by using loans, purchases, payments and other activities. Experiencing many changes until 1995, the agricultural law of USA has been applied in the context of long term programs defined as Food Security Agreement without changing its objectives and methods of protection determined by the Food, Agriculture, Conservation and Trade Act (FACT Act) which came into effect in 1990. After the end of the Uruguay Round negotiations in 1993 and the signing of the Uruguay Round Final Act in 1994, USA made new adjustments in its agricultural support programs in 1996. Main supported products determined by the FACT Act, which has been in effect until 1995, are wheat, barley, oat, corn, sorghum, rice and cotton. Two prices are declared based on the average USA prices as the target price and the base price before the harvest season. Target price is the price that will provide the income that can maintain the stability for farmer income, while the base price is the minimum price that will let the farmers continue agricultural production. After seeing target prices that had been lower than the market price in some years before 1982, it was decided not to determine target prices lower than the market price in 1982 (Acar 2003, pp 113).

3.7. Protectionist Agricultural Policies in the EU

The other leading figure of the world agriculture is EU and its Common Agricultural Policy (CAP), which is mainly a supportive and protectionist agricultural policy, can be seen as the most comprehensive, complex and protectionist agricultural policy that is in effect. Common market regulations applied in the outline of CAP can be reviewed in two parts as regulations for the domestic market and the foreign market. These two regulation types are connected too. Two main references for the domestic market regulations are expected prices and domestic support prices. Prices that are evaluated as expected prices are desired prices to be received by the producers and can be named differently (target price, guidance price, regular price or main price) according to the product or product group even if they are the same in practice. Moreover, the supporting instruments that are used for the domestic market are intervention price, withdrawal price, purchase price, minimum price, production aids and marginal payments. On the other hand, price supports in foreign trade can be gathered in two main groups that are supports applied in exports and imports. The most significant protective instrument used for imports is the tariffs while it is export subsidies for exports. Other market and price regulations executed in the outline of the CAP are subsidies given to the manufacturers, consumer aids, producer quotas, associated responsibility tax and export taxes.

CAP has been criticised for many of its aspects by sources that are inside and outside the EU for a long time. CAP always changes and is restored by inside and outside factors because it is defined as one of the main elements that had a positive role in the development process of the EU, while others see it as a policy that punishes taxpayers of the EU and is economically irrational.

Mansholt Plan, which was introduced in 1967, suggested choosing the improvement of rural and agricultural infrastructure and the structure of the agricultural businesses over price supports with the help of land consolidation and other precautions. Reducing production and agricultural expenses, adopting market economy, improving product quality, focusing on rural development and conservation of the environment were objectives determined by the *Green Book* (1985). Another reform attempt was the MacSharry reform (1992) which was at the same time with Uruguay Round. Supports provided for the farmers by the MacSharry reform included directs supports that help to maintain farmer’s recent income level, payments to preserve the environment, rural development encouragement payments and aids for transition period regulations rather than price support.

EU also searched for a way to reshape the agricultural policies just like the USA after Uruguay Round and there were interferences on such changes in CAP in that context. Despite discounts applied due to the agriculture agreement commitments, the shares of agricultural product protection are still too high. For example, while the average share of protection for industrial products is reduced to 3% in OECD countries, this share is increased to 30-40% when it comes to agricultural products. These shares may be even higher for some more sensitive agricultural products.

3.8. Protectionist Agricultural Policies in Turkey

Developed countries, mainly EU countries, in the context of liabilities resulting from the 1994 World Trade Organization Agriculture Agreement made significant discounts in preventing agricultural products against foreign competition, export subsidies and finally domestic supports. Developing countries like Turkey were obliged to prefer less intervening agricultural policies caused partly by WTO Agriculture Agreement, partly by limited public budget but mainly structural adaptation programs signed with International Monetary Fund, IMF. The tendency of liberalization in policies did not prevent government interventions and the high level of protectionism on agriculture, on the contrary, agricultural subsidies even increased in developing countries (Sahinoz 2003, pp 22-3).

Since agriculture is the conventional comparative advantage field in Turkey, a policy, which does not leave the extreme protectionism easily in agriculture or attempts on controlling the liberalization process themselves, can be followed. Turkey follows this strategy since the policies without good results, which ignore agriculture for the sake of industrialization, made Turkey give up on negative protectionist policies. As a result of ignoring agriculture by executing negative protectionist policies, agricultural production lost its attraction, income per individual in the rural area and employment in agriculture decreased and immigration from the rural area to the cities increased in these countries.

It is seen that Turkey followed positive protectionist policies after 1980. It is noteworthy that especially beef prices in the local market were ten times bigger than the world market price. Positive protectionist policies in Japan were noted in wheat and corn. Positive effects of quitting negative protectionist policies in developing countries can be seen in numbers. Food per individual and agricultural product index increased from 82 in the period 1974-1977 to 94 in 1984-1986 and 120 in 1998-2000 (Middle and South Africa stayed out of this improvement). The same index in developed countries in the periods mentioned above are 101, 96 and 95 respectively.

Turkey has followed an export-based development strategy since 1980. However, export supporting policy instruments used for agricultural products have been limited since economical development is generally thought as synonymous with industrialization. Customs duty for the products that are subject to import protection have been kept high and tariff rates after the discounts have been consolidated by GATT Agriculture Agreement. Not only it is impossible to rearrange these rates parallel to the appearing needs but also the recent customs duties are still below the consolidated rates. The agricultural protection in Turkey is administered mainly by tariff rates. Domestic supports have always been limited due to the lack of budget. Furthermore, the Agriculture Agreement limits the domestic supports in terms of both type and amount.

People, who support the sustainability of agricultural activities in the country, also reinforce the idea of agricultural support, as well as farmers. They believe that agriculture can gain the ability to compete by strengthening agriculture. Another group suggests to follow consumer policies in agriculture and to import goods if the world market prices are low. They claim that agriculture must be practised by powerful busses and big enterprises in a way that can compete with the other exporting countries. Moreover, there are comments on the idea of separation of the farmer and the peasant and they suggest that economical and social evolution cannot be achieved as far as the peasants exist. It cannot be understood which agricultural policy objectives are highlighted by executers without analysing these opposite approaches deeply. It is impossible to reveal the preferences made in choosing the political instruments, comments and critics towards these preferences unless misconceptions are corrected. Supporting agriculture means agricultural protectionism. The idea of agricultural support depends on these basics:

- It is strategically important to supply food through domestic production.
- Due to the exposure to natural conditions, it is essential to protect agriculture different from other industries (Ritson & Harvey, 1997)

The main objective of this approach is to maintain sufficient food supply for the country. Meanwhile, those who oppose protectionism in agriculture claim these ideas mentioned below as justification:

- There is no need to execute self-sufficiency policies in agriculture. Since a country cannot be self-sufficient in every product, it should not be avoided to open the gates of import.

- If one type of food is cheaper on the world market, in order to provide food for the public, especially for those who have low income, these products should be imported for less rather than producing it for a bigger cost by domestic production. Import of animal products should be permitted to provide sufficient protein for the public.
- For protectionism is executed in agriculture, import input enters the country even if they are expensive and causes dependency out for agricultural input.
- WTO rules limit protectionism and CAP in the EU eliminates protections in domestic support.

Turkey has to give up protectionism to adapt to both WTO and CAP. Also, Yalcindag, the chairman of TUSIAD, claims that the long-unsolved structural problems of Turkish agriculture lie in the origin of the recent problems and adds "Turkey should look for self-sufficiency in agriculture in technical improvement, and research and development rather than protectionism". Yalcindag also states that due to global loss of agricultural lands along with low production and high energy costs caused by fluctuation in climate conditions related to global warming, food prices increased substantially, in addition to these negative supply conditions, food and non-food agricultural product demand has dramatically increased (TUSIAD 2009).

4. DATA AND ECONOMETRIC MODEL

This study uses panel data covering the available annual time series data from 1995 to 2008 for the European Union and Turkey, and regression analysis has been used. Dependent variables are agricultural import and export between Turkey and EU countries in years while independent variables are total GDP share of agriculture, agricultural support provided by the state according to the year, employment values for agriculture and distance of the EU countries to Turkey. The data is obtained from

EU’s Comext Database, the IMF database, the Turkish Ministry of Labour and Social Security, the Central Bank of Turkey and the USDA’s website. It is aimed to investigate the effect of protection on agricultural trade by using a gravity model. Also, the study will explain the effects of other variables in this model while observing the protection effect. Therefore, import and export will be discussed separately at first and the effect of the macro economical variables on agriculture will be analysed.

According to the Gravity Model, trade volume between the two countries is positively correlated with Gross Domestic Product (GDP) of these two countries but negatively correlated with the physical distance (Aitken, 1973). Data needed to apply the gravity theory are the total imports and exports of Turkey with other countries, GDP values of Turkey and other countries and Turkey's physical distances to the countries it has trade relations with. Distance between the capital city of Ankara and the capitals of other countries for physical distance, Turkey's GDP value multiplied by EU's GDP value and products of other macro economical variables to show the economical magnitude will be used and also trade data will be worked as the total of import and exports for the gravity model.

It is seen that models in the economical literature first discussed export and import separately but didn't reflect the foreign trade flow. However, the advantage of discussing them separately is used to see how they have been affected individually in these models. Later studies developed models producing more explicable results by discussing foreign trade flow as the total of the import and exports. In the conducted studies, the given equation is made linear using its logarithm. In this way, the least-square method can be applied.

Since the gravity model shows the form of independent variables, the use of logarithmic transformation is mandatory to benefit from the least-square method. It is known that the least-square method has very desirable statistical features and it is the most popular regression analysis method.

4.1. Model about the Turkish Agricultural Export

Considering that the factors determine Turkish agricultural export, the gravity model in the form of panel data for this study is specified as:

$$\ln Export_i = \beta_0 + \beta_1 \ln (G_{tur} \times G_{eur}) + \beta_2 \ln (SS_{tur} \times SS_{eur}) + \ln(E_{tur} \times E_{eur}) + \beta_3 \ln D_i$$

G = Total GDP share of agriculture

SS = Agricultural support provided by the state according to the year

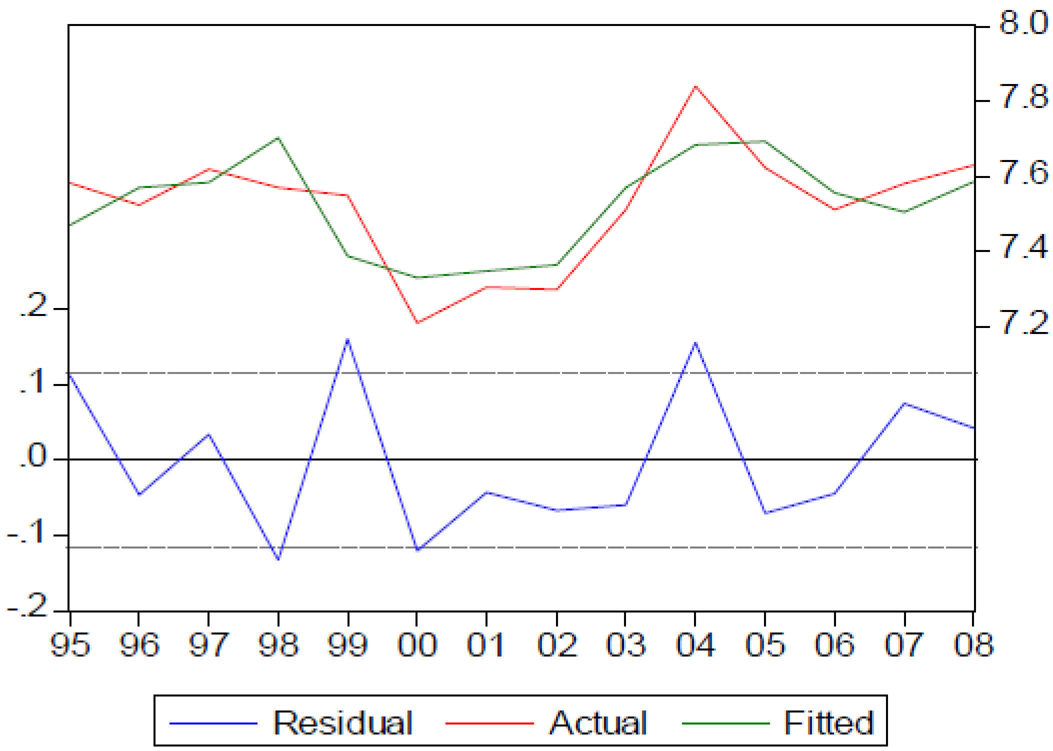
E = Employment values for agriculture

D = Distance of the EU countries to Turkey.

Dependent Variable: EXPORT
Method: Least Squares
Sample: 1995-2008
Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.77716	2.268467	4.750858	0.0010
SS	0.038889	0.051528	0.754714	0.4697
G	0.684560	0.327119	2.092697	0.0659
E	-0.664886	0.212730	-3.125498	0.0122
D	-0.414644	0.150469	-2.755669	0.0223

R-squared	0.636610	Mean dependent var	7.526049
Adjusted R-squared	0.475104	S.D. dependent var	0.160932
S.E. of regression	0.116595	Akaike info criterion	-1.187776
Sum squared resid	0.122349	Schwarz criterion	-0.959541
Log likelihood	13.31443	F-statistic	3.941701
Durbin-Watson stat	2.815274	Prob(F-statistic)	0.040625

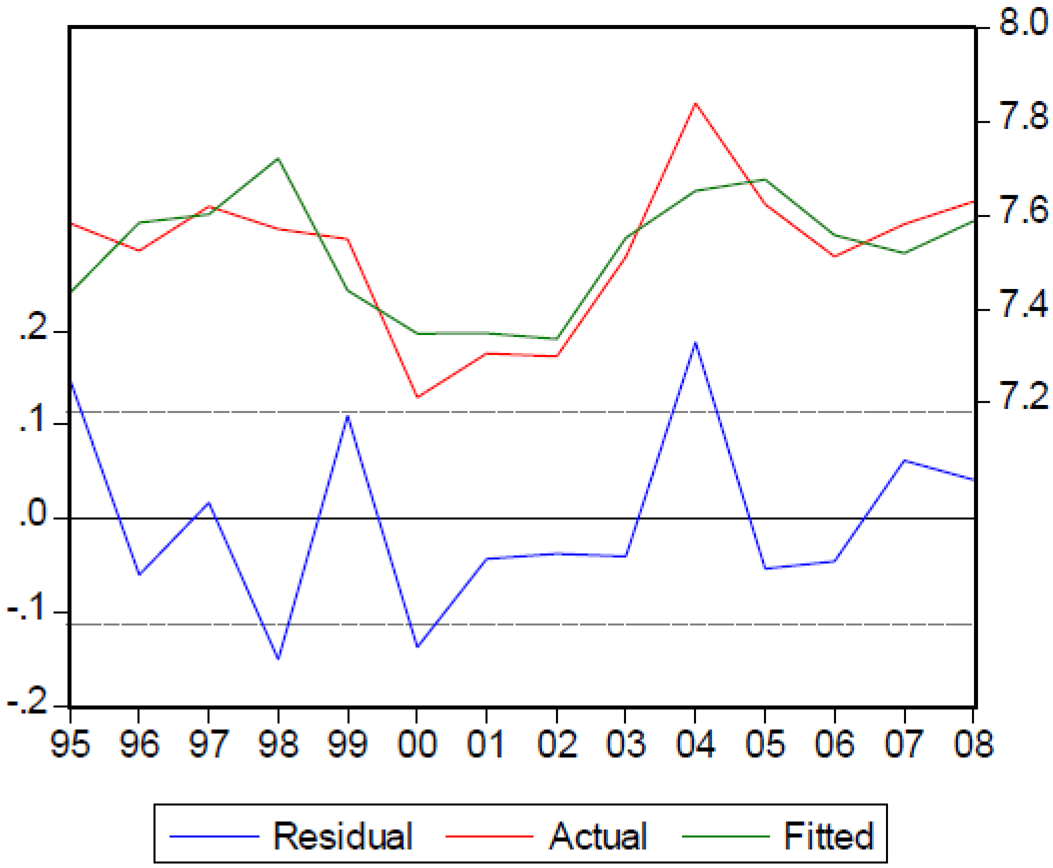


Model is explicable in general (F=3,94; p<0,05). GDP, employment and the distance variables are explicated (t=2,09 ; t=-3,12 ; t=-2,75; p<0,05) while state support variable is inexplicable (t=0,75; p>0,05).

Dependent Variable: EXPORT
Method: Least Squares
Sample: 1995-2008
Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.17634	1.278813	9.521593	0.0000
G	0.492700	0.201387	2.446531	0.0345
E	-0.613452	0.197133	-3.111863	0.0110
D	-0.420502	0.147000	-2.860569	0.0169

R-squared	0.613612	Mean dependent var	7.526049
Adjusted R-squared	0.497696	S.D. dependent var	0.160932
S.E. of regression	0.114058	Akaike info criterion	-1.269267
Sum squared resid	0.130092	Schwarz criterion	-1.086679
Log-likelihood	12.88487	F-statistic	5.293576
Durbin-Watson stat	2.592028	Prob(F-statistic)	0.019182



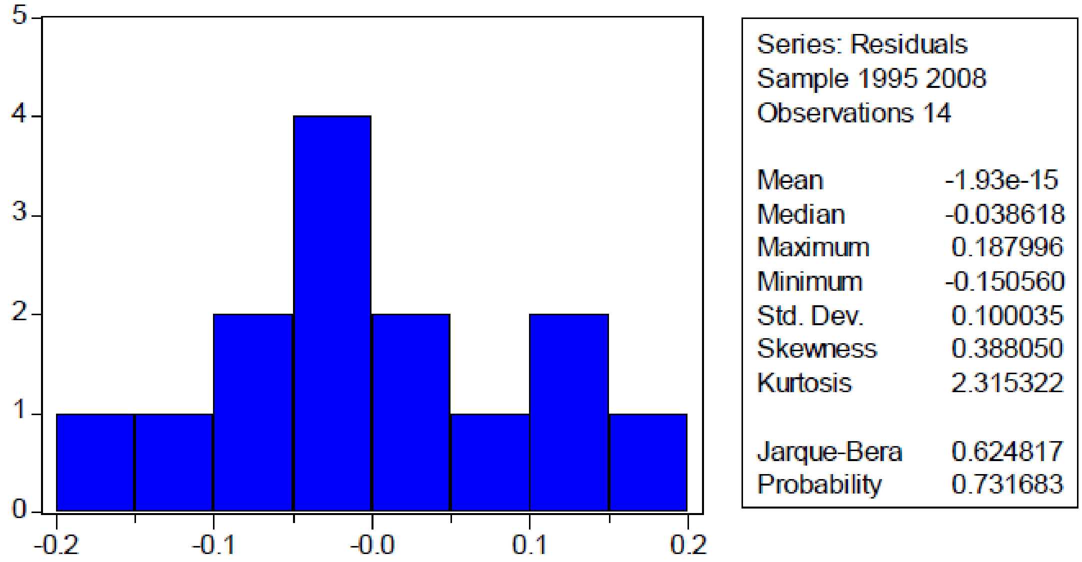
In this application, the model and the variables, GDP, employment and the distance, are found explicable (F=5,29 ; p<0,05 ; t=2,44 ; t=-3,11 ; t=-2,86 ; p<0,05). R^2 of the model is 61%. Therefore, these variables can explain the agricultural export between Turkey and the EU in the ratio of 61%.

Regression equation using the least-square method has been found as;

$\ln Export_i = 12{,}17 + 0{,}49 \ln(G_{tur} \times G_{eur}) - 0{,}61 \ln(E_{tur} \times E_{eur}) - 0{,}42 \ln D_i$

As a result, GDP Share of agriculture, (%) share of employment in agriculture and distance can explain agricultural export (million$) between Turkey and EU variable in the ratio of 61%. As the GDP share of agriculture increases within years, exports with the EU for Turkey increases too. However when the agricultural employment within years and the distance of the country that goods are exported increase, Turkey's export with EU decreases.

4.1.1. Examination of the Regression Model Hypothesis



When the Jarque-Bera test is examined, it is seen that error terms show a normal dispersion (Jarque-Bera = 0,62; p>0,05).

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.941089	Probability	0.429486
Obs*R-squared	2.666467	Probability	0.263623

When the symptoms of autocorrelation hypothesis are analysed, it is found that Durbin-Watson equals to 2,59. For the Breusch-Godfrey Serial Correlation LM test, it is found that F=0,94 and p=0,429. With the proof of the two tests, it is concluded that the model does not have autocorrelation.

White Heteroskedasticity Test:

F-statistic	0.650716	Probability	0.691571
Obs*R-squared	5.012715	Probability	0.542183

When the symptoms of homoskedasticity hypothesis are examined, for the White Heteroskedasticity test it is found that F= 0,65 and P=0,691. With the proof of the White test, it is concluded that the model does not show heteroskedasticity.

4.2. Model about the Turkish Agricultural Import

In this part, we will apply the model for Turkish agricultural import and see how agricultural protection affects it with other variables.

$$\ln Import_i = \beta_0 + \beta_1 \ln(G_{tur} \times G_{eur}) + \beta_2 \ln(SS_{tur} \times SS_{eur}) + \ln(E_{tur} \times E_{eur}) + \beta_3 \ln D_i$$

Dependent Variable: IMPORT

Method: Least Squares

Sample: 1995-2008

Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.871156	5.388136	1.275238	0.2342
SS	0.092664	0.122391	0.757116	0.4683
G	1.080037	0.776983	1.390039	0.1979
E	-1.158208	0.505283	-2.292197	0.0476
D	-0.051316	0.357400	-0.143581	0.8890

R-squared	0.421773	Mean dependent var	6.354739
Adjusted R-squared	0.164783	S.D. dependent var	0.303029
S.E. of regression	0.276939	Akaike info criterion	0.542415
Sum squared resid	0.690257	Schwarz criterion	0.770650
Log likelihood	1.203096	F-statistic	1.641205
Durbin-Watson stat	1.601728	Prob(F-statistic)	0.246342

Model is insignificant in general for this study (F=1,64; p>0,05). Also, state support, GDP, employment and distance variable are found insignificant in the model (t=1,39 ; t=2,29 ; t=-0,14; t=0,75; p>0,05). As the C constant is seen inexplicable, it has been excluded and the analysis is repeated.

Dependent Variable: IMPORT
Method: Least Squares
Sample: 1995-2008
Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SS	0.220220	0.072706	3.028929	0.0127
G	1.617663	0.672786	2.404425	0.0370
E	-1.160038	0.520862	-2.227151	0.0501
D	0.202513	0.305997	0.661812	0.5230

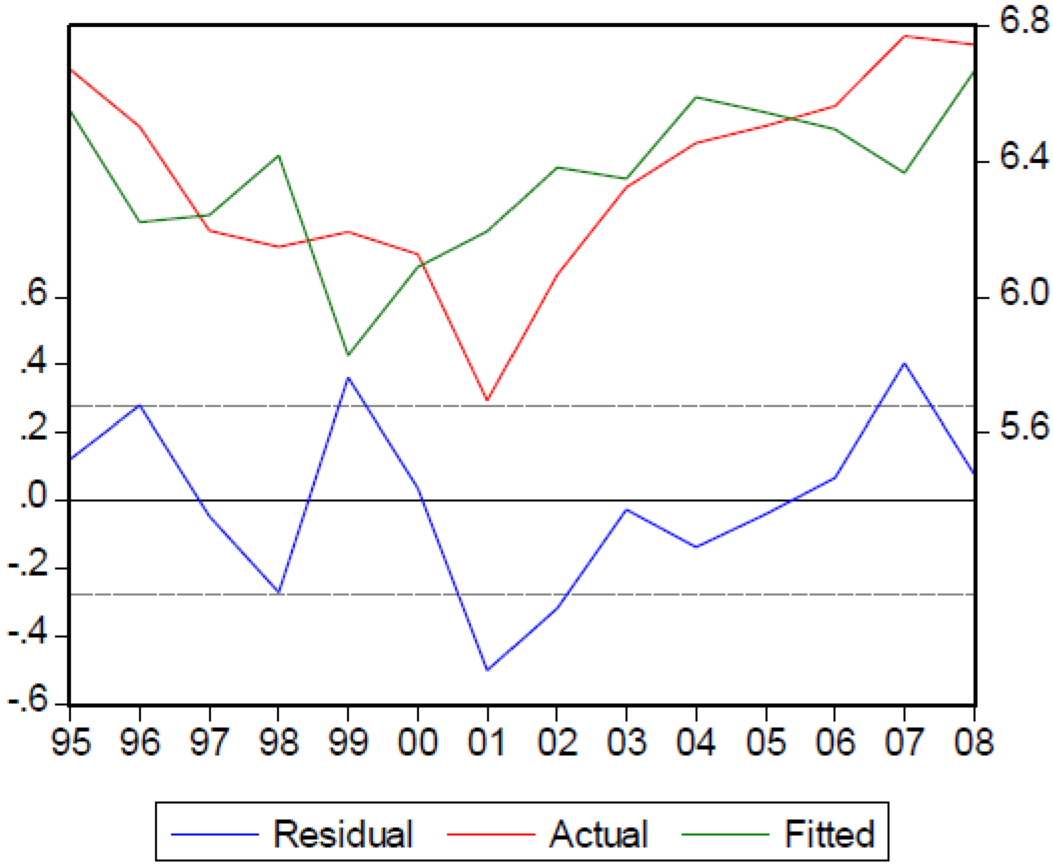
R-squared	0.317292	Mean dependent var	6.354739
Adjusted R-squared	0.112479	S.D. dependent var	0.303029
S.E. of regression	0.285479	Akaike info criterion	0.565659
Sum squared resid	0.814982	Schwarz criterion	0.748247
Log-likelihood	0.040388	Durbin-Watson stat	1.710012

SS, GDP and E variables have been found significant ($t=3,02$; $t=2,40$; $t=-2,22$; $p<0,05$). However D variable is inexplicable this time ($t=0,66$; $p>0,05$). Therefore, the analysis is repeated after excluding distance from the model.

Dependent Variable: IMPORT
Method: Least Squares
Sample: 1995-2008
Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SS	0.260791	0.038080	6.848408	0.0000
G	1.824357	0.580480	3.142842	0.0094
E	-1.206666	0.502718	-2.400283	0.0352

R-squared	0.287389	Mean dependent var	6.354739
Adjusted R-squared	0.157824	S.D. dependent var	0.303029
S.E. of regression	0.278091	Akaike info criterion	0.465669
Sum squared resid	0.850678	Schwarz criterion	0.602610
Log-likelihood	-0.259684	Durbin-Watson stat	1.590672



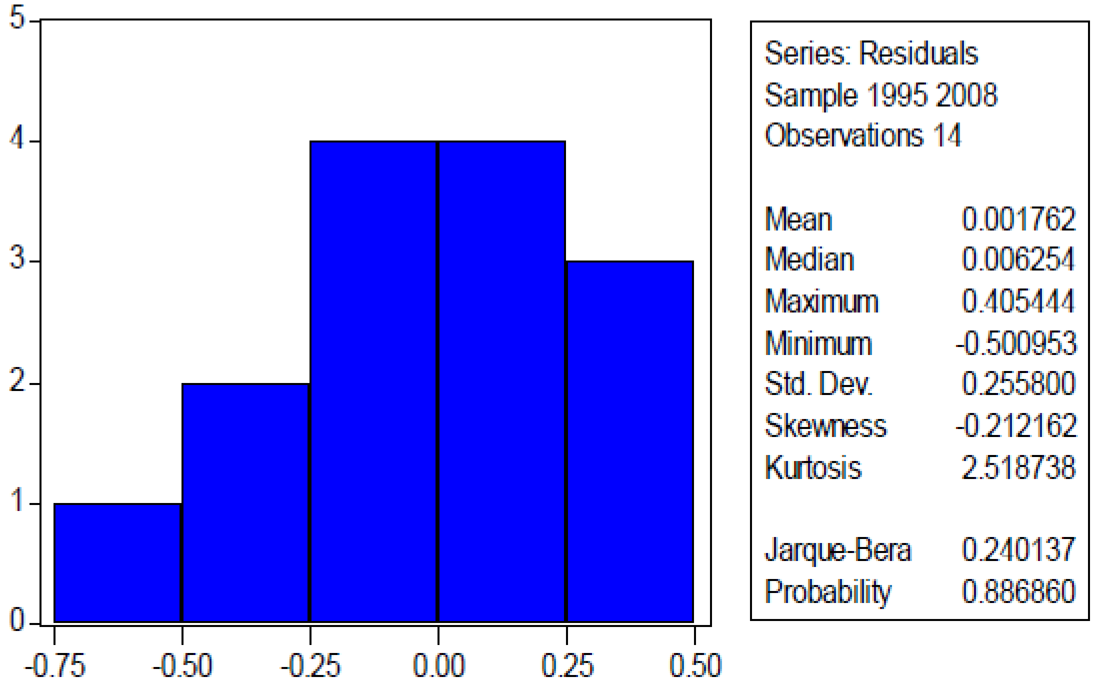
Finally, after reapplying the analysis, the variables are found explicable (t=3,02; t=2,40; t=-2,22; p<0,05).

Regression Equation using the least-square method is obtained as;

$\ln \text{Import}_i = 0{,}26 \ln(SS_{tur} \times SS_{eur}) + 1{,}82 \ln(G_{tur} \times G_{eur}) - 1{,}20 \ln(E_{tur} \times E_{eur})$

To sum up, state support, agricultural GDP share, (%) share of employment in agriculture can explain variable of agricultural export (million$) between Turkey and EU in the ratio of 28%. As the state support and the agricultural GDP share within years increase, the import of Turkey with the EU increases. However, while employment in agriculture increases, it decreases. It is easily seen that the support for agriculture by the government affect the agricultural import of Turkey positively.

4.2.1. Examination of the Regression Model Hypothesis



When the Jarque-Bera test is considered, it is seen that error terms show a normal dispersion (Jarque-Bera = 0,24; p>0,05).

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.144233	Probability	0.360773
Obs*R-squared	2.837594	Probability	0.242005

When the symptoms of autocorrelation hypothesis are analysed, it is found that Durbin-Watson equal to 1,59. Furthermore, for the Breusch-Godfrey Serial Correlation LM test, it is seen that F=1,14 and p=0,360. Consequently, it is decided that the model does not have autocorrelation with the proof of the two tests.

White Heteroskedasticity Test

F-statistic	0.366693	Probability	0.878812
Obs*R-squared	3.348008	Probability	0.764069

Regarding the symptoms of homoskedasticity hypothesis, for the White Heteroskedasticity test, it is found that F=0,36 and P=0,878. For the White test, the conclusion reached is the model does not show heteroskedasticity.

4.3. Model about the Turkish Total Foreign Trade

Now the Turkish total foreign trade will be observed for the application so, the model is;

$$\ln(Export_i+Import_i) = \beta_0+\beta_1\ln(G_{tur} \times G_{eur})+\beta_2\ln(SS_{tur} \times SS_{eur})+ \ln(E_{tur} \times E_{eur}) + \beta_3\ln D_i$$

Dependent Variable: II
Method: Least Squares
Sample: 1995-2008
Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.39036	2.621655	3.963282	0.0033
SS	0.050602	0.059551	0.849720	0.4175
G	0.774588	0.378049	2.048906	0.0707
E	-0.784308	0.245851	-3.190181	0.0110
D	-0.319562	0.173897	-1.837657	0.0993

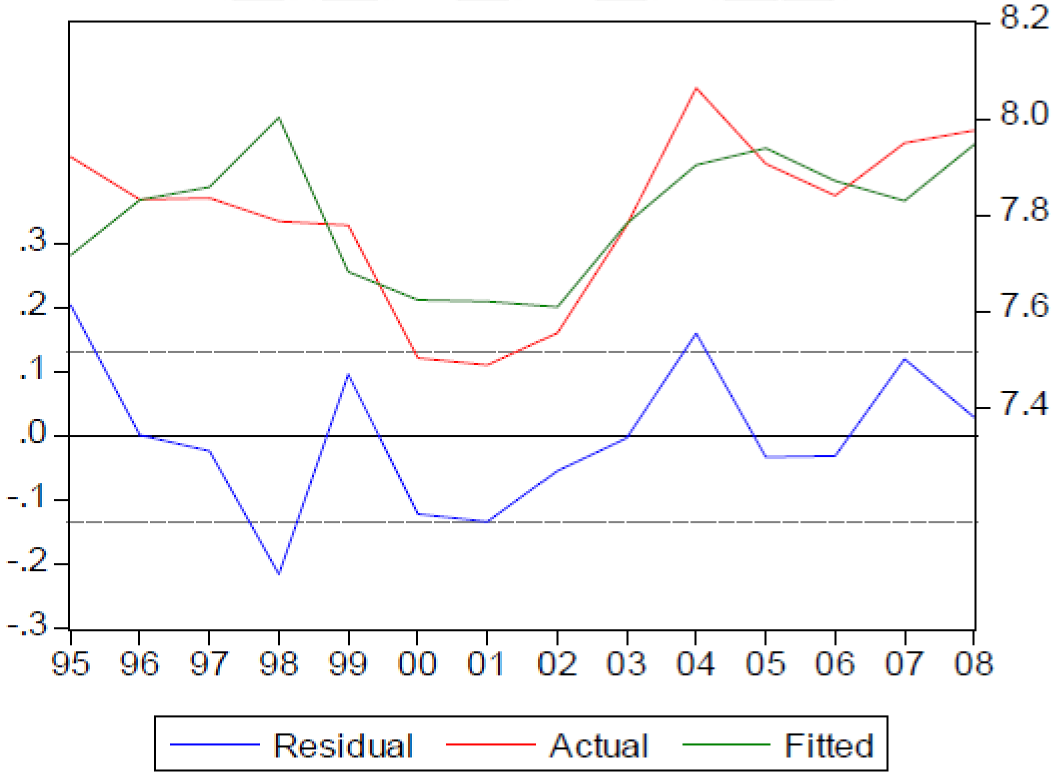
R-squared	0.591862	Mean dependent var	7.800967
Adjusted R-squared	0.410468	S.D. dependent var	0.175496
S.E. of regression	0.134748	Akaike info criterion	-0.898373
Sum squared resid	0.163412	Schwarz criterion	-0.670138
Log-likelihood	11.28861	F-statistic	3.262846
Durbin-Watson stat	2.139022	Prob(F-statistic)	0.064940

As general, the model is explicable (F=3,26; p<0,05). Also, GDP, employment and the distance variables are seen explicable in the model (t=2,04 ; t=-3,19 ; t=-1,83; p<0,05), but state support variable is not (t=0,84; p>0,05). Therefore, state support has been omitted and the analysis has been iterated.

Dependent Variable: II
Method: Least Squares
Sample: 1995-2008
Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.21094	1.489642	8.197230	0.0000
G	0.524943	0.234588	2.237720	0.0492
E	-0.717383	0.229633	-3.124037	0.0108
D	-0.327186	0.171234	-1.910748	0.0851

R-squared	0.559120	Mean dependent var	7.800967
Adjusted R-squared	0.426855	S.D. dependent var	0.175496
S.E. of regression	0.132862	Akaike info criterion	-0.964061
Sum squared resid	0.176522	Schwarz criterion	-0.781473
Log-likelihood	10.74842	F-statistic	4.227295
Durbin-Watson stat	1.857074	Prob (F-statistic)	0.035823



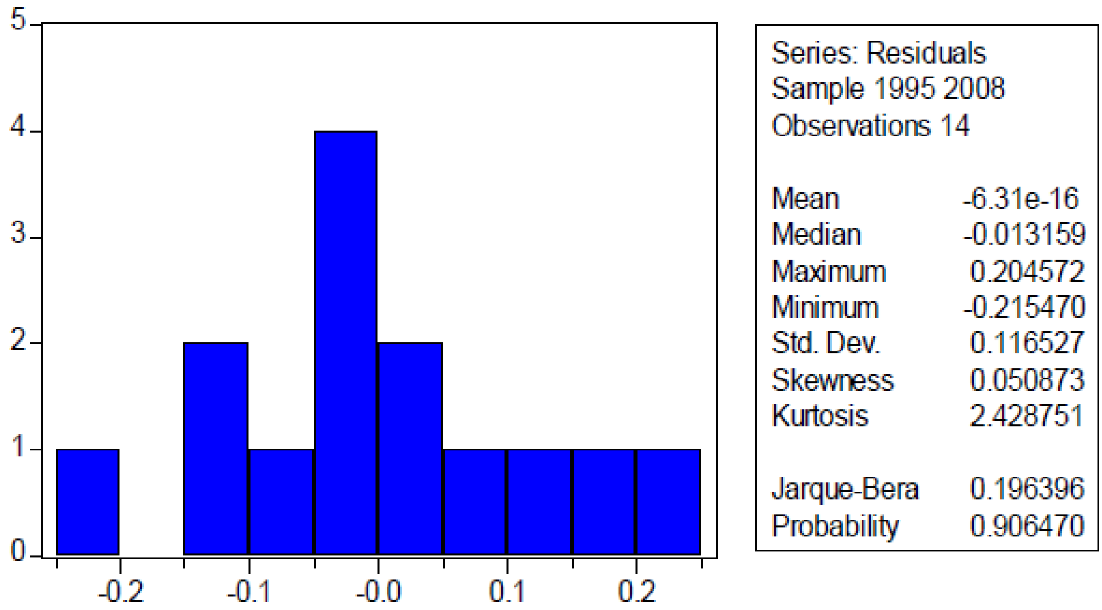
Now the model is obtained explicable in general ($F=4{,}22$; $p<0{,}05$), and GDP, employment and the distance variables are seen significant in the model ($t=2{,}23$; $t=-3{,}12$; $t=-1{,}91$; $p<0{,}05$). Also, the R^2 of the model is 55%. Thus, GDP, employment and distance variables can explain the total agricultural foreign trade between Turkey and EU in the ratio of 61%.

The regression equation using the least-square method is found as;

$\ln \text{Total Foreign Trade}_i = 12{,}21 + 0{,}52 \ln(G_{tur} \times G_{eur}) - 0{,}71 \ln(E_{tur} \times E_{eur}) - 0{,}32 \ln D_i$

Consequently, agricultural GDP share, the share of employment in agriculture and distance variables can define the variable of Turkey's total foreign trade with the EU in the ratio of 55%. As the agricultural GDP share increases within years, Turkey's total foreign trade with the EU increases. However while the employment in agriculture according to years and the distance to the trading country increase, it reduces.

4.3.1. Examination of the Regression Model Hypothesis



With regard to the Jarque-Bera test, it is seen that error terms show a normal dispersion (Jarque-Bera = 0,19; p>0,05).

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.028386	Probability	0.972111
Obs*R-squared	0.098651	Probability	0.951871

When the symptoms of autocorrelation hypothesis are examined, it is found that Durbin-Watson equals to 1,85. For the Breusch-Godfrey Serial Correlation LM test, it is found that F=0,02; p=0,972. As a result of the two tests, it can be said that the model does not have autocorrelation.

White Heteroskedasticity Test:

F-statistic	1.740468	Probability	0.242305
Obs*R-squared	8.381639	Probability	0.211455

According to the symptoms of homoskedasticity hypothesis, for the White Heteroskedasticity test, it is found that F= 1,74 and P=0,242. Finally, the White test shows that the model does not have heteroskedasticity.

4.4. Result

When the macro economical variables are studied, it is seen that Turkey is more active in terms of agriculture and export to the EU exceeds the import. High agricultural support provided by the state, the high GDP share of agriculture and high employment in agriculture suggests that Turkey is an agricultural country. In the model referring to the exports, GDP Share of agriculture, (%) share of employment in agriculture and distance can explain agricultural export (million$) between Turkey and EU variable in the ratio of 61%. As the GDP share of agriculture increases within years, exports with the EU for Turkey increases too. Due to Turkey is in a more suitable position in terms of the presence of agriculture according to EU and the presence of quite a few industries other than agriculture in EU's GDP variable, the recorded increase is expected.

As the agricultural employment increases within years, Turkey's export with EU decreases. Since employment in agriculture in Turkey consists of temporary workers and periodic working state along with permanent workers, it affects the production and therefore exports negatively. Since the distance of the country, the goods will be exported rises, Turkey's export with EU decreases. Because of the reasons like transport costs, these results are expected in gravity models. Coefficient of the D_i variable has a negative value (-0,64) as expected and remains in the typical interval. Therefore, the distance provides a barricade for the trade, in general. The negative value of the coefficient, which shows that the trade flow decreases as the distance increases, betrays a major effect on trade flow.

State support, agricultural GDP share, (%) share of employment in agriculture can explain variable of agricultural import (million$) between Turkey and EU in the ratio of 28%. As the state support increases, the import of Turkey with the EU grows. Production rise by the increase in the support provided by the government, ends in an increase in product diversity, causing both countries' imports to raise. Moreover, the agricultural GDP share is a positive function of Turkey's import with the EU, but the employment in agriculture is inversely proportional with it, and these are expected results.

Finally, agricultural GDP share, the share of employment in agriculture and distance variables can explain the variable of Turkey's total foreign trade with the EU in the ratio of 55%. As the agricultural GDP share increases during years, Turkey's total foreign trade with the EU increases. In this case, there is a two-way interaction. While the employment in agriculture according to years and the distance to the trading country grow, Turkey's total foreign trade with EU reduces.

To sum up, it can be said that the agricultural protection has a high cost of total agricultural international trade in Turkey while it has a positive effect on agricultural import. Because of this, Turkey should reduce its protection level for agricultural products to have more benefit from international trade.

5. CONCLUSION

Agriculture is a sector which is supported by some distinctive economic policies in every country due to its strategic importance. One of them is protectionist policies and, the USA and EU were the leaders of these policies. With regard to Turkey, it has tried to pursue them since establishing the Turkish Republic. Therefore, Turkey has followed the policy which does not give up easily the extreme agricultural protectionism or tries to control the liberalization process themselves. It is objected to secure the optimum production structure to fulfill the national needs, to provide appropriate income opportunities for the producer by protecting them, and thereby increasing the contribution of agriculture to the national economy with the help of the policies.

However, they cause a significant cost on agricultural trade as indicated earlier in this paper. It can be seen easily from the results of the model that when a country tries to control its agricultural export and import using protectionist policies to protect domestic producers, it leads to a negative effect on the international trade of that country. Therefore, Turkey has an unfavourable situation in terms of having benefit from agricultural foreign trade because of its supportive and protective policies. Although Turkey tries to leave these policies due to the decisions taken in the World Trade Organization and the Common Agricultural Policy, it has not reached the achievement in the proper sense.

Finally, this paper has focused on the effects of protectionist policies in terms of Turkish agricultural trade as taking agricultural relations with Europe into consideration. It will also be interesting to research the welfare costs of import protection with this application.

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