The Relationship Between Export And Economic Growth In Turkey

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Abstract

Turkish economy has joined globalization after the year 1980 by abandoning the imported substitution growth strategy and adopting an economic growth strategy towards exportation. In this paper, the relationship between export and growth will be handled through a theoretic and Turkish economy framework. Then the existence of a relationship between export and growth in the Turkish economy will be shown through a cointegration analysis and Granger causality test using quarterly data between years 2006-2015. It is found that, in the relationship between export and growth, there is a unidirectional causality from total export towards growth and no causality relation is found between total import and economic growth.

Keywords: Export, Economic Growth, Turkish Economy, Cointegration, Granger Causality

Introduction

Economic growth is one of the indispensable elements for economic study and is influenced by many channels. Economic growth takes place when a country's real GDP increases in time and it is seen as an important indicator of welfare. It puts forward the economic structure of a country, GDP per capita and that country's development level (Takım, 2010).

Looking at the types of economic growth, it can be seperated into five groups; unemployed growth, relentless growth, quiet growth, rootless growth and futureless growth. Due to a move towards adopting structural reforms especially after 2001, unemployed growth came about in the Turkish economy. This is often referred to as "jobless growth" in literature. Jobless growth is referred to a situation where unemployment increases in spite of a sufficient growth in the economy. Failure to fairly distribute economic growth between the stakeholders is defined as relentless growth. Quiet growth can said to be the economic growth in the situation of failures in the

democratization process and when there is lack of individual rights and freedom. Degeneration of society's customs and traditions during the growth process is referred to as rootless growth in literature. The growth that occurs often at the expense of consuming the non-renewable natural sources in order for the economic growth to take place is called futureless growth. (Berber, 2011)

Increasing unemployment rate alongside the increasing economic growth in Turkey in the past fifteen years supports the jobless growth. While this economic growth was taking place in the past fifteen years a national bourgeoisie and an elite class was formed in Turkey. This may suggest a movement towards a relentless growth. It is not possible to talk of a futureless growth in Turkey because it does not have the sufficient technology to process most of its natural resources. Consequently, resources stays as raw materials and waits for its use.

From past until present aspects such as; population, wages, human and physical capital, savings and interest level, exports and imports as well as natural sources and technology have been considered as determinants of economic growth. (Ozel, 2012:63-73)

While mercantilists defend that economic growth will be achieved by increasing export through foreing trade mechanisms, keeping import limited to just raw materials and intermediate goods, and accumulating gold and bullions in the economy, the physiocrats expressed that agriculture is the only productive industry and they argued that export of agricultural products will bring about the growth. In the classical school; Adam Smiths theory of absolute advantage and David Ricardo's theory of comparative advantage both argue that with foreign trade being free, countries all around the World would maximise their own interests and an economic growth will take place as the welfare of all the countries throughout the world would increase. (Bilgili, 2015: 10 - 105)

There has been great changes in the understanding of growth and economy management with the 1929 World economic crisis, government's effect in the economy has increased. As this understanding started to lose its popularity in 1960 with the approach of supply sided economists, the government interventions started to decrease. In this period an import substitution industrialization strategy was adopted and an import based growth was aimed. In other words; achieving an economic growth was aimed by purchasing intermediate and investment goods from other countries and selling them to foreign markets after processing them. (Yardımcı, 2006)

Looking at the World in general; After World War II, four countries known as the Asian Tigers (Singapore, Taiwan, Hong Kong and Korea) showed the advantages of adopting an externally open trade policy while around the same period Latin American countries demonstrated the

disadvantages of adopting externally closed economic structures. Institutions which provide short and long term debts such as IMF and the World Bank provides these long or short term funds as long as the requirements are fulfilled. This provides basis for countries'economic growth and welfare. (Özcan and Özçelebi, 2013)

Turkey who had adopted an import- substitution strategy until 1980 is currently adopting an industrialization strategy towards exportation. Capital movements were released to avoid currency bottlenecks in the country, but export was given extreme importance believing that the most healthy foreign exchange inflows would be from export earnings. (Seyidoglu, 2014) Considering Turkey's economic structure for the period, currency acquired through capital inflows iis open to speculations and sudden shocks and therefore is perceived as unhealthy foreign exchange inflow.

In the 90's to increase exports, direct loans and incentives for exports were eliminated and instead inward and outward processing mechanisms according to the European Union customs code were introduced and state aid programs, prepared according to internatonal standards, for export were activated. (Boratav, 2013)

Devaluation was made in the 2001 economic crisis to increase net exports, thereby currency inflow to the country was aimed by limiting domestic demand and directing firms towards exportation. The increase in export had shown itself in 2002 as well. The country's economy has entered into a rapid recovery. Export strategic plan was put into force on 1 January 2004 in order to bring the important increase in export to a sustainable structure. Industrial products which are the main dynamo of exports reached levels of 84.8% and the total exports for the period became 73.5 billion dollars. With the implementation of this plan, in 2007 a 25% increase came about and it brought it up to 107 billion dollars. Exports were managed to increase to 132 billion dollars in 2008. (Takım, 2010)

In the first quarter of 2009, Turkey had started feeling the effects of the global economic crisis and had difficulty finding credit. Although Central Bank of the Republic of Turkey increased interest rates as of that period, no increase in the capital inflows were observed. (http://evds.tcmb.gov.tr/ , 03.01.2016) This was because EU countries and USA were in economic crisis themselves and their financing needs were greater. Consequently there were no capital inflows to Turkey. As a result, exchange rates increased. However, the increase in the foreign exchange rate not only did not increase export but also made imports more expensive. Narrowing foreign trade volume of all the countries trading with the USA can be given as the main reason for the non increasing exportation. The demand for imported goods have also decreased for Turkey from all those countries importing. Therefore

Turkey's export volume narrowed. Lack of export had caused the outputs to be directed towards domestic markets but due to insufficient demand in the domestic market led the general level of the prices to decrease. Thus, production and employment has decreased and economic growth is affected negatively. (Ertugrul, Ipek ve Colak, 2010)

Literature

From Table 1 it can be seen that; in some research there is a causality relationship from export towards economic growth; (Sandalcılar, 2012; Takım, 2010; Özcan and Özçelebi), in others a causality relationship from economic growth towards exportation; (Demirhan, 2005; Aktaş, 2009) and some showed a double way causality relationship (Yapraklı: 2007).

Table 1. Literature Review

Author	Method and Period	Results
Demirhan (2005)	Johansen (1988) Cointegration, Granger Causality (1990Q1 – 2004Q1)	One way causality relationship was found from export towards growth.
Sandalcılar (2012)	Pedroni Panel Cointegration Test, Causality	It was concluded that the short and long term causality relationship was from export towards growth.
Takım (2010)	Granger Causality (1975 - 2008)	It was found that export increases economic growth.
Aktaş (2009)	Johansen Cointegration, ADF, Causality (1996 -2006)	It was concluded that a causality bond exist from growth towards exportation..
Özcan ve Özçelebi (2013)	Johansen Cointegration (2005(1)- 2011(11)	Export-led growth hypothesis is supported.
Yapraklı (2007)	Cointegration, Granger Causality (1970-2005)	It was conclluded that there is a double way causality relationship and that agriculture and mining export positively affects economic growth.
Gemi, Emsen ve Değer (2008)	Granger Causality Test (1980-2006)	It was concluded that the impact of exports on growth depends on the imports.
Çamurdan (2013)	Cointegration, Granger Causality Test (1999Q2-2013Q1	It points out that growth depends on exports and exports depends on imports.

Empirical Analysis

Unit root results for the variables are seen from the Table 2.

Table 2. Unit Root Results

Variables	Level (constant and trends)		First Differencial (constant and trends)	
	ADF Values	Probability Values	ADF Values	Probability Values
GDP (Y1)	-3.3143	0.0729	-2.4909	0.0134
Total imports (X1)	-1.053	0.9285	-3.8425	0.0002
Total Exports (X2)	-0.5076	0.9809	-4.3235	0.0000
Intermediate Good Imports (X3)	-1.7963	0.6959	-6.5772	0.0000
Intermediate Good Exports (X4)	-1.0480	0.9299	-4.1599	0.0001
Capital Goods Exports (X5)	-1.9328	0.6263	-4.8205	0.0000
Concumer Goods Exports (X6)	-1.4932	0.8222	-2.4046	0.0167
Consumer Goods Imports (X7)	-1.3919	0.8543	-4.6734	0.0000

The concept of stability is of great importance in time series analysis. If the time series average and varience does not change over time and the calculated covarience between the two periods is not related to the current period but to the distance between the two periods, then it is stable. Augmented Dickey Fuller Test is used to conduct the unit root test in the study. Variables were integrated on the first difference level. In other words, in 5% significance variables are I (1). As it can be seen from Table 2, in levels, Y1, X1, X2, X3, X4, X5, X6 and X7 variables include a unit root. After the ADF unit root test, lag length of the analysis can be determined.

Table 3. Lag Length Measurement Through Var Analysis

Lag	LogL	LR	FPE	AIC	SC	HQ
0	644.08	NA	7.84e-19	-18.98739	-18.72414	-18.88322
1	937.82	508.56	8.35e-22	-25.84519	-23.47597*	-24.90769
2	1063.15	187.07	1.45e-22	-27.67626	-23.20106	-25.90542
3	1184.09	151.63	3.27e-23	-29.37585	-22.79467	-26.77166
4	1291.68	109.195*	1.39e-23*	-30.67701*	-21.98986	-27.23948*

The most appropriate lag length chosen was seen as four. As it can be seen from the results of the Var analysis lag length measurement, values of variables Y1, X1, X2, X3, X4, X5, X6 and X7 were found to have a relationship with their values from four periods lag. The chosen lag length will be used in the Johansen Cointegration test.

Table 4. Johansen Cointegration Results

Trace Test	%5 Critical Value	Probability Value	Cointegration Number
328.7403	159.5297	0.0000	None*
224.3646	125.6154	0.0000	At Most 1*
157.1775	95.75366	0.0000	At Most 2*
94.71570	69.81889	0.0002	At Most 3*
59.45682	47.85613	0.0028	At Most 4*
28.86110	29.79707	0.0638	At Most 5
14.26540	15.49471	0.0759	At Most 6
0.257442	3.841466	0.6119	At Most 7
Max-Eigen Statistic	%5 Critical Value	Probability Value	Cointegration Number
104.3757	52.36261	0.000	None*
67.18707	46.23142	0.001	At Most 1*
62.46179	40.07757	0.000	At Most 2*
35.25887	33.87687	0.0340	At Most 3*
30.59572	27.58434	0.0199	At Most 4*
14.59570	21.13162	0.3182	At Most 5
14.00796	14.26460	0.0548	At Most 6
0.257442	3.841466	0.6119	At Most 7

There are cointegration between the variables according to Table 4. There happens errors in the short term. These errors were avoided with the Error Correction Model (ECM).

Table 5. Error Correction Model (ECM)

Error Correction	D(Y1)	D(X1)	D(X2)	D(X3)	D(X4)	D(X5)	D(X6)	D(X7)
cointEq1	-0.418*	-0.893	-0.857	-1.001	-0.929	-0.353	-0.745	-0.281
S- errors	0.089	0.302	0.210	0.303	0.272	0.402	0.222	0.384
t values	-4.689*	-2.953	-4.077	-3.299	-3.417	-0.878	-3.346	-0.733

Error Correction Model results can be seen in Table 5. With these data, within how many periods the deviations from the long term within the short term is shown to come to equilibrium again can be found using the formula $\frac{1}{ECM}$. Error correction coefficient value should be in the range 0 to -1 in order to be significant(Tarı, 2012: 435). When looking at data from Table 5, error correction coeffcent is seen to be -0.418074 whih falls between the 0 and -1 range. The t statistic is also significant. Relative result of the expression $\frac{1}{|-0.418074|}$ equals to 2 quarter periods. Therefore, through this model it could be concluded that the short term fluctuations can be restored into their long term balance within a time frame of 8 months. In other words, in the short term fluctuations from the long term balance can be restored closer to its long term balance by 42% per quarter period.

Table 6. Short Term Analysis

Cointegrating Eq:	CointEq1
Y1	1.000000
X1	-0.024477
X2	13.49277
X3	-0.243362
X4	-6.358784
X5	-0.959403
X6	-6.222110
X7	-0.091174

In the short term, every TL increase respectively in X1, X2, X3, X4, X5, X6 and X7 will increase GDP to 0.024477 TL, 13.49277 TL, 0.243362 TL, 6.358784 TL, 0.959403 TL, 6.222110 TL, 0.091174 TL respectively.

In Table 7, Granger causality test results which are applied to the error correction model can be found. As it can be seen, related to the relationship beween total export and GDP which is the main topic of the study; a unidirectional causality relationship was found from total export towards growth and no causality relationship was detected between total import and GDP. The result of including both the total exports and total imports item components (capital goods export, intermediate goods import, intermediate goods export, consumer goods export, consumer goods import) of the Turkish economy to the analysis is; consumer goods positively effect

economic growth and there is a unidirectional causality from consumer goods export towards economic growth.

Table 7. Granger Causality Test

Ho	Probability	Decision
X6 ≠> Y1	0.0008	Reject Ho*
X5 ≠> Y1	0.0113	Reject Ho*
X3 ≠ >Y1	0.0001	Reject Ho*
Y1 ≠> X3	0.0133	Reject Ho*
X2 ≠> Y1	0.0129	Reject Ho*
X7 ≠> X6	0.0008	Reject Ho*
X5 ≠>X7	0.0255	Reject Ho*
X7 ≠>X5	0.0101	Reject Ho*
X7≠> X4	0.0232	Reject Ho*
X5 ≠> X6	0.0004	Reject Ho*
X4 ≠>X6	0.0109	Reject Ho*
X6 ≠>X4	0.0028	Reject Ho*
X3 ≠> X6	0.0003	Reject Ho*
X6 ≠> X3	0.0102	Reject Ho*
X2 ≠> X6	0.0065	Reject Ho*
X6 ≠> X1	0.0008	Reject Ho*
X5 ≠> X4	0.0054	Reject Ho*
X5 ≠> X3	0.0015	Reject Ho*
X5 ≠> X2	0.0473	Reject Ho*
X5 ≠>X1	0.0002	Reject Ho*
X3 ≠> X4	0.0442	Reject Ho*
X2 ≠> X4	0.0018	Reject Ho*
X3 ≠> X1	0.0129	Reject Ho*

It was seen that there was no causality relationship between consumer goods import and economic growth. A two way causality relationship was found between intermediate goods import and economic growth. However, no relationship was discovered between intermediate goods export and economic growth. Lastly, a one way causality relationship was seen from capital goods export towards economic growth.

Conclusion

Turkey was observed to be in an interaction with foreign markets as other economies where foreign trade is inevitable due to globalization. By using 2006-2015 quarterly data, it was concluded that export – led economic growth strategy was also valid for the Turkish economy. A unidirectional causality relationship from total export towards economic growth was found as a result of the causality test conducted. Also through the results it was found that there were no causality relationship between import and economic growth. In other words, it could be concluded that, the increase in export between the years 2006-2015 in the Turkish economy increased the

economic growth but the increase in the economic growth did not increase the exportation.

In the light of these findings the following could be said about the Turkish economy. It is a developing country where there are; not enough human capital and technology, abundant reserves of natural sources which are subject to export without being processed, and more exported consumer goods and imported intermediate goods. It was concluded that the exported goods were generally consumer goods and this had an important role in the country's economic growth. As Turkey imports intermediate goods, it increases its economic growth and this increase in economic growth leads to more intermediate goods import. It was found that Turkey exports limited number of consumer goods which also has a considerable amount of effect on the economic growth. Taking the current economic structure of the Turkish economy in consideration, it is believed that if Turkey imports the intermediate goods, convert them into final consumer goods and then exports them, it can bring about an economic growth.

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