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Trade Policy and Economic Growth of Turkey in Global Economy: New Empirical Evidences

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Abstract**—**This paper tries to answer to the questions whether or not trade openness causes economic growth and trade policy changes are good for Turkey as a developing country in global economy before and after 1980. We employ Johansen co-integration and Granger causality tests with error correction modeling based on vector autoregressive. Using WDI data from the pre-1980 and the post-1980, we find that trade openness and economic growth are co-integrated in the second term only. Also the results suggest a lack of long-run causality between our two variables. These findings may imply that trade policy of Turkey should concentrate more on extra complementary economic reforms.

JEL Classification**—**F13, F43, F60, C32.

Keywords**—**Globalization, Trade Policy, Economic Growth, Openness, Co-integration, Turkey.

I. Introduction

THE process of Economic Globalization has caused significant changes in the economy policies of the developing countries late in the 20.th century. Although the strategies of industrialization after the World War II are based on the self-enclosed economy policy and accompanying protective foreign trade policies, the outward economy policy has gained dominance since 1980's. This approach which requires the liberalization of foreign trade made the foreign policy into the source and basic determinant of economic growth and development. Liberation of importation and applications to encourage the exportation accelerated the economic integration of the country economies with the external world, regional and global trade agreements and economic collaborations caused the changes of economy policies gain importance. For that reason, commercially outward occasions should be regarded as a result of economic globalization.

Turkish economy has covered a distance in the field of growth and development since 1923. When considered from a general point of view, this process occurred very slowly and problematically when compared to the examples in the world although it is positive. During this process, there are critical periods when the economy underwent structural changes. Among those changes, the most important one is the transition to the exportation based industrialization strategy after 1980 instead of statist and import-substitution industrialization strategy. Because, a production structure which exportation and exporting industries will gain importance in economic growth; integration with the international capital markets ad a private sector open to foreign competition and a bigger public economy was targeted.

In this study, the relationships in the trade openness and economic performance of Turkish economy during the globalization process before and after 1980 will be empirically tested. In the first chapter of the study, a conceptual explanation is provided on globalization, trade openness and economic growth and theoretical and empirical literature related to the topic is presented. In the second chapter, an evaluation is made related to the political transformation which Turkey underwent in 1980. In the final chapter, there is the econometric method employed in this study, data analysis and the results of data analysis. Through the analysis, it is hoped to discuss the results of Turkish foreign data using the latest data and provide contribution to revealing the faulting aspects through more detailed studies.

II. How to Link Globalization to Openness and Economic Growth? A Brief Literature

Generally, the concept globalization tries to explain the process expressing the mutual dependency of the countries from all the aspects. The more mutual dependency increases the more trade agreements increase. [1] The trade agreements require supra-national institutions for the administration of the global economy. In order to take on this responsibility in the capitalist countries after the World War II, the institutions such as the World Trade Organization (WTO), International Monetary Fund (IMF) and World Bank were established. Since big states have a voice in the administration of such international economic institutions, there are critics that the rules of world trade system are organized against less developed or developing countries. For that reason, the preference of outward economy policies increases the importance of evaluating the economic losses or gaining resulting from this integration process. When the global economic development of the 21.st century is analyzed, the income inequalities increase in both inland and intercountry. It is also stated that the globalization was administrated incorrectly. [2]

It is impossible for the developing countries to change their economy policies in the environment of macroeconomic instability. Because, the trade policy is politically contradictive since it causes significant income distribution at home and conflicts between the values and institutions in different countries. [3] Nevertheless, the opportunity to make the decisions of reform easily during the crisis periods and

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Open Science Index, Economics and Management Engineering Vol:9, No:10, 2015 publications.waset.org/10002669/pdf

pressures of the global finance organizations such as IMF and the World Bank on the debtor countries were effective on the policy alterations for liberating the trade in 1980's. However, the success of the economic reforms also depends on the elimination of economic bottleneck which causes political alterations. In other words, the sustainability of the reforms should be regarded as the first important limitation. Secondly, the contribution of the reforms to macro-economic structure should be considered. The reforms themselves shouldn't negatively affect the sustainability of the reforms as the source of instability. Finally, the risks of non-competitive market environments stipulated new trade theories for the developing countries should also be considered. [4]-[6] In that case, the welfare inequities which the globalization process may cause require the questioning of the functioning of global trade system. The most important problem is the softened powers of developing countries during this bargaining process.

When the liberalization of foreign trade is regarded as an economy policy, it equals to an extravert or outward national economy approach. This approach includes the liberalization of importation and encouragement of the exportation. For that reason, liberalization is transition to exporting from importing although it politically means the decreasing impact of the state on economy [7]-[9]. Because, the topics such as the foreign trade balance, a stable macro-economic environment and sustainable economic growth and development gain priority. The need for encouraging gainful foreign trade activities requires effectively utilization of the mechanisms of encouraging the exportation. Since it is an obligation to execute those processes in accordance with the regulations of the economic organizations to enroll, the effects of the policy on the national economy aren't completely manageable.

There are numerous studies stating that the liberalization of foreign trade policy causes different results in relation with the development levels of the countries. If the volume of foreign trade increases, the contribution of importing and exporting to the economic growth also increases. However, it is seen that the yield provided from the liberalizations in the countries under a definite development levels (threshold) during the policy alterations is lower [10]-[13]. In that case, the thesis that the liberalization of the foreign trade may solely be the leading factor of economic growth and development becomes questionable. If there is a defect in an out-warding economy and institutional structure, the outwardness may prevent the effective use of resources in that economy.

Theoretically, the relationships between foreign trade and economic growth are discussed within the framework of the growth models. After Adam Smith, it was accepted that foreign trade led to the effective use of the resources through expertizing and free trade was an activity to provide benefits to all the countries who merchandize. Thus, foreign trade becomes the main motor of the growth. This occasion defines the theoretical framework which sets a basis for free trade agreements. The expansions, externalities and production for increasing incomes caused by technologic development in the growth models during recent years brought the effect of foreign trade on its role in economic performance into a different dimension [14]-[21]. According to this theoretical analyses which are called endogenous growth models, transferring the technical data included in the imported goods through importing and making the exportation a more technologic causes the foreign trade in not only effective distribution of the resources in the economy but also its contribution to the technological development (Research and Development-R&D). In Table I, some empirical studies which analyze the relationships between foreign trade and economic growth were employed.

TABLE I
FOREIGN TRADE AND ECONOMIC GROWTH

Study	Period and Content	Dependent Variant	Results
[22]	Various periods for 19 Developing Countries	GDP, Causality test	Among the 19 countries, the increase in exporting is the cause of economic growth in 15 of them.
[23]	1971-1992, 14 Manufacturing sector (England)	Industry productivity growth	R&D affects the productivity growth in England through contributing to the innovation production. The foreign trade facilitates the technology transfer.
[24]	1961-2000,Spain	Real GDP	The combination of both exportation performance and exportation has significant impact on economic growth.
[25]	1971-1999, 19 OECD countries	Real GDP	The effect of exportation expansion on economic growth is positive and significant.
[26]	1960-1985, 78 countries	Real GDP	The effects of learning resulting from foreign trade positively affect the technological development and economic growth. However, this occasion Depends on the qualification of the traded goods and trading partners.
[27]	1960-1996, 12 OECD Countries	Patents taken in the USA	The contribution of outwardness to the technological development seems to depend on the industrial structure of the countries. The leading ones and lower, innovative countries fail in achieving technological gaining due to their outward position.
[28]	1960-1985; 89 countries	GDP per person	The developing countries should import relatively cheaper foreign capital goods during the development process. The rate of the imported capital goods to the national capita determines the rate of growth.
[29]	1974-1996, Manufacturing sector (Bangladesh)	Production Index	The share of exporting in GDP, investment and human capital accumulation provide significant contributions to industrial production.
[30]	1988-1998; 28 OECD countries	Real GDP	The actual resource of growth is the own R&D stocks of the countries. Foreign trade, education and R&D policies may be used to increase productivity and economic growth and utilize from international technology popularization.

Open Science Index, Economics and Management Engineering Vol:9, No:10, 2015 publications.waset.org/10002669/pdf

III. Some Facts about Turkey's Trade Policy Changes

January 24, 1980 decisions which the alteration of economy policies occurred revealed not only the short term precautions taken to get out of the big economic crisis in Turkish Economy but also a structural transformation in the growth and development strategy. The foreign trade provided bigger contributions to the economic growth through the encouragement of exporting-oriented industries. "The export of industry sector has continuously increased and the sector share in the GNP also gradually grew bigger. The reason for this is the speed of the increase in exporting is bigger than the growth speed". [31] This development was supported by exporting-oriented production by the production capacities which are growing as a result of the protective policies, the decrease in the labor costs and the devaluation of Turkish Lira. The share of export in GNP was 5.1% in 1980 yet it reached at 12.8% in 1988. Despite all those positive developments, it is seen that the most striking deficiency of Turkish exporting-oriented industrialization model after 1980 is the absence of a sustainable capital accumulation. [32] In 1990's, a period when the positive gaining of structural transformation was lost again and the macro-economic instabilities became continuous started.

After the liberalization of the international capital movements and decreases in the control of domestic financial markets in 1989, the fluctuation in economy became more frequent and more severe. After the recession caused by the Gulf War in 1991, the negative environment created by the Asian economic crises both in 1994 and 1998 is followed by big crises in 2001. After those crises, high amount of negative economic growth was experienced. The problems encountered in the production structure increased the sensitivity of Turkish economy against internal and external shocks. Thus, the economic constriction and instability of growing rates which are experienced during each crisis period are among the obstacles for improvement of the investment conditions and continuously increase of welfare levels. However, the long-term development of the growing rates in economy may cause huge fluctuations in income which is one of the indicators of welfare level.

The results of the researches analyzing the relationships between the foreign trade and economic growth in Turkish economy show that importation had a bigger role in determining economic growth than exportation. However, the method employed in the importation of the goods may decrease the contribution of importation in technology transfer. For example, purchasing package programs causes more expensive imported technology and thus the important data can't be used productively sine the condition of financial warranty for importing in Turkey. [33] When this issue is evaluated from the point of low level tendencies of developing technology and making innovations and the levels of human capital in Turkey seem one of the significant obstacles for the occurrence of internal development. On the other hand, both high R&D costs of modern technologies and their high costs due to the monopoly pricing forces the developing countries with limited paying opportunities to buy the old technologies which were cheaper but were intended to sell off. [34] For that reason, the efforts to develop national technologies should be increased in Turkey. Although the technology in the imported goods contribute to the economic growth, the length of this process cause us falling behind in the international competition due to both trade openness due to the payments for such technologies and the dynamics created by the diversity in the technological information with the R&D leading countries.

IV. Empirical Analysis

A. Data and Methodology

Although there are numerous variants representing the outwardness, each of them employs technical problems from the point of explanatoriness. In order to represent the trade openness in the study, the ratio of the total of importation and exportation to the GDP (LTRADE) is employed. This variant is regarded as a significant indicator of free foreign trade policy and commonly employed in the empirical analysis. The variant showing the economic growth (LGDP) is GDP per capita. The annual data obtained from the World Development Indicators (WDI) were included the analysis through taking its logarithm. The analysis containing the period between 1960 and 2013 will be separately analyzed for the periods before and after 1980 in order to explain the change in Turkish foreign trade policies. In Fig. 1, the logarithmic time graphics of the variables may be seen.

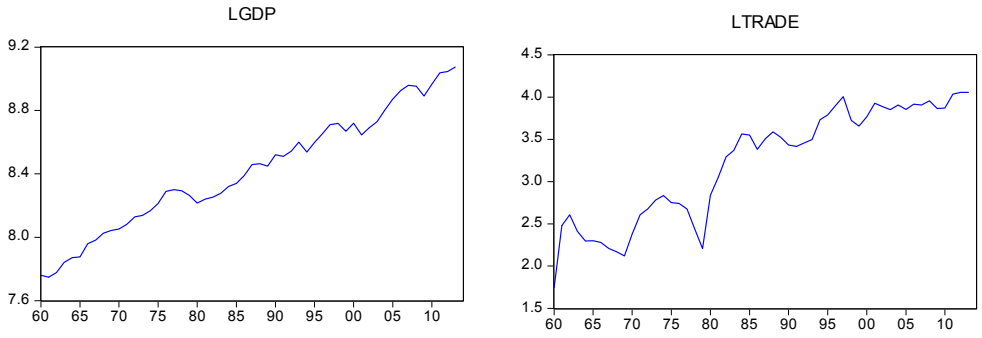


Fig. 1 Figures of Variables

Open Science Index, Economics and Management Engineering Vol:9, No:10, 2015 publications.waset.org/10002669/pdf

In the econometric analysis which time-series technologies were employed, unit root tests should be conducted to determine the stable structure of the series. There are numerous methods employed in the stability tests. The extended Dickey-Fuller (ADF) and Phillips-Perron (PP) tests will be used in this study. The stability structure of the series is important from the point of time-series methods to be employed. In the analysis which examined the long-term relationships between the variants, Johansen method is commonly used for the cointegration tests [35], [36]. This method is based on the estimation of the VAR model which will be formed with a convenient delay length at the beginning and cointegration vector. [37] Among the time-series techniques, the VAR (Vector Autoregressive) method developed by Sims is based on the assumption that all the variants in the multi-equation system analyses are determined within the model (internal). [38] A VAR (*p*) model which all the dynamic relationships are determined by the delayed terms of the model not the movable average terms is defined as:

$$y_t = \mu + a_1 y_{t-1} + ... + a_p y_{t-p} + u_t$$
$$u_t \approx iidN(0,V) \quad (1)$$

In the formation of the VAR model seen in (1), determination of basic determinants variant number (N) and delay number (p) has a key role. The VAR is a most commonly employed method in the modeling of the economic system due to its simplicity. According to [39], assumption of the level values of the series and standard VAR model gives effective results. In (2), the VAR model we will estimate through the variants we will employ in the analysis is shown.

$$LGDP_t = a_{10} + a_{11} LGDP_{t-1} + a_{12} LTRADE_{t-1} + u_{1t}$$
$$LTRADE_t = a_{20} + a_{21} LTRADE_{t-1} + a_{22} LGDP_{t-1} + u_{2t} \quad (2)$$

According to [40], the cointegration between the series is the indicator of the existence of at least one way causality relationships. In case there is a cointegration, those relationships should be analyzed through an error correction (vector Error Correction-VEC) model. In the Granger causality, the important matter is *being preferential*. An answer to the question of "Which variable comes before the other one?" is given. [41] On the other hand, the delay count and the variants which weren't included the model affect the causality relationships in the Granger causality. Thus, it is a requirement to apply for theory in the evaluation of the analysis results. [42]

B. Results of Econometric Analysis

In order to reveal the stability structures of the series a unit root test will be conducted. At this point, the extended Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests which are commonly applied in the stability tests will be employed.[1]

[1]All the econometric analysis in the study was conducted through EVİEWS package program 7.0 version.

When Table I which includes the results of unit root analysis is analyzed, it is understood that all the series included unit root on the basic, namely, they are found I(1) and their first difference is stable.

TABLE II
UNIT ROOT TESTS OF VARIABLES

	Level			
	ADF		PP	
	with intercept	with intercept and trend	with intercept	with intercept and trend
LGDP	-0.396	-2.999	-0.368	-2.999
	(-3.560)	(-4.140)	(-3.560)	(-4.140)
LTRADE	-1.885	-4.140	-1.888	-3.414
	(-3.560)	(-4.234)	(-3.560)	(-4.140)
	First Difference			
	ADF		PP	
	with intercept	with intercept and trend	with intercept	with intercept and trend
LGDP	-7.456	-7.387	-7.474	-7.403
	(-3.562)	(-4.144)	(-3.562)	(-4.144)
LTRADE	-7.210	-7.067	-7.300	-7.147
	(-3.562)	(-4.144)	(-3.562)	(-4.144)

Critical values at the 1% levels of significance for the ADF and PP in parentheses

The status of the series as I(1) require the search for the existence of cointegration vector. First of all, for that reason, the delay length of the VAR model to be estimated for each model was determined. Since the roots of the selected VAR models are within the unit circle, the condition of stability is provided. In that case, the series will be regarded integrated in the first order and the Johansen cointegration test will be applied for the analysis of long term relationships between the variants. In relation with the objectives of the study, the data range in the analysis will be divided into two sub-periods and the test will be conducted. Moreover, the relationships of cointegration will be researched for the whole period.

The results of cointegration test are shown in Table II. In the first model covering the period between 1960 and 2013, the null hypothesis where co-integration doesn't exist is rejected according to both statistics. The existence of a long term relationships between the trade openness during the aforementioned period and economic growth is confirmed. In the model 2 which covers the period before 1980, no cointegration relationship was found. During the time period between 1980 and 2013 the cointegration was determined between the variants according to Trace test. Those results may be interpreted as an indicator showing that the alteration of foreign trade policies after 1980 was effective on economic performance.

In order to reveal the direction of this effect, the Granger causality analysis will be employed. It is admitted that the empirical findings related to the pioneering relationships between two variants have characteristic of explanatoriness in order to determine whether there is a trade-led economic growth in economy (trade-led growth). In Table III, the results of the Granger causality and block externality tests for the periods having cointegration relationships are given. References [39]-[43] will be followed, the models will be estimated through both VAR and VEC and the results will be

evaluated accordingly. The effect of the variants on the right side of the equation (the marginalized variants) on the dependent variant are decided according to the probability values within the parenthesis. The pointlessness of the probability values of the marginalized variants means that the null hypothesis stating that the variant has no effect according to the Wald test wasn't rejected. In that case, excluding the variants which are regarded external will not affect the estimation of the model.

TABLE III
JOHANSEN COINTEGRATION TEST RESULTS

	Trace	Eigenvalue	Trace Test Critical Values (%5)	Maximum Eigenvalue Test Critical Values (%5)
Model 1	VAR lag = 1 Term: 1960-2013			
r = 0	26.82*	18.84	20.26	25.82
r = 1	7.97	7.97	9.16	9.16
Model 2	VAR lag = 1 Term: 1960-1980			
r = 0	15.84	9.06	20.26	15.89
r = 1	6.78	6.78	9.16	9.16
Model 3	VAR lag = 1 Term: 1981-2013			
r = 0	22.78*	14.36	20.26	15.89
r = 1	8.41	8.41	9.16	9.16

* indicates that test value is at the 5% levels of significance

According to Table III, VAR and VEC Granger analyses give different results. In Model 1, the trade openness is the reason of economic growth at the rate of 1% while the causality disappears on two ways in VEC. In Model 3 which represents the policy alteration, it is Granger reason of economic growth trade openness in the estimations of both VAR and VEC at the levels of 5% and 10%, respectively. The results of casualty analysis indicate that the trade openness during the period after 1980 didn't cause economic growth but the growth could explain the trade openness.

TABLE IV
GRANGER CAUSALITY/BLOCK EXOGENEITY WALD TEST

MODEL 1 Term: 1960-2013					
	VAR			VEC	
	Excluded Variable			Excluded Variable	
Dependent Variable	LGDP	LTRADE	Dependent Variable	ΔLGDP	ΔTRADE
LGDP	-	6.6769 (0.0098)	ΔLGDP	-	0.1049 (0.7459)
LTRADE	2.4632 (0.1165)	-	ΔTRADE	0.0020 (0.9642)	-
MODEL 3 Term: 1981-2013					
Dependent Variable	LGDP	LTRADE	Dependent Variable	ΔLGDP	ΔTRADE
LGDP	-	1.2785 (0.2582)	ΔLGDP	-	0.5292 (0.4669)
LTRADE	5.7084 (0.0169)	-	ΔTRADE	3.2081 (0.0733)	-

Block exogeneity is tested through the Wald test. For the null hypothesis stating the non-existence of Granger causality, the decision isgiven according to the probability values within the parenthesis. Δ shows that the first difference of the serial.

V. CONCLUSION AND POLICY IMPLICATIONS

The transition to the free trade foreign trade from the protective foreign trade was obtained through the alteration of the economy policies in Turkish economy after 1980. When considered from the theoretical perspective, it is expected through this policy alteration that foreign trade become the main motor of industrialization, economic growth and development. However, global economic order and the problems caused by the sui generis crises of the developing countries also affected Turkey which is a developing country itself. It was aimed in this study to evaluate the results of the policy alterations through time-series techniques comparing them to the period prior to the alteration.

In the analysis with two variants, outward economy policy trade openness proportion and economic performance was represented GDP per capita. In order to reveal the long term relationships between the variants and the direction of those relationships, Johansen cointegration test and Granger causality test were employed. The results of the analysis may be summarized as follows: *i)* there is a long term relationship between the variants of the period of the years 1960-2013. The finding of causality in this relationship isn't empirically strong (robust). *ii)* Although no cointegration relationship was obtained between the trade openness and economic growth between the years of 1960 and 1980, a long term relationship was obtained for the period of 1981 and 2013. *iii)* According to the VAR and VEC Granger causality analysis, the reason for the trade openness during the periods of cointegration is the economic growth. It should be also considered that those results are very sensitive to the variants not included to the model or the changes in the delay count.

When the findings of analysis are evaluated, no finding was obtained related to the foreign trade is the determinant of the economic growth performance after the alteration of economy policies in Turkey and this should remind us there is a necessity for re-evaluation of economy policies. There are serious indicators showing that trade openness isn't a political variant in Turkish economy. In order to reveal the positive results estimated for Turkish free trade policy, it is significant to determine the strategies considering the necessary conditions.

Open Science Index, Economics and Management Engineering Vol:9, No:10, 2015 publications.waset.org/10002669/pdf

Open Science Index, Economics and Management Engineering Vol:9, No:10, 2015 publications.waset.org/10002669/pdf

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