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Changes in Real Exchange Rate and Export of Agricultural Products in the Developing and Developed Countries

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Abstract: According to the significant share of agricultural sector of total nonoil exports and its potentials, advantages such as unique climatic diversity, considerable features in the suitable farming soil, diversity and rate of agricultural productions and considering that the said sector is the context of economic activity for about half the population, as well as lower dependence of this sector to the sophisticated technology, studying the factors affecting the exports of this sector such as real exchange rate, seems to be necessary. In this paper, the real exchange rate was investigated in 20 developed countries and 20 developing countries within 1994-2008 by means of data panel method and it was concluded that the changes in real exchange rate has inverse relationship to the exports of agricultural products. Also, the value added of agricultural sector within this period has direct and positive relationship to the export of agricultural products.

Key words: Exports of Agricultural Sector · Changes in Real Exchange Rate · Value-added Agricultural Sector

INTRODUCTION

Within the recent decades, plenty theoretical discussions have been exchanged on the position of agricultural sector in the context of development and planning economics, microeconomic and macroeconomic subjects, international trade between the economists and politicians. The agricultural sector is one of the most important economical sections of developing countries. Achieving the growth and consequently economic development is deemed as the demands of all nations and governments. These demands are much more in the third world countries that feel a remarkable gap between themselves and developed countries. The developed countries have attempted to achieve this goal against the trend of events leaded to the developments in the world, by following some theories propounded in advanced societies, through a shortcut way.

But before proceeding with the content of these discussions, we may acknowledge explicitly that all discussion parties are agreed on the strategic importance of agricultural sector and necessity of taking efforts thereon. The growth of population, the need of different economic sectors to the output of agricultural sector, establishing employments and achieving the foreign exchange income on one side and considerable increase in the capacity of agricultural products due to the climatic diversity, accessing the sea, fertile lands, ranges and forests and workforce ready for activity on the other side makes more attention to the agricultural sector necessary [1].

Whereas the government's investment in agricultural sector is limited due to the special nature of this sector, the attention of private sector to the agriculture seems to be necessary by reason of potential capability of this sector in enhancing the production and economic development through investment in converting industries, storing, transportation etc. Thus, the suitable conditions should be provided for persuading the private sector to participate in this sector along with applying the better management in the public sector [2].

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In the developing strategies, by virtue of balanced and non-balanced growth theories such as "Rosenstein-Roden", "Norex" and "Louis", the industrial and agricultural sectors are emphasized, whilst these theories don't present a specified framework for priority of industrial sector on the agricultural sector or vice versa [3].

The developing countries, based on their goals in obeying the growth and development theories, have selected various ways and acted based on which. Their experience in failure and success over passing three centuries of industrial revolution shows that achieving the economic growth and development requires some special course of actions in the social, cultural and economic contexts.

As regard to the date and time transposition, industrial production styles have been innovated and executed after agricultural production and human societies have experienced the agricultural products for centuries and millenniums without the industry. But after middle ages and appearing the intellectual evolution in the West and granting the pivotal role to the science, the technical and industrial advancements were innovated inside the agricultural production system. It means for the scientific and industrial advancements were designed and executed at first for dominating over natural barriers and limitations and postponing the diminishing return rule and thereafter the industry has been grown and evolved as a separate sector in a correct dynamic and logic interaction with agricultural sector (as two complement sectors strengthening each other). Thus, Ricardo the famous classic economist claimed that the agricultural development assists the complete productivity of economics and essentially the limitations existing in agricultural growth determines the growth border of this sector and necessity of capital formation for the economic development. Therefore, at the beginning of industrial growth, each country has an effective appropriate agricultural role and position. Thereafter, the interaction between both sectors and dynamic relationship between them is very important.

At the beginning of industrial development, the agricultural sector may supply the foreign exchange required for new-born industry through exporting the agricultural products by offering the foodstuffs and raw materials to the other developing sectors, providing a surplus investible product as the saving and tax for supplying the investments in other sectors, raising the demand on industrial artificial products in the rural sectors through cash sale of products to the cities. In general and as Koznetz, the agricultural sector aids the development of both agricultural and industrial sectors in two ways means marketing participation.

The development according to the standards of World Bank means changing a structure of the economy based on agricultural production and employment to the economy based on the technology development by means of which the share of workforce in the agriculture and share of agricultural products in GDP is reduced. According to this attitude, the structural evolution and advancement is dependent to the agricultural development. In case of non-development of agricultural sector, the industrial production is stopped. Meier states that it is completely possible for agricultural sector theoretically and practically to lead intensive resources to the other sectors, in general and if these transferred resources to the other sectors are used effectively, the economic growth speed is accelerated.

Also, the surplus of farmers' products supply the wage goods of industrial laborers, in addition it causes the development of industrial products market. This factor is very important in formation of industries at the time of export limitation (due to the lack of competitiveness of domestic industrial products). Importing foreign exchange (export) or currency saving may be deemed as the important achievements of agricultural development which is very effective on the initial stages of industrial growth and development.

Thus, considering such potential role that the agricultural sector can play in the process of industrial sector, the development economists emphasized on this point that if it is agreed a structural development to be applied on the product and workforce within the long-term, for realizing thereof successful policies of agricultural development should be adopted. But the requisite of adopting such successful policies and development of agricultural sector shall not be deemed as the promotion of nonagricultural sector to where makes bottleneck for the agriculture. Meier mentioned that the subject of time sequencing and interaction between two sectors and appropriate policies is difficult. Furthermore, the previous historic findings imply that the unilateral tendencies to the city are detriment to the agriculture.

Also, as his emphasis, agricultural sector has not only instrumental aspect for the industrial development, but its nature and position is higher than being instrumental. In addition, he pointed that many of historic experiences show that inappropriate allocation

of resources produced in agricultural sector and lack of their correct leading may support the sponge cities but not investment and supply of industrial needs. In plenty of countries, the most suitable context for quick economic development is agricultural development. Its course of actions and initial needs include promotion of health, collective training and education, technical training, better transport facilities and low-cost rural credits for the manufacturing purposes.

Therefore, with respect to the position of agricultural sector in the countries development process, it is concluded that agricultural sector is a suitable resource for industrial development and the reflection of industrial development in the rural districts may be converted to a dynamic flow of promoter interaction between two agricultural and industrial sectors.

At the next stages of knowledge extension, promotion and improvement of methods in agriculture, establishment of converting and complementing industries, researches on agricultural and soil and water topics reflect the participation in industrial sector in the agricultural sector. Thus, marginalization of agriculture (despite of its effective role in development) or excessive focus thereon without paying attention to the other sectors is not acceptable in theory and practice, in any ways.

The strategic importance of foodstuffs is another subject that no country may neglect thereof. This factor is so sensitive and risky that may affect the international political relationships between the countries intensively. Study on the effect of foodstuffs shortage on the breakdown speed of former Soviet system and political problems coming to current Russia (after breakdown) reveals this concept of agricultural importance clearly.

We don't discuss on the conflict between agriculture and industry, as we mentioned above it is not true that previously the industry has been valued excessively or adequately and the agriculture has been disregarded or the agriculture has been focused and the industry was disregarded. Indeed, in the current status, we have industry but we are not industrial, have no industrial thought and not established industrial economic beds. On the other side, the urban commercial brokering and monetary economy has affected both industrial and agricultural sector negatively. Thus, currently in our country (and many third world and undeveloped countries) the main discussion of conflict between agriculture and industry is not focused on the conflict between workforce and capital or national and foreign benefits, but the conflict between rural and civil classes. An extensive part of potential advancement resources have been centralized in rural districts but the major part of verbiages, constitutions and powers are centralized in urban districts. Most times, the urban classes comparing to the rural classes are winner and it resulted in slow and imbalanced development process.

Meier believes that the difference between rural and urban welfare in the current poor countries is much more than the difference existed at the early stages of rich countries' development. This gap is an inefficient and imbalanced gap. Because, less than 20% of the total invested funds have been allocated to this sector. Whilst during the last years, only about 6% of total investment averagely in Iran has been allocated to agricultural sector. He believes that such performance has no efficiency. Because for example in the most developing countries, the return of each monetary unit that is invested in the agricultural products is two or three times more than other sectors, whilst, public policies and private market mechanisms have jointed to each other and lead the local savings and foreign capitals towards nonagricultural applications.

As Meier, the appropriate strategy is to focus on the high yield development of rural resources. Thus, the industrial activities should aid this process to stabilize the rural development. The quick industrialization in a wide frontier is led in destruction due to the lack of wage goods and saving capacity (procured in agricultural and rural sector) and probably may nullify the own industrialization. Hence, he states that if we are interested in industrialization, should prepare ourselves to agricultural development [4].

Currently, plenty of developing countries such as Iran are intensively relying on revenues earned by exporting the raw materials such as crude oil. Iran has the appropriate capabilities for production of nonoil products particularly in the agricultural sector, so for releasing from monocultural economy dependent to the crude oil export can increase the foreign currency earnings through expanding the export in this sector. In the 5-year plans of socioeconomic and cultural development, mutation of nonoil export is considered as the main goals that are achievable only by utilizing all relative and creatable advantages in the different economical sectors, attempting and planning for preserving the export markets and influencing in the target markets. Regarding the agricultural economy of Iran, Najafi (1997) believes that the government has

interfered in the prices related to the export of agricultural products, directly and indirectly and restriction in the export of agricultural products has been applied extensively till the previous decade. It caused the local prices of exportable products to be reduced. Indirect interventions of government are referred to the policy of keeping down the exchange rate that has incurred the maximum loss to the agricultural exporting products. During the past years, some plans have been commenced for balancing the economic and establishing the stable economic environment, for instance the government in order to hold the real exchange rate has made the multi-rate exchange and then took measure for restoring single rate. Pursuant to this action, the exchange rate fluctuations that ever were extremely high have been reduced majorly. This policy along with the direct interventions of government and enforcing more open policies on the export of agricultural products has provided the requirements for enhancing the revenue of exporting products manufacturers. Although lack of efficient marketing system has reduced the benefits resulted from this policy to much extent. The foreign currency earnings through exporting these products may be increased considerably by strengthening the agricultural sector. The necessity for formation of a strong sector in the long term is adopting the proper policies which may not be realized without identifying and diagnosing the effective factors. Therefore, for strengthening the agricultural sector and enhancing the export of this sector, investigating and determining the factors affecting the export of agricultural products seems to be necessary [5].

One of these factors is real exchange rate fluctuation, thus the effect of real exchange rate fluctuations as well as value added of agricultural sector on the agricultural products export in some developing and developed countries are reviewed in this paper in order to consider the effect of real exchange rate changes on the export of agricultural products in the selected countries.

Considering the effect of real exchange rate fluctuation variables and real deviation of foreign exchange to its long-run equilibrium path, it is concluded that these variables have negative effect on the export of agricultural products so that Pick Voleras (1994) by adding the variable of real exchange rate deviation to the long-run equilibrium path to the export supply model of Nourolsalam and Saber Amanian, has studied the effect of above variable on the export supply of agricultural products of some developing countries. In this paper, following the said researchers and noticing this point that in the empirical studies of Kiora and Grins (1993) and Katani and Kaw Alovkhan (1990), the real exchange rate fluctuation has been considered as an important export deterrent factor, hence empirically this model has been added to the model and the effect of real exchange rate fluctuation variables and real exchange rate deviation to its long-run equilibrium path on the supply of agricultural products export is studied.

In 2006, Dr. Aliakbar Arabmazar and Aliasghar Ghasemirad have investigated the effect of granting banking facilities and real exchange rate on the export of agricultural products based on the economic theories by means of a dynamic and macro model within 1979-2006. For this purpose, Dr. Mansour Zibaei and Ayatollah Karami (2006) have applied a study on the effect of exchange rate fluctuability on the export of agricultural products in the different countries. At first, exchange rate fluctuability was determined by means of moving average standard deviation (MASD), then in order to examine the pistachio and date export supply, autoregressive distributed lag (ARDL) as one of the cointegration analysis methods has been applied.

In 2008, Dr. Jafar Haghighat and Rasoul Hosseinpour have examined the impact of long-term and short-term changes of exchange rate on the exporting price of Iranian raisins by means of autoregressive distributed lag (ARDL) model.

In 2008, Dr. MohammadaliEhsani Khanalipour and Abbasi, in their article, have considered the effect of instability of exchange rate on the nonoil export in Iran. In order to quantify the exchange rate instability, they have used two indicators of conditional standard deviation and moving average standard deviation.

Hassan Varjil has applied a study on the effects of real exchange rate fluctuations in exports of Turkey to USA and their three major partners in European Union within 1990 to the end of 2000. He has used the standard deviation of real exchange rate variation in order to measure the short-term fluctuations of exchange rate. The correlation and model error correction has been used for obtaining an estimation of correlation relationship and short-term dynamics.

Khalil Fidan in his article has assessed the effects of real exchange rate fluctuations on the agricultural business of Turkey. In this paper, autoregression vector has been used for understanding the dynamics of agricultural import and export and impact of real exchange rate.

MATERIALS AND METHODS

Literature of Review: The experience of eastern Asian countries within 1990s indicated that the export expansion may be one of the very important and effective strategies for achieving the economic development in the developing countries, because at the absence of extensive domestic markets for the consumables, moving towards industrialization path and development of production in the efficient scale is possible only through enhancing the export. It is obvious that the success of each country's export is dependent to the relative competitiveness of products of that country's manufacturers. One of the common indicators of export competitiveness is export price indicator (6). According to the role of agricultural sector in the world's economy, the growth of this part of agricultural sector among the nonoil exporting items is very substantial and development of which has priority in the countries' economic plans. Due to the share of agricultural sector in the gross domestic product and foreign policy, study on the factors affecting the growth of this sector seems to be necessary.

Upon the promotion of international business domain, the exchange rate has acted as the communication bridge between the different economies and its fluctuations affect the other economic variables of the countries and due to the structural relationship between all macro economic variables, the exchange rate fluctuations may affect the prices, production, import and export rate from different channels [7].

The exchange rate as the factor of a country's national currency parity value vis-à-vis the other countries reflects the economic status of that country comparing to the economic status of the other countries. In an open economy, the exchange rate due to its reaction with the other local and foreign variables is deemed as a key variable that the local and foreign economic policies and economic developments affect it intensively.

The variations of real exchange rate shall be considered as one of the important effective factor on the export of agricultural products. Principally, real exchange rate fluctuations caused by different economic shocks (such as domestic policies) that affects the nominal exchange rate and domestic prices and so the real exchange rate becomes unstable. Real exchange rate fluctuations imply instability and uncertainty of relative prices consequently will result in risk and uncertainty. In such status, the investors in foreign business sector show less willing to participation in the projects that they are uncertain and distrustful to their return and in the event of participation they turn to the quick impact or in other word short-term investments.

The real exchange rate against the nominal exchange rate that shows the relationship between the monetary values (currency) of a country shows the quality of relationship between two price levels. For a specified level of prices and domestic costs, the higher real exchange rate reduces the competitiveness of foreign goods and services in the domestic economy and increases the competitiveness of domestic goods in the other countries. In fact, real exchange arte is the competitiveness scale of a country in the international market and equal to the ratio of PT commercial goods' price to PN noncommercial goods based on one currency.

The exact data on PT and PN are found difficultly because they are rarely registered officially. On the other hand, CPI and PPI indicators include both commercial and noncommercial goods. Therefore, they are not the accurate estimates of commercial and noncommercial prices. Furthermore, basket of goods and the share of commercial and noncommercial goods in CPIs and PPIs is usually different, so it causes the additional deviation from PER real value. But due to the inaccessibility and difficulty in calculating the price of commercial and noncommercial goods and lack of their statistics in the partner countries at any time, the above indicators are used inevitably. In consideration of the foregoing, the real exchange rate is expressed as follows:

$$RER = \frac{NE * Wpl_s}{CPI}$$

In this equation, NE is nominal exchange rate that is replaced, as mentioned above, by the weighted (nominal) exchange rate. Wp_{ls} implies the wholesale price index of industrial countries, the values of this variable have been extracted from International Monetary Fund Journal and CPI is retail price index in Iran [8].

Since the years the exchange rates were raised as floating and managed floating in the world economy (since 1973), the variables explaining the exchange rate fluctuations to be identified and their effects on exchange rate to be determined. The economists in order to achieve their theoretical and experimental goals have focused more on the concept of real exchange rate. In Iran, the state currency system was a system stabilized by special drawing right (SDR) currency basket before

victory of revolution and the official rate was determined equal to 92.30 Dollars based on per SDR. But after the revolution and capital flight from Iran and the problems of oil export, applying the exchange controls seems to be necessary for conserving the exchange reserves. For this purpose, multiple exchange rates system was founded and beside which the informal free market of exchange was formed as well. On this ground, in the economy of Iran recognizing the factors affecting the behavior of real exchange rate is very important, but for its recognition, the real exchange arte measuring factors are required to be specified. There are often three factors for measuring the real exchange rate as follows:

The first factor for measuring the real exchange rate is formed based on the theory of purchasing power parity for relative costs. In this factor, consumer price index of both business parties is used. According to this theory, the foreign exchange rate is obtained from the ratio between real purchasing power of both countries' money. Therefore, according to this theory, the price level in both countries is dependent to the independent variables and varied exchange rates. Theory of purchasing power parity has been raised in two different forms; equilibrium exchange rate is absolutely equal to the ratio between domestic prices and foreign prices, whilst the other form explains that the relative variations of exchange rate are in connection with the both price levels. According to this theory, the foreign value of money is dependent to its domestic power. This theory hereby intends to achieve a benchmark for the exchange rise and fall in a specified period. Theory of purchasing power parity assumes the commercial exchanges between the countries completely without trade barriers that in addition to the goods, the capital is transferred also freely. In this model, any nominal exchange rate's deviation from relative prices level shall be eliminated immediately so that ultimately the real exchange rate to be converged to a fixed value.

The basic models for determination of nominal exchange rate have been formed based on the theory of absolute purchasing power parity. In these models, the real exchange rate should be converged to 1. Within the recent years, the tests applied on the PPP theory by means of co integration techniques indicated that the real exchange rate at the most time even in long term is not equal to fixed value of 1, accordingly the economists intend to provide a new interpretation of purchasing power parity theory under the title of weak purchasing power parity meaning that only a long-term relationship exists between nominal exchange rate and prices rate. In other word, the real exchange rate is converged to fixed mean that may be not 1. Accordingly due to the trade barriers and the trend of data, the theory of absolute purchasing power parity cannot be applied, also it may be caused by other variables eliminated from the model. Thus, in the test of purchasing power parity theory and determination of real exchange rate based on this theory, a time process as the independent variable is observed in the most cases.

The second factor for measuring the real rate exchange is formed based on the tradable commodities (two-commodity). In some cases, due to the economic structure of countries, instead of real foreign exchange rate, domestic real exchange rate is used theoretically. The real domestic exchange rate is defined as two-commodity and three-commodity. The real domestic exchange rate in two-commodity method is defined as the ratio between tradable commodities price to non-tradable commodities price inside the country. The major weakness of this approach is that no constant and specified limit for tradable commodities and non-tradable commodities in practice.

Tradable commodities (two-commodity) factor recommends four indices of workforce cost of a tradable commodities manufacturing unit including wholesale price index, implicit index of industrial sector and other tradable commodities manufacturing sector and export unit value as the probable alternatives for measuring the competitiveness in tradable commodities manufacturing, in the relative literature.

The third factor is formed based on tradable commodities (three-commodity). Some economists emphasized in the developing countries that most of them are the exporter of raw materials, due to the intensive fluctuations in export price index and consequently their trade relationship and in some cases, the changing trade policies, it is proper to apply three-commodity real domestic exchange rate instead of real domestic exchange rate. Three-commodity real domestic exchange rate includes three importable, exportable and non-tradable commodities. If PM^* to be the state import price in foreign currency and PX^* the state export price in foreign currency, in a small open economy, it is assumed that unit price act is enforced for tradable commodities. Consequently, for such economy, PX^* and PM^* are considered as exogenous variables. So, in lieu for each nominal exchange rate and levied business taxes, the domestic price of exporting commodities (PX) and importing commodities (PM) is determined as PX^* and PM^*. Therefore:

$$\text{Real exporting domestic exchange rate} = \frac{PX}{PNT} \quad (1)$$

$$\text{Real importing domestic exchange rate} = \frac{PM}{PNT} \quad (2)$$

Therein, PNT implies the price of domestic non-tradable commodities. Real exporting domestic exchange rate is related to real importing domestic exchange rate and trade relationship as follows:

$$\text{Real exporting domestic exchange rate} = \frac{PX}{PNT} = \frac{PX}{PM} \cdot \frac{PM}{PNT} \quad (3)$$

$$\text{Real exporting domestic exchange rate} = TOT \cdot \frac{PM}{PNT} \quad (4)$$

There in TOT is a ratio of importing commodities domestic price index to the state exporting commodities price index. Real exporting domestic exchange rate is an index of domestic competitive price in production and consumption of exporting commodities proportion to non-tradable commodities and is deemed as a measure for internal motivations of allocating the resources in relation with the both category of commodities.

Accordingly, analyzing the behavior of real exchange rate in each economic system is very important particularly because determination of variables affecting the real exchange rate may aid the economic policy-making .

The model used in this paper includes variables which have been used firstly by agricultural products exporting (EX). Whereas the export price index for the whole period is not available, the real export rate of agricultural products is calculated as a ratio between nominal agricultural products export to weighted average of consumer price index of main commercial partners.

Averagely, the trade turnover based on consumer price index of main commercial partners (CPI^F) is calculated according to the price and weight of 13 main commercial partners of country as follows:

$$CPI^F = \sum CPI^F_i \cdot W_i$$

Therein:

CPI^F_i: Consumer price index of i-number of main commercial partner

W_i: The weight of I-number of main commercial partner in the trades, in general.

The second variable to be considered is real effective exchange rate (RER).

Third variable is value added of agricultural sector (VA).

All above variables have been extracted from World Development Indicators (WDI) website.

According to the conventional equations of export supply and following the procedure applied by Jang Vanich (2007), nonoil export function is defined as below:

$$EX = a_0 + a_1 (P^x / P^{-d}) + a_2 VA$$

In which:

P^x: Export price based on foreign exchange

$P^{-d} = P^d/e$: P^d is export price in the domestic market based on local exchange and e implies nominal exchange rate (local currency for per foreign currency).

By replacing P^{-d} by P^d/e in the previous equation:

$$EX = \alpha_0 + \alpha_1 (eP^x / P^d) + \alpha_2 VA$$

As Tahmoor (2004) demonstrated, it is clear that $eP^x/P^d = RER$ and it is notable that increase in RER has been defined as decrease of domestic currency value, therefore agricultural products function is defined finally as below:

$$EX = \alpha_0 + \alpha_1 RER + \alpha_2 VA$$

Sampel Preparation: In this paper, the status of 20 developed countries including Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Island, Ireland, Italy, Japan, Norway, Portugal, Spain, Swede, Switzerland, Singapore, England, USA and 21 developing countries including Algeria, Bolivia, China, Chile, Columbia, Costa Rica, Fiji, Ghana, Iran, Malaysia, Mexico, Pakistan, Paraguay, Philippine, Romania, South Africa, Tunes, Uruguay, Uganda, Cameron within 1994-2008 is studied. The objective of applying this study is as follows:

Real exchange rate has negative effect on the agricultural products export in the developing countries.

Real exchange rate has negative effect on the agricultural products export in the developing countries.

All statistics and numbers used in this study have been extracted from World Development Indicator (WDI), FAO and IMF. After extracting the required statistics and data, the parameters were estimated by means of cross section weight least square method.

RESULT AND DISCUSSION

As mentioned above, various articles have been presented in this context, the results of which are discussed; Hassan Virjil has studied on the effect of real exchange rate on the exports of Turkey to USA and its three partners in European Union, within 1990 to the end of 2000 and concluded that the real exchange rate has significantly a negative effect on the export of this county.

Khalil Fidan has provided an article on the effects of real exchange rate on the agricultural trade of Turkey and concluded that real exchange rate in long term has negative impact on the agricultural trade of Turkey.

Fakhri Hasanov and Ilaha Samadov have concluded in their studies that the variation of real exchange rate has negative effect on the nonoil exports of Azerbaijan.

In this study, the impact of real exchange rate on the agricultural products exports within 1994 to 2008 is studied in 20 developed and developing countries.

At first, two important F-Limer and Hausman tests were applied on the both group of countries. As we know, in F-limer test the hypotheses are as follows:

H_0: $C_0=C_2=...=C_n \rightarrow$ the respective model is pooled.
H_1: There are different intercepts at least for one of sections → the respective model is panel.

In this test, if prob<0.05, hypothesis H_0 is rejected and the data are as panel, but if prob>0.05, hypothesis H_0 is accepted and the data are pooled.

The next important test is Husman which should be applied on all panel data. In this test, our assumptions are as follows:

H_0: E (Ui, xi) =0 → The model have random effects.
H_1: E (u_i, xi) ≠0 → The model has fixed effects.

Here, if prob<0.05, H_0 is rejected and our model has fixed effects and if prob>0.05, the model has random effects and H_0 is accepted.

By applying F-Limer test for the both country groups, it is observed that our model is panel data because as it is observed prob<0.05, thus H_0 is rejected. As well as, by applying Husman test, prob<0.05 is obtained and H_0 is rejected also and our model has the fixed effects for both country groups.

In the table below, values of R^2, R^2_{adj} and F-statistic have been provided for both developed and developing country groups and their high values shows the model fitness.

Thus, the model for developed and developing countries is estimated as follows:

According to the above table, it is concluded that whenever real exchange rate variable in the developing countries is increased for one unit, it should result in decrease of agricultural products export in these countries for 0.10. As well as, one unit increase of agricultural sector's value added will increase the export of agricultural products for 0.26.

Tabel 1:

Effects test	statistic	df	prob
Cross-section F developing	7.521187	(19,278)	0.0000
Cross-section F developed	14.141750	(19,278)	0.0000
Cross-section Chi-square developing	124.434063	19	0.0000
Cross-section Chi-square developed	202.880026	19	0.0000

Reference: research findings

Tabel 2:

Test Summary	Chi-square Statistuc	Chi-square df	prob
Cross-section random developing	12.403852	2	0.0027
Cross-section random developed	10.482942	2	0.0064

Reference: research findings

Tabel 3:

	Durbin-Watson	Probability	F statistic	R^2_{adj}	R^2
Developing countries	1.961244	0.000000	50.01632	0.794454	0.810662
Developed countries	2.055084	0.000000	60.24290	0.823679	0.837583

Reference: research findings

Tabel 4:

Developed countries coefficients	Developing countries coefficients	Variables
102.51	81.1	EX
-0.20	-0.10	RER
0.17	0.26	VA
0.81	0.83	AR (1)

Reference research findings

Also, according to the above table, it is concluded that whenever real exchange rate in the developed countries is increased for one unit, the agricultural products export is reduced for 0.20. As well as, if agricultural sector's value added is increased for one unit, the export of agricultural products is increased for 0.17.

As mentioned above, Dr. Fakhri Hasanov and Ilaha Samadov have studied the impact of real exchange rate on the export of nonoil products in Azerbaijan within 2004 to 2008. The summary of results indicate that whenever the real exchange rate in Azerbaijan is increased for one unit, nonoil products export is reduced for 1.63 units, that is corresponding to the results of the extant paper.

CONCLUSION

In consideration of the studies applied on 20 developed countries and 20 developing countries, it is concluded that real exchange rate fluctuations within 1994-2008 has inverse relationship to the to the agricultural products export. As well as, the value added of agricultural sector within this period has direct and positive relationship to the agricultural products export.

According to the obtained results, it is observed that the real exchange rate variations in the developed countries have more effect on the agricultural products export than the developing countries. Also, it is concluded that the value added of agricultural sector in the developed countries has lower effect on the export of these products than the developing countries.

Hence, considering the important and sensitive effect of real exchange rate fluctuations on the agricultural products export of states, it is recommended that the economic stability to be considered intensively. For achieving this purpose, Central Bank may have effective role in conservation of national currency's value to the foreign currencies.

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