

The effect of real exchange rate misalignment on account of the balance of payments

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ABSTRACT: Real exchange rate is one of the factors as its deviation from the equilibrium values, affect the performance of macro economical variables. In this paper the effect of real exchange rate misalignment on account of the balance of payments during the period 1976 to 2010 are examined. The model which was introduced in this article in order to estimate the misalignment of real exchange rate is the basic model of Edwards. The considered variables in this paper in order to determine the real exchange rate are; Oil incomes, government costs in the services department and buying the non-exchangeable goods, import tariffs, term of trade rate and index of depending on the degree of economic. The period in this study is from 1976 to 2010. Experimental results show that, among the variables affecting Misalignment, variable costs, the most significant impact on the real exchange rate and this variable can impact substantially on the deviation of the real exchange rate from its equilibrium value. The estimation results of Iran's balance of payments account model by the index of real exchange rate misalignment shows that this index had the negative effect on the balance of payments account and results into a deficient in this account.

KEYWORDS: balance of payments, Iran Economy, real Exchange rate misalignment, Real.

1 INTRODUCTION

Studying the changes of exchange rate is one of the main subjects for the economists who were done studies in the field of international monetary economics. In addition, studying the changes of exchange rate, the reciprocal effect of these changes on the macroeconomic variable and the consequences of exchange policies were considered by the policy makers, continuously.

During the recent years, the real exchange rate in different countries (developed or developing ones) is changing intensely. Even these changes affected the countries which were maintained their fixed exchange rate system after breaking the Bretton-Woods contract. The studies about real exchange rate and the effects of its changes on the welfare level and economical growth show that the deviation of **real exchange rate** from **Equilibrium Real Exchange Rate** or **Misalignment Real Exchange Rate** contains of welfare costs.

In addition, misalignment in the real exchange rate or the misalignments of real exchange rate from its equilibrium value shows the lack of certainty and instability in the trend of relative prices among the countries. These deviations provide the

instable and uncertain space in the economy and also lead into the inappropriate distribution of sources, decrease of performance in the agricultural part and increase of capital loss[5]

But the most important cost related to the non-real expensiveness of money or monetary value associated with the intense controls in trade and exchange is the decrease of efficiency which leads into the widespread range of losses resulted from the misalignment of exchange rate[9]

Misalignment under the flexible systems creates most changes in the main variables of macro-economy especial investment and international trade and also the growth of economy[13]

In the other hand, the irregular fluctuations of RER affects the value of export goods and cost of import goods into national value of money and also decreases the risk taking of policy makers of Iran Foreign Trade to its fluctuations.

And also some of the importers and exporters who continue their activities in the global markets and in the uncertain or instable spaces of exchange rate may demand more profit in order to bear its risks. In the other hand, deviations of RER lead into the following cases;

- disorder in estimating the capitalized costs,
- guiding the production factors into the production of non-exchangeable goods,
- transferring the sources into the non-trade section and allocating them to the non-exchangeable activities,
- increasing the uncertainty and Encouraging people, banks and industries into trade are the effects of RER deviation on the financial market as they affect the macro-economical variables[6]

Account of the balance of payments is one the economical variables which shows the sensitivity to the changes of RER and if RER is not in consistent with the inside and outside world of economy, then instabilities in **account of the balance of payments** will happen. For some developing countries in particular Iran, the misalignment of RER was the origin of serious disorders of economy.

In fact, the disorders in the economy of this country during the several last years were in relation with the bad policy makings in the field of exchange rate. In spite the increasing information about the importance of RER, the measures in this field (the policy of exchange rate in Iran) were rare and limited; based on the aforementioned points, studying and analyzing the misalignment of RER and its effect on the macro-economical variables is important and necessary; for this reason, our attention is focused to the effect of this variable (misalignment) on the account of the balance of payments .Therefore, the order of parts of this paper is as the following;

- 2nd section: theoretical basics of exchange rate misalignment
- 3rd section: reviewing the literature,
- 4th section: modifying, correcting and estimating the related model
- 5th section: presenting a summary and conclusion.

2 RESEARCH METHOD

There are two theories in the field of economy which are about the effectiveness efforts in order to measure the Equilibrium RER. The 1st group shows that the RER is not misalignment for ever; means that it responds to the determinant basic factors.

However the 2nd group accepts the misalignment concept but they are not certain about the ability or power of each especial methodology in order to estimate the misalignment degree or level. Basically, based on the studies, equilibrium rate of exchange is being evaluated in two forms as:

Test of hypothesis validity PPP

Fundamental Equilibrium Real Exchange Rate or FEER

2.1 PURCHASING POWER PARITY TEST OR PPP

PPP test show the following equation for the changes of exchange nominal rate.

$$S = \alpha_0 + (P - P^*) + \epsilon$$

S = nominal rate logarithm of exchange

P and P^* = logarithm of internal and foreign or external price levels

α_0 is a stable function and ϵ is a random variable.

In this equation, RER logarithm was presented by using $S + P^* - P$ but LRER (Long-run equilibrium real exchange rate) logarithm is stable and equals α_0 . Therefore, the change of real exchange rate is a temporary change from LRER or long term real exchange rate. It must be noted that none of these fundamental and basic factors exist in the above equation in the form of political and exogenous variables.

2.2 FUNDAMENTAL EQUILIBRIUM REAL EXCHANGE RATE

The other method in order to evaluate the upper – or lower – valuation of real exchange is based on the concept of **FEER** which defined first by **Nurks** (1945) and it is being considered as the level of relative prices of exchangeable and non-exchangeable goods which balances the internal and external economies simultaneously and also considered the long term economies in order to remove the periodic and cyclic effects.

There are different views about how to evaluate the fundamental real exchange rate which is an experimental work due to the different conditions and effectiveness of exchange rate of various variables in the considered countries and in large extent; it depends on the structural and institutional conditions of countries.

In the industrial and developed countries having the wide extended financial markets, the development level of financial markets is an effective factor on RER however, in the developing countries as the financial structure of their markets did not develop completely, it cannot be an effective factor on the exchange rate. Equilibrium exchange rate depends on the macro-economical variables first was defined by **Edwards** (1988) and then extended by **Cottani, Cavallo & Khan** (1990).

The application method in order to use the basic variables of macro economy was developed by International monetary fund and in order to evaluate the exchange rate based on the application of basic variables, three methods were presented by the group of CGER or Consultative Group on Exchange Rates in the International monetary fund. In this method, evaluating the misalignment of exchange rate is accounted as the midterm deviation and principles. These three methods were presented in order as the following;

2.2.1 EQUILIBRIUM REAL EXCHANGE RATE APPROACH

This method includes three main stages; in the 1st stage, by using the cross sectional regression techniques, the equilibrium relationship between RERs and a set of basic factors is being evaluated. Then the ERERs are being defined as a function of midterm levels of these factors and at the end of this stage, the value of exchange rate modification which can return the balance is being calculated as a difference between RER of the country and the defined equilibrium value in the 2nd stage, directly.

In this way, six variables are being used as the basic variables such as Net foreign assets, Productivity differential, Commodity term of trade, Government consumption, Trade restriction index and Price controls.

2.2.2 PARTIAL-EQUILIBRIUM APPROACH

This approach toward political aims had the utmost applications in order to evaluate ERER. This method is so important because it allows the calculation of changes' effects in the fundamental factors in order to evaluate ERER and also maintains the simplicity feature [14]. In the related studies, this approach depends on the current account which was shown in the following equation:

CA = current account of payments' balance

RB = balance function of resources

RER = real exchange rate

Y and Y_f = internal (domestic) and external or foreign income

D = net international debts

r = mean of paying interest rate to the foreign debts

$$CA = RB(RER, Y, Y_f, \dots) + rD$$

RB or Resource balance depends on RER, internal and foreign or external income. By considering the value of target CA (CA^*) and exogenous value of r , this equation can be used in order to determine the target value of RB means RB^* .

$$RB^* = CA^* - rD$$

Y_i and Y are the values of internal and external incomes in a case of full employment during a year in which ERER was evaluated. The evaluation of RB can be used as the value of RER which leads into the following relationship.

$$RB^* = RB(RER, y^*, y^*_f)$$

This estimate of ERER is consistent with internal and external balance in the form of full employment in both countries and in a form of a current account balance equals the value of "sustainable" net capital inflows, respectively.

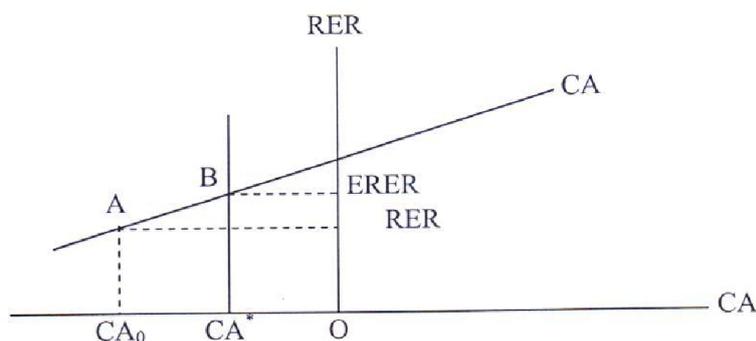
2.2.3 MACROECONOMIC BALANCE APPROACH

Methodology of IMF or International monetary fund, in terms of a used method in order to evaluate the value of "sustainable" net capital inflows is different. This fund depends on the national income accounting unity which was presented in the following equation;

$$CA = S - I$$

In this equation, S and I show the national saving and gross domestic investment which give us an estimation of sustainable capital inflows in terms of determining the midterm saving and investment.

The current account in the above equation depends on RER and internal and external or foreign income level. For the values of internal and external or foreign incomes in the full employment and the other determinants of a current account, this function creates a curve with positive slope in RER-CA space which was presented in the following graph.



Note: an ascending movement indicates the decrease of ERE value

Investment – saving balance was modeled as a function of GDP per capita, tax condition, a gap between real and potential GDP and level of global interest rate. The midterm balance of Investment – saving is independent from real exchange rate; therefore the right hand of this equation creates a vertical curve in RER-CA space.

The intersection of these two geometrical places in B point in the above graph determines ERER. The main feature of macro balance approach is its ability in modeling the effect of fundamental changes of RER. Considering this methodology can be related to the changes in the fundamental factors as a function of current account balance, productivity levels and the other fundamental factors such as government expenses, investment and ... which affect the real exchange rate.

3 LITERATURE REVIEW

Evaluation of the related studies shows that equilibrium exchange rate dependant on the macro-economical variables first was presented by **Edwards** in 1988. He studied the real exchange rate and measured it in the developing countries during 1963-1983. He believed that the temporary and permanent shocks on the exchange rate is the reason of exchange rate deviation through balanced amount and proved that this deviation affects the economical growth negatively.

After Edwards in 1989, **Cottani, Cavallo & Khan** (1990) evaluated the misalignment of real exchange rate by extending the model of Edwards and its evaluation by an especial method. The results of their studies show that there is a negative

significant relationship between investment, exports and economical growth of developing countries based on the issues like instability and deviation of real exchange rate.

Then, the other researchers studied the misalignment effect on the macro-economical variables by modeling the methods of Edwards in 1989, Cottani, Cavallo& Khan in 1990 which were presented in the following table as a summary.

TABLE 1

| Result | Subject | Year | Name |
|---|---|------|---------------------------------|
| They studied the effects of real exchange rate's deviation through the balanced way on the economical growth and found that this deviation has a negative effect on the economical growth | Real Exchange Rate Misalignment and Growth | 1997 | Razin, O. and Collins |
| They studied the effect of real exchange rate's deviation and its fluctuations on the collective economical growth. The main finding of their studies was the negative effect of instability and the real exchange rate's deviation on the economical growth. | Real Exchange Rate Behavior and Economic Growth Evidence from Egypt Jordan, Morocco and Tunisia | 1999 | Domac, I. and Shabsigh |
| They studied the effects of real exchange rate's deviation through the balanced way on the economical growth of Iran during 1961-2001. In this paper, three criterions were used as formal and free rates of exchange, equal theory of purchase power PPP and structural model in order to measure the deviation index of real exchange rate. The results of empirical studies in this paper show that the deviation of real exchange rate in each three models has a negative effect on the economical growth of Iran. | Deviation of real exchange rate and economical growth in Iran | 2002 | Halafi and egbali |
| By using the relationship of investment and economical growth, they found the negative effects of real exchange rate fluctuations on the growth of some countries in Europe economical Area. | Exchange Rate Volatility and Growth | 2004 | Guerin J. and LahrecheRevil |
| They studied the instability effect of real exchange rate and its deviation from the balanced value on the indexes such as economical growth and investment. Based on their model, derived from Edwards, the deviation of real exchange rate had a negative effect on the economical performance of developing countries. | Misaligned? Overvalueda? The untold Story of the Turkish Lira"., Journal of Economic Literature Classification | 2005 | Atasoy, Deniz and Saxena, Sweta |
| They studied the misalignment effect of real exchange rate on the economical growth during 1959-2007 in Iran and found that misalignment of real exchange rate had a negative effect on the economical growth. | Misalignment of exchange rate and its effect on the economical growth of Iran | 2009 | Asgari and tofighi |
| They shown that the deviation of real exchange rate from PPP as Rodrik in 2008[18]was used cannot explain the long term growth; however the deviation from the basic real exchange rate, based on the view of Washington, explains the long term growth. | The Real Exchange Rate and Growth Revisited: The Washington Consensus Strikes back? | 2010 | Andrew Berg and Yanliang Miao |

Sources: findings of researchers

There are differences toward the types of indexes and also Iran in this present study to the pointed articles and the other studies. In addition, most papers studied the misalignment effect of real exchange rate on the variables of economical growth, investment and the exports of agricultural part but in this article, it has been tried to study the misalignment effect of real exchange rate on inflation index of Iran, for this reason, this study is different from the other papers.

4 INTRODUCING THE CALCULATION METHOD REAL EXCHANGE RATE DEVIATION

In the present paper, in order to estimate the real exchange rate deviation, a method based on a designed model by **Edwards[9]** was used. Based on the view of Edwards, fundamental indications of balanced exchange rate is a group of real variables which plays an important role in determining the internal conditions and long term foreign or external situations in spite of the real exchange rates. These fundamental variables associated with the real exchange rate determine the internal and external situation of Iran.

Although the number of these variables is so high, we can discriminate between two groups of these factors in the analytical subjects; fundamental internal and external factors. The fundamental external factors of real exchange rate are:

- global prices (international exchange relationship (**terms of trade**)),
- international transfers contains of foreign aids inflows,
- Real rates of interest in the world.

The fundamental internal factors of real exchange rate are divided into two groups:

- the variables which are under the effect of economical policy makings decisions, directly and
- The variables which are independent from them.

Among the important fundamental factors of real exchange rate (related to policy makings), three groups must be considered;

- import tariffs, import shares and export tax,
- **exchange and capital controls,**
- other subsidies and taxes and
- **Combination of governmental costs.**

Among all fundamental internal factors which are not related to policy making, technology development is so significant. Edwards by considering that the equilibrium real exchange rate is a variable which is being determined by the (high) fundamental factors studied the evaluation of equilibrium real exchange rate through determining the way of its relationship with the real economical factors.

In this method, extent of real exchange rate deviation is being defined by a logical relationship between its factors and by using the evaluated coefficients. In fact, in this method, the effect of structural changes in economy, external and foreign trade and exchange policies on the real exchange rate was considered.

The main issue in evaluating this model is determining the main factors of real exchange rate in an especial country which is under the effect of its factors and the structural conditions of that country. The misalignment of real exchange rate in this study is being calculated by using the reminders of a regression which indicates the changes of real exchange rate in Iran in the form of a series of fundamental factors.

This empirical definition toward misalignment of real exchange rate as the deviations of real exchange rate from its balanced value is consistent. In this definition, it is being assumed that the values of real exchange rate regression are a good evaluation of equilibrium real exchange rate[8]

5 RESULTS

In this paper, a defined model was presented in order to evaluate the misalignment of real exchange rate as the following:

$$\text{LRER} = (\text{LIOIL}, \text{LGCGDP}, \text{LTARIFFS}, \text{LTOT}, \text{LCLOSE},) \text{MODEL 1}$$

Based on this model, the variables and sources for getting information are presented as the following:

TABLE 2

| Sources | Definition | Variable |
|--|--|----------|
| World Bank | Logarithm of real exchange rate is in Iran | LRER |
| Central Bank Of The Islamic Republic Of Iran | Logarithm of oil incomes | LIOIL |
| Central Bank Of The Islamic Republic Of Iran | Logarithm of government costs in the sections as services and purchasing the non-exchangeable goods was considered as the consumption of non-exchangeable goods by government department | LGCGDP |
| Central Bank Of The Islamic Republic Of Iran | Logarithm of import tax to the whole imports (of goods) and services was considered as the import tariffs. | LTARIFFS |
| Central Bank Of The Islamic Republic Of Iran | Logarithm of Trade Term is the result of export index to the import index. | LTOT |
| Central Bank Of The Islamic Republic Of Iran | Logarithm of index of depending on the degree of economic is defined as the result of exports and imports' sum of goods to the index of gross domestic production. | LCLOSE |

By considering that the time interval in this study is long term period, therefore unit root test is being studied on all considered variables in this paper. The related tests show that all considered variables in these models were in the level of Non-stationary, and for this reason, Co-integration Test will be required. Then after evaluating the related models, unit root test was studied on the remainders from all models and in all of them (models), the remainders were in the level of stationary which shows that the estimated models in this study are the appropriate models.

Certainly, in this paper, stationary tests were considered for each of these models separately. It must be noted that in order to evaluate the models in this paper, Eview7 and Co-integrating regression (Dynamic Least Squares) were used. One of the advantages of DOLS is that it considers the Endogeneity among variables although we cannot consider this feature in Engle-Granger[10] method which is an old model to DOLS and also there are defects in Engle-Granger[11] method such as bias in the small samples and lack of ability in accomplishing the statistical hypothesis test as these defects were removed in the new method of DOLS which was presented in Eviews7 software.

In order to accomplish the co-integration test of variables, different tests can be used and in this paper, Hansen test was used. The results of these tests, model's modification, coefficient evaluation and analysis are presented as the following:

TABLE(3) Augmented Dickey-Fuller Test Equation for data level of time series

| variable | I(0) | I(1) | Mackinnon Critical Values | | |
|----------|-------|-------|---------------------------|-------|-------|
| LRER | -1.49 | -4.19 | -3.64 | -2.95 | -2.61 |
| LOIL | -0.12 | -5.29 | -3.63 | -2.95 | -2.61 |
| LGCGDP | -0.23 | -5.11 | -3.63 | -2.95 | -2.61 |
| LTARIFFS | -0.42 | -5.36 | -3.63 | -2.95 | -2.61 |
| LTOT | -1.91 | -3.52 | -3.64 | -2.95 | -2.61 |
| LCLOSE | 0.29 | -4.79 | -2.63 | -1.95 | -1.61 |

Source: findings of researchers

Therefore, based on this test, all selected variables for the model were I(1). In order to achieve the coefficients of variables which lead into the deviation of real exchange rate, model 1 was evaluated and its results were presented in the following table:

TABLE 4

| variable | Coefficient | Std.Error | t-Statistic |
|-----------|-------------|-----------|-------------|
| LIOIL | -2.02 | 0.22 | -9.14 |
| LGCGDP | 8.68 | 1.04 | 8.28 |
| LTARIFFS | 2.68 | 0.28 | 9.43 |
| LTOT | 1.34 | 0.27 | 4.89 |
| LCLOSE | 2.48 | 0.48 | 5.07 |
| C | 53.66 | 4.42 | 12.13 |
| R-Squared | 0.96 | DW | 2.06 |

Source: findings of researchers

TABLE 5: CO-INTEGRATION TEST - HANSEN PARAMETER INSTABILITY

| Null hypothesis: series are co integrated | | | | |
|---|----------------|----------------|-----------------|------|
| Lc Statistic | S Trends(m) | D Trends(k) | E Trends(p2) | Prob |
| 0.16 | 5 | 0 | 0 | 0.2 |

Source: findings of researchers

Thus, this test confirms the co-integration among variables.

TABLE 6: STATIONARY TEST OF REMAINDERS IN MODEL 1

| Variable | ADF | %1 | %2 | %5 |
|----------|-------|-------|-------|-------|
| SREER | -5.82 | -3.67 | -2.96 | -2.62 |

Source: findings of researchers

Based on the results of this table, variable SREER (remainders) are stationary and I (0) and this issue confirms the co-integration of variables in the evaluated model.

The final evaluation of model (1) is as the following:

$$LRER = -2.02 * LIOIL + 8.68 * LGCGDP + 2.68 * LTARIFFS + 1.34 * LTOT + 2.48 * LCLOSE + 53.66 \text{ Equation 1}$$

Based the evaluation results, the obtained coefficient for **oil incomes** variable is significant and equals -2.02. Therefore, by increasing the oil incomes, the energy savings will increase and leads into the reinforcement of national money and decrease of real exchange rate and finally intensifies the misalignment of real exchange rate; as a result, one of the main factors of this misalignment in Iran is the dependence of Iran's economy to the oil incomes. So, the best solution in order to prevent this event is decreasing the instability, providing stability in the oil incomes, separating the oil shocks from the exchange market and providing the exchange accounts by Iran's government.

Governmentcosts variable with the positive coefficient, 8.68, has a positive and significant effect on the real exchange rate in Iran. In other words, the consumption expenses of this government affect the real exchange rate. This effect depends on this issue; whether in the above mentioned expenses, the consumption of trade goods is more or the non trade goods? Edwards [7] explained this effect by assuming the first and second two periods. In the first period, an increase in the demand of services and goods might be seen which leads into increase of price in the non trade goods. As a result, the rate of equilibrium real exchange increases or the internal money will be reinforced. In any case, in the second period, the government may increase the taxes in order to pay its debts and this issue decreases the sizeable income and also decreases the whole demand. Decrease of non exchangeable goods' demand increases the real exchange rate and decreases the price of these goods. By considering that the expenses of government affect the real exchange rate among the other variables considerably, using the contractionary fiscal policies in some cases where negative misalignment was so overvalued and also using the expansionary fiscal policies in some cases where the positive misalignment was so undervalued, decrease the misalignment.

The rate of **import tariffs** with a positive coefficient, 2.68, indicates that permanent tariff on the imports increases the internal price of import goods and leads into the substitution and incomes effects during a determined time interval. Tariff decreases the demand for import goods and also results into the decrease of import levels or volumes. Also tariff increases the demand for non trade goods (due to substitution) and as a result of maintaining balance or equilibrium in that market, the price of non trade goods will increase. Then, under the possible conditions, the situation of a permanent tariff on the imports leads into a new balance or equilibrium in which the value of real exchange rate is low; means that this issue leads into the increase of an equilibrium real exchange rate and intensifies the misalignment of real exchange rate.

index of depending on the degree of economic has a positive, 2.48, and significant effect on the misalignment of real exchange rate; means that the closeness of economy prevent the economical dynamicity in Iran and new technologies into this country and also increases the real exchange rate and its misalignment.

The obtained coefficient for **term of trade** variable shows that this variable has a positive effect, 1.34, on the real exchange rate in Iran and the elimination of the terms of trade (increasing the import volume to the export), by considering the high inflation in Iran to the foreign inflation, decreases the price of foreign goods to the internal ones (making cheap), imposes an increasing pressure on the exchange demand which increases the real exchange rate and also increases the misalignment of real exchange rate.

Since the aim of this present paper is to study the effect of real exchange rate deviation through the equilibrium way on account of the balance of payments, after introducing and studying the criterions in order to calculate the index of real exchange rate deviation, the related model to this issue was presented. The introduced model by using Model of balance of payments accounts and in terms of the economical structure of Iran was designed as the following;

$$BOP = (LY \ LSC \ R \ SREER \ DUM) \text{Model (2)}$$

Based on this model, the variables and sources of information are presented as following.

TABLE 7

| Source | Definition | Variable |
|--|--|----------|
| Central Bank Of The Islamic Republic Of Iran | Account of the balance of payments current account and capital account is derived from the sum | BOP |
| Central Bank Of The Islamic Republic Of Iran | Price index logarithm of consumption goods to the fixed prices of 1997 | LSC |
| Computing researcher | Real interest rate the central bank's calculations using data obtained researcher | R |
| Central Bank Of The Islamic Republic Of Iran | logarithm of gross domestic production of Iran to the fixed prices of 1997 | LY |
| Computing researcher | Index of real exchange rate deviation was estimated in the previous section | SREER |
| | Since there is a possibility as the undefined effect changes the results, it is possible to inset a virtual variable which displays the effects of factors such as war, religion, security, etc that we cannot consider them in the model. Therefore, the values such as 0 and 1 in a case of existence and non-existence are being added, respectively. | DUM |

The results of these tests, models' modification, coefficients' evaluation and analysis are presented in the following table.

TABLE(8) Augmented Dickey-Fuller Test Equation for data level of time series

| variable | I(0) | I(1) | Mackinn on critical values | | |
|----------|-------|-------|----------------------------|-------|-------|
| LSC | -0.34 | -3.56 | -3.64 | -2.95 | -2.61 |
| R | -3.21 | -5.45 | -3.66 | -2.96 | -2.61 |
| BOP | -1.87 | -4.39 | -3.68 | -2.97 | -2.62 |
| LY | 1.36 | -4.09 | -3.66 | -2.96 | -2.61 |
| SREER | -5.82 | | -3.67 | -2.96 | -2.61 |

Source: findings of researchers

Based on the results, all above variables except SREER were non-stationary. Therefore all selected variables in order to inset them in this model except SREER which equals I(0) is from the first order and I(1).

Table (9) Evaluation results for the account of the balance of payments model

| variable | coefficient | Std.Error | t-Statistic |
|-----------|-------------|-----------|-------------|
| LY | 43730 | 7714.98 | 5.66 |
| LSC | -3970 | 1886.7 | -2.10 |
| R | -985.2 | 301.4 | -3.26 |
| SEER | -46345 | 18020 | -2.57 |
| C | -523811.4 | 92529 | -5.66 |
| DUM | 8474 | 2032.34 | 4.16 |
| R-Squared | 0.95 | DW | 1.66 |

Sources: findings of researcher

TABLE(10) Co-integration Test - Hansen Parameter Instability

| Null hypothesis: series are co integrated | | | | |
|---|----------------|----------------|-----------------|------|
| Lc Statistic | S Trends(m) | D Trends(k) | E Trends(p2) | Prob |
| 0.063 | 4 | 0 | 0 | 0.2 |

Sources: findings of researcher

Therefore, this test confirms a long term relationship between variables.

In this paper (appendix), diagnosis of remainders in model (2) was studied. Based on the obtained results of these two tests in this model, the existence of Autocorrelation and heteroscedasticity is being rejected. The final evaluation of inflation model is presented as following:

$$BOP = 43730.980 * LY - 3970.651 * LSC - 985.285 * R - 46345.451 * SREER - 523811.354 + 8474.162 * DUM \text{ Equation 2}$$

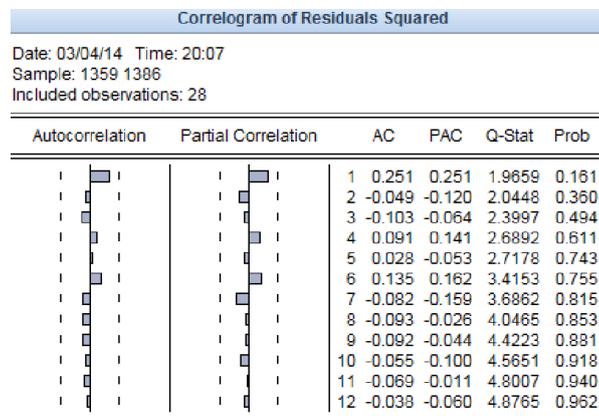
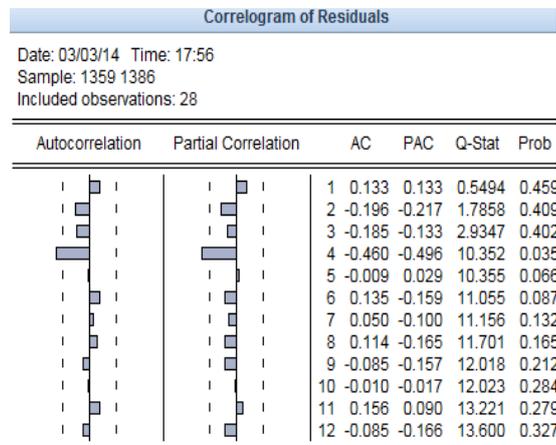
In this evaluated model, it is observed that by increasing a misalignment unit of real exchange rate, we see a deduction in the balance of payments (about 46345). In such case, the obtained coefficient is significant and its sign confirms the negative effect of this misalignment on the balance account of payments. This result is consistent with the experiences because misalignment of the real exchange rate from the balance value makes the environment of macro – economy more instable. This situation weakens the safety system of national economy against the internal and external shocks. This instability leads into capital's transfers and changes in the capital accounts in the balance account of payments. This is a two-side problem. For this reason, the Iranians who live in the other countries and the foreign investors lose their tendencies in order to invest because the rate of exchange is a same price and its future is important for the people. In the other hand, the export faces the reduction of profits as well, the production of export goods face various problems. The exports which can be the engine of development save the country from the single oil products. In this case, the production of import alternative products as the reduction of economical dependency of our country is limited to it becomes valueless by producing the cheap import goods and the producers become bankrupt. In addition, the imports of our country will be presented in the auction and the balance of current account will be decreased. So, the non-equilibrium of real exchange rate leads into the deduction in the balance account of payments. The obtained coefficient for other variables is one which is expected and their interpretation is presented as follows: In the traditional theory of macro-economy, increase of income increases the imports and leads into deduction in the balance account of payments. But in Iran, this income increase and also the production are resulted from the increase of oil income which is occurred by the oil export and this issue results into the surplus in the balance account of payments. For this reason, the obtained coefficient for Y in this evaluation is the positive value, 43730 which indicates that: increase of income leads into the surplus in the balance account of payments. In the global macro economy, rate of interest is being determined as the rate of market but in Iran, the rate of interest is being determined based on an order. In the other hand, the rate of interest introduces capital inside our country when there is not uncertainty and also the economic stability exists in our country. Based on the aforementioned points in the preface, the relationship of the rate of interest with the balance account of payments in Iran is negative and by considering the previous evaluation and the negative coefficient (-985), these sayings will be confirmed. The obtained coefficient for LSC is expected and it is equal -3970. The increase of prices increased the price of internal goods and decreased the request of internal goods by the foreigners

and also decreased the exports as well, resulted into deduction in the balance account of payments. So, increase of prices led into the deduction in the balance account of payments as the obtained coefficient confirms this viewpoint.

6 CONCLUSION

Controlling and regulating the real exchange rate and preventing its deviation from the balance path are one of the main problems of the developing countries. The economy of Iran due to taking the various policies of exchange which govern the different exchange system faced such problem. The policies which resulted into the bad control of real exchange rate and its deviation in the exchange system of Iran can stop the economic development, slow the rate of promotion/development, lack of balance in the balance account of payments and increase of inflation through mechanisms such as decrease of competitiveness of Iran in the global markets. The aim of this paper was to study the effect of non-equilibrium unit of real exchange rate on balance account of payments of Iran during the long term period (1976-2010). In this article, prior to evaluate the models, the considered variables were studied by the test of stationary and then, the index of real exchange rate deviation and the effect of this index on the balance account of payments as well, the pattern of payments balance were evaluated and the results of these evaluations showed that among the effective variables on the deviation of real exchange rate, the variable of the governments' costs had the highest significant effect on the real exchange rate and this variable can considerably affect the deviation of real exchange rate from its balance value. Since, the expenditures of the governments had the highest effect on the non-equilibrium among the other variables, so the use of Contractionary fiscal policy in some cases as the negative non-equilibrium is over-valued and also the use of Expansionary fiscal policy in some cases as the positive non-equilibrium is less-valued can decrease the non-equilibrium. The fitness results of payments balance pattern by the use of deviation index of real exchange rates show that this index had the negative effect on the balance account of payments and resulted into deduction and lack of balance in these accounts. So, deviation of real exchange rate as an economical issue exists in Iran and also it has the bad effect on the performance of the macro variable of economy in particular the balance account of payments.

APPENDIX



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