Analysis of Economic-Political Factors Affecting non Oil Export of Iran

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Abstract: The fluctuations in raw oil price in international market affect GNP, income per capita and other economic variables fluctuation. Results show that non oil export growth and factors affecting them are important. In this paper, economic-political variables of 25 countries trade side of Iran have been used during 1995-2005 period. Combined model has been used to evaluate of time series and panel data. In economic section, income per capita, population, consumer price Index and exchange rate affect non oil export. In political section, political instability influences non oil export. Result indicate that increase of Iran exports has depended by increasing in population, income per capita and consumer price Index in the trade side countries. But exchange rate political instability in these countries has caused decrease in Iran exports.

Key words: Non oil export · Iran · Economic variable · Political variable · Bilateral trade

INTRODUCTION

A large amount of Iran's exchange income has been provided by oil exports during last decades and the country's economy has obeyed completely the oil exports trend and has been critical by its changes. Oil price comes in to a country's economy as an exogenous variable and is followed by instability in exchange incomes and economy, as oil is a political good rather than an economic one and it's price will be change by every changes at international level. On the other hand, the oil resources finishing and problems caused by one product economy led to make policies regarding to non oil exporting increase [1].

Since exports development policy has more effect on countries' economic growth rather than imports substitution policy, then export incomes must have appropriate growth and stability making this policy plays its role well. It has been proposed in two last decades in Iran, the diversifying policy to economy and its resulting incomes. Its implementing has caused decrease in economic changes, employment and also increases in welfare. In recent years non oil exports growth is regarding to implementing this policy (Table 1). Then it seems essential to assess the effective factors on non oil exports in Iran.

Table 1: Non oil trade exchange in Iran (2000-2006)

Year	Value	Weight	Value change	Weight change
2000	18.00	40.3		
2001	21.79	43.7	3.79	3.4
2002	26.90	40.3	5.11	-3.4
2003	32.60	45.5	5.70	5.2
2004	43.00	49.4	10.40	3.9
2005	50.80	56.6	7.80	7.2
2006	57.70	75.3	6.90	18.7

Value: million dollars-million ton-Reference: Iran custom

Most of past literatures in this case in Iran attend to the effective economic variables on export growth. In this study also is investigated some effective political ingredient. Alesina and Rodrik [2] and Persson and Tabellini [3] argue that income inequality stimulates political instability, which in turn harms capital accumulation (investment) and economic growth. Alesina and Perotti [4] in a study of 71 countries for the period 1960-1985, concludes that "income inequality, by fueling social discontent, increases socio-political instability. The latter, by creating uncertainty in the politico-economic environment reduces investment." Consequently, lower level of investment impedes economic growth For instance Alesina and Tabellini [5] examine the effect of political instability and uncertainty on investment and capital flight. They argue that the possibility of

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government change to a new leader prone to tax capital and productive activities implies a substitution of productive domestic investments in favor of consumption and capital flight, which implies a reduction of domestic production. Other variables, shown by previous studies, that are affected by political instability includes: inflation [6], budget deficits [7], external borrowing [8], exchange rate regime [9] and property rights [10-11]. A recent study on the political determinants of international trade was conducted by Morrow *et al.* [12]. They tested alternative hypotheses on the effect of international politics on trade flows and found that democratic government structure and political alliances increase bilateral trade. Their emphasis was more on politics and political arrangements than on political instability. In another paper, Summary [13] also tests for the role of political variables in trade and concludes from the empirical results that "pure economic variables which reflect market forces are not the only factors affecting U.S. bilateral trade. Semi-economic and international political factors are also important Assessment of short and long run changes effect in exchange rate on pistachio export price in Iran has been done by Torkamani and Tarazkar [14] in time period of 1971-2000 using Auto Regressive Distributed Lag (ARDL) model. Their results of studying showed that exchange rate changes both in short run and long run is the most important effective factor on pistachio export price. Mahmood Zadeh and Zibaee [15] assessed the effective factors on Iran's pistachio exports in time period 1979-1982 using a Cumulative Analysis Model. They analyzed the effects of logarithmic index of exchange rate changes and retailing real price of pistachio on exports. They showed that exchange rate changes has no significant effect on exports supply of pistachio either in short run or long run, but the coefficient of pistachio retailing price variable is significant and positive in long run. Rahimi [16] assessed the effect of exchange rate changes and non oil exports price and also commercial balance on export price of different products using three Stage Least Squares method for years 1966-1997. The results of his assessments showed that exchange rate is the most important effective factors on export price of non-oil products.

MATERIALS AND METHODS

The effective factors on exports demand are generally devided in to political and economical factors groups. Population, mutual interchange rate, consumer price index and per capita income of importing countries are evaluated in economical factors group. Also political instability of importing countries affects on exports demand function. Factors such as changing the government and social and political disturbances increase political instability. Social changes, Coup D'etat and governmental crises provide requirements to change the government. War and Homicide lead to social crises and reunions, UN governmental strike and general rigors are factors leading to political disturbances [17]. Then the Cobb Douglas form of exports demand function for cross-sectional and time series data is the following:

$$\log x_{it} = \alpha + \alpha_i + \alpha_t + \beta_1 \log y_{it} + \beta_2 \log n_{it} +$$
$$\beta_3 \log e_{it} + \beta_4 \log x_{it-1} + D_K \sum_{K=1}^{3} PI + \varepsilon_{it}$$

Where $\alpha_i + \alpha_t$ = time series and cross-sectional effects (statistics concerning to country i at time t). X_{it} = real exports of Iran, y_{it} = per capita income (million dollar), n_{it} = population (thousand people) and e_{it} = real exchange rate for countries trading with Iran. PI shows the political instability. Three factors of changing the existing political party (social-PI), war and UN governmental reunions (violent-PI) for countries trading with Iran are included in this function as effective factors on political instability during studied years. Then panel data model was estimated using three methods of static Ordinary Least Squares, Fix Effect Dynamic and Fix Effect based on 2SLS (Two Stage Least Squares) and the quality of these models and their results were evaluated. an instrumental variable used for applying the third method. Finally we evaluated the coefficients concerning to explanatory variables for different countries during the definite time period separately.

Data: The required data for this study are provided for 15 important countries trading with Iran (in non-oil exports) during 1995-2005 and time series and cross-sectional variables were evaluated by panel model. These countries are the following: United Arab Emirates, Germany, France, Italy, Japan, India, Turkey, Belgium, Singapore, Spain, Saudi Arabia, Afghanistan, Pakistan, Iraq and Egypt.

RESULTS AND CONCLUSION

The estimation of data in the three methods mentioned above is shown in Table 2. We evaluated the reaction of dependant variable versus changes in independent variables. The results (column 2) showed

Table 2: Effect of Economical and Political instability on Iran non oil export

Variable	Static OLS	Dynamic FE	Dynamic FE-IV
Population	0.16	0.72	0.52
	3.20***	3.60***	1.44
Income per capita	0.09	0.78	0.72
	1.80*	7.80***	3.6***
Exchange-Rates	-0.25	-0.10	-0.20
	-1.78*	-3.33***	-2.00*
CPI	0.04	0.70	0.56
	1.00	4.11***	2.14*
Export(t-1)	0.55	0.16	0.59
	13.74***	5.33***	3.65***
Social-PI	-0.50	-1.28	-1.29
	-3.56***	-3.20***	-3.2***
Violent-PI	-0.17	-0.10	-9.47
	-1.21	-0.52	-1.60
War	-0.04	0.29	-8.86
	-0.13	2.33**	-1.55

Note: Numbers in parentheses are t-statistics

*** indicate significance at the1% level

** indicate significance at the5% level

*indicate significance at the10% level

that the greater population in countries trading with Iran, the greater market for consuming export goods of Iran, then the demand for export goods increases. Changing in existing political party as an index for social instability in countries trading with Iran causes decrease in their imports demand and has a negative effect on exports rate of Iran. On the other hand, the amount of country's exports per year has a direct relationship to the amount of exports of previous year. Income per capita of countries trading with Iran has also a positive effect on exports rate and increase it. Because increasing in income leads to increasing in purchase strength of individuals and as a result increasing in exports demand. Whatever increases the exchange relation of countries that have a trade relation with Iran imply a reduction at importable commodities price of mentioned countries. As a result Iran's exports decreases because of no stimulation for exports. As it is obvious, other variables are insignificant. The static ordinary least squares method of estimation does not include the unobservable definite effects of countries during simultaneous times and then is a biased and instable estimation. To resolve this problem, we used the fix effect dynamic method.

The results from this estimation shown in column 2 indicate that almost all of variables are significant in this model. The coefficient shown in columns 3 implies a direct relationship between Iran's exports growth and population, income per capita and consumer price index in countries trading with Iran. Exports at every year have a direct relationship with exports at previous year. Social instabilities (changing the existing political party) in countries trading with Iran have negative effect on Iran's exports and there is a reverse relation between real exchange rate of mentioned countries and Iran's exports growth. It has recorded the war variable in importing countries positively. Maybe it is because of decreases in domestic products of these countries resulting in increases in their imports during years in which war crises has been existed. The Fix Effect Method is an inter group estimation, that is identifies the separate effects of countries which were unobservable before. In another word, it estimates different coefficients for every member of panel data. This method has less bias in comparison to Ordinary Least Squares method. But no one of two mentioned methods is suitable for considering the lag of dependant variable as an endogenous variable in the model. To solve this problem we used Fix Effect Method based on 2SLS (Two Stage Least Squares). In this method, we used an instrumental variable. The results from this method are shown in column 4. Iran's exports to countries trading with Iran will increase 53 percent, if per capita income of mentioned countries increases 1 percent. It is obvious, more rich people are, more purchase strength will have, then more suitable market for purchasing import goods will occur. Iran's exports growth will decrease 20 percent, if real exchange rate of countries trading with Iran increases 1 percent. In another word the price of Iran's export goods will decrease. Then Iran will decrease its exports. Iran's exports to countries trading with Iran will grow 0.56 percent, f consumer price index in those countries increases 1 percent. If in a country change governor junta, decrease the Iran's export to that country. Other variables don't signify. The Fix Effect Method based on 2SLS (Two Stage Least Squares) was selected as the best method. We evaluated the unit root test, Autocorrelation, Co linearity and heteroscedasticity tests for other presented methods and they were solved if existed.

The effect of explanatory variables in different countries during decade 1995-2005, at the next stage, importing independent variables into definite coefficients for each section. Results are shown in Table 3. Population variable for Belgium and France countries at 1 percent level, for Spain, Singapore, Egypt, United Arab Emirates and Italy at 5 percent and for Afghanistan at 10 percent level were significant. In another word population

Table 3: Result of coefficient for countries separately

Country	C.P.I	Exchange rate	Income per capita	Population	Xport lag
United Arab Emirate	- 49.2 (-1.37)	-0.73 (-0. 17)	8.71 (2.14)**	24.14 (1.85)**	0.26 (0.38)
Spain	70.43 (2.14)**	0.06 (0.20)	16.56 (2.50)**	8.33 (2.007)**	-0.33 (-1.04)
Singapore	4.63 (0.84)	-5.90 (-1.39)	0.02 (0.006)	6.13 (2.16)**	-0.50 (-1.21)
Saudi Arabia	5.98 (0.26)	-1.69 (-0.06)	1.10 (1.55)	0.12 (0.007)	0.24 (0.58)
Pakistan	11.87 (1.61)*	0.01 (0.22)	-0.63 (-0.34)	-0.43 (-0.50)	0.01 (0.13)
Japan	12.09 (15.30)***	0.06 (1.38)	-3.94 (-1.18)	3.28 (0.87)	-0.01 (1.07)
Italy	0.21 (3.03)***	-0.25 (-3.89)***	-2.39 (-0.54)	4.02 (1.89)**	-0.05 (-0.25)
Iraq	1.20 (1.48)	0.14 (0.05)	0.74 (0.85)	1.32 (0.99)	-0.44 (-1.28)
India	10.34 (2.20)**	-0.07 (-1.13)	4.16 (4.56)***	0.74 (1.02)	-0.05 (-1.28)
Germany	-83.83 (-1.18)	0.64 (0.99)	57.94 (1.22)	23.19 (1.16)	-0.35 (-1.17)
France	5.70 (0.81)	-0.19 (-3.01)***	1.12 (0.53)	2.52 (2.80)***	0.18 (0.82)
Egypt	17.17 (2.06)**	-4.34 (-3.06)***	3.70 (2.11)**	3.64 (2.49)**	0.10 (0.78)
Belgium	7.58 (1.17)	0.14 (0.92)	-0.72 (-0.43)	0.60 (2.82)***	-0.10 (-0.85)
Afghanistan	-0.33 (-0.14)	-0.04 (-0.42)	0.54 (4.00)***	1.53 (1.66)*	0.55 (3.50)***
Turkey	3.31 (2.13)**	-0.12 (-0.48)	3.34 (2.06)**	0.42 (0.39)	0.50 (0.83)

Note: Numbers in parentheses are t-statistics.
*** indicate significance at the1% level   ** indicate significance at the5% level   *indicate significance at the10% level

increase in mentioned countries had a significant effect on Iran's exports growth and there is a direct relationship between these two. The income per capita variable in Afghanistan and India countries at 1 percent level and in United Emirates of Arab, Spain, Egypt and Turkey at 5 percent level are significant. The more income per capita of these countries is, the more Iran's exports to those is. Increasing the real exchange rate in Egypt, France and Italy countries, Iran's exports to these countries has been decreased. Consumer price index at different levels in Japan, Egypt, Spain, India, Turkey and Pakistan countries had positive effect on Iran's export trend. The lag variable of exports is significant for Afghanistan only. We assessed the effect of explanatory variables in different countries during decade 1995-2005, at the next stage, importing independent variables into definite coefficients for each section. Results are shown in Table 3. Population variable for Belgium and France countries at 1 percent level, for Spain, Singapore, Egypt, United Arab Emirates and Italy at 5 percent and for Afghanistan at 10 percent level were significant. In another word population increase in mentioned countries had a significant effect on Iran's exports growth and there is a direct relationship between these two. The per capita income variable in Afghanistan and India countries at 1 percent level and in United Arab Emirates, Spain, Egypt and Turkey at 5 percent level are significant. The more income per capita of these countries is, the more Iran's exports to those is. Increasing the real exchange rate in Egypt, France and Italy countries, Iran's exports to these countries has been decreased. Consumer price index at different levels in

Japan, Egypt, Spain, India, Turkey and Pakistan countries had positive effect on Iran's export trend. The lag variable of exports is significant for Afghanistan only.

To increase exchange incomes and improve the country's economy, exports to rich countries must increase, as Iran's exports amount to the countries trading with it has a direct relation to per capita income amount of these countries. Since they have more purchase strength then probably make a better market to purchase Iran's export products. On the other hand, since there is a reverse relationship between social instability (like changing the existing party) in mentioned

In Table 3 the results of coefficient for countries separately Seen and Iran's exports amount, then exporting non oil products to the countries politically stable will grow Iran's exports. Also Iran must export its non oil goods to the countries in which consumer price index is higher. Low exchange rate in the countries trading with Iran leads to increase in exchange rate in Iran. As a result increase in Iran's export goods price causes increase in non oil goods exports. Then the lowness of exchange rate in the countries trading with Iran is also a positive factor for Iran's exports growth. On the other hand, more the inflation rate in countries trading with Iran is, more Iran's exports to those countries is.

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