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Survey Effects of Oil Income on Nonoil Export (Case Study: Iran)

By Vida VARAHRAMI[†]

Abstract. There are so much oil and gas reserves in Iran. Therefore extraction from these reserves and sell extracted oil and gas in international markets causes to high oil income for Iran. Especially in some years which oil price increases, our oil income was too high. In this paper, we want to reveal that, is high oil income caused to rise nonoil export? For this aim, we use from data of 1970-2013 and with Johansen co-integration test and Error Correction Model (ECM) extract short run and long run relations. Results of estimation reveal that in Iran high oil income did not cause to many non oil export in long run and short run. Therefore, we should allocate oil income to import industrial machines and reallocate them to agriculture and industrial sectors which causes to rise national production which will cause to high non oil export. Then, in this condition, our needy exchanges are provided from non oil export and our dependence to oil income will be declined.

Keywords. Oil Income, Nonoil Export, Decline Dependence to Oil Income, Error Correction Model.

JEL. Q32, C12.

1. Introduction

In 1973 oil price increases and oil income of some countries which export oil, to be raised. Therefore upper oil price causes to enter oil income to some countries such as Iran. These oil incomes should inject to economic sectors such as agriculture and industry, but studies revealed that upper oil incomes did not cause to more investment in agriculture and industry sectors and more production in these periods. But in some gulf states more oil incomes from upper oil prices is causing to upper export and long run growth and upper oil incomes in these countries caused to capital accumulation, employment, more GDP and more non oil export.

Main aim of this paper is to survey “is upper oil income caused to more non oil export in Iran?” and “is there a long run co integration relation between oil income and non oil export in Iran?” Are short run and long run relations between oil income and non oil export of Iran directly?”

In this paper, we select period 1970- 2013 because oil price is so volatile and we select a long period to survey these volatilities. In this paper, we use from STATA software for modeling. Literature review is in part 2, method and estimations results in 3 and conclusion is surveyed in section 4.

2. Literature Review

Baky-Haskuee (2011) surveyed effect of oil income on exchange rate in Iran. He revealed that upper oil income caused to changes in income distribution. He

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showed that there is a long run relation between upper oil income and exchange rate in Iran.

Ifeakachukwu & Akindele (2013) surveyed oil income effect on non oil export of Nigeria in 1970-2011 and used from Johanson co integration between these variables and oil income had negative effect on non oil export of Nigeria.

Rima, Akpan, Offiong & Ojong (2013) surveyed relation between oil income shocks, non oil export and value added of industry sector of Nigeria for 1970 to 2010 and used from a VECM and co integration method for extracted long run and short run relations. Long run relation showed that oil income shock had negative effect on value added of industry sector and non oil export.

Dreyer and Rahmani (2014) showed that in oil exported countries, there was a co integration relation between GDP and investment. Oil income in these countries did not allocate to capital accumulation.

In this paper, we use from Johansen co integration and ECM method for to extract long run and short run relations.

3. Method and Estimation Results

In this paper we use from a model which introduced by Enoma and Isedu (2011) to survey oil income effect on non oil export in Iran. We assume that non oil income (OIR) (is value of non oil export), exchange rate (EXT) and oil income (OIR) as our variables.

Our data is for period 1970-2013 and is collected from central bank of Iran and Amar organization of Iran and use from STATA software for estimation.

At first, we survey stationary of our variables and use from Dicky-Fuler method as table 1, all of our variables are stationary with degree 1.

Table 1. Results of Stationary test

	First Differences	Level	Variables
I(1)	3/712	0/452	NOE
I(1)	2/651	0/671	EXT
I(1)	5/218	0/921	OIR

After, we use from Johansen co integration test, which reveals that there is a long run relation between our variables according to trace test and max-Eigen value test. Then we use from Error Correction Model (ECM) for extracted short run and long run relations between variables. Long run relation is revealed in equation (1):

$$NOE = 0/856 + \frac{0/004EXT}{[2/71]} - \frac{3/81OIR}{[3/71]} + e_t$$

$$R^2 = 0/85 \quad (1)$$

As equation (1) all variables are meaningful (t-statics is in caroché). As this equation, upper oil income is not causing to improvement of production process. According to equation (1) exchange rate has small positive and significant effect on non oil export of Iran.

At least, we extract residuals and first difference of our variables and estimate equation (2).

$$DNOE = 0/562 + \frac{0/0025DEXT}{[2/21]} - \frac{1/75DOIR}{[2/45]} + \frac{0/45e_{t-1}}{[3/12]}$$

$$R^2 = 0/79 \quad (2)$$

As equation (2), oil income has negative meaningful effect on non oil export in short run and negative short run effect is less than long run effect. Therefore perhaps oil income allocated to import consumption goods and has negative short run and long run effect on non oil export in Iran.

According to equation (2) coefficient of e_{t-1} is adjustment speed and is 45/0. It means that if we have a shock in short run, 45% of shock effect is omitted in each period.

4. Conclusion and Offers

In this paper we want to answer this question that " is more oil income of Iran caused to more non oil export?"

For survey this question, we use from data of 1970 to 2013, Johansen co integration tesr and ECM model for extraction short run and long run relations between oil income and non oil export in Iran.

Estimation results reveal that in short run and long run more oil income has negative effect on non oil export in Iran, and these great oil incomes are allocated to import consumption goods not to invest in economic sectors such as agriculture and industry and caused to decline in non oil export and economic growth of Iran. As offer, we can say that to decrease dependence to oil income we should decline our budget dependence to oil income and government should reallocate oil income to import new technology and machines which causes to increase non oil export and economic growth of Iran.

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