Trade Liberalization, Exchange Rate and Tax Revenue in Iran

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Abstract

Trade liberalization has frequently been the centerpiece of an economic development strategy in developing countries. Trade liberalization often entails a reduction and unification of tariffs and relaxation of quantitative barriers, and may be accompanied or supported by currency devaluation and domestic tax reform. On devising a program of liberalization, policymakers are often hindered in forecasting tax revenues because of the uncertainty regarding the effects of trade liberalization and exchange rate changes on fiscal outcomes. The relationship between trade liberalization, the exchange rate, and tax revenue is therefore an issue of great practical importance. This paper examines this relationship in Iran. We perform Pesaran and Shin method to test this relationship over 1976–2006. These results support the notion that trade liberalization accompanied by appropriate macroeconomic policies can be undertaken in a way that preserves overall revenue yield. At the end appropriate strategies are suggested. Flush

Key Words: Trade liberalization, Exchange Rate, Tax Revenue, Iran.

Introduction

The liberalization of trade is strongly advocated as the means through which economies can accelerate their economic development. The prevailing opinion in trade-policy spheres is that expanded trade leads to prosperity. Thus, the impact of trade liberalization on economic performance has been one of the topical issues of trade and development economics (Pacheco-Lopez, 2003).

Proponents of trade liberalization argue that it will expand markets for products and services introduce competition, reduce transportation and production costs which all, in turn, stimulate exports, increase production and benefit workers. This proposition is, however, usually based on a relatively simple model and stylized facts, far from the reality of the complex, multi-sectoral linkages of an economy. Moreover, results from empirical studies are still inconclusive, reflecting the conflicting effects of trade liberalization. The actual impacts of trade liberalization may increase or decrease welfare in an economy due to the existing taxation on foreign trade and other economic distortions in the 'border' and 'domestic' markets, as well as in production sector. The global market can bring unemployment, skew income distribution, and endanger the environment. Although trade liberalization is supposed to bring about long-term benefits by allowing countries to reap gains from specialization in production on the basis of their comparative advantage, a number of problems may occur. These can take the form of:

A balance of trade deficit (as lower tariff will encourage consumers to purchase increased quantities of the cheaper imports); a government budget deficit (the government receives less revenue from the lower tariffs and indirect taxes); overall there are several effects on domestic industries, distribution of income and welfare (Sugiyarto et al, undated).

The argument of trade liberalization is premised on the welfare gains that are predicted by theory to result from such measures. In theory trade liberalization is expected to enhance efficiency in production, international competitiveness and increase the volume of trade (Ebrill et al., 1999). Among other arguments for trade restrictions, trade revenue is affected by the removal of trade barriers. However in theory the direction of change in revenue is ambiguous. So the elimination of tariffs may lead to trade reform while preserving revenue by broadening the tax base.

According to Pritchett and Sethi (1994) higher tariffs create an incentive for importers to evade tariffs of seek exemptions. In turn, tax evasion affects the productivity of the tax system leading to a less than proportionate increase in tariff revenue. In the same vein, the reduction of tariffs may not always lead to a reduction in revenue. There is a possibility that lower tariffs may lead to an increase in the tax base by lowering the marginal

benefit to avoid taxation, hence a rise in revenue following liberalization. Ultimately the elasticity of tariff revenue with respect to tariff rates becomes an important factor in determining the outcome of liberalization. In theory, the final outcome may also depend on factors such as the price elasticity as well as the types of imports. For example, in most developing economies a large portion of imports constitute necessary capital goods, which are unresponsive to changes in their prices. In such cases, a reduction in trade restrictions seldom has any significant influence on the volume of imports in particular. One factor that is important in determining the direction of change in revenue is the substitution and income effects that follow a change in the price of imports as a result of lower tariffs. If residents prefer foreign commodities to domestic commodities and given that markets are open to foreign competition, we can expect the international trade tax base to rise. This in turn may lead to an increase in trade tax revenue following a reduction in trade restrictions (Matlanyane and Harmse, 2002).

In the other hand, Changes in the exchange rate translate directly into changes in domestic collections from imports and exports. For a given level of imports or exports, a more depreciated real exchange rate would increase the base of trade taxes in domestic currency terms, which would in turn increase trade tax collections. To the extent that a real depreciation leads to a lower level of imports, this would offset to some extent the higher collections induced by higher domestic currency values. If aggregate elasticities of import demand were inelastic in the short run, then the valuation effect would likely dominate, leading to an overall increase in revenues from imports. A real depreciation would also tend to increase exports, which would lead to an increase in revenues as both the valuation and volume effect would support each other. In general, however, the tax effects on imports would dominate those on exports, since export taxes are insignificant in most countries today. In the short term, imports are also likely to adjust more quickly than exports to a change in the value of the currency, reinforcing the importance of changes in import collections initially.

There are many studies dealing with macroeconomic impacts of import tariff reduction in economy of countries. Bautista and Thomas (1997) examined the impact of alternative trade policy adjustments on income and equity; they found that the worst possible situation for the economy as a whole would be to impose an import tariff. Cattaneo et al. (1999) simulated trade liberalization under fixed and free exchange rates, with possible compensation for the loss of tax revenue through an increase in taxation in the domestic market. The results obtained suggest the effects on income were very small. Davies et al. (1998) studied the short run consequences of trade liberalization in Zimbabwe and conclude that trade liberalization creates short run problems and this is the main reason liberalization has been so controversial. Chou et al. (1997) estimated a single-country model for Taiwan to evaluate the consequences of joining GATT. Results show that liberalization benefits the domestic economy significantly, with increases in GDP, consumption and welfare.

More recently, the impact of the liberalization on trade tax revenue has been a subject of debate. There are concerns about existing ambiguity in both theory and empirical evidence on the relationship between trade liberalization and trade tax revenue in the global context. In theory, liberalization in the form of lower tariff rates and the simplification of rates causes direct trade tax revenue loss, on the one hand, but on the other can also amount to an increase in volume of imports, and hence the tax base and revenue. The net effect depends on a host of factors, including the initial trade regime and the extent of increase in demand for imports. Empirical studies confirm this ambiguous relationship suggested in theory (see Tanzi, 1989; Ebrill et al., 1999; Glenday, 2000; Khattry et al., 2002; Agbeyegbe et al., 2003; Suliman, 2005).

Iran has applied for membership in the World Trade Organization (WTO), and with the passage of the law for the third Five Year Development Plan on 5 April 2000, the government of Iran has committed itself to the use of the market mechanism as a means of regulating foreign trade. Iran began this reform process, however, from a highly distorted trade and exchange rate regime. The principal distortions are: non-tariff barriers, the dual exchange rate system, and highly subsidized petroleum product prices. While applied tariff were low, non-tariff barriers (in the form of import licenses) restrained imports of all goods. A dual exchange rate system prevailed in which the market rate was more than four times the official rate. Finally, petroleum product prices in Iran were only about 10% of world market prices. Reforms are proposed or contemplated in all these areas, but it is not studied how these reforms under trade linearization will affect the tax revenues of country.

Iran's international relationships have faced a lot ebb and flow so that its efforts to reform its economic structures have not been welcomed internationally. As a result, the internal trend of reforms has encountered with instability as well (Gilanpour, 2006).

According to above discussions, studying the possible impacts of accession in WTO and consequently trade liberalization, are required because it will show the best way in front of policy makers in Iran and help them to manage various undesired aspects of process of trade liberalization such as government revenues from trade tariffs. So this paper attempted to find effects of trade liberalization and exchange rate on trade tax revenues of Iran.

Methodology

For the estimation, we consider two proxies for the degree of liberalization. The first is the traditional measure of openness, defined as international trade as a share of GDP. A higher ratio is taken to indicate greater trade liberalization. Ebrill et al (1999) and Adam et al (2001) employ the traditional measure of openness. The second is the collected tariff, measured by the ratio of import duties to the value of imports. With this measure, a decline in the index is taken to indicate greater trade liberalization (Agbeyegbe et al, 2004).

In this study we focus on government revenue and expenditure relationship. Considering this point, Iran center bank data of 1976-2006 have been used. Variables were GDP per capita (GDP), share of agriculture in GDP (Agri), share of industry in GDP (ind), government consumption share in GDP (G), term of trade, nominal exchange rate (e), inflation, (X+M)/GDP (Index1), import revenue to the value of import (Index2), government tax revenue as dependent variable (tax). All equations have been estimated by Microfit 4.0 Software. All variables are changed to constant of 1997.

Cointegration

The sample of this study is small, and then the bound testing approach to co-integration have been used because it is suitable for small sample size and were explored by Pesaran et al (1996) to examine the long run relationship variable. They suggested Unrestricted Error Correction Model (UECM) for testing co-integration between variables, and they showed this method is really suitable for small sample. Pesaran et al suggested their method based on Auto Regressive Distributed Lag (ARDL), and separated it to section:
1- Co-integration test 2-estimate the long run coefficients. In first stage the relation between variables is tested and in second stage the coefficients are estimated.
So ARDL model is changed to error correction model like below:

$$\Delta Y_t = \alpha_0 + \alpha_1 t + \sum_{j=1}^{p} \gamma_j \Delta Y_{t-j} + \sum_{j=0}^{q} \beta_j \Delta X_{t-j} + \Psi_0 Y_{t-1} + \sum_{i=1}^{k} \Psi_i X_{i,t-1} + \varepsilon_t \qquad (1)$$

K is the number of variables. Δ Is the difference operator, α_0 is drift, α_1 is the time's coefficient, γ and β are long run multipliers. The co-integration test hypothesis is:

$H_0 : \Psi_i = 0$ i=0, 1…, k

If the null hypotheses is rejected, then there is long-run relation between variables, but is accepted there is not any long-run relationship between variables. The F-test which has a non- standard distribution depends upon: 1- the non-stationary properties of the data 2- the number of independent variables and 3- the sample size. The critical values are available in Pesaran and Pesaran and Pesaran et al (2001).

Two sets of critical values are generated. One set refers to I(1) series and the other for I(0) series. here, the critical values for I(1) series are referred to as the upper bound critical values while the critical values for I(0) series are referred to as the lower bound critical values. When the calculated F-statistic is greater than the upper bound critical values the null hypotheses of "no co-integration" is rejected, and when the calculated F-statistic is lower than the lower bound critical values the null hypotheses of "no co-integration" is accepted.

Estimation:

For being sure about that which our variables are I(0) or I(1), stationary was checked by using ADF test. The results of this test are reported in table 1. Results show while TOT, Inflation, Index1, Index2 and Tax are stationary in their level (I(0)), GDP, Agri, Ind, G and e are stationary in their first level (I(1)).

TABLE 1: RESULT OF ADF TEST

Variable	DF	CV	Variable	DF	CV
GDP	-2.52	-2.96	ΔGNP	-2.91**	-2.62
Agri	-1.27	-2.96	Δ Agri	-3.88*	-2.97
Ind	-1.28	-2.96	Δ Ind	-3.35*	-2.97
G	-0.95	-2.96	Δ G	-4.31*	-2.97
TOT	-3.16	-2.96	-----	-----	-----
e	-0.32	-2.96	Δ e	-3.54*	-2.97
Inflation	-3.68	-2.96	-----	-----	-----
Index1	-4.25	-2.96	-----	-----	-----
Index2	3.65	-2.96	-----	-----	-----
Tax	4.37	-2.96	-----	-----	-----

*at 5% significance level
**at 10% significance level

It was told which UECM is used in order to test co-integration between variables. Table 2 shows the results of UECM model estimation. F statistic of our model is 10.42 ($F = 10.42$) which is more than F statistic in upper level of table that was suggested by Pesaran and Shin (1996), it reveals that there is a long-run relationship between variables because the calculated F-statistic is greater than the upper bound of critical values therefore the null hypotheses of "no co-integration" is rejected. Estimation did not have appropriate response to index1 (as a traditional index for liberalization).

TABEL 2- RESULT OF UECM METHOD

Variable	**Coefficient**	**t-statistic**
C	-25415.7	-2.0447**
Dtax (-1)	0.22123	1.2608
DGDP (-1)	-658556.7	-.36879
Dagri (-1)	-202506.1	-1.1286
Dind (-1)	70689.7	0.57586
DG(-1)	-3705.4	-0.12004
DTOT(-1)	0.038428	0.81104
De(-1)	-1.1161	-1.3930
Dinflation(-1)	-80.0714	-1.6188*
Dindex2(-1)	-264118.4	-1.8659*
tax(-1)	-1.2285	-3.7719**
GDP (-1)	3491186	2.1415**
agri (-1)	245308.5	1.6466*
ind (-1)	-246123.1	-1.7218*
G(-1)	37228.3	1.3111
TOT(-1)	-0.11968	-1.6*
e(-1)	1.7449	2.6324**
inflation(-1)	146.5982	1.5079
Index2(-1)	345255.6	3.7837**
F= 10.4281		

*at 5% significance level
**at 1% significance level

CUSUM test shows that estimated coefficients in our sample are stable at 5% significant level. The results of CUSUM test is shown in figure 1. (Note: the year of 1355 and 1385 is equal to 1976 and 2006).

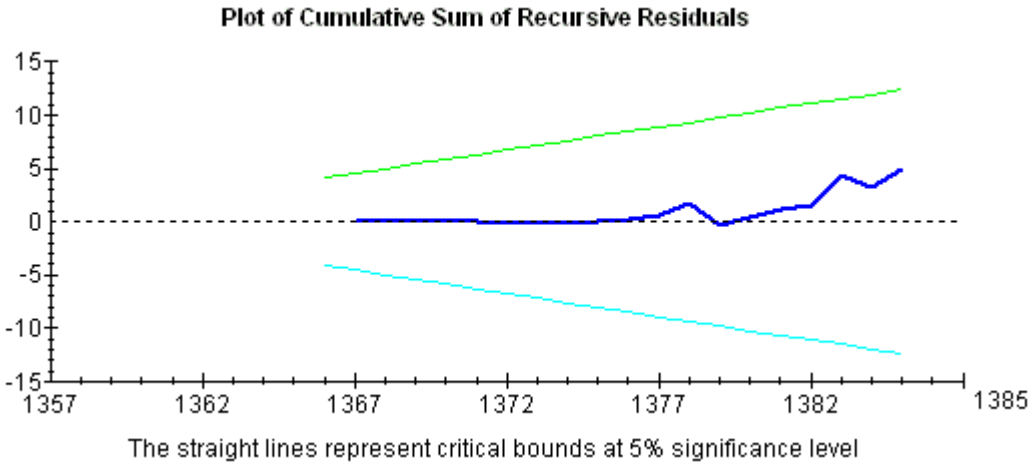

FIG.1: RESULT OF CUSUM TEST

Elasticity estimation:

Pesaran and Shin (1996) showed that UECM estimates consistent estimations from long-run coefficients that they can be used for calculating long-run elasticities. Thus in this study after estimating the model, long-run elastisities were calculated.

TABLE 3-LONG-RUN ELASTICITY

Variable	Elasticity
GDP	0.632296
agri	0.801339
ind	-0.72414
G	0.227481
TOT	-0.07595
e	0.127796
inflation	0.1017
Index2	1.166905

Table 3 reveals the result of elasticities calculation. It shows by increasing 1% in GDP the amount government tax revenues will pill up 0.63%. Considering the table, while the share of agriculture in GDP increases, the amount government tax revenues will increases too, increasing the share of industry in GDP will decrease government tax revenues. Government consumption expenditure has positive effect on government tax revenues. Term of trade has negative elasticity and shows when exports increase more than import the government revenues will reduce because tariffs revenues will be less than before. The elasticity of nominal exchange rate has positive sign and indicates by increasing nominal exchange rate which will make money devaluation, other countries goods price will be high for Iranians and therefore import will decrease. By decreasing import the achievable government revenue because of imported goods will reduce. Inflation has positive effect on government revenues because it will increase the price of domestic goods, however world

price will be lower than domestic one, thus Iranian imports increase and government tariff revenues of imported goods will pill up. Index2 which made by import revenue to the value of import, shows the degree of liberalization. This index shows a decline in the index is taken to indicate greater trade liberalization; therefore more liberalization makes less revenue for government.

Conclusion

The main aim of this study has been exploring trade liberalization, exchange rate and tax revenue relationship in Iran. To test the co-integration between variables, we use the UECM. The results of this model showed that money devaluation is a policy in order to face decreasing government tax revenues moreover liberalization will decrease Iran's government revenues because after liberalization, Iran should decrease and omit tariffs of imports gradually. It might be a threat for welfare. Nowadays that Iran is not the member of WTO is a good time in order to prepare for this condition and decision makers should provide and apply some methods to face decreasing of the government revenues.

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