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Trade Openness and Economic Growth in Iran

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ABSTRACT

The aim of this paper is considering the effect of trade openness on economic growth in Iran. For do it, we have used an empirical growth model by using regression analysis at 1971-2008 periods. Estimation results indicate that the trade openness has a significantly positive effect on economic growth in Iran.

KEY WORDS: Trade Openness, Economic Growth, Iran.

INTRODUCTION

The economy of Iran is the eighteenth largest in the world by purchasing power parity (PPP) and according to Iranian officials' claims is going to become the 12th largest by 2015. The economy of Iran is a transition economy with a large public sector and some 50% of the economy centrally planned. It is also a diversified economy with over 40 industries directly involved in the Tehran Stock Exchange. Yet, most of the country's exports are oil and gas, accounting for a majority of government revenue in 2010. A unique feature of Iran's economy is the presence of large religious foundations, whose combined budgets make up more than 30% of central government spending
Iran has held observer status at the World Trade Organization (WTO) since 2005. Although the United States has consistently blocked Iran's bid to join the WTO since it first asked for membership, the country was accepted in a goodwill gesture to ease nuclear negotiations between Iran and the international community.

Do open economies grow faster than closed economies? Almost all empirical growthstudies have provided an affirmative answer to this question.Providing conclusive empirical evidence on the intuitively positive causal effect of trade on growthhas been a challenging endeavor, complicated by a multiplicity of factors; see, for example,Winters (2004) for an overview. Most of the literature has used cross-country evidence thatsuffers from numerous shortcomings, related to both the measurement of openness andeconometric modeling.

Following Barro's (1991) seminal paper on growth regressions, several prominent cross-countrystudies established a positive link between trade openness and growth; these studies includeDollar (1992), Sachs and Warner (1995), and Edwards (1992, 1998). Similarly, Vamvakidis (2002)finds, in a historical context, evidence that trade is associated with growth after 1970 but notbefore. In a stern review of the cross-sectional literature on trade and growth, Rodriguez and Rodrik (2001) criticize the choices of openness measure and weak econometric strategies. Theyfind little evidence that open trade policies as measured in the aforementioned contributions aresignificantly associated with economic growth once they correct for the weaknesses they pointout.Harrison (1996) shows that most of the explanatory power of the composite opennessdummy assembled in Sachs and Warner (1995) comes from the non-trade components of thismeasure.

DeJong and Ripoll (2006) take up one of the suggestions voiced in Rodriguez and Rodrik (2001)and construct an alternative measure of direct trade barriers—ad valorem tariff rates—that isarguably more immune to the Rodriguez-Rodrik critique. They find that the relationship betweentrade barriers and income is non-linear for a panel of 60 countries. In particular, the correlationbetween trade barriers and income is negative for rich countries but positive (albeit statisticallyweaker) in poorer countries. Salinas and Aksoy (2006), however, criticize this indicator on thegrounds that it is not a rigorous representation of the tariff structure and that it does not captureother trade barriers, such as non-tariff barriers—in fact they find a low correlation between cross-country measures of unweighted average tariffs and the frequency of non-tariff barriers.

From a methodological perspective, deep skepticism has been brought to bear againstcross-country evidence on the trade-growth issue. In addition to the citation in the previous section, Bhagwati and Srinivasan (2002, p.181) point out that "cross-country regressions are apoor way to approach this question" and that "the choice of period, of the sample, and of theproxies, will often imply many degrees of freedom where one might almost get what one wants ifone only tries hard enough!" Levine and Renelt (1992) and Temple (2000) apply extreme-

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boundsanalysis to show that the results of cross-country growth regressions are not robust to even smallchanges in the conditioning information set (i.e., right-hand side variables).

Focusing on identification issues, cross-country studies suffer from two major weaknesses: reversecausality (that is, liberalized trade causes higher economic growth as opposed to more trade beingthe result of economic growth) and endogeneity (e.g., country-specific omitted characteristicsaffecting both openness and growth). Dealing with endogeneity has triggered a substantialamount of interest in the use of instrumental variables (IV). This family of models suggests using regressors that have an impact on openness, but are uncorrelated with income. Using gravity models, Frankel and Romer (1999) and Irwin and Tervio (2002) find a positive effect running fromtrade to growth by isolating geographical components of openness that are assumed independentof economic growth, including population, land area, borders, and distances. But even thesepresumably exogenous instruments could have indirect effects on growth, thereby biasing the estimates. Dollar and Kraay (2003) suggest estimating the regressions in differences and usinglagged openness as instrument. However, the simultaneity bias in the trade-growth context couldextend over time—trade today may depend on growth tomorrow via imports for investmentpurposes—and using lagged variables as instruments is unlikely to fully correct for the bias.

As an alternative approach to classic IV, Lee, Ricci, and Rigobon (2004) use identification through hetero skedasticity in a panel framework, and find that openness has a small, positive, butnot particularly robust effect on growth. They have to rely, however, on the non-testableassumption that the structural shocks in the system of simultaneous equations are uncorrelated.Using the same technology, Rigobon and Rodrik (2005) find that trade openness (defined as thetrade share in GDP) has a significant negative effect on income.

Another strand in the trade and growth literature seeks to improve upon cross-country regressionsby employing panel techniques, geared at controlling for (time-invariant) unobservable countryeffects. An early example is Harrison (1996), who uses fixed-effect estimators and finds a strongerimpact of various openness indicators in a panel setup compared to standard cross-countryregressions. Wacziarg and Welch (2003) further the discussion in the literature in three directions:they update, expand, and correct the trade openness indicator in Sachs and Warner (1995); theyshow that the Sachs and Warner (1995) results of a positive effect of trade on growth break downif extended to the 1990s in a cross-sectional setup; and they provide evidence in a panel contextthat, even in the 1990s, there is a positive effect of trade on growth when the analysis is limited towithin-country effects.Slaughter (2001) uses a diff-in-diff approach to infer the effect of four veryspecific trade liberalization events on income growth dispersion, and finds no systematic linkbetween trade liberalization and per capita income convergence. Giavazzi and Tabellini (2005)also apply a diff-in-diff approach to study the interactions between economic and politicalliberalizations. They find a positive and significant effect of economic liberalization on growth,but they claim that this effect cannot be entirely attributed to international trade, asliberalizations tend to be accompanied by other policy improvements.

Billmeie and Nannicini (2008) Studied the impact of trade openness on growth based on cross-countryanalysis—which lacks transparency—or case studies—which lack statistical rigor. They applied atransparent econometric method drawn from the treatment evaluation literature (matchingestimators) to make the comparison between treated (i.e., open) and control (i.e., closed)countries explicit while remaining within a statistical framework. Matching estimatorshighlight that common cross-country evidence was based on rather far-fetched countrycomparisons, which stem from the lack of common support of treated and control countries inthe covariate space. They therefore advocate paying more attention to appropriate samplerestriction in cross-country macro research.

The aim of this paper is considering the effect of trade openness on economic growth in Iran. For do it, we have used an empirical growth model by using regression analysis at 1971-2008 periods.

METHODS

We argue that a model particularly well suited to capture the presence of contingency effects and to offer a rich way of modeling the influence of financial markets on the dynamics of FDI and growth is the following threshold specification.

$$\dot{g} = \alpha X_t + \beta_1 Open_t + e_t$$

where $\dot{g}$ is the average growth rates of real GDP over the 1971-2008 period, Open is the index of openness that is calculated as the share of "exports plus imports" in GDP, and X_t is a vector of variables hypothesized to affect output growth, which includes oil revenues growth, population growth rates, investment.

We have used OLS method for estimation parameters. We have used data from Central Bank of Iran website.

RESULTS

Table 1 indicates the estimation results as following:

Table 1. Estimation Results

Dependent Variable: GROWTH				
Method: Least Squares				
Date: 10/10/11 Time: 09:19				
Sample (adjusted): 1976 2007				
Included observations: 32 after adjustments				
Convergence achieved after 20 iterations				
Newey-West HAC Standard Errors & Covariance (lag truncation=3)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.137752	0.079860	-1.724913	0.0964
OPEN	0.613914	0.352386	1.742166	0.0933
GL	1.289460	1.110707	1.160936	0.2562
I	0.547286	0.326272	1.677390	0.1054
GOIL	0.043335	0.021883	1.980327	0.0583
AR(1)	0.413676	0.158326	2.612807	0.0147
R-squared	0.451345	Mean dependent var		0.030418
Adjusted R-squared	0.345835	S.D. dependent var		0.070646
S.E. of regression	0.057139	Akaike info criterion		-2.719303
Sum squared resid	0.084886	Schwarz criterion		-2.444478
Log likelihood	49.50885	Hannan-Quinn criter.		-2.628206
F-statistic	4.277726	Durbin-Watson stat		1.783711
Prob(F-statistic)	0.005685			
Inverted AR Roots	.41			

Table 2. Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.431604	Prob. F(2,24)	0.6544
Obs*R-squared	1.110986	Prob. Chi-Square(2)	0.5738

Table 3. Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.648574	Prob. F(4,27)	0.6328
Obs*R-squared	2.805186	Prob. Chi-Square(4)	0.5909
Scaled explained SS	1.841010	Prob. Chi-Square(4)	0.7650

Table 4. Normality Test

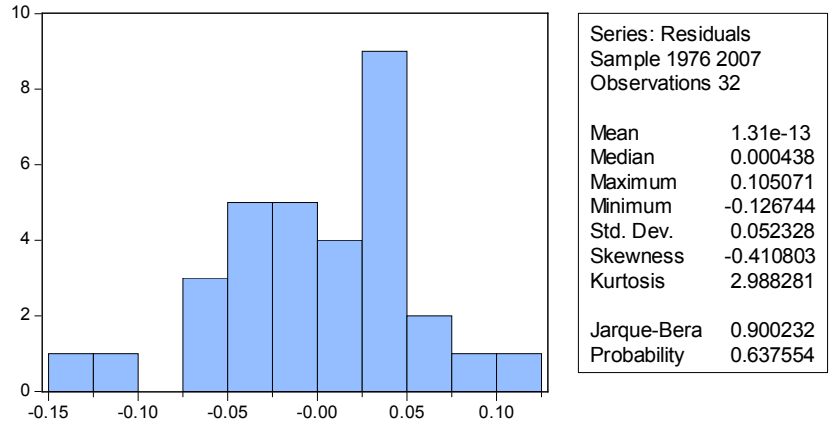


Table 5. Ramsey RESET Test:

F-statistic	0.579335	Prob. F(1,25)	0.4537
Log likelihood ratio	0.733088	Prob. Chi-Square(1)	0.3919

Table 6. Actual, Residual and Fitted

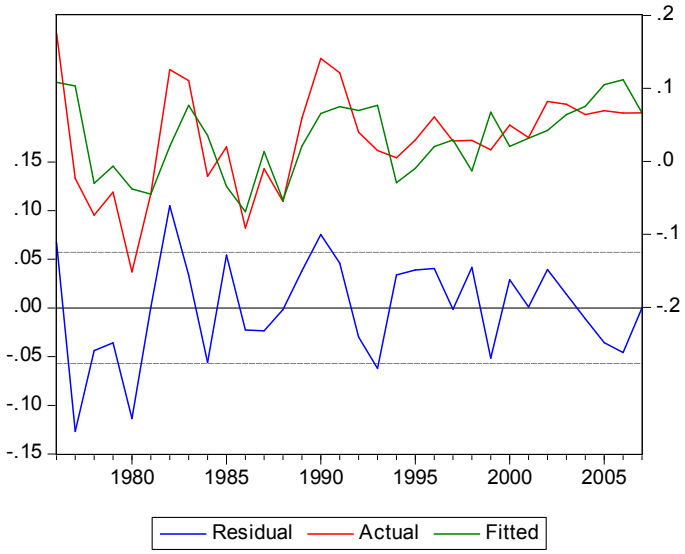
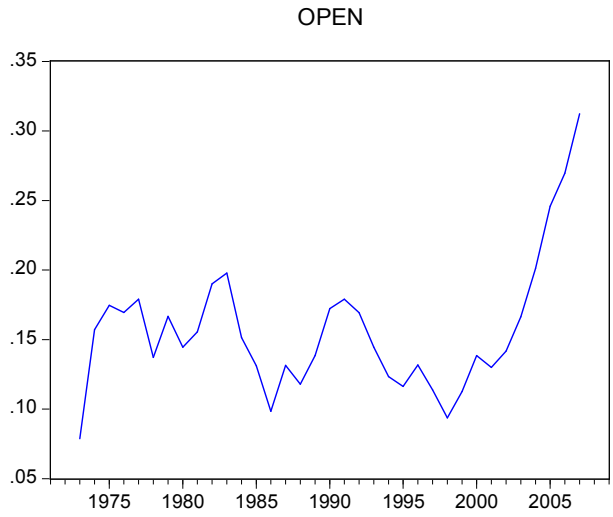


Table 10. Trade Openness Trend



Estimation results indicate that the trade openness has a significantly positive effect on economic growth in Iran. Investment and oil revenue growth have a significantly positive effect on economic growth in Iran. Trade openness series show that trade openness increased in recent years.Breusch-Godfrey serial correlation LM test and Heteroskedasticity test: Breusch-Pagan-Godfrey indicates that no serial correlation and Homoskedasticity in residuals respectively. Normality test indicates normality distribution in residuals. Ramsey RESET test shows no specification error in growth model.

Besides an index for trade integration, this ratio also measures the revealed trade policy of government (Helleiner, 1990). The openness ratio cannot only be affected by trade restrictions but also changes when the foreign exchange reserves or exchange rates fluctuate. This measure, therefore, shows the actual performance of foreign trade in a country. Trade liberalization, of course, will enhance the process of integration into global markets and one may expect to consider lower incentives for smuggling. However, trade liberalization requires transparency and efficient enforcement of law to impede increasing illegal trade under the cover of legal trade. As Pitt (1981) predicted, the greater the legal trade, the easier it is to hide smuggling from enforcement agencies and smuggling would be less costly. This issue will be more serious when the foreign trade section and customs lack transparency and enforcement of the law is weak. The Iranian experience on the increase of illegal imports through free trade zones refers to such institutional shortages for benefiting from more trade openness (Arabmazar, 2007). Following conventional practices in most of the literature on globalization, trade integration is calculated as [non-oil exports + imports]/non-oil GDP. The average of openness index for the pre-revolution period (1970-79), the Iraq-Iran war period (1980-1988), and the post-war period (1989-2004) is 40, 41, and 31 percent, respectively. The data for calculation of this index are from central bank of Iran.

Conclusion

The aim of this paper is considering the effect of trade openness on economic growth in Iran. For do it, we have used an empirical growth model by using regression analysis at 1971-2008 periods.Estimation results indicate that the trade openness has a significantly positive effect on economic growth in Iran. Investment and oil revenue growth have a significantly positive effect on economic growth in Iran. Trade openness series show that trade openness increased in recent years. Breusch-Godfrey serial correlation LM test and Heteroskedasticity test: Breusch-Pagan-Godfrey indicates that no serial correlation and Homoskedasticity in residuals respectively. Normality test indicates normality distribution in residuals. Ramsey RESET test shows no specification error in growth model.

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